PATERNAL CHILD-FEEDING ATTITUDES/IN RELATIONSHIP TO THE OBESE OR LEAN STATUS OF THEIR ELEMENTARY SCHOOL AGE SON

by

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CHAPTER I

INTRODUCTION

The significance of childhood obesity has received extensive documentation by health professionals. The prevalance of childhood obesity has been estimated to be from 3% to 25% (Mayer, 1968; Collipp, 1975; Forbes, 1975; Hafen, 1981) with a 50% probability that an obese child will become an obese adult (Vuille and Mellbin, 1979). Excessive weight in adults has been associated with Coronary Heart Disease, Vascular Abnormalities, Type II Diabetes Mellitus, Pulmonary Compromise, Renal Disease, and Degenerative Arthritis.

The nature of the psysiological, psychological, cultural, and sociological factors associated with childhood obesity are numerous and diverse. Vuille and Mellbin (1979) revealed that obesity in ten year old girls was influenced by heredity and physical activity, whereas appetite and environmental conditions were prominent predicators of obesity in boys.

A possible predictor of childhood obesity is parental influence. This influence has been suggested by the documentation of a relationship between parental food attitudes and the child's food preferences. Several authors (Lewin, 1943; Hinton, 1962; Litman, 1964; Hendel, 1965; Sims, 1972; Walker, 1973; McWilliams, 1975; Schafer, 1981) support the mother as the primary influence on a child's food preference. In contrast, several authors (Byran and Lowenberg, 1958; McWilliams, 1975; Martin, 1980) suggest the father to be the major factor influencing a child's food preference. It was suggested that only foods liked by the father were served at meals by the mother.

The maternal use of food in relationship to the status of obesity or leanness of the college age daughter was evaluated by Rogers (1977). Four behavioral situations with the maternal use of food as either (a) a reward, (b) a punishment, (c) a soothing agent, or (d) as expression of affection were assessed in relationship to the triceps skinfold thickness of the daughter. The study reported low correlations between the variables examined. However, the author suggested that certain behavioral situations may influence obesity.

Classification of obesity in children is based on several interpretations. Weight greater than 20% for expected height and age was utilized by Court, Dunlop, Reynolds, Russell, and Griffiths (1976) for the classification of obesity in adolescence. Since the onset of puberty is associated with a change in body fat content, triceps skinfold thickness measurements were not appropriate indicators of obesity in adolescence. However, the triceps skinfold thickness appeared to be a reliable measurement of obesity in younger children (Selzer and Mayer, 1965; Garn, Clark, and Guire, 1975; Martin and Beal, 1978).

No study has reported the relationship between the paternal use of food in a behavioral situation and an obesity measurement of the respective son. The present study was designed to assess the relationship between the father's use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection and the triceps skinfold measurements of the respective sons.

Statement of the Problem

This study was designed to assess the child-feeding attitudes among fathers of elementary school age sons and their relationship to the sons'

status of obesity or leanness. The child-feeding attitudes were based on a revision of the Child Feeding Opinion Questionnaire (Rogers, 1977), which consisted of thirty Likert-type items. The revised thirty Likert-type items pertained to the paternal use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection.

The Subproblems

This study consisted of three subproblems. They were as follow:

1. The first problem was to revise the Child-Feeding Opinion Questionnaire prior to administration to the fathers.

2. The second subproblem was to obtain anthropometric data of height, weight, and triceps skinfold thickness of each elementary school age son participating in the study.

3. The third subproblem was to analyze and interpret the data in order to evaluate the relationship between paternal child-feeding attitudes and the level of obesity or leanness in elementary school age sons.

The Hypothesis

The research hypothesis stated that paternal child-feeding attitudes, reflected in the Fathers' Child-Feeding Opinion Questionnaire, were attitudes which revealed a relationship with the status of obesity or leanness of the elementary school age son.

The hypothesis was based on the assumption that the anthropometric measurement, triceps skinfold thickness, was a appropriate measurement of obesity or leanness of the elementary school age son.

The null hypothesis stated that there was no relationship between paternal child-feeding attitudes and the status of obesity or leanness in the elementary school age son at the $p.<.05$ level.

Questions To Be Answered

The questions concerning paternal child-feeding attitudes and their relationship to the sons' status of obesity or leanness were:

1. Is there a relationship between the triceps skinfold thickness of the sons and their fathers' attitudes toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection?

2. Is there a relationship between the sons' degree of obesity or leanness and their fathers' attitudes toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection?

3. Is there a relationship among fathers' scores on the following Fathers' Child-Feeding Opinion Questionnaire subscales: (a) Reward, (b) Punishment, (c) Soothing agent, and (d) Expression of affection?

4. What is the validity of the Fathers' Child-Feeding Opinion Questionnaire?

Delimitations

This study was limited to the fathers of elementary school age sons in the Public School System of Chesapeake, Virginia. The sons were between the ages of six to eight years and were enrolled in the second grade of the five preselected public elementary schools in Chesapeake, Virginia in 1984. The five schools were located in a census tract with an income range from $18,412 to $26,364.

Definition of Terms

The following definitions were established for this study:

Father is the male caretaker most frequently associated with the son during the use of food as a reward, punishment, soothing agent, or an expression of affection.

Attitude, as defined by Krech (1978) is:

> An enduring system of positive or negative evaluations, emotional feelings, and pro or con tendencies with respect to a social object (p. 375).

Obesity refers to triceps skinfold thickness values at or above the 75th percentile for age and sex according to the percentiles of the Health and Nutrition Examination Survey of 1971-1974 (Frisancho, 1981).

Leanness refers to triceps skinfold thickness values at or below the 25th percentile for age and sex according to the percentiles of the Health and Nutrition Examination Survey of 1971-1974 (Frisancho, 1981).

Subjects refer to the fathers and sons participating in the present study.

Abbreviations

The following abbreviations are utilized for this study:

CFOQ is the abbreviation for the Child-Feeding Opinion Questionnaire.

FCFOQ is the abbreviation for the Fathers' Child-Feeding Opinion Questionnaire.

CPSS is the abbreviation for the Chesapeake Public School System.

Assumptions

There were three assumptions used in this study:

1. The first assumption was that the Fathers' Child-Feeding Opinion Questionnaire reflected paternal attitudes, which were related to the status of obesity or leanness of the elementary school age son.

2. The second assumption was that the son's triceps skinfold thickness represented an appropriate measurement of obesity or leanness in a boy aged six to eight years.

3. The third assumption was that the sample of subjects for this study represented the population in the five preselected elementary schools in the Chesapeake Public School System.

CHAPTER II

REVIEW OF LITERATURE

The physiological, psychological, cultural, and sociological factors associated with childhood obesity are numerous and diverse. The factors have resulted in a variety of definitions and measurements of childhood obesity by professionals. The present study is concerned with one factor - paternal child-feeding attitudes toward their elementary school age son and the relationship of that factor to the son's degree of obesity or leanness.

Since the literature revealed no direct studies of this factor, this literture review contains related studies or parental influence on children's eating habits, variables affecting parental influence, prevalence of childhood obesity, and appropriate measurements for the corpulence of children. No reviews of physiological, psychological, or medically related obesity treatments of humans and animals are reported.

Parental Influence on Children's Eating Habits

The development and significance of paternal influence on children's eating habits have been reported by several researchers. Relationships between parents' influence and their children's eating habits are varied and range from little or no correlation to significant correlation.

Several authors (Pumpian-Mindlin, 1954; Pilgrim, 1961; Peryam, 1963; Glaser, 1964; Yperman, 1979) suggested that food preferences are developed as a result of many factors, especially cultural and familial. Children's likes and dislikes of certain foods have developed through the association among family members. In addition, prior to sixteen

years of age, those family food experiences were major contributing factors to children's food preferences.

In support of parental influence on the development of children's food habits Gifft (1972) stated:

> Because basic food habits and attitudes are established early in life, the family in which a child is raised remains the prepdominant influence. Parents, both deliberately and unconsiously, teach their children how to behave in regard to food, and what they teach reflects fairly accurately what they themselves have learned (p. 77).

Gifft further reported several types of securities related to food choices learned by parents. They were as follow:

1. Biological securities provided freedom from hunger or the fear of hunger.

2. Emotional securities were associated with relief of bodily discomfort and the provision of comforting via bodily contact. As infants, parents acquired conditioned responses to food, in which they perceive love or affection. In later years, food may be used by children and adults as an emotional weapon or crutch.

3. Sociological securities designated many cultural meal rules.

4. Additional securities were the use of foods as a source of communication, as a means of self expression, as a basis for "fad" type trends, and as a source of sensory pleasure.

Several studies revealed similar findings to those of Gifft. Brown (1967) reported a study on 101 nutrition students at the University of Illinois. The study described food preferences and a history of those food preferences. The study revealed four family oriented factors influencing the students' food choices. They were: (a) variety of foods served at home, (b) likes and dislikes of foods by family members, (c) appearance of foods, and (d) parental policies concerning foods.

Stare and McWilliams (1973) discussed factors affecting a person's

food preference. They were: (a) foods available in the locale, (b) foods preferred by other family members, especially parents, (c) foods purchased and prepared that reflect parental and cultural attitudes, as well as family income, (d) foods permitted by religious or cultural dictate, and (e) foods whose taste, texture, or color appeal particularly to the individual.

A specific study supporting parental influence was reported by Burt and Hertzler (1978). Forty six families were studied by questionnaire to determine the influence of each parent on the kindergarten child's food preferences. A chi-square test for comparing paired samples was used to investigate the mother's and father's influence on the child's food preferences. Results indicated that only two foods (chicken noodle soup and pizza) at the 0.10 level of significance were more influenced by the mothers than the fathers. The research suggested that mothers and fathers were equal in their degree of influence on the child's food preferences. However, the study indicated that a primary reason for equal parental influence may be explained by the high priority given to the father's food likes in family menus, even though the mother was the principal menu planner.

A lack of relationship between strong parental influence and children's eating habits was reported by Breckenridge (1959), in a study of fifty one children, twenty four boys and twenty seven girls, and their parents. Each person replied to a twenty five item questionnaire, representing food groups and some subgroups. Results are summarized according to Table 1. Even though disliked foods were similar between parents and their children, the data suggested that a significant difference for foods liked and indifferent foods was found between children and parents.

Table I

Comparison of mean scores of foods children liked, disliked, and were indifferent to, according to responses of children and parents.

RESPONSE	MEAN SCORE		DIFFERENCE	SIGNIFICANCE OF DIFFERENCE
	Children	Parents		
Like	19.49	16.13	3.36	<1% level
Dislike	2.70	2.87	.17	none
Indifferent	1.59	4.47	2.88	<1% level

Note.-- Cited in Breckenridge, 1959, p. 708.

A basic explanation for this finding was not reported. Yet, the author suggested that several factors influenced children's food habits other than their parents.

Factors influencing children's food preferences other than their parents were reported by Birch (1980) in a study involving 128 preschool children, their parents, and unrelated adults. Rank order preferences given by the children were correlated with 10% of the mother-child, 6% of the father-child, and 8% of the unrelated adult-child. The findings revealed low correlations between parents and their children's preferences, which were reflected by a commonality of preference within a subculture group. Therefore, the parents were not the dominant influencing factor.

Maternal Influence

An early report of dominant maternal factors associated with child food attitudes was cited in the Lewin Food Anchorage Test (Lewin, 1943). Lewin, research member at the University of Iowa's Child Welfare Research Station, developed a rapid method for assessing a child's food likes and dislikes in relationship to the child's parents, teachers, authorities, and contemporaries. This test suggested a primary reliance on mothers, followed by parents, fathers, siblings, and technical authorities as a point of reference influencing food habits. Findings by Litman (1964) supported those findings of Lewin. A study of a representative sample of 1039 from 5700 Minnesota school children indicated that the sanctioning of food behavior appeared to be essentially a family centered activity with the mother most frequently (90%) named authority figure.

Maternal influence has been cited by several studies as the nucleus of children's eating habits. Hinton (1962), Hendel (1965), Sims (1972), Walker (1973), McWilliams (1975), and Schafer (1981) reported the mother as the predominant figure in the home influencing food behavior and attitudes of school children. Since a school lunch may be the only meal not provided by the mother, the remaining two meals and afternoon snack were reported as significant factors which influenced a child's eating habits. Many mothers tended to serve only those foods acceptable to their families. In addition, foods unfamiliar to or disliked by mothers were unfamiliar to the children.

In contrast, Phillips and Kolash (1980) reported that thirty six mothers of preschool children were not solely responsible for the development of vegetable preferences of young children. Twelve vegetables were selected to determine the relationship between the mother's and child's rating of the vegtable (Table 2). The study indicated that the mothers of preschool children were not the significant factors influencing their children's eating behavior when a day care center fed their children.

Table 2

Relationships between mothers' ratings of selected vegetables for their children and the children's ratings of the vegetables.

VEGETABLE	r Value[a]
Broccoli	0.866***
Lima beans	0.656***
Carrots, raw	0.442**
Beets	0.411*
Cauliflower, raw	0.363
Greens	0.361
Spinach	0.348
Mashed potatoes	0.178
Green pepper, raw	0.179
Green beans	0.024
Carrots	0.023
Corn	0.008

[a]Pearson product-moment correlation (17)

*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$

Note.--Cited in Phillips and Kolash, 1980, p. 195.

Paternal Influence

In contrast to the mother's influence on children's eating habits, the work of Byran and Lowenburg (1958) showed that the father's food preferences determined the variety of foods served at a meal. A selection of thirty six foods rated by the father for the child were reported in four groups, all foods, vegetables, fruits, and protein foods (exclusive of milk). One correlation of significance ($p.<.05$, coefficient of correlation .28) was demonstrated in relationship to vegetables. The children disliked the same vegetables as the father. The authors suggested that this was not sufficient basis to draw a general conclusion that the father's dislike of vegetables was responsible for the child's dislike of vegetables. However, 89% of the mothers infrequently offered the father's disliked foods. Therefore, indirectly, the father influenced the type of food offered at a meal. This same conclusion was reported by McWilliams (1975), who stated that the father can influence his children's likes and dislikes at the table. His food preferences are often transmitted to his children.

In support of paternal influence, Martin (1980) reported at the American School Health Association Convention that:

> .....the father's preference determines the family food habits. I remember asking my four year old nephew why he was not eating mushrooms in a casserole which his mother had prepared. He was carefully picking them out one by one. He told me that he did not like mushrooms. I said "But you're not eating them, how do you know that you don't like them?" His reply was, "My Daddy doesn't like them." (p. 13)

Variables Influencing Parents

The literature revealed several variables influencing parental attitudes in relationship to children's food habits. Cultural factors, in-

come, education of mothers, urbanization, reward, punishment, affection, and comfort appeared to have the largest influence on the development of food habits in both parents and children.

Several authors (VanSchaik, 1964; Pumpian-Mindlin, 1954; Gifft, 1972; Stare and McWilliams, 1973) reported the significance of social and cultural factors related to parental attitudes and children's food choices. Stare and McWilliams (1973) suggested that food was a symbol of hospitality, friendship, status, and snob appeal. Different and/or expensive foods were served by families when guests were present in the home, and during special holidays or occasions.

Babcock's (1961) Review at the 43rd annual meeting of the American Dietetic Association cited an exemplary case study of a twenty five year old Italian woman and her eight month old baby, weight thirty five pounds. Although the child had pneumonia, the mother failed to recognize the illness. Based on her culture, large children are better, and therefore healthier.

Income and maternal education influenced parents' attitudes in relationship to their children's nutritive status. Futrell, Kilgore, and Windham (1971) reported a positive correlation ($p. < .05$) between maternal education and the nutritional status of the preschool child. The study reported nutrition status as average caloric intake, ascorbic acid intake, serum calcium, and total serum protein. Of the 133 families reporting their income, 90% had per capita incomes less than $750 and 66% below $500 per person per year. The highest nutritive value of daily intake fell within the income levels above $750 per capita. Results suggested that more nutritious foods were served to young children when

a higher income and level of maternal education were present.

Similar findings in relation to income were reported by Thomas (1980) in Nutrition and Lifestyles. The author reported a food and nutrition survey of 300 housewives in the United Kingdom from 1958 to 1973. The review suggested that housewives of greater income status possessed greater nutrition knowledge.

Concurrently, Myres and Kroetsch (1978) reported that a lower family income index in Canada correlated with decreased food nutrient intake, especially vitamin C and folate. However, the authors stated that an income index alone cannot be used as a primary explanation for lower nutrient intake and status. Family lifestyles and attitudes were significant determinants of nutritional wellness.

In addition to income and female education, Hendel, Burk, and Lind (1965) reported urbanization and the number of children in the family as important variables influencing the diets of 302 Ohio school children. Final analysis indicated a linear correlation between mothers' education level with respect to adequate vitamin A and C intake of children. There was little relationship between urbanization and income. Both high and low urban income families, greater than and less than $4,000 had adequate nutrient intake levels with only a variance in the food source. Larger families had better intake levels of vitamin A and C than did smaller families.

In support of diverse variables influencing parental food habits, Owen and Kram (1974) assessed a representative sample of children, age one to six years. 1,187 variables were collected on each child, including twenty three variables on child rearing patterns and on the

child's eating habits. Of interest, the authors utilized the Warner Index of characteristics of socioeconomic status, which was based upon ratings on occupation, income source, dwelling type, and dwelling area. Results indicated a positive relationship between income and maternal education and the nutritional status of the child.

The Owen and Kram Preschool Survey also reported the parental use of food as a reward or punishment with their children. In general, parents of lower socioeconomic status were more permissive with older children and frequently used food as a reward. However, parents of all socioeconomic status tended to use food to reward or punish their older children.

Several studies reported the effect of the adult use of food as a reward on the formation of children's food preferences. Early reports (Lewin, 1946; Litman, 1964) suggested that the frequent use of praise and scold foods by family members influenced a child's food consumption. Eppright, Fox, Fryer, Lamkin, and Vivian (1970) interviewed 2,000 households in the North Central Region of the United States of America and 3,444 preschool age children. Several variables were reported by these authors, one of which was maternal permissiveness towards children's eating habits. An estimated one quarter to one third of the mothers subscribed to five of the seven statements which indicated a permissive attitude concerning a child's eating habits. Eppright (1969) reported on this survey in percentages of reward, punishment, and soothing foods. Seventy-two percent of the households surveyed used food as an influencing factor on children's eating habits. Specifically, 23% of the mothers used food as a reward for good behavior; 10% of the mothers

used food as a punishment for bad behavior; and 29% of the mothers used food as a pacifier for a child's behavior. The percentage analysis of reward foods were: (a) 75% as baked goods or desserts, (b) 39% as suckers and candy, and (c) 32% as fruit. The percentage analysis for punishment foods were: (a) 51% as sweets, and (b) 5% as fruits.

A report by Birch, Zimmerman, and Hind (1980) suggested that the influence of adult use of reward food with young children was significant in the development of the child's preference for such foods. The authors concluded that when an adult presented foods as a reward to sixty-four three to five year old children, the reward food was preferred by the child for at least six weeks following the termination of the adult presentations. In contrast, no consistent changes in food preferences were noted when the reward food was presented in a nonsocial adult context. A x^2 test performed on these data was significant ($x^2(3) = 7.84$, $p.<.05$).

Rogers (1977) utilized a combination of variables from the Owen-Kram Survey and Eppright study to assess the relationship between maternal feeding attitudes and their relationship to reactive eating or obesity among college daughters. Her thirty item Likert scale, the Child-Feeding Opinion Questionnaire, contained four subscales. They were: (a) food used as a reward, (b) food used as a punishment, (c) food used as a soothing agent, and (d) food used as an expression of affection. Her study was directed at middle class incomes, as opposed to a heterogeneous group. One specific finding was that there was no significant correlation between the mother's score in any subscale and the daughter's degree of obesity or leanness. However, since the correlations were all negative (N=209, reward -.074, punishment -.012, soothing agent -.055,

affection -.024, and total scale -.058), the data suggested that daughters with measurements indicative of obesity had mothers who were not in favor of using food in any situation. A similar result was found between the daughter's food attitudes and physical status (N=219, reward -.107, punishment .003, soothing agent -.145, affection -.042, and total scale -.075). The one exception was punishment. Rogers concluded a probable trend for obese females to be less likely to favor the use of food as a reward, soothing agent, or expression of affection. Additionally, Rogers suggested that certain items in one or more of the subscales might be correlated with the obesity or leanness of an individual.

Prevalence of Childhood Obesity

The literature reported a variety of percentages indicating the prevalence of obesity among children. Hafen (1981) reported a 3% to 25% incidence of obese children, whereas Collipp (1975) and Mayer (1968) suggested that 25% of American children are overweight. All three authors reported rising percentages in childhood obesity. Forbes (1975) stated the prevalence of childhood obesity falls into two categories, hardcore and moderate. He suggested the 90th percentile as a cut off point for children. If the child fell into or above the 90th percentile, he was classified as abese. No reference to the type of obesity measurement was cited by Forbes. Garn and Haskell (1960) simply reported that school children were heavier and taller than those in past decades, whereas Davidson (1979) stated that obesity was common in infants and young children as a result of changes in methods of feedings. In 1975,

the Center for Disease Control reported that 9.3% of the 18,655 children under eighteen years of age surveyed were classified as obese. The obesity standards utilized were weight for height ratio above the 95th percentile.

Although a complete listing of all reports on the prevalence of childhood obesity was not given in this review, a general assumption was noted by this researcher. There existed a noteworthy percentage of obese children.

Measurement and Definition

A simple definition and measurement of childhood obesity was not reported in the literature. The following variables appeared to significantly influence the measurement and definition of obesity or leanness: (a) age, (b) sex, (c) percentile standards, and (d) socioeconomic status.

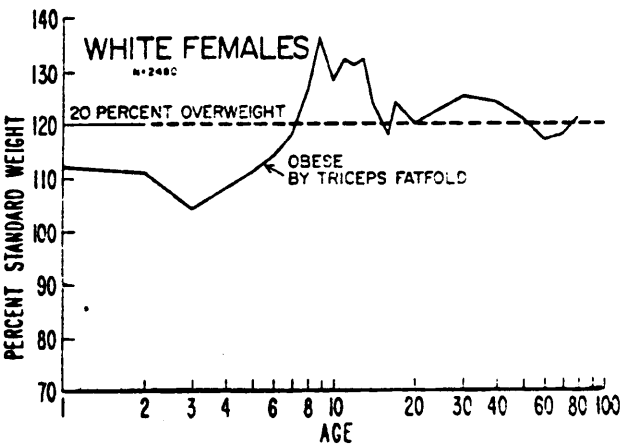
Court, Dunlop, Reynolds, Russell and Griffiths (1976) defined obesity as a weight 20% in excess of the expected weight for height and age. A weight 10% in excess of weight for height and age was classified as overweight. Their cross-sectional study of 5,347 Victorian secondary school aged eleven to eighteen years revealed that 8% of the girls and 3.5% to 6.3% of the boys were obese. Although triceps skinfold measurements were collected on these subjects, the authors reported slight difference in triceps skinfold measurements when compared to other survey measurements. They suggested that a lack of clinical expertise in the measurement of skinfold thickness may have accounted for their findings. However, overall results of obesity findings were not significantly different from American studies. They concluded that the utilization of actual weight compared to expected weight for height and age in excess of 20% was an

appropriate standard for the measurement of adolescent obesity.

Investigators have employed relative weight expressed as an appropriate measurement of corpulence in the absence of direct measures of fat. However, Garn, Clark, and Guire (1975) reported the uselessness of employing relative weight for age as an approximate measurement of obesity or leanness in children (Table 3).

Table 3

Relative weight, expressed as a percent of standard weight (ordinate), of children and adults defined as obese by the triceps fat fold. Adults at or beyond the 85th percentile for the triceps fat fold reasonably approximate the 20% overweight level (dashed line), whereas equally obese infants and early school age children are well below the 20% overweight level.



Note.--Cited in Garn, Clark, and Guire, 1975, p. 25.

They reported that the relative weight of the obese adult female (>85% triceps skinfold) approximated the 20% overweight line for that group. However, the obesity index of triceps skinfold thickness values (>85%) for infants, children, and adolescents were not similar to the 20% overweight value for age of these groups. Therefore, relative weight for age for infants, children, and adolescents was not an appropriate index of obesity.

Specific measurements of obesity were reported in Robert's Nutrition Work With Children (1978). Methods for estimating total body fat were as follow:

1. Densitometry - underwater weighing.

2. Isotope Dilution - measurement of total body water and water in intra- and extra-cellular compartments,

3. Potassium^{40} Counts - measurements of lean body mass,

4. Skin Calipers - measure the thickness of a double fold of skin and subcutaneous fat. Frequent sites are triceps and subscapular, which have standard methods.

The latter measurements appeared to have several advantages of obesity determination. They were: (a) inexpensive, (b) readily obtainable, and (c) appropriate for children.

The authors reported that children tended to have a larger proportion of fat on limbs as opposed to the body trunk when compared to adults. It was concluded that measurements of subcutaneous fat on extremities (triceps skinfold thickness) were more likely to be an accurate index of body fat in children. It was further reported that two age groups, five to six years and the onset of adolescence (nine years for girls and eleven

years for boys), had significant fat changes associated with normal physical development. Therefore, any assessment of obesity should be avoided during these two periods.

Several nutrition surveys have utilized triceps skinfold percentiles as standards for obesity and leanness in children and were not reported in this review. However, the most appropriate reference on triceps skinfold percentiles was that of the National Center for Health Statistics reported in NCHS Growth Curves for Children, Birth - Eighteen Years, United States (1977). A combination of the Fels Research Institute Data, the Health Examination Survey Cycle II of Children ages six to eleven years (1963-65), and the Health and Nutrition Examination Survey I of children ages one to seventeen years (1971-74), were used to construct triceps skinfold thickness standards.

SocioEconomic Variables

Although the use of triceps skinfold is an appropriate measurement of obesity in children, Garn, Clark, and Guire (1975) stated that many extraneous variables contributed to the confusion associated with appropriate assessment of childhood obesity. Income, genetic factors, educational level of parents, cultural differences, and population factors contributed significantly when assessing obese and lean children. In particular, Garn, Clark, and Guire (1975) reported:

> In obese preschoolers and school age boys and girls, the statistically obese are of middle incomes, and there is a remarkable consistent relationship between parental income (and socioeconomic level) and the degree of fatness of their progeny. If we use medium income families as our reference standard, then the poor have fewer problems of juvenile obesity, but if we employ the impoverished as our reference standards for fatness, obesity and affluence then become identical (p. 44).

This socioeconomic variable appeared crucial in the assessment of obese/lean children, and must, therefore, be a controlled extraneous variable. In support of this control, an earlier commentary by Garn (1972) stated that:

> The effect of socioeconomic status, or the income to the needs ratio on fatfold values is dramatic. Through to adulthood, fatfold values of more affluent boys tend to be higher than fatfold values of boys or lesser means. Indeed, socioeconomic status has a demonstrable effect on fatness in males of all ages, through to the 9th decade, and in Blacks and Whites alike. For adult females, fatness is less deomonstrably a function of ecomomic status and the relationships may even be reversed (p. 334).

This income factor and its relationship to obesity has been documented elsewhere by Garn and Clark (1976). In a report to the Ad Hoc Committee of the findings of the Ten State Survey, these authors reported that when fatness comparisons were confined to a single racial group, the lower and higher income levels revealed two facts. They were: (a) children from a higher socioeconomic status were fatter than those from a lower income, and (b) changes in fatness that occured in childhood and the prepubertal period tended to be earlier in the children from higher income levels. Furthermore, the report stated that the level of fatness was income related in males at all ages and in females during adolescence.

In contrast to the income level findings of Garn and Clark, Stunkard, d'Aquili, Fox, and Filion (1972) reported the prevalence of childhood obesity in relationship to upper and lower socioeconomic status. Their study was based on the Seltzer and Mayer (1965) triceps skinfold percentile standards on 3,344 white urban children. They revealed that in girls, by the age of six years, 29% from the lower income level were obese, but only 3% from the upper income level were obese. Similar findings were

reported for boys, but they were not as pronounced as the girls' percentiles of obesity in relationship to income status.

Summary

The physiological, phychological, cultural, and sociological factors associated with childhood obesity were numerous and diverse in the literature review. The following factors were observed by this investigator:

1. The influence of a child's eating habits is dependent upon the parent's biological and emotional experiences, cultural, past and present lifestyles, income, education and race.

2. Paternal influence is a significant factor in relationship to family food preferences.

3. Maternal income status and education affect a child's eating habits.

4. The use of food a reward or punishment by parents influences a child's food preferences.

5. Prevalence of childhood obesity exists in significant and increasing percentages.

6. Socioeconomic variables affect childhood obesity.

7. Triceps skinfold measurement is an appropriate method for the assessment of childhood obesity and leanness.

8. Income, race, and sex are variables which must be controlled during the assessment of obesity in children.

CHAPTER III

METHODOLOGY

This investigation was designed to assess one area in the multifactorial nature of childhood obesity: the child-feeding attitudes of fathers of elementary school age males and their relationship to the son's level of obesity or leanness. The study utilized a revised Child-Feeding Opinion Questionnaire (Rogers, 1977). The original CFOQ was a Likert-type thirty item instrument, which assessed the child-feeding attitudes of college women and their mothers. The CFOQ contained attitude statements as they pertained to the use of foods as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection. Each item was presented as a statement with a six-segment range of responses. They were: (a) Strongly Agree - SA, (b) Agree - A, (c) Tend to Agree - TA, (d) Tend to Disagree - TD, (e) Disagree - D, and (f) Strongly Disagree - SD. The revised Likert-type instrument, Fathers' Child-Feeding Opinion Questionnaire, (FCFOQ), contained thirty child-feeding attitude statements, six response categories, and the same four subscales as the original CFOQ. The four subscales were as follow: the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection.

The father's child-feeding attitudes in relationship to their elementary school age son were grouped according to subscales within the instrument. The study evaluated the frequency of responses within each subscale and the relationship to the son's status of obesity or leanness.

Revision and Development of the Instrument

The original CFOQ was duplicated in its entirely at a professional copy center in Norfolk, Virginia. The instrument was administered to a random sample of twenty five fathers and twenty five mothers, who had a child aged six to eight years enrolled in a public school system in the Tidewater area of Virginia. Mothers responded in relationship to their daughters and fathers responded in relationship to their sons. A frequency summary of responses was tabulated in order to reveal proportional responses within the instrument (Appendix A). This frequency data was utilized by the investigator for the establishment of face validity of the revised instrument Father's Child-Feeding Opinion Questionnaire. The FCFOQ was similar to the CFOQ in the number of statements in each subscale. An attempt was made to maintain the same direction, positive or negative, of items as the original CFOQ. Final approval of each item was sanctioned by the Members of the Thesis Committee.

The items were listed and numbered according to the original CFOQ subscales. A random table of numbers (Selby, 1970) was consulted for item placement in the final instrument (Appendix B). The revised instrument was duplicated according to the CFOQ's form and size (8.5 X 11 inches). A beige paper and black type were selected for clarity and readability. The reproduction of the FCFOQ was done at a professional copy center in Virginia Beach, Virginia. The instrument's directions were placed on the reverse side of the questionnaire. Copies of the final forms are included in Appendix B.

Data Collection

Previous analysis of the City of Chesapeake, Virginia (Census Data,

1980) indicated the Chesapeake Public School System (CPSS) as an appropriate population for the study. Two census data variables, income and population, were reviewed in relationship to the membership by grades, June 10, 1983, in the CPSS. In order to control the extraneous variables of income and race, five elementary schools in a predominantly white male population were preselected for the study. A summary of this information was compiled in Table 4.

Table 4

Income and Population Variables

Census Tract	Mean Income	Age by Race 5-17 years White/Black	Elementary School	Membership June 10, 1983 1st Grade
208.01	$25,076	851/267	Georgetown	180
209.01	$22,389	551/ 41	BM Williams	145
211.01	$25,008	646/ 20	Butts Road	126
210.01	$26,364	962/200	Great Bridge	145
212.01	$18,412	695/127	Hickory	72

Note.-- Adapted from Chesapeake Chemercial Study, 1980.

Appropriate research procedures with the CPSS Administration were initiated by the investigator. A formal letter to the CPSS Director of the Educational Research Center was submitted for a research request during Winter 1983. The Supervisor of Research and Testing indicated the following criteria necessary for research within the CPSS: (a) proposal copy, (b) letters to principals, and (c) letters to parents for permission to test or participate.

The criteria was submitted during March, 1984 and copies are included in Appendix C. Permission to conduct research was obtained after a personal interview with each elementary school principal. A brief explanation of the study and calendar dates for the distribution of the fathers' questionnaire and collection of the anthropometric data were reviewed by the investigator. Each of the elementary school principals granted permission for the study.

Subjects for the Final Study

The names of 302 second grade males enrolled in the five preselected elementary public schools of Chesapeake during the Spring 1984 were obtained by the investigator. A research packet for each second grade male was compiled and numbered in sequence. A copy of the FCFOQ, paternal letter with authorization for participation of minor (name prewritten), and a stamped addressed envelope to the researcher were marked with identical code numbers. This simple coding assured proper questionnaire identification for each father with the son's number. The packets were grouped according to classroom in each elementary school. The grouped packets were returned to each elementary school and distributed by the classroom teacher to each second grade male. Each teacher instructed the male to

give the research packet to their father or male guardian.

Anthropometric Measurements

Three anthropometric measurements were taken for each son participating in the final study after the father had completed and returned the FCFOQ and authorization form. The measurements included height, weight, and triceps skinfold thickness.

Deteco-Medico Scales, Inc., Brooklyn, New York were used to assess weight and height. The scales were checked annually for accuracy at the beginning of each school year. The sons were weighed in light clothing with their shoes. All recordings were assessed at the beginning of the school day. Each son was asked to stand erect with his hands at his side. The scale weights were moved until a balance was obtained. One weight in pounds was recorded by the investigator. The sliding height guide was lowered to the crown of the son's head. One reading in inches was recorded by the investigator.

Large Skinfold Calipers, Cambridge Scientific Industries, Cambridge, Maryland, pat. no. 3 008 239, were used to assess the triceps skinfold thickness of each son. Nutritional Assessment Guidelines by Anne Grant (1979) were followed for the measurement of the triceps skinfold thickness. Each subject's bare right arm was used for the measurement. The right arm was bent at a right angle with the hand across the stomach. The midpoint of the upper arm was located with a plastic midpoint measure tape, Ross Laboratories, Columbus, Ohio. The tape was lined up until the same reading in centimeters was obtained at the acromial process of the scapula and the olecranon process of the ulna. The midpoint was marked by an ink pen. With the child's arm hanging relaxed at his side, a lengthwise dou-

ble fold of skin and fat were grasped between the investigator's right thumb and forefinger. The calipers were placed over the fatfold at the marked midpoint at a depth equal to the thickness of the fatfold with the investigator's left hand. The calipers were released and in three seconds a second measurement was taken by the investigator. Both readings were recorded to the nearest 0.5 milimeter.

Treatment of Data

The data for this study included an analysis of the fathers' responses to the Fathers' Child-Feeding Opinion Questionnaire and the relationship of those responses to the sons' triceps skinfold thickness.

Attitude Scale

A score for each father was obtained by the summative method for each subscale of the Fathers' Child-Feeding Opinion Questionnaire (Byrne, Golightly, and Capaldi, 1963). The range of possible scores on each item was from six from Strongly Agree to one for Strongly Disagree for positively weighted statements. The reverse scoring was employed for negatively weighted statements. This method allowed the negative and positive statements to receive the same agreement score. The subscales, Reward, Punishment, and Expression of Affection, had a total of seven items. The possible score range was from seven to forty two. The subscale, Soothing Agent, consisted of nine items and, therefore, a possible score range from nine to fifty four. The total possible score for thirty items was from 30 to 180.

Statistics

This study was a survey design, which proposed four research questions

in the area of male childhood obesity or leanness in relation to paternal child-feeding attitudes. A PDP-1144 Computer, Digital Equipment Corporation, which was located at the Eastern Virginia Medical School, utilized SPSS Package (Morrison, 1980) for the analysis of all statistics. Pearson-product moment correlation coefficient analysis was selected to determine what type of relationship existed between the continuous variables. The statistical analysis for each question was summarized as follows:

Question 1 - Is there a relationship between the triceps skinfold thickness of the sons and their fathers' attitudes toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection?

The fathers' attitude score in each subscale and total scale were totaled according to the summative method. Pearson-product moment correlations were calculated to determine what type of relationship existed between the fathers' score in each subscale and total scale and the triceps skinfold thickness values of the sons. Strength of association tests for Pearson-product moment correlation coefficients were utilized to account for the percent of variance in triceps skinfold thickness measurements that could be explained by the fathers' attitude scores and vice versa.

Question 2 - Is there a relationship between the sons' degree of obesity or leanness and their fathers' attitudes toward the use of foods as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection?

Different scoring procedures were utilized for this question. The

fathers' scores in each subscale were split into two categories. Disagree (1) and Agree (2). The Disagree category for the subscales, Reward, Punishment, and Expression of Affection ranged from a possible score of seven to twenty four. The Agree category for these subscales ranged from a possible value of twenty five to forty two. The subscale, Soothing Agent, consisted of a range from a possible value from nine to thirty one for the Disagree category and a possible range from thirty two to fifty four for the Agree category. The total possible scale range was a follows: (a) Disagree 30 - 105, and (b) Agree 106 - 180.

The triceps skinfold thickness values were grouped into three categories, which were based on the triceps skinfold thickness percentiles of males aged seven to eight years from the Health and Nutrition Examination Survey of 1971-1974 (Frisancho, 1981). The percentile groups that were selected by this investigator were as follow:

1. Lean (25% or less) 1mm - 7mm,
2. Normal (25.1% - 75%) 7.1mm - 11.99mm,
3. Obese (75.1% or greater) 12mm or greater.

Two X3 contingency tables were created to observe the percentages of paternal subscale and total scale attitude responses, which were categorized with the physical status of the respective son. Pearson-product moment correlation coefficients were utilized to determine what type of relationship existed between the lean, normal, or obese sons and their fathers' attitude scores in each subscale and total scale. Strength of association tests for Pearson-product moment correlation coefficients were calculated to account for the percent of variance in the lean, normal, or obese triceps skinfold thickness measurement of the sons that

could be explained by the respective fathers' attitudes scores and vice versa.

Question 3 - What are the relationships among the fathers' scores on the following Fathers' Child-Feeding Opinion Questionnaire subscales: (a) reward, (b) punishment, (c) soothing agent, and (d) expression of affection?

The fathers' attitude scores in each subscale were compiled according to the summative method as in Question 1. A matrix of Pearson-product moment correlation coefficients was created to determine the relationship among the fathers' attitude scores in each subscale and the other subscales of the Fathers' Child-Feeding Opinion Questionnaire. This analysis would indicate if the fathers' use of food in one behavioral situation was related to the use of food in another behavioral situation. Strength of association tests for the matrix of Pearson-product moment correlation coefficients were calculated to account for the percent of variance in the fathers' attitude subscale scores that could be explained by the subscales in the FCFOQ and vice versa.

Question 4 - What is the validity of the Fathers' Child-Feeding Opinion Questionnaire?

The fathers' attitude responses for each subscale were totaled by the summative method as in Question 1 and Question 3. A matrix of Pearson-product moment correlation coefficients was calculated to assess if each subscale was discriminant in nature or if the subscales were significantly correlated with each other, and, therefore, were not discriminant in nature.

CHAPTER IV

ANALYSIS OF THE DATA

This study was designed to review child-feeding attitudes of fathers in relationship to their elementary school age sons and to determine the relationship of those attitudes to the sons' degree of obesity or leanness. A thirty item Likert-type instrument, Fathers' Child Feeding Opinion Questionnaire, was created to assess the child-feeding attitudes of the father. This instrument was similar in nature to the CFOQ (Rogers, 1977), which consisted of thirty attitude items, six response categories, and four behavioral subscales. These subscales were as follow: the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection. The son's degree of obesity or leanness was determined by an anthropometric measurement, triceps skinfold thickness.

From a systematic sampling of five elementary schools in the public school system of Chesapeake, Virginia, a total of eighty three responses (27.5%) were returned for the study. Eleven responses were eliminated because the mother responded on the questionnaire. The final sample consisted of seventy two questionnaires (24%) answered by the male guardian. An attempt to control the extraneous variables of income and race yielded the following parameters:

1. Income - $18,412 to $26,364
2. Race - 88.9% White and 11.1% Black

In order to maximize this sample size (N=72), corrections for missed items in any questionnaire were accounted for in the statiscal analysis.

The fathers' attitude scores for each subscale and total scale were

calculated by the summative method (Byrne, Golightly, and Capaldi, 1963). Raw scores for the fathers' attitude responses in each subscale and total scale were compiled according to the frequency of responses (Appendix D). A summary of the fathers' attitude scores for each subscale and total scale score was reported in Table 5. The results of the measures of central tendency indicated that the fathers' attitude scores in each subscale and total were located at the midpoint value. These findings suggested that the fathers did not possess definite child-feeding attitudes toward the use of food as a reward, a punishment, a soothing agent, or an expression of affection, which were expressed in the FCFOQ statements. Raw anthropometric measurements of the sons' height, weight, and two triceps skinfold thickness measurements were compiled in Appendix D. The mean, mode, median, standard error, standard deviation, minimum, maximum, and variance of all anthropometric data is reported in Table 6. A summary of the sons' triceps skinfold thickness by percentile according to the standards of the Health and Nutrition Examination Survey of 1971-1974 (Frisancho, 1981) was compiled in Table 7.

Classification of the sons' degree of obesity or leanness was based on the Health and Nutrition Examination Survey of 1971-1974 (Frisancho, 1981) triceps skinfold thickness percentiles for males aged seven to eight years. Three triceps skinfold thickness groups were selected by this investigator for the classification of lean, normal, or obese males. They were as follow:

1. Lean group (25%) - 1mm to 7mm
2. Normal group (25.1% to 75%) 7.1mm to 11.99mm
3. Obese group (75.1% or greater) 12mm or above.

Table 5

Summary of Fathers' Scores

	Reward[a]	Punishment[b]	Soothing Agent[c]	Expression of Affection[d]	Total[e]
Mean	25.300	26.243	30.058	21.682	103.460
Mode	27.000	28.000	30.000	21.000	94.000
Median	25.643	26.500	30.250	21.500	102.667
SEM	0.391	0.561	0.763	0.697	1.817
$\overline{x}$	3.272	4.692	6.338	5.665	14.419
Range	17-32	12-36	15-49	12-38	67-138
Variance	10.706	22.013	40.172	32.097	207.898

(a) N=70

(b) N=70

(c) N=69

(d) N=66

(e) N=63

Table 6

Anthropometric Measurements [d]

	Height (centimeters) [a]	Weight (kilograms) [b]	Triceps Skinfold [c]
Mean	129.249	27.730	10.660
Mode	127.000	27.386	9.000
Median	129.011	27.102	9.719
SEM	0.638	0.516	0.445
$\overline{X}$	5.415	4.378	3.778
Range	115.570-142.875	20.455-40.114	5.000-22.000
Variance	29.305	19.164	14.270

[a] Height was measured in inches and converted to centimeters.

[b] Weight was measured in pounds and converted to kilograms.

[c] Triceps skinfold thickness value was the mean value of both Triceps Skinfold Thickness values.

[d] N=72

Table 7

Son's[a] Triceps Skinfold Thickness by Percentile

Percentile	Triceps Skinfold Thickness	Frequency %
5th or below	0.0 - 5.0	1.4%
5th to 10th	5.1 - 6.0	2.8%
10th to 25th	6.1 - 7.0	12.5%
25th to 50th	7.1 - 9.0	22.3%
50th to 75th	9.1 - 12.0	33.4%
75th to 90th	12.1 - 15.0	12.5%
90th to 95th	15.1 - 17.0	7.0%
95th to higher	17.1 or above	8.4%

(a) N=72

Percentages of subjects falling into each triceps skinfold thickness category were:

1. Lean group - 12.5% (N=9)
2. Normal group - 43.0% (N=43)
3. Obese group - 27.8% (N=20)

These categories were reported in later analysis in this chapter.

This study proposed four research questions in the area of male childhood obesity or leanness in relation to paternal child-feeding attitudes. Pearson-product moment correlation coefficient statistics addressed the survey design.

Question 1 - Is there a relationship between the triceps skinfold thickness of the sons and their fathers' attitudes toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection?

Pearson-product moment correlation coefficients were calculated between the fathers' scores in each subscale and total scale and the son's triceps skinfold thickness. The results were summarized in Table 8.

Table 8

Correlation Coefficients for Fathers' Scores Versus the Sons' Triceps Skinfold Thickness

	Subscale				Total Scale
	Reward	Punishment	Soothing	Affection	
Sons' Triceps Skinfold Thickness	0.2225* (N=70)	0.0276 (N=70)	0.2326* (N=69)	0.2273* (N=66)	0.2669** (N=63)

*p.<.05

**p.<.01

The results revealed a positive correlation ($p.<.05$) between the fathers' use of food as a Reward, Soothing Agent, and Expression of Affection and the triceps skinfold thickness measurement of the son. A similar positive correlation ($p.<.01$) was found between the fathers' scores in the total scale and the triceps skinfold thickness measurement of the son. No correlation of significance was found between the Punishment subscale and the triceps skinfold thickness of the son. Although a relationship between the fathers' scores with the subscales Reward, Soothing Agent, Expression of Affection and Total Scale and the triceps skinfold thickness of the sons was manifested, the variance between these variables was generally low. The percentages of variability that could be accounted for were as follow:

1. Reward - 4.9%
2. Soothing Agent - 5.4%
3. Expression of Affection - 5.1%
4. Total Scale - 7.1%

Question 2 - Is there a relationship between the sons' degree of obesity or leanness and their fathers' attitudes toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection?

Prior to the computation of Pearson-product moment correlation coefficients between the continuous variables in Question 2, the fathers' scores in each subscale and total scale were split into two categories, Disagree (1) and Agree (2). The possible category ranges for each subscale and total scale were reported in Chapter III of this study. The sons' triceps skinfold thickness measurements were categorized by this

investigator into three groups (lean, normal, and obese) according to the percentile standards for the triceps skinfold thickness of males aged seven to eight years from the Health and Nutrition Examination Survey of 1971-1974 (Frisancho, 1981).

Pearson product-moment correlation coefficients between the fathers' subscale and total scale scores and the categorized triceps skinfold thickness groups were reported in Table 9.

Table 9

Correlation Coefficients for Fathers' Scores Versus Their Sons' Categorized Triceps Skinfold Thickness

	Subscales				Total
	Reward	Punishment	Soothing	Affection	Scale
Sons' Categorized Triceps Skinfold Thickness	0.0456 (N=70)	-0.1082 (N=70)	0.1817 (N=69)	.0550 (N=66)	0.0579 (N=63)

Low correlation coefficients and no significance were found between lean, normal, or obese sons and their fathers' scores in each subscale and total scale. These results revealed no relationship between these two variables. However, the contingency tables (Table 10) indicated the following percentage observations:

1. The use of food as a reward or punishment was favored by a greater percentage of fathers.

2. Fathers of obese sons favored the use of food as a soothing agent.

3. Fathers of lean sons did not tend to use food as a soothing agent.

4. Overall, fathers tended not to favor the use of food in a contingent manner.

Question 3 - What are the relationships among fathers' scores on the following Fathers' Child-Feeding Opinion Questionnaire subscales: (a) reward, (b) punishment, (c) soothing agent, and (d) expression of affection?

Table 10

Percentages of Paternal Responses Categorized with the Sons' Triceps Skinfold Thickness Groups

Subscale: Reward[a]	lean	normal	obese	triceps
1	50.0%	37.5%	40.0%	
2	50.0%	62.5%	60.0%	

Subscale: Punishment[b]	lean	normal	obese	triceps
1	16.7%	36.8%	35.0%	
2	83.3%	63.2%	65.0%	

Subscale: Soothing Agent[c]	lean	normal	obese	triceps
1	72.7%	57.9%	45.0%	
2	27.3%	42.1%	55.0%	

Subscale: Expression of Affection[d]	lean	normal	obese	triceps
1	72.7%	68.6%	65.0%	
2	27.3%	31.4%	35.0%	

Total Scale[e]	lean	normal	obese	triceps
1	60.0%	66.7%	55.0%	
2	40.0%	33.3%	43.0%	

[a] $N=70$ [b] $N=70$ [c] $N=69$ [d] $N=66$ [e] $N=63$

Note.-- 1 = disagree category; 2 = agree category

A matrix of Pearson product-moment correlation coefficients was created to answer Question 3. These results were in Table 11.

Table 11

Correlation Coefficients Among Fathers' Scores

Subscale	Subscale			
	Reward[a]	Punishment[b]	Soothing[c]	Affection[d]
Reward	1.0000	0.0901	0.5149*	0.5212*
Punishment		1.0000*[e]	0.0418[f]	-0.1215[g]
Soothing			1.0000*	0.7013*[i]
Affection				1.0000*[j]

[a] N=70 [e] N=70 [i] N=63

[b] N=68 [f] N=67 [j] N=66

[c] N=68 [g] N=66

[d] N=65 [h] N=69

*p. <.0001

Analysis of the relationships among the fathers' score in each subscale revealed the following:

1. Fathers' scores in Subscale 1: Reward was significantly and positively correlated with subscale 3 - Soothing Agent and subscale 4 - Expression of Affection at the $p.<.001$ level. These results indicated that fathers, who tended to use food as a reward, also tended to use food as a soothing agent and as an expression of affection.

2. The percentages of variability that could be accounted for among these subscales were:

(a) Soothing Agent - 26.5%, and

(b) Expression of Affection - 27.1%

3. Fathers' scores in subscale 3 - Soothing Agent were positively correlated with subscale 4 - Expression of Affection at the $p.<.0001$ level. This finding suggested that fathers who use food as a soothing agent tended to favor the use of food as an expression of affection.

4. The variance that could be accounted for between these two subscales was 49.1%.

5. Fathers' attitude scores in subscale 2 - Punishment was not correlated with the other subscales. Overall, fathers tended not to favor the use of food as a punishment.

Question 4 - What is the validity of the Fathers' Child-Feeding Opinion Questionnaire?

A matrix Pearson product-moment correlation coefficient was computed between the fathers' attitude score with the other subscales. The findings reported in Table 11 suggested the following:

1. The subscale 2 - Punishment was not correlated with the subscales

Reward, Soothing Agent, or Expression of Affection. This subscale measured only the use of food as a punishment, and, therefore, was discriminant in nature.

2. The subscales Reward, Soothing Agent and Expression of Affection were significantly correlated with each other at the $p.<.0001$ level. These results revealed that these subscales were too similar in nature. Therefore, no differences could be measured among these subscales.

Conclusions

The present study indicated a possible relationship between the fathers' use of food in a contingency manner and the sons' triceps skinfold thickness. Although these correlation coefficients were low and the percentage of variability was less than 7.2%, the fathers' use of food a (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection was related to the sons' anthropometric measurements.

Further analysis was utilized to specify the relationship between the fathers' attitudes toward the use of food in a contingency manner and the degree of obesity or leanness of the respective son. When the sons' triceps skinfold thickness were categorized into lean, normal, or obese groups, the data failed to support the hypothesis that there was a relationship between the fathers' use of food in a contingency manner and the physical status of the son. Similar results were found between the mothers' use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection and the daughters' status of obesity or leanness (Rogers, 1977). The lack of significance in the

present study might have been due to the small sample (N=72) which was divided among the triceps skinfold thickness groups. In addition, significance was lost secondary to the categorization of the data.

Casual observations were revealed among the fathers of lean, normal, and obese sons. More fathers favored the use of food as a reward and punishment and were opposed to the use of food as an expression of affection. Fathers of lean sons tended not to use food as a soothing agent, whereas the opposite was indicated by fathers of obese sons. Generally, fathers of lean, normal, and obese sons tended not to favor the use of food in a contingency manner. These observations were not supported statistically and, therefore, were stated as observations.

These casual observations were not simiar to the results of a matrix of correlation coefficient between the fathers' attitude scores in each subscale of the FCFOQ. Positive correlation coefficients indicated a significant relationship between the following subscales: (a) Reward and Soothing Agent, (b) Reward and Expression of Affection, and (c) Soothing Agent and Expression of Affection. The results revealed that a tendency for fathers to use food in one situation was related to the tendency to use food in another situation. This finding was similar to the initial Pearson product-moment correlation coefficients between the fathers' use of food as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection and the uncategorized triceps skinfold thickness of the sons.

The validity of the subscales was addressed in the present study. The subscale 2 - Punishment appeared to measure only punishment. This was supported by the lack of significant correlation found with the other

three subscales. The subscales 1, 3, and 4 revealed a significant degree of correlation at the $p.<.0001$ level. This significance indicated a very close subscale nature between Reward, Soothing Agent, and Expression of Affection, and, therefore, no subscale discrimination. Refinement of the subscales in the instrument appeared necessary for future studies.

The present study investigated the relationship between the paternal use of food as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection and the status of obesity or leanness of the respective son. The population was predominantly male Caucasian and of a similar income. The findings revealed no correlation between the fathers' use of food in a contingency manner and the degree of obesity or leanness in the sons. However, a positive significant correlation between the two variables was revealed when the sons' uncategorized triceps skinfold thickness was utilized. In addition, a general observation revealed differences between fathers of obese and lean sons with respect to the use of food as a soothing agent. A possible relationship might have existed with a larger sample size of lean, normal, and obese sons and their respective fathers.

CHAPTER V

SUMMARY, CONCLUSIONS, AND GENERALIZATIONS

The problem of childhood obesity has received significant attention from numerous health personnel. One important factor associated with childhood obesity is the persistance of the disease into adulthood. The studies of the physiological, psychological, cultural, and sociological factors associated with childhood obesity are numerous and diverse. However, influence of the father's or male guardian's food attitudes in relationship to the obese or lean status of the related son has received little professional documentation.

Review of Literature

Parental influence, both maternal and paternal, has been cited by several researchers as one of the multifactorial origins of children's food preferences (Pumpian-Mindlin, 1954; Pilgrim, 1961; Peryan, 1963; Glaser, 1964; Gifft, 1972; Yperman, 1979). The origins of parental influence developed from a variety of factors. They were as follow: (a) biological securities, (b) emotional securities, (c) sociological securities (ethnic origin, sex, education, and income), and (d) family food preferences (Brown, 1967; Gifft, 1972). Although reports indicated that parents were not the primary influences in the development of a child's food preference (Breckenridge, 1959; Birch, 1980), a variety of studies reported that the mothers' and fathers' attitudes influenced the food preferences of their children.

In addition to the parental influence on the development of a child's

food attitudes, the parental use of food in a behavioral situation had a significant effect on their children (Lewin, 1964; Litman, 1964; Eppright, Fox, Fryer, Lamkin, and Vivian, 1970; Kram and Owen, 1974; Birch, Zimmerman, and Hind, 1980). Early reports of parental use of food as a reward and punishment were reported as influencing variables on children's behavior (Lewin, 1943; Litman, 1964; Eppright, 1964). One study attempted to determine the relationship between the maternal use of food as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection and the lean or obese status of the college age daughter (Rogers, 1977). Although the results indicated low correlations between the food attitudes of the mothers and the daughters degree of obesity, a general conclusion revealed the possibility that certain behavioral situations may be related to the obese or lean status of an individual.

Justification for childhood obesity research has been manifested by the increasing and significant percentages of overweight/obese children in this country. From a low of 3% to a high of 25% of children have been classified as obese (Mayer, 1968; Collipp, 1975; Forbes, 1975; Hafen, 1981). The classification of obesity has been based on a variety of standards. Weight for height and age was reported as an appropriate obesity standard for adults and adolescents (Garn, Clark, and Guire, 1975; Court, Dunlop, Reynolds, Russell, and Griffiths, 1976). However, the measurement of the triceps skinfold thickness has been designated as a precise measurement of childhood obesity (Selzer and Mayer, 1965; Garn, Clark, and Guire, 1975; Martin, 1978). In addition, two variables, income and race, were major factors influencing childhood obesity which must be

controlled during any study (Garn, Clark, Stunkard, d'Aquili, Fox, and Filion, 1972; Garn, 1972; Garn, Clark, and Guire, 1975; Garn and Clark, 1976).

Design of the Study

This study assessed on factor in the complexity of childhood obesity: the relationship between feeding attitudes of fathers of elementary school age children and the status of obesity or leanness of the son.

A thirty item Likert-type instrument was designed to assess the paternal attitudes toward using food as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection. The instrument was called the Fathers' Child-Feeding Opinion Questionnaire, which was similar in subscale nature to the original CFOQ (Rogers, 1977).

A systematic sampling of five elementary schools in the elementary Public School System in Chesapeake, Virginia resulted in a nonprobability sample of seventy two fathers and seventy two sons, aged six to eight years. The extraneous variables of sex and income were controlled for this study. The population consisted of 88.9% White and 11.1% Black individuals.

The data for this study consisted of the fathers' responses to the items on the FCFOQ and the anthropometric measurements of height, weight, and the triceps skinfold thickness of the sons. The latter measurement was utilized as the appropriate index for the sons' status of obesity or leanness.

Analysis of the Data

Scoring procedures were based on the fathers' responses in each subscale of the instrument. The frequency of these responses was computed by the summative method (Byrne, Golightly, and Capaldi, 1963). Three groups of triceps skinfold thickness was identified to indicate lean, normal, or obese status of the son. Pearson product-moment correlation coefficients were calculated to determine the relationship between ungrouped and grouped triceps skinfold thickness of the son and the fathers' scores on the FCFOQ. Additional analysis was conducted to assess the relationship of the fathers' scores in each subscale of the FCFOQ and the validity of the instrument.

Conclusions and Generalizations

The present study assessed the relationship between the paternal use of food in a contingency manner and the physical status of the respective son. The following generalizations were observed:

1. A positive correlation existed between the child-feeding attitudes of the father and the triceps skinfold thickness of the son. Three of the five correlation coefficients were significant at the $p.<.05$ level and one correlation coefficient was significant at the $p.<.01$ level. These correlation coefficients were low and could account for only 7.1% or less of the variance observed. The data suggested that the sons' increasing anthropometric measurements were related to the fathers' use of food as (a) a reward, (b) a soothing agent, and (c) an expression of affection. There was no relationship between the paternal use of food as a punishment and the sons' triceps skinfold thickness.

2. There was no relationship between the obesity or leanness of the sons and the fathers' attitudes toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, or (d) an expression of affection.

3. Fathers' child-feeding scores were significantly related with the subscales of the FCFOQ. The results suggested a positive and significant relationship between the subscales: (a) Reward and Soothing Agent, (b) Reward and Expression of Affection, and (c) Soothing Agent and Expression of Affection. Fathers who tended to use food as a reward also tended to use food as a soothing agent and expression of affection. In addition, fathers who used food as a soothing agent tended to use food as an expression of affection. The paternal use of food as a punishment was not correlated with the other subscales.

4. A matrix of Pearson product-moment correlation coefficients (Table 11) was utilized to interpret the validity of the instrument. The results revealed that the Punishment subscale measured only the use of food as a punishment. The subscales Reward, Soothing Agent, and Expression of Affection were very close in subscale nature. Therefore, these scales did not discriminate between each other.

The prevalence of childhood obesity has been documented to be significant in this country (Mayer, 1968; Collipp, 1975; Forbes, 1975; Hafen, 1981). The etiology of the increasing percentages of obese children is based upon a variety of variables. Parental influence on children's eating habits and socioeconomic variables, which influence parents, appeared to be possible factors in the development of childhood obesity. Biological securities (Gifft, 1972), cultural and familial influences (Pumpian-Mindlin, 1954; Pilgrim, 1961; Peryam, 1963; Brown, 1967; Stare and Mc-

Williams, 1973; Yperman, 1979), maternal influence (Lewin, 1943; Hinton, 1962; Litman, 1964; Hendel, 1965; Sims, 1972; Walker, 1973; McWilliams, 1975; Schafer, 1981), paternal influence (Bryan and Lowenberg, 1958; Martin, 1980), income (Futrell, Kilgore, and Windham, 1971; Owen and Kram, 1974; Thomas, 1980), the use of food in a contingency manner (Lewin, 1946; Eppright, 1969; Rogers, 1977; Birch, Zimmerman, and Hind, 1980), and race (Garn and Clark, 1976) were cited as the predominant variables which influenced the parent in relationship to the development of childhood food preferences. Several studies suggested that a combination of these factors were the nucleus for the development of children's food preferences (Garn, Clark, and Guire, 1975; Owen and Kram, 1974; Birch, 1980). Therefore, it was assumed by this investigator that parental influence may be related to the development of childhood obesity.

The present study investigated the relationship between the paternal use of foods as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection and the obese or lean status of the respective son. The study design defined the extraneous variables of sex, race, and income and these factors were assumed to be controlled throughout the investigation. The sons' triceps skinfold thickness was determined as the appropriate measurement for the classification of lean, normal, or obese status. The findings failed to support the hypothesis, at the $p.<.05$ level, that a relationship existed between the obese or lean status of the sons and the fathers' scores on the subscales of the FCFOQ. These findings were similar to those of Rogers (1977), who found no relationship between the maternal use of food in a contingency manner and the obese or lean status of their college age daughters.

Of interest, positive and significant correlation coefficients were revealed between the fathers' use of food in a contingency manner and the sons' uncategorized triceps skinfold thickness. This observation suggested that the research hypothesis may be supported with a larger sample size within each of the lean, normal, or obese sons' triceps skinfold thickness groups and the paternal use of food in a contingency manner.

Several parental differences toward the use of food in a contingency manner were observed between the present study and the literature review. They were as follow:

1. Differences toward the use of food as a punishment were manifested between mothers and fathers. The present study suggested that fathers tended not to use food as a punishment for their sons' behavior. In contrast, Rogers (1977) revealed that mothers tended to use food as a punishment for their daughters' behavior, which was supported by Eppright (1969), Owen and Kram (1974), and Birch, Zimmerman and Hind (1980).

2. The parental use of food as a reward for the sons' behavior was similar to the findings of Rogers (1977), who suggested that mothers tended to use food as a reward for their daughters' behavior. The present study and the study by Rogers (1977) revealed similar findings with past studies (Eppright, 1969; Owen and Kram, 1974; Birch, Zimmerman, and Hind, 1980), which revealed that mothers and fathers tended to use food as a reward for their children's behavior.

3. The present study suggested that fathers who tended to use food as a reward for their sons' behavior, also tended to use food as a soothing agent and an expression of affection. Similar findings by Rogers

(1977) reported that mothers who tended to use food as a reward for their daughters' behavior, also tended to use food as a soothing agent and an expression of affection.

4. The present study revealed that fathers of lean sons tended not to use food as a soothing agent, whereas, fathers of obese sons tended to use food as a soothing agent.

These findings suggested that differences existed between mothers' and fathers' use of food in a contingency manner for their children's behavior. It would be interesting to observe the relationship among (a) mothers and sons, (b) mothers and daughters, (c) fathers and sons, (d) fathers and daughters with the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection with a refined child-feeding opinion instrument.

It is the recommendation of this investigator to utilize statistical item analysis for the thirty items within the FCFOQ. Only those items which achieve significance should be retained for future studies. The development of an appropriate instrument should be based on observations of parent-child interactions and the use of food in a contingency manner.

It is suggested that the classification of obese or lean children (via triceps skinfold thickness measurements) paired with the specific parent groups might reveal the possible relationship between the parents' use of food in a contingency manner and the status of obesity or leanness of children. Of importance, future studies between these continous variables should control the following:

1. Race
2. Income

3. Ethnic Origin
4. Religious Affiliation
5. Education of the mother and the father
6. Occupation of the mother and the father
7. Number of children in the family
8. Type of residence

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APPENDIX A

Summary of Frequencies of Original

Child-Feeding Opinion Questionnaire

		Strongly Agree	Agree	Tend to Agree	Tend to Disagree	Disagree	Strongly Disagree	
1.	A mother should withhold a child's favorite food if he has been bad.	0	2	6	5	7	5	Male
		1	1	4	4	5	10	Female
2.	A mother should not give a child a cookie to stop him from crying.	7	6	5	5	2	0	
		6	8	3	5	2	1	
3.	Infrequently, it is acceptable for a child who misbehaves to be made to go to bed without dinner.	1	3	1	5	3	12	
		0	1	0	1	8	15	
4.	It is bad practice to honor school children's grades by making their favorite foods.	1	4	2	2	11	5	
		0	4	4	4	6	7	
5.	A woman sho loves her family spends a lot time cooking dishes her family likes.	0	7	2	6	5	5	
		2	6	4	6	4	3	
6.	It is all right to tell a child he can't have dessert because he misbehaved.	2	11	5	4	1	2	
		1	9	2	4	6	3	
7.	A good way to be a child to finish a chore is to promise a snack when he's finished.	0	5	2	8	8	2	
		0	0	6	7	8	4	
8.	Dessert is considered to be part of the total meal.	1	12	3	4	4	1	
		1	7	4	2	8	3	
9.	It is only natural to give a child a cookie or similar food to make him feel better when he has been hurt.	0	5	8	7	2	2	
		0	5	6	3	8	3	
10.	Children should have dessert only after everything on the plate has been eaten.	9	6	5	3	2	0	
		4	9	7	2	2	1	
11.	An excellent way to recognize a child's special accomplishment is to take hime out to eat.	1	8	3	6	4	3	
		2	4	7	5	5	2	
12.	Food has little to do with good mother-child relationships.	4	6	6	7	2	0	
		3	7	5	5	3	2	
13.	Dessert should not be withheld, even if vegetables aren't always eaten.	1	3	4	10	5	2	
		0	2	3	7	5	7	

		Strongly Agree	Agree	Tend to Agree	Tend to Disagree	Disagree	Strongly Disagree	
14.	When children feel sad and "blue," a favorite food will make them feel better.	0	7	7	4	5	2	Male
		0	4	8	5	3	5	Female
15.	An exellent means for consoling a disappointed teenager is to make a favorite dish.	0	7	4	7	3	4	
		0	4	4	5	7	5	
16.	Right from the first, children should learn they can't be fed each time they cry.	9	8	5	2	1	0	
		8	10	1	4	1	0	
17.	It is better to make a favorite dish to show someone you care than to just tell them.	1	2	1	11	3	7	
		2	0	2	5	7	9	
18.	Withholding dessert because a child did something the mother disapproves of serves no purpose.	4	0	3	10	7	1	
		4	6	4	4	2	4	
19.	It is a bad idea to have a rule that children can have second helpings of food they like only after eating other foods served.	1	3	3	6	10	2	
		1	6	1	6	9	2	
20.	A good way for a mother to show she loves her child is to make his favorite dish.	0	1	6	6	7	5	
		1	2	2	6	9	5	
21.	Mothers should not use dessert as a bribe to get children to eat.	3	7	9	2	2	2	
		8	7	5	3	1	1	
22.	When school childten are studying for tests, they should be allowed to snack more ofter than usual.	0	0	6	0	5	5	
		0	1	2	8	5	9	
23.	A mother who loves her children never keeps food from them.	4	2	3	7	7	2	
		2	1	1	6	8	7	
24.	Promising a snack to children to get them to play quietly is an unacceptable practice.	3	8	9	4	1	0	
		6	9	4	5	1	0	
25.	Just because a school child is under pressure, it is no excuse for eating extra sweets.	5	13	5	1	1	0	
		6	16	2	1	0	0	
26.	Giving a disappointed child a cookie or cracker serves no purpose.	3	3	6	5	7	1	
		2	7	6	6	3	1	

		Strongly Agree	Agree	Tend to Agree	Tend to Disagree	Disagree	Strongly Disagree	
27.	It is not a bad idea to make a child eat a food he dislikes when he acted silly at the table.	1	0	2	10	7	5	Male
		1	1	2	4	9	8	Female
28.	It is silly to use food to show children that they are loved.	4	7	4	6	3	1	
		7	9	3	5	1	0	
29.	It is silly to say that "the way to a person's heart is through the stomach."	5	5	6	7	2	0	
		6	11	4	3	1	0	
30.	A snack is a good thing to give a child who takes a hard fall, so that he'll feel better.	0	2	7	5	7	4	
		0	1	3	5	8	8	

APPENDIX B

Attitude Statements for Fathers' Child-Feeding

Opinion Questionnaire

	Direction	Random Number
Subscale one: Use of Food as a Reward		
1. A good way to get a child to finish a chore is to promise a snack when he is finished.	+	28
2. Children should have dessert only after everything on the plate has been eaten.	+	27
3. An excellant way to recognize a child's special accomplishment is to take him out to eat.	+	18
4. It is bad practice to honor school children's grades by making their favorite food.	-	6
5. Children may have second helpings of favorite foods when they have finished all other foods served at mealtime.	+	4
6. Fathers should not use a son's favorite food as a bribe to get him to eat.	-	2
7. A good way to encourage children to participate in family outings is to provide favorite snacks during the trip.	+	16
Subscale two: Use of Food as a Punishment		
1. A father should withhold a son's favorite food if he has been bad.	+	14
2. It is acceptable for a child who misbehaves to miss having dessert at dinner.	+	19
3. It is all right to tell a child he can't have a favorite snack because he misbehaved.	+	17
4. It is acceptable practice to make a child eat a food he dislikes at mealtime.	+	3
5. Dessert is considered to be part of the total meal.	-	22

	Direction	Random Number
6. Dessert should not be withheld, even if vegetables aren't eaten.	-	25
7. Withholding dessert because a son child did something the father disapproves of serves no purpose.	-	20

Subscale three: Use of Food as a Soothing Agent

1. It is only natural to give a child a cookie or similar food to make him feel better when he's been hurt.	+	30
2. When children feel sad or "blue", a favorite food will make them feel better.	+	15
3. An excellent means for consoling a disappointed child is to make a favorite dish.	+	24
4. A boy should be allowed to eat snacks and drinks as long as he is physically active.	+	10
5. A snack is a good thing to give a child who takes a hard fall so that he'll feel better.	+	26
6. A father should not offer a "food treat" to a boy who had a bad day at school.	-	11
7. It is unacceptable practice to console a disappointed child with a favorite food.	-	29
8. Just because a school child is under pressure, it is no excuse for eating extra sweets.	-	1
9. Giving a disappointed child a cookie or cracker serves no purpose.	-	13

Subscale four: Use of Food as an Expression of Affection

1. A father who loves his family encourages the purchase of favorite foods.	+	12

		Direction	Random Number
2.	It is a good idea to take children out for an "ice cream treat" to let them know they are loved.	+	7
3.	A good way for a father to show love for his son is to buy him a sweet treat.	+	21
4.	A father who loves his son nevers keeps food from him.	+	9
5.	Food has little to do with good father-son relationship.	-	5
6.	A dad who loves his son purchases several snack and drink items at a baseball game.	+	8
7.	It is silly to use food to show children that they are loved.	-	23

Child-Feeding Opinion Questionnaire

Directions: Following is a list of statements of opinions about child-feeding. Since this is a survey of opinions, it is desired that you indicate your own personal opinions, regardless of whether you think other people might agree or disagree with you. There are no "right" or "wrong" answers to these statements.

Please read each statement carefully, and indicate your opinion by circling the letter(s) according to the code given below.

If you:	Circle
Strongly Agree	SA
Agree	A
Tend to Agree	TA
Tend to Disagree	TD
Disagree	D
Strongly Disagree	SD

Please do not omit any statements. If you are somewhat unsure of your opinion, please indicate your Tendency to Agree or Tendency to Disagree by marking TA or TD.

	Strongly Agree	Agree	Tend to Agree	Tend to Disagree	Disagree	Strongly Disagree
	1	2	3	4	5	6
1. Just because a school age child is under pressure, it is no excuse for eating extra sweets.	SA	A	TA	TD	D	SD
2. Fathers should not use a son's favorite food as a bribe to get him to eat.	SA	A	TA	TD	D	SD
3. It is acceptable practice to make a child eat a food he dislikes at mealtime.	SA	A	TA	TD	D	SD
4. Children may have second helpings of favorite foods when they have finished all other foods served at mealtime.	SA	A	TA	TD	D	SD
5. Food has little to do with good father-son relationships.	SA	A	TA	TD	D	SD
6. It is bad practice to honor the grades of children by making their favorite foods.	SA	A	TA	TD	D	SD
7. It is a good idea to take children out for an "ice cream treat" to let them know they are loved.	SA	A	TA	TD	D	SD
8. A Dad who loves his son purchases several snack and drink items at a baseball game.	SA	A	TA	TD	D	SD
9. A father who loves his son never keeps food from him.	SA	A	TA	TD	D	SD
10. A boy should be allowed to eat snacks and drinks as long as he is physically active.	SA	A	TA	TD	D	SD
11. A father should not offer a "food treat" to a son who had a bad day at school.	SA	A	TA	TD	D	SD
12. A father who loves his family encourages the purchase of favorite foods.	SA	A	TA	TD	D	SD
13. Giving a disappointed child a cookie or cracker serves no purpose.	SA	A	TA	TD	D	SD
14. A father should withhold a son's favorite food if he has been bad.	SA	A	TA	TD	D	SD
15. When children feel sad or "blue", a favorite food will make them feel better.	SA	A	TA	TD	D	SD

	Strongly Agree	Agree	Tend to Agree	Tend to Disagree	Disagree	Strongly Disagree
	1	2	3	4	5	6
16. A good way to encourage children to participate in family outings is to provide favorite snacks during the trip.	SA	A	TA	TD	D	SD
17. It is all right to tell a child he can't have a favorite snack because he misbehaved.	SA	A	TA	TD	D	SD
18. An excellent way to recognize a child's special accomplishment is to take him out to eat.	SA	A	TA	TD	D	SD
19. It is acceptable for a child who misbehaves to miss having dessert at dinner.	SA	A	TA	TD	D	SD
20. Withholding dessert because a son did something the father disapproves of serves no purpose.	SA	A	TA	TD	D	SD
21. A good way for a father to show love for his son is to buy him a "sweet treat".	SA	A	TA	TD	D	SD
22. Dessert is considered to be part of the total meal.	SA	A	TA	TD	D	SD
23. It is silly to use food to show children that they are loved.	SA	A	TA	TD	D	SD
24. An excellent means for consoling a disappointed child is to make a favorite dish.	SA	A	TA	TD	D	SD
25. Dessert should not be withheld, even if vegetables aren't eaten.	SA	A	TA	TD	D	SD
26. A snack is a good thing to give a child who takes a hard fall so that he'll feel better.	SA	A	TA	TD	D	SD
27. Children should have dessert only after everything on the plate has been eaten.	SA	A	TA	TD	D	SD
28. A good way to get a child to finish a chore is to promise a snack when he is finished.	SA	A	TA	TD	D	SD
29. It is unacceptable practice to console a disappointed child with a favorite food.	SA	A	TA	TD	D	SD
30. It is only natural to give a child a cookie or similar food to make him feel better when he's been hurt.	SA	A	TA	TD	D	SD

APPENDIX C

A STUDY TO EVALUATE CHILD-FEEDING ATTITUDES AMONG FATHERS OF ELEMENTARY SCHOOL AGE SONS USING A REVISED CHILD-FEEDING OPINION QUESTIONNAIRE AND THEIR RELATIONSHIP TO THE SON'S STATE OF OBESITY OR LEANNESS.

A Thesis Proposal

Presented to

The Department of Human Nutrition and Foods

Virginia Polytechnic Institute and State University

In Partial Fulfillment

of the Requirement for the Degree of

Master of Science

by

Caren Frigge

1984

INTRODUCTION

The Importance of the Study

The prevalence of childhood obesity ranges anywhere from 3% to 25% and continues to increase. The reason for the increasing percentage is related to numerous factors. One of these factors is the influence of paternal attitudes on child-feeding practices. The evaluation of parental child-feeding attitudes, with a revised Child-Feeding Opinion Questionnaire, and their relationship to the son's state of obesity or leanness would enable educators, nutritionists, medical personnel, and parents to realize the significance of paternal influence on the development of childhood obesity.

THE PROBLEM AND ITS SETTING

The Statement of the Problem

This investigator proposes to evaluate child-feeding attitudes among fathers of elementary school age sons using a revised Child-Feeding Opinion Questionnaire, and their relationship to, and predictability of, the son's level of obesity or leanness.

The Subproblem

1. The first subproblem: The first subproblem is to revise the Child-Feeding Opinion Questionnaire prior to administration to a preselected paternal sample.

2. The second subproblem: The second subproblem is to obtain anthropometric data, including height, weight, and triceps skinfold thickness measurement of each elementary school age male participating in the study.

3. The third subproblem: The third subproblem is to analyze and interpret the data in order to evaluate the relationship between child feeding attitudes of fathers and the son's level of obesity or leanness.

The Hypothesis

The research hypothesis is the paternal child-feeding attitudes, represented in a revised Child-Feeding Opinion Questionnaire, are attitudes which show a relationship to the state of obesity or leanness in the elememtary school age male.

The hypothesis is based on the assumption that the anthropometric data is an appropriate measurement of the state of obesity or leanness in the elementary school age male.

The null hypothesis is that there is no relationship between paternal child-feeding attitudes and the state of obesity or leanness in the elementary school age male. Levels of significance will be set, a priori at the $p.<.05$ level.

METHODOLOGY

This investigation will assess on area in the multifactorial nature of childhood obesity: elementary school age male feeding attitudes of fathers and their relationship to the son's level of obesity or leanness. The methodology will be correlational research; that is, the paternal

attitudes will be compared to the anthropometric measurements of the corresponding son. The primary statistical analysis will be Pearson product-moment correlation coefficient analysis. The investigation utilizes a revised Child-Feeding Opinion Questionnaire, which was a Likert-type survey of attitudes, compiled by C.S. Rogers, Ph.D., Virginia Polytechnic Institute and State University.

The revision of the instrument was conducted by the investigator, who established face falidity for the new questionnaire using a random sample of fifty parents residing in the Tidewater area of Virginia. The instrument possesses the approval of the investigator's committee at Virginia Polytechnic Institute and State University.

The investigator compiled the list of proposed elementary schools in the Chesapeake School System, utilizing the 1980 Census information from the City of Chesapeake, geographic location of each elementary school in the Chesapeake School System, and the June 1983 membership and enrollment of each elementary school in the City of Chesapeake. This selection permitted the deletion of extraneous variables, i.e., income, race, and paternal occupation within the research population.

The proposed population will be all the fathers and sons in each second grade class of selected elementary schools. The following schools are proposed:

1. Hickory Elementary School
2. Butts Road Elementary School
3. Great Bridge Elementary School
4. B.M. Williams Elementary School

or

1. Butts Road Elementary School
2. Great Bridge Elementary School
3. Georgetown Elementary School

The names and addresses of each father will be obtained by the investigator from each school roster. The appropriate letter of consent will be mailed to the father with the questionnaire. The returns will be mailed to the investigator. The investigator will acknowledge each returned paternal consent form to the school principal or designee.

The anthropometric measurements will be collected by the investigator during regular school hours.

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Caren Frigge

B.M. Williams Elementary
1100 Battlefield Blvd. N.
Chesapeake, VA 23320

Dear Principal:

Paternal/son relationships involve multifactorial interactions. The relationship between the paternal use of food as a reward/punishment etc. for his son's behavior provides a possible correlation in the development of childhood obesity. The enclosed CFOQ questionnaire, concerned with father/son interactions associated with food intake is part of a study being carried out by the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. The questionnaire has been revised and tested with a random sampling of fathers in relationship to their 6, 7, or 8 year old son.

The design of this study should require no additional classroom time. The research design is correlational in nature; responses to CFOQ mailed to all fathers of males in the second grade will be compared to the height, weight, and triceps skinfold measurement of the corresponding son. The latter may be obtained during the regular school nurse assessment for height and weight.

The results of this study, which will be available for your information, will provide valuable insight into the development of childhood obesity.

It will be appreciated if you will permit the collection of data at your school during April, May and June 1984. Thank you for your co-operation with this study.

Very Sincerely Yours,

Caren L. Frigge

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Caren Frigge

Hickory Elementary
2710 Battlefield Blvd. S.
Chesapeake, VA 23322

Dear Principal:

Paternal/son relationships involve multifactorial interactions. The relationship between the paternal use of food as a reward/ punishment etc. for his son's behavior provides a possible correlation in the development of childhood obesity. The enclosed CFOQ questionnaire, concerned with father/son interactions associated with food intake is part of a study being carried out by the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. The questionnaire has been revised and tested with a random sampling of fathers in relationship to their 6, 7, or 8 year old son.

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The results of this study, which will be available for your information, will provide valuable insight into the development of childhood obesity.

It will be appreciated if you will permit the collection of data at your school during April, May and June 1984. Thank you for your co-operation with this study.

Very Sincerely Yours,

Caren L. Frigge

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Caren Frigge

Chesapeake Public Schools
Instructional Services Center
1238 North River Drive
Chesapeake, Virginia 23323

Dear Dr. Lenard J. Wright:

The enclosed material contains the necessary criteria requested by your department to conduct research prior to approval from the Chesapeake School System. The proposal is an edited form of the formal proposal submitted to the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. The committee and I felt that the original version was too lengthy and that the shorter version provides the information requested.

There are two paternal authorization consent letters/forms. There would be a greater percentage of paternal participation if the consent form was written on formal letter-head stationary. Please advise according to school policy as to the most appropriate letter of consent.

The physical development of our children is influenced by many variables. There is a need to explain paternal/son interactions associated with food intake as indicated by the literature review.

Although I am presently employed at Norfolk General Hospital as a Clinical Dietitian, I am available for the necessary interviews by the Chesapeake School System.

Thank you very much for your co-operation with this request.

Very Sincerely Yours,

Caren L. Frigge

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Caren Frigge

Georgetown Elementary
436 Providence Road
Chesapeake, VA 23325

Dear Principal:

Paternal/son relationships involve multifactorial interactions. The relationship between the paternal use of food as a reward/ punishment etc. for his son's behavior provides a possible correlation in the development of childhood obesity. The enclosed CFOQ questionnaire, concerned with father/son interactions associated with food intake is part of a study being carried out by the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. The questionnaire has been revised and tested with a random sampling of fathers in relationship to their 6, 7, or 8 year old son.

The design of this study should require no additional classroom time. The research design is correlational in nature; responses to CFOQ mailed to all fathers of males in the second grade will be compared to the height, weight, and triceps skinfold measurement of the corresponding son. The latter may be obtained during the regular school nurse assessment for height and weight.

The results of this study, which will be available for your information, will provide valuable insight into the development of childhood obesity.

It will be appreciated if you will permit the collection of data at your school during April, May and June 1984. Thank you for your co-operation with this study.

Very Sincerely Yours,

Caren L. Frigge

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Caren Frigge

Butts Road Elementary
1000 Mt. Pleasant Road
Chesapeake, VA 23320

Dear Principal:

Paternal/son relationships involve multifactorial interactions. The relationship between the paternal use of food as a reward/ punishment etc. for his son's behavior provides a possible correlation in the development of childhood obesity. The enclosed CFOQ questionnaire, concerned with father/son interactions associated with food intake is part of a study being carried out by the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. The questionnaire has been revised and tested with a random sampling of fathers in relationship to their 6, 7, or 8 year old son.

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The results of this study, which will be available for your information, will provide valuable insight into the development of childhood obesity.

It will be appreciated if you will permit the collection of data at your school during April, May and June 1984. Thank you for your co-operation with this study.

Very Sincerely Yours,

Caren L. Frigge

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Spring, 1984

Dear Father:

A study on attitudes toward child-feeding is being planned at your son's school within the next month. The study is being conducted by Caren L. Frigge, Dietitian and M.S. student with the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. She has secured the appropriate permission from the Chesapeake School System.

She will require your assistance by completing the enclosed questionnaire and by signing this authorization form. Please mail her the 2 forms in the enclosed stamped envelope.

I hope you will be able to assist her with this research. There is a need to study paternal/son interactions associated with food intake in relationship to the physical development of young males.

Thank you for your assistance in this research project.

Very Sincerely Yours,
Sanford J. Ritchey
Dean of the College
of Human Resources

Authorization for Participation of Minor Child

Name of child_____

The undersigned being the male Guardian of the above named male child, hereby consents for the child named above to participate in the Child Feeding Opinion Questionnaire Study.

Information to be secured will be physical measurements to include height, weight, and triceps skinfold thickness (measurement of the upper arm) of the child.

All information obtained in the study will be held strictly confidential and will be used for statistical purpose only. My child's identity will not be revealed in any publication.

_____

Parent/Legal Male Guardian

COLLEGE OF HUMAN RESOURCES

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Blacksburg, Virginia 24061

DEPARTMENT OF HUMAN NUTRITION AND FOODS

Caren Frigge

Great Bridge Elementary
408 Cedar Road
Chesapeake, VA 23320

Dear Principal:

Paternal/son relationships involve multifactorial interactions. The relationship between the paternal use of food as a reward/punishment etc. for his son's behavior provides a possible correlation in the development of childhood obesity. The enclosed CFOQ questionnaire, concerned with father/son interactions associated with food intake is part of a study being carried out by the Department of Human Nutrition and Foods at Virginia Polytechnic Institute and State University. The questionnaire has been revised and tested with a random sampling of fathers in relationship to their 6, 7, or 8 year old son.

The design of this study should require no additional classroom time. The research design is correlational in nature; responses to CFOQ mailed to all fathers of males in the second grade will be compared to the height, weight, and triceps skinfold measurement of the corresponding son. The latter may be obtained during the regular school nurse assessment for height and weight.

The results of this study, which will be available for your information, will provide valuable insight into the development of childhood obesity.

It will be appreciated if you will permit the collection of data at your school during April, May and June 1984. Thank you for your co-operation with this study.

Very Sincerely Yours,

Caren L. Frigge

APPENDIX D

Frequency Summary of Fathers' Subscale Responses

Subscale (Frequency)				
Reward	Punishment	Soothing	Affection	Total Scale
17.00 (1)	12.00 (1)	15.00 (1)	12.00 (2)	67.00 (1)
18.00 (1)	14.00 (1)	18.00 (1)	13.00 (1)	80.00 (2)
20.00 (1)	15.00 (1)	19.00 (2)	14.00 (5)	81.00 (2)
21.00 (9)	19.00 (2)	20.00 (2)	15.00 (3)	83.00 (1)
22.00 (2)	20.00 (2)	21.00 (2)	16.00 (4)	86.00 (2)
23.00 (9)	21.00 (2)	22.00 (1)	17.00 (2)	89.00 (2)
24.00 (5)	22.00 (4)	23.00 (3)	18.00 (7)	90.00 (1)
25.00 (6)	23.00 (4)	24.00 (2)	19.00 (4)	91.00 (1)
26.00 (7)	24.00 (6)	25.00 (1)	20.00 (2)	92.00 (2)
27.00 (10)	25.00 (6)	26.00 (3)	21.00 (7)	94.00 (3)
28.00 (8)	26.00 (6)	27.00 (5)	22.00 (4)	95.00 (1)
29.00 (4)	27.00 (5)	28.00 (3)	23.00 (6)	96.00 (2)
30.00 (4)	28.00 (9)	29.00 (4)	24.00 (2)	97.00 (1)
31.00 (2)	29.00 (1)	30.00 (6)	25.00 (6)	98.00 (2)
32.00 (1)	30.00 (8)	31.00 (3)	26.00 (4)	99.00 (1)
	31.00 (4)	32.00 (6)	27.00 (2)	100.00 (3)
Missing (2)	32.00 (3)	33.00 (3)	28.00 (1)	101.00 (3)
	33.00 (2)	34.00 (3)	29.00 (2)	102.00 (1)
	34.00 (2)	35.00 (4)	30.00 (3)	103.00 (3)
	36.00 (1)	36.00 (3)	34.00 (2)	104.00 (2)
		37.00 (4)	38.00 (1)	105.00 (1)
	Missing (2)	38.00 (3)		107.00 (2)
		39.00 (2)	Missing (6)	109.00 (2)
		41.00 (1)		110.00 (1)
		49.00 (1)		111.00 (2)
				112.00 (2)
		Missing (3)		113.00 (2)
				114.00 (1)
				115.00 (1)
				116.00 (1)
				118.00 (1)
				120.00 (2)
				121.00 (2)
				124.00 (1)
				127.00 (2)
				129.00 (1)
				136.00 (1)
				138.00 (1)
				Missing (9)

APPENDIX E

FATHERS' RESPONSES/SONS' ANTHROPOMETRIC SCORES

Father	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Item 1	1	2	3	3	1	1	2	2	2	1	1	1	3	2	2
Item 2	1	2	1	1	2	2	2	4	2	1	1	3	3	2	4
Item 3	2	2	4	1	2	2	3	4	4	2	6	3	3	5	3
Item 4	2	2	3	1	2	1	2	3	3	1	1	2	2	2	2
Item 5	2	2	4	1	2	2	4	3	3	6	3	1	2	2	4
Item 6	2	2	4	1	5	4	4	4	4	1	3	6	4	5	5
Item 7	5	5	3	5	3	5	4	3	4	6	2	4	6	2	3
Item 8	5	5	3	6	4	4	3	4	4	6	1	4	5	4	6
Item 9	2	5	1	5	3	5	4	4	4	6	1	6	6	5	6
Item 10	2	3	2	6	6	3	4	3	3	6	1	5	4	5	6
Item 11	4	2	3	6	1	2	4	4	4	1	6	5	4	5	4
Item 12	5	2	3	1	4	3	4	4	3	6	1	5	1	5	3
Item 13	1	2	4	1	2	4	4	4	4	6	6	5	4	5	5
Item 14	2	3	3	6	2	5	4	4	4	6	6	5	4	3	4
Item 15	5	3	2	2	3	2	4	3	3	6	1	3	3	3	3
Item 16	2	5	3	6	3	5	3	3	4	6	1	5	5	5	4
Item 17	2	3	3	1	3	5	3	3	4	1	1	2	3	2	3
Item 18	5	3	3	1	4	5	4	3	3	2	1	2	2	5	2
Item 19	2	5	4	1	2	4	4	3	3	5	1	2	4	2	4
Item 20	5	2	3	3	3	2	4	4	4	3	1	4	5	4	3
Item 21	5	6	3	6	4	6	4	3	4	6	1	3	4	6	4
Item 22	3	3	3	6	4	4	4	2	3	3	6	5	4	5	2
Item 23	3	1	3	1	2	1	3	2	3	1	6	4	4	2	4
Item 24	2	3	3	5	5	5	4	3	3	3	1	3	3	2	3
Item 25	5	2	4	6	5	5	4	4	4	6	1	5	4	5	6
Item 26	5	6	2	6	4	5	4	5	5	6	1	3	4	5	5
Item 27	2	4	1	1	2	1	3	4	3	1	6	5	3	2	2
Item 28	3	4	3	5	3	5	4	3	4	6	1	3	4	5	5
Item 29	2	2	4	3	2	2	3	4	4	2	6	5	4	4	4
Item 30	5	5	2	1	3	5	3	5	5	3	1	3	3	5	4
Height	50.25	48.75	52.25	52.25	53.25	51.75	50.00	52.25	54.00	50.75	49.50	53.00	54.25	49.00	47.75
Weight	58.50	49.00	66.25	72.75	59.75	59.25	53.00	64.00	82.25	60.25	59.50	66.00	80.50	50.00	52.50
Triceps 1	10.50	12.25	12.00	15.00	09.00	08.00	07.00	09.75	16.00	07.25	15.50	10.00	15.00	05.00	13.00
Triceps 2	10.00	12.00	12.25	15.00	09.25	09.50	07.50	10.00	16.00	07.50	15.00	10.25	15.00	06.00	13.25

FATHERS' RESPONSES/SONS' ANTHROPOMETRIC SCORES

Father	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)
Item 1	2	1	1	1	2	1	1	2	2	1	1	1	1	1	1
Item 2	4	6	1	1	2	1	2	1	2	3	1	2	3	1	2
Item 3	4	2	3	3	4	3	2	5	2	4	3	2	3	5	6
Item 4	4	1	2	2	3	2	1	3	2	2	3	2	2	2	1
Item 5	2	6	4	4	3	4	5	3	2	2	2	5	2	2	3
Item 6	4	1	4	3	3	4	6	6	4	5	4	5	4	1	6
Item 7	4	6	3	5	2	4	1	2	3	4	4	2	2	5	5
Item 8	6	6	4	6	4	4	6	5	4	5	6	5	5	5	6
Item 9	5	6	4	5	2	6	5	5	4	6	5	5	2	6	4
Item 10	4	6	5	5	3	5	5	2	4	4	5	5	2	6	3
Item 11	4	3	3	4	2	2	5	5	4	2	4	3	5	2	5
Item 12	4	6	4	5	4	4	5	2	3	3	5	2	2	2	2
Item 13	3	6	3	3	4	2	5	5	4	2	3	4	5	2	6
Item 14	3	6	5	6	3	5	2	1	4	3	4	4	5	5	6
Item 15	4	6	4	3	3	4	2	2	3	6	4	5	5	5	3
Item 16	3	6	5	4	4	6	5	2	4	3	5	4	3	3	2
Item 17	2	2	4	5	4	2	2	3	2	3	2	3	2	2	2
Item 18	4	2	3	3	3	4	5	2	5	3	4	5	3	2	3
Item 19	3	2	3	5	3	5	2	2	2	3	4	5	2	2	3
Item 20	4	6	4	1	4	3	5	5	4	3	2	2	5	5	5
Item 21	6	6	5	6	4	6	6	2	4	4	6	6	5	5	5
Item 22	5	2	5	3	3	2	5	3	4	4	5	5	2	6	5
Item 23	2	1	2	2	3	1	5	5	4	3	2	5	2	2	5
Item 24	4	5	4	2	3	4	1	2	3	4	5	5	5	3	4
Item 25	4	6	5	6	4	6	6	5	5	6	5	5	5	6	4
Item 26	5	5	5	5	5	5	5	2	5	5	5	6	5	2	3
Item 27	4	1	4	2	2	2	1	2	5	2	3	5	2	5	4
Item 28	5	6	5	4	5	5	6	2	4	3	5	5	5	2	3
Item 29	2	6	3	3	3	2	6	5	3	3	2	2	5	5	5
Item 30	6	2	4	5	4	5	2	3	3	4	5	5	5	3	2
Height	50.50	51.25	51.25	49.75	51.00	49.00	53.75	49.00	50.50	52.00	50.50	50.00	50.75	48.75	48.75
Weight	60.50	66.00	58.00	65.00	53.00	50.00	80.50	47.75	60.25	74.50	58.00	66.00	59.25	60.75	54.00
Triceps 1	07.50	11.00	11.00	07.75	09.75	05.25	15.00	06.25	13.00	16.00	07.00	09.25	06.00	12.75	09.00
Triceps 2	08.00	11.00	10.50	08.00	09.00	05.50	15.75	06.50	13.00	17.00	07.00	08.75	07.00	13.25	10.00

FATHERS' RESPONSES/SONS' ANTHROPOMETRIC SCORES

Father	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)
Item 1	1	2	2	2	4	5	2	1	2	3	2	2	1	1	1
Item 2	1	2	1	1	2	2	3	3	3	2	2	3	1	2	1
Item 3	2	3	2	2	3	2	5	4	3	5	6	2	2	4	3
Item 4	4	2	3	3	2	1	2	1	2	2	1	2	1	2	2
Item 5	1	4	5	5	4	5	4	4	5	5	1	5	2	3	4
Item 6	1	5	4	4	2	3	4	5	5	5	4	4	5	1	4
Item 7	5	5	5	5	2	2	4	2	1	3	2	2	5	2	3
Item 8	3	5	2	2	3	2	4	3	4	4	2	5	5	5	5
Item 9	4	5	1	1	3	2	4	5	2	4	2	5	3	4	5
Item 10	5	6	2	2	3	2	3	5	3	3	2	5	2	5	5
Item 11	2	5	5	5	5	5	4	5	4	4	3	5	4	4	3
Item 12	5	5	2	2	3	1	4	4	3	3	3	5	4	1	4
Item 13	1	5	4	4	5	5	4	5	5	5	5	5	2	3	5
Item 14	5	5	3	3	5	2	4	3	3	3	6	4	3	3	4
Item 15	5	5	2	2	2	2	3	2	3	3	2	3	2	2	3
Item 16	3	5	3	3	3	2	3	4	4	4	2	3	3	2	2
Item 17	3	3	2	2	3	2	3	2	2	4	6	3	3	3	2
Item 18	5	5	2	2	2	2	3	3	4	2	2	3	3	4	3
Item 19	5	3	2	2	2	2	3	2	2	2	5	3	4	3	3
Item 20	1	4	4	4	5	5	4	5	5	4	2	4	3	3	5
Item 21	6	5	5	5	3	5	4	4	4	3	3	5	5	4	3
Item 22	3	5	3	3	5	2	4	4	5	2	2	5	4	1	3
Item 23	1	2	5	5	4	6	4	4	4	3	2	3	3	1	4
Item 24	5	5	2	2	2	2	3	3	3	3	3	2	4	3	3
Item 25	4	5	6	6	5	5	5	2	5	3	3	5	5	2	4
Item 26	5	5	4	4	5	2	4	5	5	3	3	5	4	5	5
Item 27	3	2	2	2	3	1	3	4	4	5	3	2	1	3	4
Item 28	5	5	2	2	3	2	3	4	3	3	3	4	5	5	5
Item 29	1	4	4	4	5	2	3	4	4	4	4	5	3	4	3
Item 30	5	5	3	3	3	6	3	3	4	3	3	2	4	4	4
Height	47.75	51.50	49.50	49.75	52.00	55.25	53.50	48.50	52.00	52.75	54.50	53.25	51.75	54.25	49.25
Weight	53.50	62.00	50.50	49.75	69.50	72.25	74.00	51.50	62.00	65.25	88.25	72.50	60.00	83.00	52.50
Triceps 1	09.75	12.50	07.25	07.25	11.50	17.75	19.25	09.25	09.50	11.25	19.00	11.00	06.25	18.00	05.00
Triceps 2	10.00	13.00	07.00	08.00	11.75	18.25	19.00	09.75	10.00	11.00	18.75	12.00	06.50	19.00	05.00

FATHERS' RESPONSES/SONS' ANTHROPOMETRIC SCORES

Father	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)
Item 1	1	3	2	2	3	2	2	2	5	2	2	2	2	2	1
Item 2	1	1	3	2	2	2	1	2	3	2	2	4	5	3	5
Item 3	2	4	3	3	1	5	3	2	5	2	5	5	4	3	1
Item 4	2	2	2	1	1	2	2	2	1	2	2	1	2	5	1
Item 5	3	3	2	3	4	2	3	3	1	3	2	4	4	3	3
Item 6	5	4	4	4	5	5	2	4	4	4	2	2	4	3	4
Item 7	2	3	3	4	3	2	3	2	4	3	5	4	2	5	6
Item 8	2	5	2	4	4	4	5	4	4	2	2	4	2	5	6
Item 9	5	5	2	4	5	5	3	3	4	4	2	4	2	5	6
Item 10	5	3	2	4	3	2	6	2	6	3	2	4	2	6	5
Item 11	4	4	4	4	4	4	4	2	6	4	2	3	4	5	4
Item 12	2	3	3	4	3	4	4	2	5	3	2	3	2	4	4
Item 13	5	4	2	4	5	4	3	4	4	5	3	3	4	4	1
Item 14	2	4	5	4	5	4	4	2	4	5	5	4	4	4	5
Item 15	3	3	3	3	3	3	4	2	4	3	3	4	3	3	5
Item 16	2	4	4	4	3	5	4	2	4	3	5	5	3	4	4
Item 17	2	2	3	3	4	4	3	2	4	2	5	2	4	3	2
Item 18	2	2	4	2	3	4	4	3	5	2	2	5	2	3	5
Item 19	3	2	2	4	2	4	4	1	3	4	5	3	4	4	4
Item 20	5	5	2	3	5	3	3	4	4	2	2	3	3	3	2
Item 21	5	3	4	4	3	5	5	4	6	3	4	5	2	5	4
Item 22	2	4	4	5	4	6	5	4	4	3	2	2	2	4	2
Item 23	3	5	1	1	4	2	2	2	1	3	5	1	5	2	3
Item 24	4	3	5	3	3	3	4	4	4	3	2	2	3	4	5
Item 25	5	5	5	5	5	3	5	5	4	3	2	6	3	4	6
Item 26	4	4	5	4	5	4	5	5	4	3	5	5	3	4	5
Item 27	3	3	2	3	3	4	2	2	3	3	2	1	3	3	2
Item 28	5	3	5	4	5	4	5	3	4	3	5	4	3	5	5
Item 29	4	4	2	4	5	6	2	5	3	4	5	3	4	3	2
Item 30	3	3	4	4	4	4	5	2	4	3	5	4	3	5	5
Height	52.00	53.75	48.25	50.00	52.50	51.50	51.50	50.75	49.25	50.00	51.00	56.25	50.00	51.25	51.50
Weight	58.00	84.00	45.00	65.00	59.50	64.25	50.50	68.00	60.25	59.25	52.00	69.50	58.50	56.00	52.50
Triceps 1	06.25	18.25	09.00	11.75	06.75	09.00	06.50	22.00	11.00	09.00	09.50	10.00	11.00	09.75	08.00
Triceps 2	06.25	18.00	09.00	10.00	07.25	09.50	06.50	22.00	11.25	09.00	10.00	09.50	12.00	09.75	09.00

FATHERS' RESPONSES/SONS' ANTHROPOMETRIC SCORES

Father	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(71)	(72)
Item 1	2	2	2	3	4	3	2	1	2	-	2	1
Item 2	2	2	3	1	6	-	1	2	3	1	2	1
Item 3	4	4	4	4	5	4	5	1	5	6	5	1
Item 4	2	2	1	3	3	1	4	1	2	1	2	1
Item 5	3	5	2	2	1	4	4	1	3	6	2	1
Item 6	5	2	4	5	1	6	2	1	2	1	4	1
Item 7	3	2	2	1	3	3	4	3	2	6	4	1
Item 8	4	2	5	-	4	4	4	6	3	6	2	4
Item 9	3	1	5	3	4	5	5	1	-	2	2	-
Item 10	5	5	3	2	2	-	5	2	1	6	5	1
Item 11	5	3	4	5	4	3	2	5	5	4	3	6
Item 12	3	4	4	-	3	3	5	5	-	2	2	1
Item 13	4	5	3	4	1	5	-	5	3	1	5	2
Item 14	4	3	5	5	4	4	3	6	1	6	5	6
Item 15	3	2	3	3	3	3	4	2	1	6	3	1
Item 16	3	5	5	4	3	-	5	2	5	5	2	1
Item 17	2	3	5	3	4	2	3	1	1	5	2	2
Item 18	2	3	3	2	1	2	2	2	1	2	2	1
Item 19	4	3	4	4	2	2	2	1	2	5	5	1
Item 20	3	3	3	2	2	3	4	4	2	2	2	2
Item 21	3	5	4	-	3	5	5	1	5	5	5	1
Item 22	2	5	2	4	4	2	4	-	2	5	2	2
Item 23	4	2	4	-	-	2	3	-	3	2	-	-
Item 24	2	3	3	3	4	2	5	5	3	5	3	1
Item 25	3	5	4	-	3	4	5	5	5	2	5	2
Item 26	4	3	4	4	6	3	5	5	4	5	5	2
Item 27	2	2	4	4	3	4	4	1	3	5	2	1
Item 28	3	5	3	3	4	4	5	5	6	3	4	-
Item 29	4	3	4	4	4	4	4	2	4	5	5	2
Item 30	3	3	3	4	6	3	5	5	2	5	2	2
Height	49.50	55.25	47.75	48.00	48.25	47.00	50.00	45.50	48.50	50.50	51.25	51.50
Weight	65.00	65.00	48.00	49.75	55.00	54.00	61.25	50.25	51.50	57.75	60.25	59.00
Triceps 1	16.25	13.50	08.75	08.25	07.50	07.00	11.75	09.25	09.25	08.75	08.25	07.25
Triceps 2	17.00	14.25	09.25	08.75	06.75	07.00	12.00	10.00	09.75	09.25	08.50	06.00

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PATERNAL CHILD-FEEDING ATTITUDES IN RELATIONSHIP TO THE OBESE OR LEAN STATUS OF THEIR ELEMENTARY SCHOOL AGE SON

by
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(ABSTRACT)

A thirty item Likert-type questionnaire of paternal child-feeding attitude statements was answered by fathers (N=72) in relationship toward the use of food as (a) a reward, (b) a punishment, (c) a soothing agent, and (d) an expression of affection with their elementary school aged son. The variables of income, race, and sex were assumed to be controlled. The father's respective son (N=72), aged seven to eight years, was assessed for height, weight, and triceps skinfold thickness measurement. Anthropometric classification of lean or obese seven to eight year old males was based on the 25 percentile or less triceps skinfold thickness for lean males and 75 percentile or greater for obese males.

Pearson product-moment correlation coefficients between the fathers' use of food in a contingency manner were not significantly related to the status of lean or obese sons. However, Pearson product-moment correlation coefficients between the fathers' use of food in a contingency manner and the uncategorized triceps skinfold thickness revealed a positive correlation between the variables Reward, Soothing Agent, and Expression of Affection ($p.<.05$) and the total scale ($p.<.01$) and the sons' triceps skinfold thickness.

These results indicated that a possible relationship between these two variables may be determined with a larger sample size, controlled socioeconomic variables, and a refined instrument.