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D I F F E R E N T E T H N I C A N D S O C I O -
E C O N O M I C B A C K G R O U N D S

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We hereby recommend that the dissertation prepared under
our supervision by Allena Kinney Pace
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PRESCHOOL CHILDREN FROM DIFFERENT ETHNIC AND
SOCIOECONOMIC BACKGROUNDS

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CHAPTER I

I N T R O D U C T I O N

A child inherits an assortment of genes that predetermine his potential, but each phase of his development is influenced by the interaction of inheritance and environmental experiences. The number of children in the United States under age five in 1950 was estimated as 16.4 million, in 1965 the number had increased to 20.5 million, and the projected number for 1985 is estimated at 30.3 million (108). Many children spend from a few hours to a full day away from their own homes with other children in day care centers, nursery schools, play schools, or day camps. Since Federal funds have become available in communities through Head Start Programs, preschool children of the lower socioeconomic groups have an opportunity to attend supervised day care centers. An important part of the program in these centers--which may be operated by a single individual, a group of individuals, an agency or an organization--is the feeding of these children.

NEED FOR STUDY

Proper nutrition plays a vital role in human growth and development, in the learning process, and in the effective

functioning of young children. Foods served at the children's centers should be nutritionally sound, and children should be encouraged to improve their eating behavior patterns. Food habits are one of the most complex aspects of human behavior. Food acceptances and eating habits are a product of complex interactions among physiological, psychological, and sociological satisfactions associated with food, beliefs about foods, economic resources, and demographic characteristics of the family.

Eating habits formed early in childhood tend to persist into adulthood. Oettinger, of the Children's Bureau, states, "The earlier children form desirable attitudes and learn to enjoy eating, the better the chances are that these positive traits will stay with them throughout their lives" (56). The food an individual chooses is determined largely by the habits established early in life, and the results of these choices are reflected in his nutritional status. A need exists to establish good eating habits during the developmental period, not only because young children are receptive to change, but throughout the growing years these individuals will benefit from improved patterns of eating. Therefore, both the child development center and the family have strong influences in shaping the direction of the child's food acceptance and eating behavior.

Previous studies indicate that children are likely to accept a wide variety of foods if they have a wide experience, knowledge, and appreciation of foods, and if their environment reinforces positive rather than negative attitudes. Food habits like other behavior patterns are subject to deliberate modification by those who are motivated to change and act accordingly. Since dietary habits are established early in life, a study of the ways in which food habits are acquired helps to determine the degree of flexibility in later life. An understanding of children's food preferences, prejudices, and eating behavior can be of value to parents, to those who plan and supervise the feeding of children, and to those who are engaged in promoting sound food habits through nutrition education. Therefore, an investigation of factors which influence a child's acceptance of food and eating behavior patterns during his early formative years is of value.

STATEMENT OF PROBLEM

The general purpose of the study was to compare the food acceptance and eating behavior patterns of children three through six years of age from families having different ethnic and socioeconomic backgrounds.

The specific purposes of the study were:

1. To compare the height and weight of boys and girls, ages three through six years, residing in homes of different socioeconomic and ethnic backgrounds.
2. To evaluate the diets of representative preschool children in terms of the four basic food groups.
3. To investigate the child's acceptance or rejection of foods as determined by the child's likes and dislikes of 100 foods.
4. To compare the number of foods "enjoyed" and "refused" by the children with those of their parents.
5. To consider the influence of the educational level of the parents, the occupational status of the chief income earner, the annual family income, and cultural background factors of the family on food acceptance and eating behavior of the preschool children.
6. To analyze the amount of money spent per person for food, the marketing practices, and the use of convenience foods by families of different socioeconomic levels.
7. To investigate some of the psychological and sociological factors which may influence food acceptance of preschool children.

8. To examine the media of receiving nutritional information, as related to the extent of formal education, and employment status of the mothers.

TOPOGRAPHY OF AREA

A description of the specific geographical locations in which this study was made is presented in this introduction to serve as a framework for a better understanding of the investigation. The communities selected for the study were representative of the urban areas of the State of Texas. Populations of the communities represented ranged from 32,000 to 700,000 and the cities symbolized the urban areas of North East, Central, South, and West Texas. All socioeconomic and ethnic groups were present in each community in varying proportions. The four urban areas studied are briefly described from a socioeconomic and ethnic viewpoint and a general description of the state was made using similar criteria. The geographic locations of the four urban areas in which this study was made are shown in Figure 1.

The Texas population was estimated at 10,711,743 in the 1966 study conducted by The University of Texas Bureau of Business Research (13). Approximately 75.0 per cent of the population in 1966 were urban and 96.6 per cent were native born Americans. Data for the Texas population showed 73.0 per cent Anglo-American, 12.3 per cent Negro, and 14.7

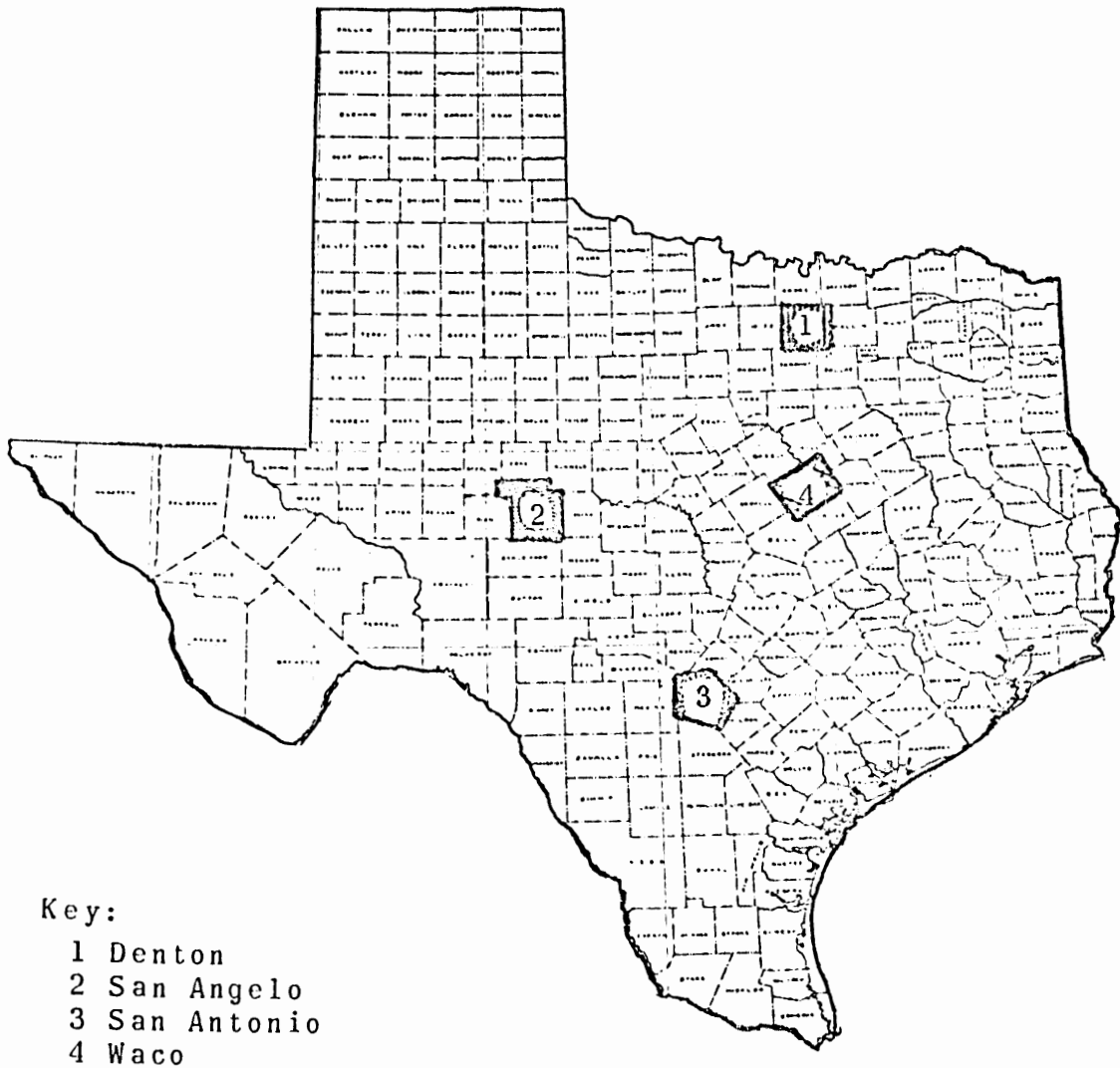


Figure 1

Location of Metropolitan Areas
Included in Study

14.7 per cent with Spanish surnames (Figure 2). The median annual family income for the state was \$4,884 in 1960 with 28.8 per cent of the families having annual incomes of less than \$3,000. The largest portion, 60.4 per cent of the families, had annual incomes of from \$3,000 to \$10,000, and 11.8 per cent had annual family incomes exceeding \$10,000. Family income of less than \$3,000 annually accounted for 57.7 per cent of the Negro population. There were 40.9 per cent of the Negro families with incomes from \$3,000 to \$10,000 and 1.5 per cent with incomes above \$10,000 annually. For the Anglo-American population, 21.3 per cent had annual family incomes under \$3,000, 64.1 per cent had incomes of from \$3,000 to \$10,000, and 14.7 per cent had annual family incomes over \$10,000 (103).

While the Latin Americans were not designated separately in the United States Census, these citizens constitute a distinct ethnic unit in Texas. This is the only population group remaining in Texas which has continued to grow significantly as a consequence of an inward migration from a different country and culture. The Latin Americans are the fastest growing ethnic group in the state, having the highest fertility rate, the lowest educational level, and a significant and malingering language barrier (13).

Denton, the county seat of Denton County, had an estimated population of 32,913 for 1967 and represented one

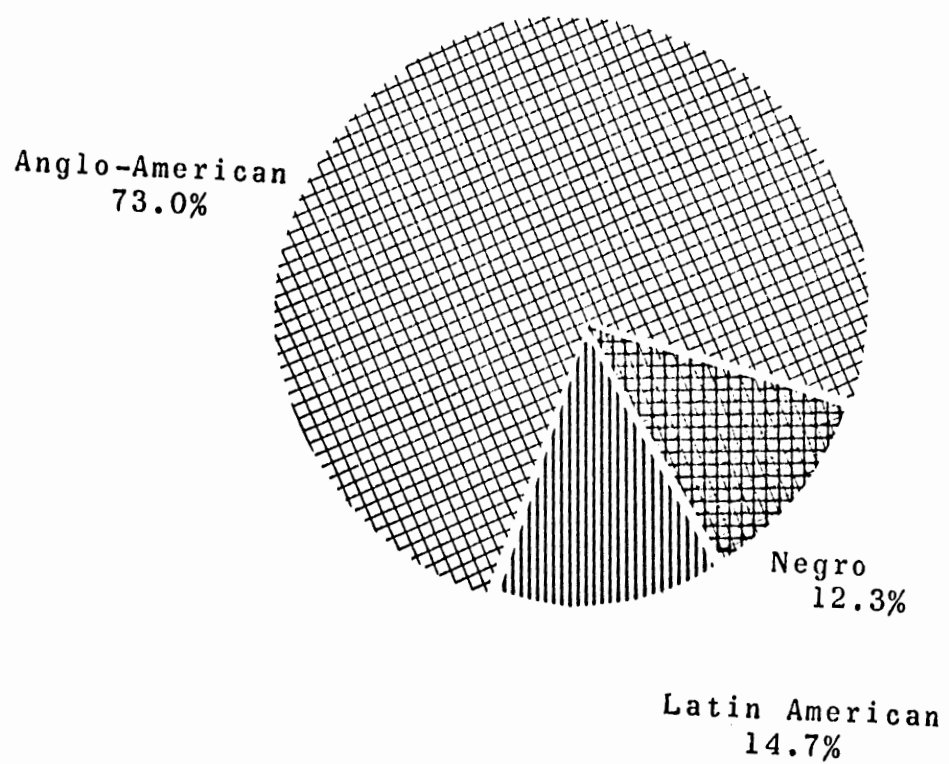


Figure 2
Percentages of Three Ethnic Groups Represented
in the Texas Population

government, industrial, tourist, and educational center (99). According to the United States Census (103), the median annual family income for 1960 was \$5,393. Approximately 27.0 per cent of the families had median annual incomes under \$3,000 and 11.0 per cent had annual family incomes in excess of \$10,000. San Antonio has the distinction of having more military installations than any other city in the South. Bexar County, in which San Antonio is located, is in South Texas. The estimated population was 701,500 in 1967 (99). The median educational level of the San Antonio population for 1960 was 9.5 years of formal schooling (103).

Waco had an estimated metropolitan area population of 156,300 in 1967 (99). The incorporated population was estimated at 110,935. Waco is the county seat of McLennan County in Central Texas and the hub of a large Central Texas retail trade area. The economy is derived primarily from agriculture, diversified manufacturing, Baylor University, and several colleges and technical schools. The median number of school years completed by the adult population was 10.9 for 1960. The median annual family income, according to a United States Census report for 1960, was \$6,044 with 29.8 per cent of the families having less than \$3,000 annual income and 9.3 per cent having over \$10,000 annual family income (103).

CHAPTER II

R E V I E W O F L I T E R A T U R E

Malnutrition in its various forms is one of the world's most pressing health problems. Probably half to two-thirds of the population of the world today is afflicted by malnutrition. Infants and preschool children are most critically affected. György (51) estimated that 70 per cent of preschool children in developing regions of the world today are suffering from malnutrition, particularly protein-calorie-malnutrition. These malnourished children will, if they survive to adult ages, fall into the population segment having chronically poor health, which in turn will seriously handicap the social and economic development of their country.

Teply (98), Chief of Applied Nutrition, of UNICEF stated that in the one-to-four-year-old age group, the mortality rates are up to 40 times as high in developing countries as in the developed countries. This author states that:

There are three salient facts about the preschool child in developing countries: 1) he belongs to the most vulnerable age group with respect to certain physical and social needs; 2) he is the age group

which is being reached least effectively; and 3) for the most part he is not able to understand and articulate his needs.

NUTRITIONAL FACTORS RELATED TO THE GROWTH
AND DEVELOPMENT OF PRESCHOOL CHILDREN

Problems of malnutrition in the preschool child are promoted chiefly by: 1) mothers who do not know what to feed their children to maintain normal growth and development; 2) families that cannot afford to buy the food required by children; and 3) anthropological factors which often operate to prevent giving children the foods needed. The nutritional ecology of the preschool child is of prime importance in determining whether the child will realize his genetic potential. Studies have indicated that interference with growth and development during the first four years may produce significant stunting of growth and mental development (44, 72, 106). Investigations of severe protein deficiency of South Americans have indicated that lack of protein during the first four or five years of life seems to stunt children intellectually as well as physically, and that subsequent improvement of nutrition cannot repair the damage (2).

Barnes and Others (6) compared the learning behavior in rats that were subjected to different forms of nutritional deprivation in early life. The results of the study provided some basis for the belief that nutritional deprivations in

early life may have a permanent retarding influence upon mental development. In the child, the brain achieves 80 per cent of its adult weight in the first three years as compared with the achievement of slightly over 20 per cent of total body weight. Scrimshaw (94) states, "The human brain at the time of birth is gaining weight at the rate of 1-2 milligrams per minute." Therefore, protein deficiency serious enough to limit gain in height and weight may be expected to limit brain growth during the first two or three years of the child's life. The probability that early malnutrition can cause significant retardation in mental development is an important added reason for emphasizing the universal prevention of malnutrition in the preschool child (31, 60).

Malnutrition is not confined to the developing nations. The economically advanced countries, including the United States, have their ghettos, inner-cities, and shanty towns. About one-fifth of the population of the United States--18 per cent--is considered to be living in poverty. This was revealed in a recent Federal study using a sliding scale of each income level that takes into account family size and the ages of family members. The low income population of the country consists of some 34 million people living in 12 million households, and includes 6 million children under six years of age (68). In 1950, approximately one child out of every 10 in the 14 largest cities of the United States

was "culturally deprived." By 1960, this figure had risen to one in three. Riessman (91) estimated that by 1970, there may be one deprived child for every two enrolled in schools in the larger cities.

Studies reported by the United States Department of Agriculture (102) revealed that food consumption and dietary levels are related to income, household size and consumption, urbanization, and the education of the homemaker. In general, diets of families with low incomes are not as good as those of high income families. Individuals in large families with many children usually have more inadequate diets than individuals in smaller families of the same income level. Education raises dietary standards of families. Less well-educated homemakers are found in the lower-income families with the less adequate diets.

A preliminary report of the Agriculture Research Service (101) was made in January of 1968. A survey was made of the food consumption and dietary levels of approximately 15,000 households of one or more members in a representative sample of the United States. The data revealed that the amounts of food used in United States households were sufficient, on the average, to provide diets meeting the Recommended Dietary Allowances set by the Food and Nutrition Board of the National Academy of Sciences—National Research Council for calories and protein; for the minerals, calcium and iron;

and for the vitamins; vitamin A value, thiamine, riboflavin, and ascorbic acid. Averages, however, concealed the great variation in the amounts of food used by different households. Half of the households had diets that furnished the recommended allowances for all of the nutrients studied, and the other half had diets that failed to meet the allowance for one or more nutrients.

Homemakers reported quantities of all foods used at home and expenditures for the purchased items used during the seven days preceding the interview. Home-produced food and food received as gifts and pay were valued at average prices paid for similar items by other households in the same region and urbanization. Federally donated foods were valued at average United States prices released by the Bureau of Labor Statistics for the period of the survey. Respondents also reported expenditures for meals and snacks away from home, and provided information needed to classify households by urbanization, income, size, and other family characteristics (101).

High income alone does not insure good diets. The report on the dietary levels of households in the United States in 1965 (101) indicated more than one-third of the households with incomes of \$10,000 and over had diets that did not meet the allowances for one or more nutrients. Dietary adequacy, as measured by the percentage of household

diets meeting the allowances for all seven nutrients studied, was related to income. At each successively higher level of income, a greater percentage of households had diets that met the recommended allowances. Southern households used less expensive foods and had better diets for the money value of their food than did the households of other regions--\$7.92 per person per week in the South as opposed to \$9.77 in the Northeast. A dollar's worth of food in the South provided more calories and more of each nutrient than a dollar's worth in other regions. Differences in the kinds of foods used at different income levels were not indicative of income alone. Such differences undoubtedly reflect the many factors involved in food preferences and other family characteristics. Low-income households had greater returns in calories and nutrients per food dollar, on the average, than households with high incomes (101).

The recommended allowances for daily calorie and nutrient intakes are determined by scientists of the Food and Nutrition Board to be adequate for maintaining good nutrition in essentially all healthy persons in the United States under current conditions of living. The allowances provide a margin of sufficiency above average physiological requirements for each nutrient, but not for calories, to cover variations in needs among healthy persons. In the 1968 Agriculture Research Service Report (101), a diet was

termed "good" when the nutritive value of the total food used by the household equaled or exceeded the recommended allowance for each of the seven nutrients for all members of the household. Using this criteria, one-half of the household diets were rated "good." When a diet supplied less than two-thirds of the recommended allowances for one or more nutrients, the diet was rated "poor." Two-thirds of the allowances for any nutrient is considered a level below which diets could be nutritionally inadequate for some individuals over an extended period of time. Diets of one-fifth of the households were rated as poor. Only 1.0 to 2.0 per cent of the diets supplied less than two-thirds of the allowance for protein, iron, thiamine, and riboflavin. However, 8.0 per cent were low in calcium, 10.0 per cent in vitamin A value, and 13.0 per cent in ascorbic acid. The nutrient shortages were associated with relatively low consumption of milk and milk products and vegetables and fruit--the principal sources of calcium, vitamin A value, and ascorbic acid. On the average, about 60 per cent of the calcium in the diets was supplied by milk and milk products, while half of the vitamin A value and almost all the ascorbic acid were supplied by vegetables and fruit (101).

The above report indicated that more rural than urban diets were below recommended allowances for vitamin A value and ascorbic acid. But for most of the other nutrients

studied, more urban than rural diets were below recommended allowances. Almost two-thirds of the households with incomes under \$3,000 had diets that did not meet the allowance set for one or more nutrients. Over one-third of the households with incomes under \$3,000 had poor diets. Of every 10 households with diets that did not supply the recommended allowances for one or more nutrients, roughly four diets were short in only one nutrient, three diets in two, and another three diets in three or more nutrients (101).

The Agricultural Research Service report (101) verified the fact that fewer households had good diets in 1965 than in 1955. The proportion with poor diets increased over the 10-year period from about 15 per cent in 1955 to 20 per cent in 1965. The decreased use of milk, milk products, vegetables, and fruit was chiefly responsible for these changes in dietary levels.

Mead (80) stated that in the United States, within the lifetime of one generation, there has been a dramatic shift from malnutrition as a significant nutritional state on a national scale, to overnutrition as one of the principal dangers to the nation's health. Overnutrition, in the United States, may be attributed to food habits carried over from a situation of relative scarcity to one of plenty and to the development of food marketing methods which continually expose people to an ever increasing variety of foods.

Among 20,000 children examined in 78 child health stations in New York City, undernutrition, malnutrition, and obesity were among the most prominent disorders (46).

Preliminary findings of the Behavioral and Metabolic Study Group at Rochester University (43) indicated that when grossly obese subjects lose weight, they are losing mass from adipose cells, but not the cells themselves. The situation is likened to deflated balloons waiting to be reinflated. Six chronically obese subjects have been followed through weight fluctuations, both before and after weight reduction. The cell number from subcutaneous biopsy samples was three times that of non-obese controls. These findings suggest that the early nutritional experiences of children may be of prime importance in the etiology of human obesity.

Heald (54) pointed out that at least one-third of those who were obese as children will be obese as adults. Evidence in a recent longitudinal study demonstrated that in a group of overweight boys, 86 per cent continued to be overweight as adults. Of the average-weight boys, only 40 per cent were overweight as adults. In the female, 80 per cent of the overweight adolescents became overweight as adults. In contrast, only 18 per cent of the average-weight girls became overweight adults.

Mean (79) stressed the importance of developing an "educational system within which children can learn self-

regulation in the face of tremendous variety." As world-wide conditions change and nations are able to move from the barest subsistence toward greater adequacy and variety of food, it becomes important to provide for continued alterations in the food habits of the population.

Dierks and Morse (30) investigated the daily food intake of 115 preschool children of families living in a married student housing project at the University of Minnesota. The food records were analyzed for the intake of 10 nutrients. Approximately 90 per cent of the children consumed diets containing more than 75 per cent of the recommended allowances for calories, protein, and calcium. However, statistical analysis revealed that a substantial number of the younger children had intakes of iron significantly below the recommended allowances.

In a study of the seven-day food intake of 40 children, nine months to two years of age, residing in a college community in Pennsylvania, Guthrie (50) observed that iron and ascorbic acid were the two nutrients most frequently inadequate. The food groups most often eaten in amounts less than that recommended were green or yellow vegetables and citrus fruits. An investigation of 104 preschool children, two and one-half to five and one-half years of age, enrolled in day care centers in Columbus, Ohio, indicated that iron was the nutrient most often inadequate in the

diets (4). This confirms findings of an earlier longitudinal study by Beal (8) of 58 children under five years of age from two distinctly different socioeconomic backgrounds residing in Denver. Seventy-five per cent of these children had iron intakes below the recommended allowance.

Bransby and Fothergill (10) surveyed the diets of 461 children under five years of age living in 10 localities in England. Findings revealed that generally boys, those from large families, those whose mothers worked outside the home, and those of the lower income groups, tended to have intakes of calories and nutrients higher than average. Girls, only children and those whose mothers worked outside the home, tended to have lower than average intakes of most nutrients. McNeely (78) observed that over 75 per cent of the two groups of preschool children studied--a headstart group and a university nursery school group--had inadequate hemoglobin levels. In addition, 50 per cent of the children enrolled in the Head Start group had deficient plasma ascorbic acid levels.

Crispin (26) investigated the dietary intakes and certain physical and biochemical measurements for two groups of 20 preschool children three and one-half to five and one-half years of age. Group I consisted of children from the middle or upper income families and Group II was composed of children from low income families. The iron and thiamine

intakes were significantly higher for Group II than for Group I. The mean physical measurements--with the exception of skinfolds, and urinary nitrogen and creatine--were higher for Group I than for Group II. The difference between the two groups in height, waist circumference, and "average circumference" were statistically significant.

Christakis and Associates (24) conducted a study to determine whether "nutritional poverty" existed among urban elementary school children residing in a moderately low socioeconomic area in New York City. Six hundred and forty-two children from five ethnic groups were included in the study. Of the children's diets, 73.2 per cent were judged to be poor, 20.2 per cent were considered adequate, while only 6.6 per cent of the diets were considered excellent. Significant differences were found among the diets of the ethnic population groups studied. The Chinese had significantly better diets than the other groups. The Puerto Rican subjects had the poorest diets. The children whose families were not on welfare had histories of excellent dietary intakes twice as frequently as did the children whose families were receiving welfare assistance. The majority of the children who missed breakfast or dinner, or failed to eat green and yellow vegetables or citrus fruits had diet histories evaluated as "poor."

Chassey and Others (21) investigated the food acceptance and eating habits of 377 Mexican families in Hidalgo, Mexico. The hypothesis was that, in the process of industrialization or urbanization, food habits or food patterns change progressively, becoming more complex and varied. Data from the study confirmed the hypothesis.

The extent to which the food pattern is poor is known to differ with the age of the child. The younger child is more likely to have a diet that includes the recommended essential nutrients than the older child. This difference seems to be a matter of the independence of the child, the number of meals eaten away from home, and the child's social habits (38). An examination of the food records of adolescents indicates that many teenagers tend to have too little calcium, as a result of low milk consumption, and an insufficient intake of green and yellow vegetables and fruits. These deficiencies result in sub-optimal supplies of vitamin A, too little ascorbic acid, and a questionable provision for essential amino acids which will support optimal health (16, 37, 47, 52, 107).

An effort was made to ascertain the nutrient intake of Iowa children on a state-wide basis to identify the relationship of the diet to the nutritional status of the children. Eppright (35) found the principal health problems with nutritional implications were dental caries for all

children and weight control, particularly for the teen-age girls.

Wharton (107) evaluated the mean daily intake of 11 nutrients for 421 adolescent boys and girls, ages 13 to 18 years, enrolled in three schools in Southern Illinois. Intake of nutrients was similar to findings of other studies, in that calcium, iron, vitamin A, and ascorbic acid were consumed in the lowest amounts. The nutritive intake of the Negro group was significantly better than that of the white group for calories, iron, vitamin A, thiamine, and niacin. The Negroes consumed 35 to 38 per cent of their calories as fat and the white students, 40 to 48 per cent.

Ford (41) used three methods to evaluate the eating practices of 109 low-income Negro families in Greenwood, Mississippi. The average family in the study included eight or more members. The family head was usually a woman, 40 years of age with less than eight years of schooling, and with an average weekly income of \$42.00. Records of the 24-hour food intake indicated the diets were low in calcium, ascorbic acid, and vitamin A. The protein intakes were moderately high. Most of the diets exceeded recommendations for iron and thiamine. The number and kinds of foods in the family diets were limited, but favorite foods included cereals, green leafy vegetables, sweet potatoes, tomato sauce and buttermilk.

Jackson (60) cited the growth rate of children as one of the most simple, inexpensive, reliable, and important tools available as an index of nutritional status. Height and weight are best evaluated in terms of previous periodic records for the child. Rate of growth in length is a better criterion of adequacy of nutrition in infancy and childhood than are changes in body weight. The relative weight for height is superior to either value used alone. Deviation from expected growth may indicate satisfactory or unsatisfactory nutrition, but always warrants an investigation into the environment, heredity, history of disease, and quality of the diet.

One of the first scientific studies showing the relationship between height and weight and between the proportions of the human body was made in 1836 by Quetelet (60). Norms have been established such as the Harvard, British Foundation, California, Iowa, and Wetzel growth standards (1, 97, 85). Falkner's growth standards for white North American children are generally higher than the Iowa or Harvard standards (57, 60). Growth is subject to many different influences--disease, sex, heredity, hormonal activity, physical conditions, seasonal fluctuations, and nutrition. Bryan (14) observed that chronic undernutrition slowed down the rate of skeletal maturation, delayed the onset of menarche, and retarded epiphyseal fusion in the long bones.

Garn (43) discussed the fallacies concerning the absolute standards of size for comparisons of human populations:

Since body size has increased generation after generation, increasing maternal size at each generational step, size has become a leapfrogging phenomenon with time. As we have shown, bigger mothers produce bigger babies and bigger babies grow up to be bigger mothers ad infinitum. So previous "norms" for size and weight of children are not adequate for today. The Harvard, Iowa City, Fels, Brush Foundation and Berkeley Standards are now one full generation obsolete, being based for the most part on children born twenty to fifty years ago.

Fabry and Others (38) studied the effect of meal frequency on the weight-height proportion of children in three boarding schools in which the daily food intake was experimentally divided between three, five, and seven meals per day. A total of 226 children of both sexes, six to 16 years of age, were studied for a period of one year. In the younger children--boys, six to 11 years, and girls, six to 10 years--no significant differences were found among the three schools. Among the older boys in the school serving three meals per day, there was a significantly greater percentage of the subjects in whom the weight-height proportions changed in favor of body weight than was found in the other two schools. It appeared that reduction of the number of meals to three per day in the older boys and to an even greater extent in the older girls led to an increased tendency to form and deposit fat reserves.

EATING BEHAVIOR AND FOOD ACCEPTANCE
OF PRESCHOOL CHILDREN

Epprawright (36) stated that the study of food habits is an applied science to which many different sciences have contributed and that the food likes and dislikes of the individual move in a framework of race, tradition, economic status, and environmental conditions. In the attempt to improve nutrition and health of individuals many questions arise. The solution of one problem only paves the way for the next. Guthe and Mead (49) suggested the varying conditions one must consider in a study of food habits as follows:

- 1) traditional habits of a people in regard to what they eat and what they do not eat and how each generation of children learns to follow these traditional eating habits;
- 2) existing states of food production, food processing, and food distribution, including the extent to which any given food is available and accessible to each group in the population;
- 3) existing state of the science of nutrition;
- 4) existing media for diffusing knowledge about nutrition;
- 5) existing medical practices which influence food habits;
- 6) existing conditions of and current changes in related environmental contexts, such as household equipment and housing; and
- 7) current trends in child training and education. These conditions are constantly changing.

Wagner (105) related that:

Feeding represents to the child his first learning about this world and the people in it, its rules, and his place in that world. Hunger begins in the newborn, causes pain, and is relieved by food. The reaction to procedures employed in the pain-food-relief sequence is the first step in the formation of food habits.

Studies indicate food habits and preferences are a product of complex interactions among physiological and psychological satisfactions associated with food, beliefs about foods, and economic resources (69, 71).

Brown (12) recorded the food habits of 101 University of Illinois students for the preschool, grade school, high school, and college years. Students wrote papers describing the development of their present food habits. The study revealed that among the factors determining an individual's food habits are his early background, parents, place of residence, income, and family size. The students recognized their mothers as the most important nutritional influence during their early development. Interesting to note was the fact that only 12 per cent of the city children mentioned large family meals and the variety of foods served as influencing factors in developing food patterns; whereas, among the students reared on farms, over 70 per cent specifically mentioned either quantity or the variety of foods served. In the written descriptive papers, the students gave evidence that dislike of a certain food can often be

traced to being forced to eat that particular food. Thirty-six per cent of the students recalled being forced to eat a particular food. However, more than 40 per cent attributed the ability to eat and enjoy a large variety of foods to the fact that as children they were taught to eat at least one spoonful before passing judgment on the food item.

A Minnesota study (74) of adolescents' views on food attitudes reported by them indicated that it is essentially a mother's world as far as the sanctioning of food habits is concerned. Apparently other persons, such as physicians, dentists, dietitians, and teachers play only a peripheral role in the development of food habits. Litman and Co-workers (73) suggest that the value of these other groups may be in their influence "as a catalyst rather than an active agent."

Twenty-nine nursery school children served as subjects in a study reported by Scott (93). The study was designed to investigate the influence of parental practices on children's food acceptance. Children whose parents do not frequently punish them were found to have greater food acceptance than children whose parents frequently punished them. Children who were offered solid foods at three months of age or later took less time in accepting these foods and had a greater acceptance of solid foods at nursery school age than did those children who had a solid food introduced before the age of three months. Children weaned after 15

months of age indulged in less non-nutritive sucking than children weaned before 15 months. Findings on the food attitudes of these nursery school children revealed a great emphasis on sweets and desserts, a general dislike for vegetables, and an unenthusiastic attitude toward most egg dishes and certain meats. The importance of the influence of family members on the developing food patterns in pre-school children has been emphasized in many studies. Morgan (83), Aldrich (2), Scott (93), and Bryan and Lowenberg (15) have indicated that parental likes and dislikes are influential in the formation of children's food preferences.

Carroll (18) studied families of different socioeconomic backgrounds and the relationship of family patterns, attitudes, and values to foods. Particular focus of the study was on the mother's relationship to the preschool child. In general, the homemakers of Group I, the higher socioeconomic group, did nothing about eating problems; whereas, homemakers of Group II, the lower socioeconomic group, approached the problem with reward and punishment techniques. The knowledge of nutrition and principles of meal planning and their application to the meal patterns were greatest in Group I. However, education beyond the high school level did not significantly increase nutritional understanding. The food likes and dislikes of siblings of the lower socioeconomic group were more similar to those of

the preschool children than were those of the upper socioeconomic group. However, the hypothesis that the association of the breadwinner's likes and dislikes with the child's preferences would be greater for Group II than for Group I was not supported by the evidence collected.

The understanding of children's food preferences and prejudices can be of value both to those who plan and supervise the feeding of children and to those who are engaged in promoting sound food habits through nutrition education. The subject of food likes and dislikes has been widely treated historically and anthropologically, but there has been relatively little scientific attempt to study the food likes and dislikes of the present population. There have been limited studies of food acceptance by different population groups in different communities, including those in the military service, preschool and school children, and college students. A variety of techniques have been used: oral or written attitude studies; sensory tests either of discriminative judgment or affective reactions; and measurement of the actual consumption of food under either normal or experimentally modified conditions. On the basis of these studies it has been suggested that food consumption is predictable and that one of the important factors is food preference or the degree of food likes or dislikes (17).

Korslund (65) investigated the relationship between taste sensitivity and patterns of eating behavior of 25 children attending the Iowa State University Nursery School. The foods liked best were milk, hot rolls, grilled steak, ice cream, fried chicken, French fried potatoes and roast turkey. The least liked foods were primarily vegetables, particularly turnips, broccoli, squash, parsnips, asparagus and cauliflower.

Breckenridge (11) described a study at the Merrill-Palmer Camp on the food attitudes of a group of 51 children, five and a half to eleven and a half years of age, from predominately upper middle-class homes. Responses of "like," "dislike," and "indifferent" were obtained for 25 items. The same questionnaire used for the children was completed by one of the child's parents. A significant difference in the foods liked and foods to which the children were indifferent was found between the scores of parents and their children. Scores for the foods disliked were similar. Meat, ice cream, potatoes, bread and crackers, milk, raw fruits, and cereals scored high in popularity. Meat mixtures, cheese, cooked vegetables, eggs, and canned fruits were the least popular.

Glaser (45) determined whether food acceptances can be developed at the nursery school level and carried over into the home and into subsequent years. A questionnaire

was sent to 64 families whose children had attended the nursery school sometime during the previous five to 10 years and to 76 families whose children had not attended the nursery school. Analysis of the data indicated: 1) Former nursery school children selected foods other than sweets to a greater extent than did the non-nursery-school children. 2) Poor acceptances of certain foods in the early years may be due in part to a lack of familiarity with the foods. 3) Students who ate after-school snacks selected food which they liked and which could be eaten while engaged in some other activity. 4) The pupil's estimate of his own acceptance of a food tended to be considerably higher than that estimated by the parent. The nursery school children preferred cookies, milk and fruit juices for snacks, while the non-nursery school children ranked milk highest for bedtime snacks but preferred cookies and candy for after school snacks.

The influence of parental food preferences on preferences of the child was explored by Metheny and Co-workers (81). The child's, the father's, and the mother's attitudes toward 35 specific fruits, vegetables, and milk were checked by the mother. The child was found to have fewer "likes" and to be familiar with fewer foods than were the parents. The mother had fewer "dislikes" than either the father or the child. Foods unfamiliar to the parents were likewise unfamiliar to the child and most of the foods

disliked by the parents were unfamiliar to the child. Potatoes, corn, and green beans were the most popular vegetables. Squash, turnips, and rutabagas were least liked of the vegetables listed.

Dickins (29) attempted to establish a relationship between the motivating factors--cultural, social, personal, and situational--to food preferences and to the use of these factors in predicting food preferences. Children exhibit food preferences early in life. They develop food preferences by becoming acquainted with new foods through repeated trials. Breckenridge (11) suggested that each new food should be introduced as a learning experience at first, rather than as a means of meeting nutritional needs. Each pleasant experience with a new food aids in building good attitudes toward acceptance of other new foods. The aesthetic value of food was observed by Breckenridge to have a marked effect on the appetite of children. However, Korslund (66) observed that the favorite foods of young children were generally mild in flavor, colorless, and soft in texture.

Carroll (18) examined the patterns, attitudes, and values in relation to foods which existed among families of two different socioeconomic backgrounds. The particular focus was on the mother's relationship to the preschool child. Carroll states:

The first and most basic concepts learned by children are those transmitted to them from their families.

The attitudes, values, and patterns of the families, in turn, have resulted from the culture within which the family exists. The exposure of the family to various facets of society results in differences which are reflected in many patterns of living, including food habits.

Food likes and dislikes of siblings were more similar to those of the preschool children in the lower socioeconomic grouping than in the upper grouping. Very little variety was recorded for the methods used in preparing vegetables by homemakers in either group. The families in the higher socioeconomic group ate more meals together than did families of the lower socioeconomic group. Results agreed with previous findings that roast beef was the most popular meat for the upper group, and fowl the most popular in the lower socioeconomic group.

Bryan and Lowenberg (15) investigated the influence of the food preferences of the father on those of his preschool child. Vegetables were among the foods least liked by both the child and father; however, the father's main influence on his child's food preferences appeared to be in the limitation of the variety of food offered to the child. McCluney (76) studied the food likes and dislikes of 250 children. In each group of children except for the eighth graders, the food dislikes of the girls exceeded those of the boys. The list was composed of 175 common foods; however, a considerable number of the foods listed were checked

as unfamiliar. Foods unknown to the largest number of students were found among the green and yellow vegetables.

The influence of age on food acceptability has been associated with physiological changes in the taste buds. According to Hurlock (69) the taste buds of the preschool child are found not only on the tongue but also lining the inside of cheeks and in the throat. Research has indicated that there is a gradual disappearance of taste buds throughout life. The nursery school child seems to indicate a definite preference for and against acid and strongly flavored foods. However, a study by Feeney (39) indicated that preschool children did not possess a keener sense of taste than their parents.

The study by Korslund (65) indicated that well liked foods were restricted to those that are simply prepared; girls were more sensitive to taste than boys; and there was no statistical significance in the relationship between taste sensitivity and percentage of foods "liked" and "accepted." The percentage of children in the group "always" hungry for meals increased with a decrease in taste sensitivity. There is evidence that in spite of advertising and marketing techniques, there is relatively little change in food preferences once they are established (81).

Age was a factor strongly related to food preferences in a study of Food Preferences of Men in the United States

Armed Forces (89). Preference for soups and vegetables tended to increase with age, while preferences for beverages, cereals, desserts and fruits tended to decrease with age. In general, young people liked sweet foods and they also liked frankfurters and ground meats. Older people liked "hot" condiments better than the younger population. Relatively few food group preferences correlated with educational differences. In general, vegetable preferences decreased with increasing education, as did preferences for fish, certain meat combinations, frankfurters and sauces.

Stitt (97) pointed out that infant growth is so rapid and spectacular that many parents are not prepared for the slower growth rate of the second and third years. Parents and workers with preschool children are often dismayed at the small quantity of food the preschool child takes. The parent who continues to press food on the child in an attempt to continue the large appetite and rapid rate of gain during the first year of life may produce stress and strain on both himself and the child. The onset of some of the school-age nutrition problems may be attributed to these early pressures. The child may develop a genuine distaste for food and feeding problems may evolve. Children need careful feeding, but the quality rather than the quantity should be stressed. Stitt stated:

The preschool period is the time for professional people to comprehend normal parental anxiety and to

harness it toward use of high-quality wholesome food habits rather than to let the anxiety be dissipated into a frantic feeding of empty calorie foods.

The biochemical, physiological aspects of food acceptance and food habits have been stressed by Eppright (36), who summarized several studies. When the blood of a starving dog is transfused into a normal dog, typical hunger contractions are induced in the normal dog in 10 to 30 minutes. Furthermore, when the blood of a recently fed dog is transfused into a starving dog, the stomach contractions of the starving dog are abolished for a period of five to six hours. Obese findings suggest that not only is glucose involved but hormones may also be involved. An abnormal craving for sweets has been observed in children whose dietaries are poor. This craving is voluntarily reduced as the diets are adjusted to meet the body needs. Observations indicate the sense organs may become fatigued or dulled. Dawdling with meals may be related to this phenomenon. The practice of requiring children to sit at the table until all the food taken has been eaten may produce unpleasant associations with the food and a permanent dislike for the food. Concerning factors that influence food acceptance, Eppright has stated:

Full application of the knowledge in nutrition awaits a better understanding of the reasons why people eat as they do. Acceptance of food is a complex reaction determined by the biochemical conditions of the body, the response of the sense organs, and the mental state of the individual. It has been said that food with

man is not just food: it is the crossroads of emotion, religion, tradition, and habit.

Hampton and Others (52) reported on the nutritional and dietary inadequacies among 7363 city children from different ethnic and socioeconomic groups. The study indicated that Negro children were more likely to have deficient diets than were children from Anglo-American or other cultural groups. Differences between socioeconomic groups were statistically significant. Diets of approximately two-thirds of the children under five years of age (63 per cent) were below the minimum level of adequacy. Eighty-nine per cent of the Negro and 67 per cent of the white individuals failed to meet the minimum requirements for an adequate diet.

Hendel and Co-workers (55) have identified the major socioeconomic factors influencing children's diets as income, urbanization, and education of the mother. These authors found that the adequacy of vitamins A and C intake in the children's diets showed a direct correlation with family income levels. As the income level increased the percentage of children having adequate intakes of vitamins A and C increased.

There are marked variations among children of any given age and within one child from one age to another in the rate of growth and development, and in intake of food. Changes of intake with age show a pronounced group pattern.

In the early preschool period there are decreases in the consumption of a few specific foods. Bryan (15) indicates sex differences in total food intake are seen almost from birth. The intake of total calories is higher in boys than in girls from the second month of life, but the difference becomes marked only after 18 months, with boys maintaining an intake consistently higher than girls.

Mirone (82) investigated the quantity of food intake of 21 nursery school children enrolled at the University of Georgia Nursery School. The children ate larger quantities of desserts than of any other food group. With the exception of Irish and sweet potatoes, vegetables were consumed in the least amounts. The average milk consumption during the noon meal was 95.2 grams or slightly less than one-half cup.

ETHNIC AND SOCIOECONOMIC FACTORS RELATED TO
THE EATING PATTERNS OF PRESCHOOL CHILDREN

Lewis (106) summarized his reasons for believing that there is a culture of poverty:

In anthropological usage, the term culture implies, essentially, a design for living which is passed down from generation to generation. In applying this concept of culture to the understanding of poverty, I want to draw attention to the fact that poverty in modern nations is not only a state of economic deprivation, of disorganization, or of the absence of something. It is also something positive in the sense that it has a structure, a

rationale, and defense mechanisms without which the poor could hardly carry on. It is a way of life, remarkably stable and persistent, passed down from generation to generation along family lines.

A sociologist, Caplovitz (19), pointed out:

The poor, by definition, are described as having little money, virtually no savings, no economic security. This means buying often and in small amounts and getting less for their money than do the rich.

Descriptions of white families at the very low-income levels are similar to the current description of the underprivileged Negro family with a high incidence of broken homes, "mother dominance," births out of wedlock, educational deficit, crowded living conditions, three-generation households, and failure to observe the norms of middle-class behavior.

While families in the low socioeconomic group are plagued by many of the problems that confront other families they must also face difficulties peculiar to the poverty group. Disadvantaged families usually live in neighborhoods in which safety, sanitation, housing, shopping, and educational and recreational facilities are inadequate. Fifty-two per cent of the 34 million poor families in 1967 were headed by persons with less than a high school education. Disadvantaged families tend to have many children and frequently experience racial or ethnic discrimination. When families move from rural to urban settings many must adjust

to a way of life for which they are not prepared and among people by whom they are not wanted. The shift from the relatively isolated rural home life to congested urban living may create many problems (108).

Judd's (62) study of 16 families, composed of 146 individuals, disclosed some of the nutritional and eating problems of Spanish speaking families of low socioeconomic status residing in Texas. The author indicated that the limited schooling of adults results in low salaries. Unwise buymanship was evident in the group. Two-thirds of the older women had high concentrations of cholesterol and vitamins A and C were often inadequate in the diets of the children. Milk was used in very limited quantities.

In a study reported by Natow (85) in 1963 of 509 children of Mexican descent the data revealed that the growth and skeletal records of these children indicated a lack of good nutrition. Calcium, iron, protein, and vitamins A and C were most likely to be lacking in the diets of these children.

A study by Neff (86) of the use of donated foods in 48 Kentucky counties suggested implications for working with low-income groups. Twenty-seven per cent of the parents in these families had completed the fourth grade or less. The average grade completed was 6.5. One implication from this

information is that since these homemakers have limited vocabularies, recipes and instructions must be simple and easily understood. Many of these people have little intellectual curiosity, and instead of being challenged by the unfamiliar, a fear for the unfamiliar is experienced. Very few of these low income families prepared casserole-type dishes or baked puddings. The study suggested that learning new ways, new foods, and better food selection is a very slow process. Time, repetition, and good teaching methods related to the learner's problem are essential.

An interesting study, conducted in El Paso, Texas, was concerned with teaching the Mexican-American groups better nutrition and family living. The specific purpose of the El Paso Project (58) was to identify, by means of a controlled action research effort, the most effective methods for reaching Mexican-American families by Extension programs. The sample consisted of 800 families. The survey revealed that as income increased, the percentage of families using the layaway plan for family purchases increased. Over one-half of the families who borrowed obtained credit from loan companies, normally one of the most expensive sources of credit. Food for Fitness Guides enclosed in letters to participants proved to be increasingly effective as income increased and education increased. The second most influential media in the education of nutrition was television and radio.

RECENT LEGISLATION WITH SPECIAL IMPLICATIONS
FOR CHILD NUTRITION

Recent surveys re-emphasize the necessity for more longitudinal studies, and newer and better techniques for determining the significance of variations from the norm. In reference to recent national nutritional surveys, Goodhart (46) stated:

Obviously, quite a few people are nutritionally below average, some markedly so, by any of the accepted criteria, whether they be dietary, biochemical or clinical. Surely, the probability that poor nutrition, particularly in childhood, results in unrealized potentials is strong enough to justify both governmental support of research in this area in the United States of America and practical steps by individuals and their physicians to bring their nutrient intakes up to recommended standards.

In 1967, President Johnson in a message to Congress on the welfare of children stated:

We are a young nation. Nearly half of our people are twenty-five or under--and much of the courage and vitality that bless this land is the gift of young citizens. What they are able to offer the world as citizens depends on what their nation offered them as youngsters. Knowing this, we seek to strengthen American families. The future of many of our children depends on the work of local public health services, school boards, and local child welfare agencies and local community action agencies (23).

Federal funds are increasingly being directed toward the poor and disadvantaged families and individuals. Of the \$12.5 billion provided for children and youth in 1968, the

principal programs directed at the children and youth of the low income families are those of the Office of Economic Opportunity. The Office of Economic Opportunity (OEO) provides health services, including diagnostic health studies and health care through programs such as Head Start and comprehensive health centers. These services are provided for disadvantaged children served in OEO programs. Of the approximately 3 million three-to-five year old underprivileged children, Head Start Expects to reach nearly 737,000 children in the fiscal year, 1968. This coverage represents roughly three-fourths of the one million children entering this age group each year (104).

In 1967, it was estimated that 12.5 million "poor" Americans were children, 18 per cent of all children under 18 living in families. Of this group of children, 4.4 million lived in families with a female head, and 8.1 million lived in families with a male head. Of the 12.5 million children in this group, 5.2 million were non-white and 7.3 million were white (104).

More than 45 per cent of these 12.5 million underprivileged children under 18 years of age lived in families composed of at least five children. Only 9.0 per cent of the families with one child were poor; approximately 28 per cent of the families with five children were poor; and 42 per cent of the families with six or more children were poor.

Over half of the non-white children lived in "poor" families, over four times the rate of poverty found among white children.

Three out of five children in families with a female head live in poverty, nearly five times the rate of poverty among families with a male head. Poverty continues to lead to reduced educational attainment, which in turn tends to perpetuate poverty. Children of the poor comprise a major part of school dropouts. Between one-fourth and one-third of all American children grow up in poverty.

Egan (32) pointed out that, "Legislation for nutrition is not easily identified, because often the title of the legislation does not include reference to nutrition." Most of the legislation relating to the three major needs of children for nutrition services are as follows: evaluation of nutritional status and diagnosis and treatment of nutritional problems, nutrition education and dietary counseling, and the provision of food. The 1963 and 1965 Amendments to the Social Security Act and the Economic Opportunity Act of 1964 and its amendments not only made possible new resources for evaluation of nutritional status and diagnosis and treatment of nutritional problems, but strengthened and extended some resources already in existence.

The Vocational Education Act of 1963 provided for programs directed toward preparation for gainful occupations

involving home economics knowledge and skills (104). Two of the wage-earning training programs have been founded in the area of home economics which have special significance for the nutrition of children. One of these is a training program in food management, production, and service which includes the training of food service supervisors, school lunch managers, and food service personnel for hospitals and homes for children. The second is a training program in the care and guidance of children for workers in day-care and child day-care institutions.

The Child Nutrition Act of 1966 authorized the Department of Agriculture to broaden school feeding activities to supplement the National School Lunch Act of 1964. This act authorized a pilot breakfast program for needy children or those who travel long distances to school (95). In 1968, the program is expected to reach 20 million children or nearly 45 per cent of all public and private school children of kindergarten through high school age. The Special Milk Program is available to about 19 of every 20 children in schools, day-care centers, and non-profit summer camps. In 1968, this program is expected to provide 3.4 billion half-pints of milk.

The Elementary and Secondary Education Act of 1965 contains provisions for funding of food service programs in Head Start Child-Development Centers and in schools (42).

The goal of the Food Stamp Program of the Consumer and Marketing Service is to improve the diets of low-income households by supplementing their food purchasing power. The philosophy of this program is based on the active participation of the recipient to actually make a cash purchase of coupons, for which he is eligible to receive, free of cost, bonus coupons enabling him to buy more food. In the fiscal year of 1968 an estimated 195 million dollars will be spent to assist almost three million children and youth (104).

A meaningful way to look at Federal programs for children and youth is through an analysis of per capita expenditures. For the 14 million children and youth under 21 years living in poverty, the estimated Federal expenditures for special programs in 1968 will amount to approximately \$300 for each child and youth in this population. In evaluating the effects of a piece of legislation, Egan (34) suggested one needs to realize that even when a sum of money for a particular program is authorized, the actual appropriation of funds may be insufficient. Knowledge of the gaps that often exist between an authorization and an actual appropriation is essential in understanding why services do not develop or expand as fast as one would expect. Making the best use of new legislation for improving child nutrition requires cooperation among health, education, welfare, and other community agencies.

Social status, economic level, or ethnic origin does not necessarily free the individual child from nutritional problems. This review of literature points conclusively to the value of early development of proper eating habits that will materially affect the population of the next generation. The need for this study was clearly identified.

CHAPTER III

P L A N O F P R O C E D U R E

Specific data for this study were secured from 145 families from four widely dispersed urban areas in Texas. In selecting the areas for the study an effort was made to secure a sample representative of three major ethnic groups and four socioeconomic groups. The sample included 145 boys and girls, three through six years of age: 25 children enrolled in Texas Woman's University Nursery School, Denton, Texas; 30 children enrolled in the Head Start Program in San Angelo, Texas; 25 children enrolled in Incarnate Word College Nursery School, San Antonio, Texas; and 61 children enrolled in the Head Start Program in Waco, Texas.

The participants were divided into three ethnic groups--Anglo-American, Negro, and Latin American. For the purpose of this study the term Anglo-American will refer to native white individuals excluding the Latin-Americans. Socioeconomic group determinations were based on data concerning the educational level of the parents and the occupation of the chief income earner. The criteria for the division of the group of 145 families into socioeconomic

groups was obtained from the McNeely study (78). The criteria used follows:

Socioeconomic Group I

Education: At least one parent a college graduate.
Occupation of chief wage earner: Professional, semiprofessional, business owner or manager.

Socioeconomic Group II

Education: At least one parent a college graduate.
Occupation of chief wage earner: Skilled worker,

or

Education: Both parents attended high school.
Occupation of chief wage earner: Professional, semiprofessional, business owner or manager, or skilled worker.

Socioeconomic Group III

Education: Both parents high school graduates or above.
Occupation of chief wage earner: Semi-skilled, unskilled, or unemployed but not on relief.

Socioeconomic Group IV

Education: Parents have completed eighth grade or less

or

Occupation of chief wage earner: All wage earners on relief.

In the present study, Group I will be referred to as the Upper Group, Group II as the Middle Group, Group III as the Lower Middle Group, and Group IV as the Lower Group.

Lipton (73) defines the culturally deprived as,

Children or a group of people in a socioeconomic environment which reflects an income of a certain quality and which in turn, reflects an income of a certain quantity and home condition of a certain quality and which in turn, reflects attitudes toward academic and social behavior, toward authority and of a certain mores which are not acceptable to the person who is describing the group.

Havighurst (53) describes the socially disadvantaged child as one who: 1) is at the bottom of the American society in terms of income; 2) has a rural background; 3) suffers from social and economic discrimination by a majority of the society; 4) is widely distributed in the United States mostly in large cities, but not in very high income communities.

Buggs (28) describes the disadvantaged child as one who, because of a present and/or a former environmental and social condition peculiar to the social, ethnic, or national group to which he belongs, does not meet the standards or positive needs of the society in one or more of the following areas: school achievement, behavior patterns, motivation and incentive, moral behavior, and attitudes toward authority.

Certain kinds of accessory information were investigated by the author prior to the administering of the survey in order to become as familiar as possible with factors that

could influence nutritional status and food habits. Pike (88) has observed that surveys, more than any other kind of nutritional studies, help to remind investigators of the limitations of the procedures presently available for the evaluation of human nutritional status, and of the variability inherent within the human race concerning food acceptance and behavior patterns. However, useful data which grossly define the nutritional status, food acceptance, and eating behavior patterns of groups of people can be obtained.

A survey provides: 1) information necessary for the planning of realistic nutrition programs consistent with the needs and habits of a community; 2) quantitative data necessary to convince legislators, and the public, to support and encourage direct action programs for the benefit of public health; 3) a means of evaluating the effect of nutrition programs already existing within a community

Krehl (68) reaffirms the above opinion that surveys are valuable in defining the nutritional status of a population group. Surveys rarely resolve problems of a nutritional nature, but often raise questions that can be answered in the most precisely controlled environment of the research laboratory.

FAMILY INFORMATION WITH EMPHASIS
ON EATING PRACTICES

An instrument, the "Inventory of Family Information with Emphasis on Eating Practices," was designed by the author to investigate family background and eating behavior patterns of the 145 participating families. The inventory was designed to obtain information in the following areas:

1. Demographic Characteristics--reveals facts about members of the preschool child's family, marital status, occupational status, and religion of the parents.
2. Socioeconomic Status--pertains to education, the mobility of the family, housing, and family income.
3. Food Purchasing Practices and Eating Habits--includes data concerning the marketing practices of the family, frequency of the use of convenience foods, methods of food preparation, place of eating, sources of information on nutrition, and family food patterns.
4. History of Nursery School Child--consists of pertinent questions concerning the child's attitudes toward food, eating habits, and food preferences.

Parents were introduced to the study by means of a letter issued by the administrators of the respective co-operating preschool groups. A second letter to solicit the parents' cooperation was sent by the investigator prior to the interview or the distribution of the questionnaire (see Appendix A).

The instrument was sent and/or administered to parents of the 145 children participating in the study. The inventory was completed by mothers of the children in the two upper socioeconomic groups. To insure accuracy, data for the lower socioeconomic groups were obtained by personal interviews with one parent. The interviewer recorded the responses on the survey form. On the average, each interview required an hour. A total of 92 personal interviews were made. Trained personnel working at the Head Start Centers assisted with the interviewing. The instrument may be found in Appendix B.

FOOD INTAKE RECORD

A second instrument, "A Record of the Food Eaten By Your Child Yesterday," was developed by the author. The instrument was designed to: 1) determine the number of servings from each of the four major food groups; 2) indicate the meal patterns including snacks; 3) identify the places in which the meals were eaten; 4) determine food

preparation practices; and 5) record the use of supplemental vitamins in the diet of the preschool child. A copy of this instrument may be found in Appendix C.

The 24-hour food recall is commonly used to determine individual food consumption. This method is most useful when relatively large numbers of subjects are involved and provides a qualitative rather than a quantitative description of group dietary patterns. Eppright (34) indicates this method can serve as a basis for planning educational programs, but the recall method has not been regarded as an accurate measure of the food intake of one individual. However, when large numbers of subjects are involved, the method is considered to be indicative of the dietary pattern characteristic of the group.

Crispin (26) stated that nutritional status studies are necessary in order to define nutrition problems and to guide practical efforts toward their solution. The 24-hour diet recall frequently has been used and found to be as reliable as 7-day food records when used in large population groups (22, 24, 75). Pike (88) suggests that the method for obtaining dietary data depends upon the population sample to be surveyed and the specific use for which the data are intended.

Guthrie (50) indicated that the 24-hour recall has two major advantages. Since this method is a retrospective

account taken at an unannounced time, it reduces the possibility of the subject modifying his food habits during a time when he knows they are being assessed. The use of the immediately past 24 hours does not involve an appreciable memory span, thus increasing the likelihood of obtaining a complete record. Since written records are not required, this method is suitable for use in illiterate populations, and by asking appropriate questions, the interviewer is able to elicit information that might otherwise have been forgotten.

Cooperating parents were requested to keep a 24-hour food intake record of the portions of all foods consumed by the preschool child. The parent was instructed to record 1) the daily food intake in common household measures (cups, tablespoons, teaspoons, inches, or other units where applicable); 2) the method of food preparation used; and 3) the usual family food pattern. The instrument included pertinent questions concerning meal planning objectives and nutrition knowledge of the mother, and food habits of the preschool child.

To evaluate the diets of the 145 preschool children participating in the study, the author considered the kinds and amounts of nutrients by grouping foods together on the basis of their similarity in composition and nutritive value. In 1958 the United States Department of Agriculture published

a simple guide based on the Four Food Groups (Food for Fitness--A Daily Food Guide) (88). No one of the food groups provides all the recommended nutrients, but when the food groups, in the amounts recommended, are included in the daily diet, a person may be reasonably assured of meeting the National Research Council's Recommended Dietary Allowances for all nutrients except calories. This food pattern emphasizes four key nutrients, of which three are frequently lacking in the average diet in the United States; namely, calcium, vitamin A, and ascorbic acid. Animal protein is the fourth key nutrient which this guide stresses. These proteins automatically tend to carry with them other desirable minerals and vitamins.

Leverton (70) stated that this basic food pattern offers freedom for cultural and personal preferences; adapts to various circumstances of income and environment; and is consistent with scientific principles. Dietary standards are never static but are assessed periodically and revised as new data becomes available. The Basic Food Pattern has been adapted for children three through six years of age as a basis for evaluation of the nutritional adequacy of the diets of the 145 participating preschool children.

The author designed a score sheet based on the Food for Fitness--A Daily Food Guide, as a means of evaluating the 24-hour food recall diets of the 145 children

participating in the study (Appendix D). When foods were indicated as being included in the diet in the amounts recommended for young children in a given basic food group, the food group was considered to be "adequate". If the foods were included in the diet but not in the proportionate amounts as recommended, the food group was considered to be "inadequate". If the foods were completely excluded from the diet, the food group was checked as "missing". Although there are chances of errors in a study of this type, this method of analysis can give a good characterization of the dietary habits of a group.

EATING ATTITUDE RECORDS

Observations of: 1) attitude toward food, 2) time required for eating, 3) food intake, and 4) eating behavior of the participating children were recorded at the centers on two forms, an "Eating Attitude Record", and a "Daily Food Reaction Record" (Appendices E and F).

GENERAL INFORMATION RECORDS

Attendance records, health records, and general information concerning the eating patterns and behavior of each preschool child were obtained from the administrators of the participating centers (Appendix G).

FOOD PREFERENCE CHECK LIST

"The Food Preference Check List," was devised by the author to determine the degree of preference for 100 foods (Appendix H). The foods were divided into seven groups: Main Dishes, Vegetables, Fruits, Breads and Cereals, Beverages, Desserts and Sweets, and Spreads. The list of 100 foods consisted of those foods commonly eaten by the three ethnic groups participating in the study. The food preferences were checked by both the father and mother, each indicating his attitude toward the foods listed. The mother checked a list of the same foods to indicate the child's preferences.

A four-category scale was used for measuring food preferences. The participants in the study were requested to check each food as "enjoys eating," "accepts," "refuses to eat," or "unfamiliar or never served at home." A definition of each term was included in the form used to collect the data.

Peryam and Pilgrim (87) defines the hedonic scale as a special application of a rating scale with a direct approach to the measurement of psychological states. This scale has been a useful tool in food research. Essentials of the rating scale method are: first, a definition of a psychological continuum and second, the establishment of a series of successive categories of responses. Peryam (87)

states,

Major advantages of the method are: 1) its simplicity which makes it suitable for use with a wide range of populations, 2) subjects can respond meaningfully without previous experience, 3) the data can be handled by the statistics of variables--an advantage inherent in rating scale data, and 4) in contrast to other methods, within broad limits the results are meaningful for indicating general levels of preference.

METHODS OF DATA ANALYSIS

Information concerning the 145 preschool children was summarized by use of total numbers and percentages. These data were analyzed according to three ethnic groups and four socioeconomic levels.

Data pertaining to birth weight of the child and eating patterns during infancy were analyzed. The mean weight, height, and age of the preschool boys and girls were determined. The height, weight, and age of the 67 boys and 78 girls were compared to the Iowa Norms on height and weight for preschool children.

The mean milk consumption and food expenditure per person per week were calculated. A 24-hour food intake record for each child was evaluated on the basis of the food groups represented.

The total number of food likes and dislikes of the children, the mothers, and the fathers were compared both

on the basis of ethnic groups and socioeconomic levels.
Correlation coefficients were determined for the above comparisons.

CHAPTER IV

A N A L Y S I S A N D I N T E R P R E T A T I O N O F D A T A

The present study was designed to investigate some of the factors influencing the eating behavior patterns of 145 preschool children, three through six years of age, residing in four urban communities. In the selection of the sample, an effort was made to obtain children who would be representative of three ethnic groups--Anglo-American, Negro, and Latin-American--and four socioeconomic levels--upper, middle, lower middle, and lower. The four urban areas from which the representative subjects were selected were as follows: Denton, in Northeast Texas; San Angelo, in West Texas; San Antonio, in South Texas; and Waco, in Central Texas. The study was conducted in the spring of 1968.

The distribution of the 145 preschool children according to ethnic groups is given in Table I; the distribution of the children according to family socioeconomic level is given in Table II; and the distribution according to both ethnic and socioeconomic groups is given in Table III.

TABLE I
DISTRIBUTION OF 145 PRESCHOOL CHILDREN FROM FOUR
URBAN AREAS ACCORDING TO THREE ETHNIC GROUPS

Urban Area	Ethnic Group					
	Anglo- American		Negro		Latin American	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Denton	28	19.3	0	0.0	1	0.7
San Angelo	0	0.0	15	10.3	15	10.3
San Antonio	21	14.5	0	0.0	4	2.8
Waco	15	10.3	38	26.2	8	5.5
Totals	64	44.1	53	36.5	28	19.3

TABLE II

DISTRIBUTION OF 145 PRESCHOOL CHILDREN ACCORDING
TO FAMILY SOCIOECONOMIC LEVELS

Urban Area	Socioeconomic Level							
	Upper		Middle		Lower Middle		Lower	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Denton	14	9.7	13	8.9	2	1.4	0	0.0
San Angelo	0	0.0	2	1.4	9	6.2	19	13.1
San Antonio	16	11.0	8	5.5	1	0.7	0	0.0
Waco	0	0.0	2	1.4	13	8.9	46	31.7
Totals	30	20.7	25	17.2	25	17.2	65	44.8

TABLE III

DISTRIBUTION OF 145 PRESCHOOL CHILDREN ACCORDING
TO BOTH ETHNIC AND SOCIOECONOMIC GROUPINGS

Ethnic Group	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Anglo- American	27	90.0	18	72.0	5	20.0	14	21.5
Negro	0	0.0	3	12.0	18	72.0	32	49.2
Latin American	3	10.0	4	16.0	2	8.0	19	29.2

The total sample included 44.1 per cent Anglo-American, 36.5 per cent Negro, and 19.3 per cent Latin-American children. The distribution of families in the four socioeconomic groups revealed 44.8 per cent in the lower, 17.2 per cent in both the lower middle and middle, and 20.7 per cent in the upper socioeconomic levels. The upper socioeconomic level was composed primarily of Anglo-American families. Only three Latin American and no Negro families were included in this group. There was a better distribution of the three ethnic groups in the lower socioeconomic level than in the other three levels. More Negro families were classified in the two lower socioeconomic levels, more Latin Americans in the lowest level, and more Anglo-Americans in the two upper socioeconomic levels.

Two groups of the preschool children were enrolled in university nursery school centers, and two groups of children were participating in Head Start child development programs. The 28 preschool children enrolled in the Texas Woman's University Nursery School were from families representative primarily of the upper and middle socioeconomic levels. A second group of preschool children was chosen from the Head Start Child Development Center in San Angelo, Texas. This group included 30 children chiefly from families in the two lower socioeconomic levels. The ethnic groups--Negro and Latin American--were equally represented. A third group included 25 children enrolled in the Incarnate Word

University Nursery School. These preschool children were primarily from the two upper socioeconomic levels. Sixty-four children enrolled in the McLennan County Child Development Day Care Program comprised the fourth group of children. This group was composed of individuals culturally, socially, and economically deprived. Three ethnic groups were represented in the Waco group of children.

Parents of children from Head Start Groups were identified by the following characteristics: 1) The majority had reading and mathematic levels below the sixth grade; 2) Many exhibited poor work habits with a history of many jobs; 3) Most parents did not have the necessary skills to write a letter or to ask for assistance in solving many of their problems; and 4) Many were relatively unfamiliar with good health practices and the necessity for using preventive health measures.

INVENTORY OF FAMILY INFORMATION WITH EMPHASIS ON EATING PRACTICES

The purpose of this instrument was to investigate the family background and personal eating behavior patterns of the 145 participating preschool children. The inventory included demographic characteristics, socioeconomic status, food purchasing practices, family eating practices, and

pertinent questions concerning the child's attitudes toward food, eating patterns, and food preferences.

DEMOGRAPHIC CHARACTERISTICS

There were 145 children in the sample from families consisting of a total of 826 household members. The sizes of the families follow:

Family Size	Total Families	
	Number	Per Cent
2	1	.7
3	15	10.3
4	25	17.2
5	29	20.0
6	33	22.8
7	18	12.4
8	11	7.6
9	9	6.2
10	3	2.1
11	1	.7

Mean size of families: 5.7

Family size ranged from two to 11 members, with a mean of 5.7 individuals. The average size family was well above the national family mean of 3.5. Families of seven or more members comprised 29 per cent of the total families in the study. Approximately 42 per cent of the families had five or six members and less than 30 per cent had four

or less household members. The average number of children per family was 4.3. The family composition of the 145 families was investigated. The classification of the household members follows:

<u>Classification of Household Members</u>	<u>Number</u>
Fathers	98
Mothers	144
Siblings	418
Boys participating in study	67
Girls participating in study	78
Others	21
	<hr/>
Total	826

There were 21 adults living in the homes not of the primary families, most of whom were related to the families. These "other adults" constituted 6.9 per cent of the adults and 1.9 per cent of the total population. This group was defined for this study as all persons 21 years and over not household heads.

There were 98 fathers and 144 mothers in the primary families. One in every three households constituted a broken home, with no father present in 32.4 per

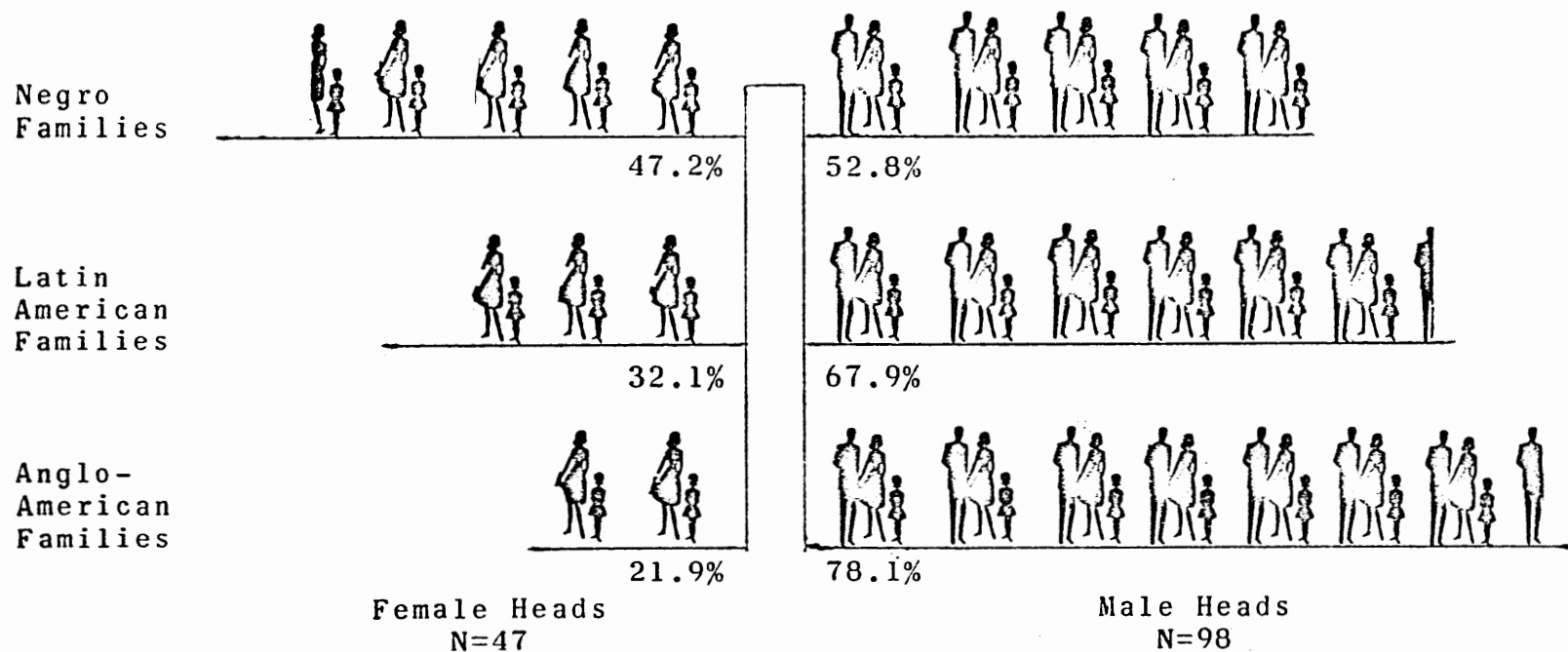
cent of the homes, and no mother present in one household.

The marital status of the parents follows:

<u>Marital Status</u>	<u>Households</u>	
	<u>Number</u>	<u>Per Cent</u>
Living together	97	66.9
Divorced	23	15.9
Separated	17	11.7
Deceased	7	4.8
Never married	1	.7

Figure 3 indicates the percentage of households headed by a mother according to ethnic groups. Approximately three-fourths of the Anglo-American spouses were living together in a family unit; while one-half of the Negro families had only one parent in the home, and two-thirds of the Latin American families had both parents present.

Table IV indicates the marital status of the parents of the 145 children according to the ethnic groups. A higher percentage of Negro parents than of parents of the other two ethnic groups were divorced. Slightly over half of the parents of Negro children were living together in the home. In contrast 78.1 per cent of the Anglo-American and 67.9 per cent of the Latin American parents were living together.



Each symbol represents 10

Figure 3
 Percentage of Male and Female Household Heads
 According to Ethnic Groups

TABLE IV
MARITAL STATUS OF PARENTS OF 145 PRESCHOOL
CHILDREN ACCORDING TO ETHNIC GROUPS

Marital Status of Parents	Ethnic Group					
	Anglo- American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Living Together	50	78.1	28	52.8	19	67.9
Divorced	10	15.6	11	20.8	2	7.1
Separated	3	4.7	8	15.1	6	21.4
Deceased	1	1.6	5	9.4	1	3.6
Never Married	0	0.0	1	1.9	0	0.0

Table V shows the comparison of family status within socioeconomic groups. For households in the Upper Group, 96.7 per cent were headed by males, while for the Lower Group 55.4 per cent were headed by females. These data indicated the higher the socioeconomic group the fewer the broken homes. In the United States two out of every five marriages end in divorce which is generally more frequent among: city families, the working class, less educated people (91).

The background in which the parents were reared was investigated. About one-half of the fathers, 49, and mothers, 74, came from an urban background. The trend toward urbanization is evident according to the analysis that follows:

<u>Childhood Background</u>	<u>Fathers Per cent</u>	<u>Mothers Per cent</u>
Anglo-American		
Urban	44.2	45.3
Suburban	28.8	31.3
Rural	26.9	23.4
Negro		
Urban	62.9	55.7
Suburban	3.8	7.6
Rural	33.3	36.5
Latin American		
Urban	47.3	57.1
Suburban	31.5	28.5
Rural	21.0	14.2

TABLE V

MARITAL STATUS OF PARENTS OF 145 PRESCHOOL CHILDREN ACCORDING
TO FAMILY SOCIOECONOMIC LEVELS

Marital Status of Parents	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Living Together	29	96.7	23	92.0	16	64.0	29	44.6
Divorced	1	3.3	0	0.0	3	12.0	19	29.2
Separated	0	0.0	1	4.0	6	24.0	10	15.4
Deceased	0	0.0	1	4.0	0	0.0	6	9.2
Never Married	0	0.0	0	0.0	0	0.0	1	1.5

Only 22.4 per cent of the fathers and 22.1 per cent of the mothers came from suburban backgrounds. Of the fathers, 27.6 per cent were reared in a rural area and 26.6 per cent of the mothers had spent their childhood in a rural area. A greater number of Negro fathers than of fathers of other ethnic groups were reared in urban areas.

The investigation of the geographic area from which the families came revealed 67.3 per cent of the fathers and 77.2 per cent of the mothers were native Texans. Seven fathers and seven mothers were born outside the United States; 25.5 per cent of the fathers and 17.2 per cent of the mothers were reared in states other than Texas. The parents born outside of the United States were chiefly from Mexico.

The 1960 census showed that among Texans 25 years of age and older, 4.0 per cent had no schooling, 41 per cent had finished high school, and 18 per cent had attended college. An individual's formal educational level has a direct bearing on employment, income, and family-living practices. Table VI shows the educational achievement of the parents of the participants. A total of 14.3 per cent of the fathers and 8.3 per cent of the mothers had not completed elementary school. Approximately equal numbers of fathers and mothers had attended college with 23.5 per cent more fathers than mothers completing advanced college work.

TABLE VI
EDUCATIONAL ACHIEVEMENT OF PARENTS OF
145 PRESCHOOL CHILDREN

Educational Achievement	Father N=98		Mother N=144	
	Num- ber	Per cent	Num- ber	Per cent
Elementary School of less	14	14.3	12	8.3
Junior High	8	8.2	29	20.1
Senior High	19	19.4	44	30.6
Attended College but did not graduate	17	17.3	34	23.6
College Graduate	7	7.1	12	8.3
Post Graduate	33	33.7	13	9.0

About two-thirds of the Anglo-American fathers were college graduates and about one-third of the fathers completing college had an advanced degree. Table VII shows fathers attending college but not graduating accounted for 22.2 per cent of the Negro group. Less than half, 44.4 per cent, of the Negro fathers attended high school. Six of the 19 Latin American fathers were college graduates. The largest group, 47.3 per cent of the Latin American fathers, had only an elementary school education or less. The smallest percentages, 4.7 per cent of the Anglo-American fathers and 7.4 per cent of the Negro fathers, had an elementary school education or less.

Over one-third of the Anglo-American mothers, but only two Latin American mothers were college graduates. A higher percentage of the Negro mothers (51.9) than of the Latin American mothers (25.0) had attended high school. College attendance, but not graduation, was indicated by 13.4 per cent of the Negro mothers. Approximately one-third of the Latin American mothers had not completed elementary school.

An investigation of the employment status of the fathers revealed that only seven of the fathers were unemployed and five fathers were employed part time. More than a third (38.5 per cent) of the fathers were employed

TABLE VII

EDUCATIONAL ACHIEVEMENT OF PARENTS OF 145 PRESCHOOL
CHILDREN ACCORDING TO ETHNIC GROUPS

Educational Achievement	Ethnic Group					
	Anglo- American		Negro		Latin American	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Father</u>						
Elementary or Less	3	4.7	2	7.4	9	47.3
Junior High	0	0.0	7	25.9	1	5.3
Senior High	5	7.8	12	44.4	2	10.5
Attended College but did not graduate	10	19.2	6	22.2	1	5.3
College Graduate or more	34	65.6	0	0.0	6	31.5
<u>Mother</u>						
Elementary or Less	1	1.5	2	3.9	9	32.2
Junior High	5	7.8	16	30.7	8	28.5
Senior High	10	15.6	27	51.9	7	25.0
Attended College but did not graduate	25	39.1	7	13.4	2	7.1
College Graduate or more	23	36.0	0	0.0	2	7.1

in professional occupations, while a third of the men were employed in unskilled jobs. The total distributions of the occupations and employment status of the parents of the 145 children are shown on Table VIII.

The employment status of the 144 mothers from the three ethnic groups are shown on Table IX. The highest proportion of full-time homemakers was found among the Anglo-American group, 65.6 per cent. Less than 30 per cent of the mothers in either of the other two ethnic groups were full-time homemakers. Of those employed, only one mother, a Latin American woman, was employed in an occupation classification other than skilled, semi-skilled, or unskilled labor.

The age range of the fathers and mothers of the pre-school children is shown in Table X. The largest percentage of fathers (61.2) were in the 30 to 39 years of age range and 22.3 per cent were 29 years or younger. It was interesting to note that the five fathers, 50 years or older, were of the lower socioeconomic level. More than half of the Negro fathers were less than 30 years of age. However, the greater proportion of Anglo-Americans and Latin American fathers were in the age range of 30 to 39 years. There were no teen-age fathers. Two-thirds of the fathers in the upper socioeconomic level were 30 to 39 years of age.

TABLE VIII
OCCUPATIONAL CLASSIFICATION AND EMPLOYMENT STATUS
OF PARENTS OF 145 PRESCHOOL CHILDREN

Occupation and Employment	Father* N=98		Mother N=144	
	Num- ber	Per cent	Num- ber	Per cent
<u>Occupation</u>				
Professional	37	38.5	3	2.1
Semi-professional	2	2.1	0	0.0
Managerial	7	7.3	0	0.0
Skilled	6	6.2	3	2.1
Semi-skilled	12	12.5	14	9.7
Unskilled	32	33.3	55	38.2
<u>Employment Status</u>				
Employed full-time	86	87.8	48	33.3
Employed part-time	5	5.1	27	18.7
Unemployed	7	7.1	69	47.9

*Two fathers did not reply as to occupation.

TABLE IX
OCCUPATIONAL CLASSIFICATION AND EMPLOYMENT STATUS
OF MOTHERS OF 144 PRESCHOOL CHILDREN
ACCORDING TO ETHNIC GROUPS

Occupation and Employment	Ethnic Group					
	Anglo- American N=64		Negro* N=52		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Occupation</u>						
Professional	2	3.1	0	0.0	1	3.6
Semi-professional	0	0.0	0	0.0	0	0.0
Managerial	0	0.0	0	0.0	0	0.0
Skilled	1	1.6	2	3.8	0	0.0
Semi-skilled	5	7.8	7	13.2	2	7.1
Unskilled	14	21.9	28	52.0	17	60.7
<u>Employment Status</u>						
Employed full-time	10	15.6	27	51.0	12	42.9
Employed part-time	12	18.7	10	18.9	8	28.6
Unemployed	42	65.6	15	29.0	8	28.6

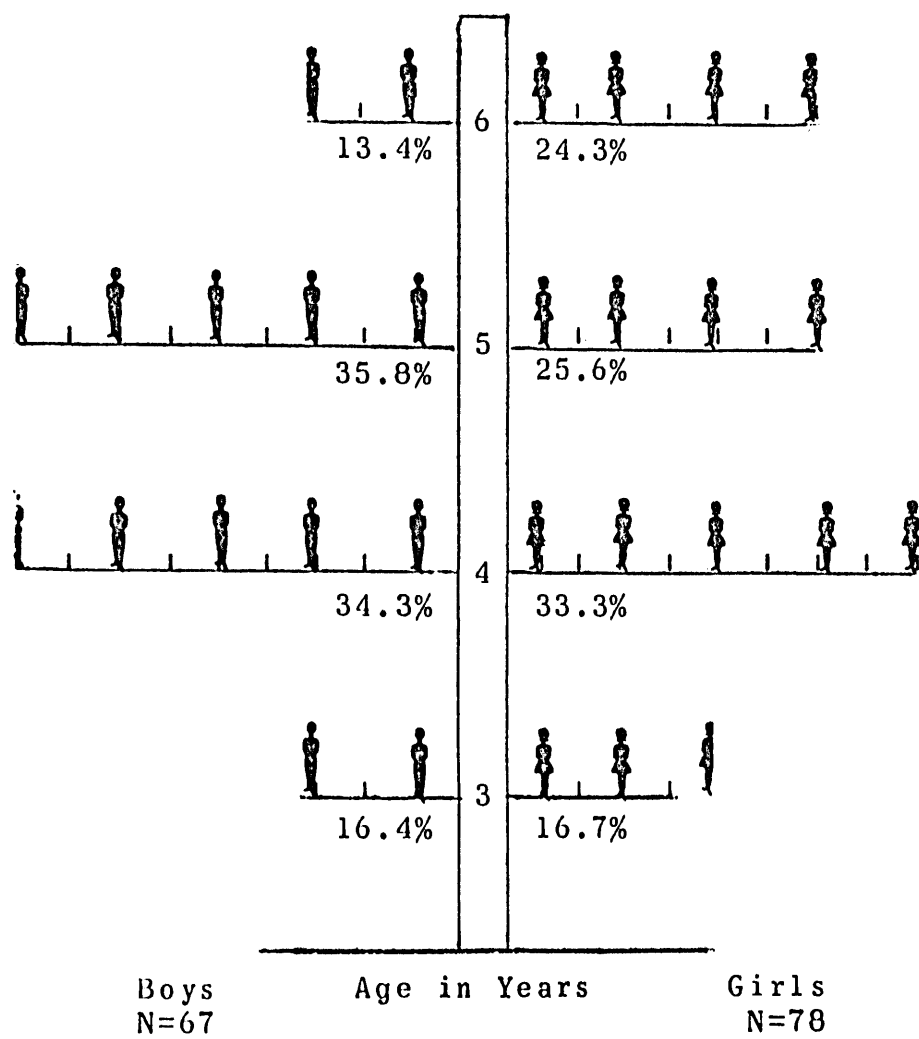
*One Negro mother was deceased.

TABLE X
AGE DISTRIBUTION OF PARENTS OF
145 PRESCHOOL CHILDREN

Age	Father N=98		Mother N=144	
	Num- ber	Per cent	Num- ber	Per cent
19 years or less	0	0.0	7	4.9
20-29 years	22	22.4	65	45.1
30-39 years	60	61.2	56	38.9
40-49 years	11	11.2	16	11.1
50 years or more	5	5.1	0	0.0

There were seven teen-age homemakers. These teen age mothers were from the Anglo-American and Negro groups only. Over one-third, 38.9 per cent, of the mothers were in the age range of 30 to 39 years. An equal proportion of the Anglo-American mothers were in the age ranges 20 to 39 and 40 to 49. The majority of the mothers in the lower middle and middle socioeconomic levels were younger than were mothers in upper or middle socioeconomic levels.

There were 67 boys and 78 girls participating in the study. The age range was three through six years. Twenty-four of the children were age three; 49 were four; 44 were five, and 28 were six years of age. The four-year-olds made up the largest group of children. This group had the highest percentage of girls and consisted primarily of children from the lower socioeconomic level and the Anglo-American ethnic groups. Figure 4 shows the age range of the 145 children according to sex. The largest percentage of the five-year-old children were from the Negro and lower socioeconomic level. Table XI shows the age range of the children according to ethnic groups, and Table XII shows the age range of the children according to socioeconomic levels. Half of the children in the upper socioeconomic level were four-year-old children. The Latin American group had the widest distribution of ages of all ethnic groups investigated.



Each symbol equals 5

Figure 4

Age Range of 145 Children
According to Sex

TABLE XI
AGE RANGE OF 145 PRESCHOOL CHILDREN
ACCORDING TO ETHNIC GROUPS

Age in Years	Ethnic Group					
	Anglo- American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
3	17	26.6	2	3.8	5	17.0
4	30	46.9	14	26.4	5	17.9
5	14	21.9	21	39.6	9	32.1
6	3	4.7	16	30.2	9	32.1

TABLE XII

AGE RANGE OF 145 PRESCHOOL CHILDREN ACCORDING TO
SOCIOECONOMIC LEVELS

Age in Years	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
3	7	23.3	5	20.0	2	8.0	10	15.4
4	15	50.0	10	40.0	6	24.0	18	27.7
5	8	26.7	7	28.0	7	28.0	22	33.8
6	0	0.0	3	12.0	10	40.0	15	23.0

The largest of children in the lower middle socioeconomic group were six years of age. Older children were found most frequently among the Negro, Latin American, and the two lower socioeconomic groupings. The mean age for all children was 4.6 and the standard deviation was .95 years.

SOCIOECONOMIC STATUS

A total of 62 families, 42.8 per cent, living in private dwellings either owned or were buying property. Over half of the families were renting. More than three-fourths of the Latin American families lived in a house while more than half of the Negro families lived in apartments. Many of the Negroes were living in government housing. An indication of the mobility of the families is evident. Over half of the families had lived in their present house or apartment for two years or less. Only 12.8 per cent of all families had lived six years or more in their present house or apartment. Half of the Anglo-Americans and 21.4 per cent of the Latin American families lived in houses with more than six rooms. Thirteen families did not have a bathroom while 12 families had more than two baths. Table XIII summarizes the information on housing and mobility of families according to ethnic groups. Table XIV compares the housing and mobility of families within the four socioeconomic groups.

TABLE XIII
 INFORMATION ON HOUSING AND MOBILITY OF THE FAMILIES
 OF THE 145 PRESCHOOL CHILDREN ACCORDING
 TO ETHNIC GROUPS

Housing	Ethnic Group					
	Anglo-American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Years spent in present dwelling</u>						
2 years or less	39	61.0	17	32.1	21	75.0
3-5 years	13	20.3	19	35.8	2	7.1
6 years or more	12	18.7	17	32.1	5	17.9
<u>Type of dwelling</u>						
Apartment	11	17.2	28	52.8	1	3.6
Duplex	3	4.7	0	0.0	4	14.3
House	48	75.0	25	47.2	22	78.6
Other	2	3.1	0	0.0	1	3.6
<u>Size of dwelling</u>						
3 rooms or less	5	7.8	3	5.7	5	17.9
4-6 rooms	27	42.2	46	86.9	17	60.7
More than 6 rooms	32	50.0	4	7.5	6	21.4

TABLE XIII (Continued)

INFORMATION ON HOUSING AND MOBILITY OF THE FAMILIES
OF THE 145 PRESCHOOL CHILDREN ACCORDING
TO ETHNIC GROUPS

Housing	Ethnic Group					
	Anglo-American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Number of baths</u>						
None	4	6.3	3	5.7	6	21.4
One	28	43.8	49	92.5	19	67.9
Two	21	32.8	1	1.9	2	7.1
More than two	11	17.2	0	0.0	1	3.6
<u>Ownership or Renting</u>						
Renting	25	39.0	41	77.4	13	46.4
Paying on house	35	54.6	12	22.6	12	42.9
Rent-free	2	3.1	0	0.0	2	7.1
Completely owned	2	3.1	0	0.0	1	3.6

TABLE XIV

INFORMATION ON HOUSING AND MOBILITY OF THE FAMILIES OF THE 145 PRESCHOOL
CHILDREN ACCORDING TO SOCIOECONOMIC LEVELS

Housing	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Years spent in present dwelling</u>								
2 years or less	21	70.0	11	44.0	13	52.0	33	50.7
3-5 years	4	13.3	7	28.0	8	32.0	15	23.1
6 years or more	5	16.7	7	28.0	4	16.0	17	26.2
<u>Type of dwelling</u>								
Apartment	1	3.3	5	20.0	9	36.0	25	38.5
Duplex	0	0.0	1	4.0	2	8.0	4	6.2
House	27	90.0	18	72.0	14	56.0	36	55.4
Other	2	6.7	1	4.0	0	0.0	0	0.0
<u>Size of dwelling</u>								
3 rooms or less	0	0.0	1	4.0	1	4.0	11	16.9
4-6 rooms	10	33.3	15	60.0	20	80.0	46	70.8
More than 6 rooms	20	66.7	9	36.0	4	16.0	8	12.3

TABLE XIV (Continued)

INFORMATION ON HOUSING AND MOBILITY OF THE FAMILIES OF THE 145 PRESCHOOL
CHILDREN ACCORDING TO SOCIOECONOMIC LEVELS

Housing	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Number of baths</u>								
No bath	0	0.0	0	00.0	2	8.0	10	15.4
One bath	6	20.0	17	68.0	20	80.0	54	83.1
Two baths	13	43.3	7	28.0	3	12.0	1	1.5
More than two	11	36.7	1	4.0	0	0.0	0	0.0
<u>Ownership or renting</u>								
Renting	5	16.7	13	52.0	20	80.0	41	63.1
Paying on house	23	76.7	11	44.0	5	20.0	20	30.8
Rent-free	0	0.0	0	0.0	0	0.0	4	6.2
Completely owned	2	6.7	1	4.0	0	0.0	0	0.0

It is interesting to note that only three families completely owned their homes, two Anglo-Americans of the upper socioeconomic level and one Latin American of the middle socioeconomic level. The Anglo-American families of the upper socioeconomic level were the most mobile of the sample population.

The data concerning the family income again re-emphasized the great differences in the economic statuses of the sample population. Over 20.0 per cent of the families had an income of \$10,000 or above. Yet 62.0 per cent of the families were considered underprivileged with family incomes of \$5,000 or less. Over 40.0 per cent of the families made less than \$3,000 per year in take home pay. An index of the family income is given below.

Family Income (take home pay)	<u>Total</u>	
	<u>Number</u>	<u>Per cent</u>
Less than \$3,000	65	44.8
\$3,000 to \$6,999	33	22.7
\$7,000 to \$10,999	19	13.2
\$11,000 to \$14,999	10	6.9
\$15,000 or more	18	12.4

About 16.0 per cent of the families reported additional income from investments; whereas, 25 per cent listed income from welfare, Social Security, and pensions. Table XV indicates the income of the families according to ethnic groups.

TABLE XV
 INFORMATION CONCERNING INCOME OF THE FAMILIES OF
 145 PRESCHOOL CHILDREN ACCORDING
 TO ETHNIC GROUP

Family Income	Ethnic Group					
	Anglo-American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Salary (take home pay)</u>						
Less than \$3,000	13	20.3	40	75.5	12	42.9
\$3,000 to \$6,999	10	15.7	13	24.5	10	35.7
\$7,000 to \$10,999	16	25.0	0	0.0	3	10.7
\$11,000 to \$14,999	9	14.0	0	0.0	1	3.6
\$15,000 or more	16	25.0	0	0.0	2	7.1
<u>Additional Income</u>						
Investments	20	31.3	0	0.0	1	3.6
Pensions	1	1.6	0	0.0	0	0.0
Social Security	2	3.1	1	1.9	0	0.0
Welfare	12	18.8	13	24.5	7	25.0
No response	29	45.3	39	73.6	20	71.4

The annual family income by ethnic groups in Texas for 1960 showed (13):

<u>Income</u>	<u>Anglo-American</u>	<u>Per cent</u>	
		<u>Negro</u>	<u>Latin American</u>
\$3,000	21.3	57.7	51.6
\$15,000 or more	4.8	0.2	0.6

These percentages may be compared with the percentages for the families participating in this study. Annual family income by ethnic groups participating in this study follows:

<u>Income</u>	<u>Anglo-American</u>	<u>Per cent</u>	
		<u>Negro</u>	<u>Latin American</u>
\$3,000	20.3	75.5	42.9
\$15,000 or more	25.0	0.0	7.1

FOOD PURCHASING PRACTICES

Marketing practices and expenditures on food may be a significant factor in providing adequate diets for the growth and development of preschool children. It was observed that 71.4 per cent of the Latin American mothers and 58.5 per

cent of the Negro mothers did weekly shopping. Almost 40.0 per cent of the Negro families shopped for groceries two or more times per week. In the Negro families in which a father was present, the father usually shopped with the mother. In the Anglo-American families over 70.0 per cent of the grocery shopping was done by the homemaker with about 54.0 per cent shopping two or more times per week.

A greater percentage of the husbands from the two middle than from the upper or lower socioeconomic levels purchased groceries two or more times per week. More Negro children assisted with grocery shopping than children of other ethnic groups. Food practices of the families participating in the study are found in Tables XVI and XVII.

TABLE XVI

FOOD PURCHASING PRACTICES OF THE FAMILIES OF 145
PRESCHOOL CHILDREN ACCORDING TO ETHNIC GROUPS

Food Purchasing Practices	Ethnic Group					
	Anglo- American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Participates in buying family food</u>						
Husband only	4	6.3	7	13.2	1	3.6
Wife only	43	67.2	24	45.3	20	71.4
Husband and wife together	13	20.3	12	22.6	5	17.9
Children	0	0.0	4	7.5	0	0.0
Others	4	6.3	6	11.3	2	7.1
<u>Frequency of grocery shopping</u>						
Every day	1	1.6	3	5.7	1	3.6
Three times a week	16	25.9	3	5.7	1	3.6
Twice a week	18	28.1	15	28.3	3	10.7
Once a week	22	34.4	31	58.5	20	71.4
Every two weeks	7	10.9	1	1.9	3	10.7

TABLE XVII

FOOD PURCHASING PRACTICES OF THE FAMILIES OF 145 PRESCHOOL
CHILDREN ACCORDING TO SOCIOECONOMIC LEVELS

Food Purchasing Practices	Socioeconomic Level									
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65		Total N=145	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Participants Buying Family Food</u>										
Husband only	0	0.0	3	12.0	3	12.0	6	9.2	12	8.3
Wife only	24	80.0	14	56.0	12	48.0	37	56.9	87	60.0
Husband and wife together	5	16.7	8	32.0	9	36.0	8	12.3	30	20.7
Children	0	0.0	0	0.0	0	0.0	4	6.2	4	2.8
Others	1	3.3	0	0.0	1	4.0	10	15.4	12	8.3
<u>Frequency of Grocery Shopping</u>										
Every day	0	0.0	1	4.0	1	4.0	3	4.6	5	3.4
Three times a week	10	33.3	2	8.0	3	12.0	5	7.7	20	13.8
Twice a week	10	33.3	8	32.0	3	12.0	15	23.1	36	24.8
Once a week	7	23.3	13	52.0	16	64.0	37	56.9	73	50.3
Every two weeks	3	10.0	1	4.0	2	8.0	5	7.7	11	7.6

Mothers of 145 preschool children reported the frequency with which 24 food items were purchased. Data were analyzed by ethnic and socioeconomic groupings in Table XVIII. The food items reported as "often" purchased by 70.0 per cent or more of the households were similar for all ethnic and socioeconomic groupings. These foods, in descending rank order, were as follows:

<u>Anglo- American</u>	<u>Negro</u>	<u>Latin American</u>
Eggs	Eggs	Eggs
Chicken	Chicken	Chicken
Beef	Ready-to-eat	Ready-to-eat
Fresh Fruits	Cereals	Cereals
Ready-to-eat	Fresh Vege-	Soft Drinks
Cereals	tables	Cookies

Foods checked in this category by 70.0 per cent or more of the socioeconomic and ethnic groupings were: eggs, chicken, and ready-to-eat cereals. Both Latin American and Negro ethnic groups listed soft drinks, cookies, sweet rolls, and prepared cakes more often than did the other groups. Frozen prepared dinners were not popular among any of the ethnic groups. Families of the two higher socioeconomic levels purchased frozen vegetables, frozen fruit juices and fresh vegetables and fruits more frequently than did the families of the two lower socioeconomic levels.

TABLE XVIII

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part A. Anglo-Americans

Foods	Responses of Anglo-American Families N=64					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	34	53.1	23	35.9	7	10.9
Frozen vegetables	32	50.0	19	29.7	13	20.3
Frozen meats	16	25.0	22	34.4	26	40.6
Bread mixes	8	12.5	17	26.6	39	60.9
Cake mixes	12	18.8	31	48.4	21	32.8
Fresh vegetables	44	68.8	17	26.6	3	4.7
Fresh fruits	48	75.0	13	20.3	3	4.7
Cereals to be cooked	34	53.1	18	28.1	12	18.8
Ready-to-eat cereals	47	73.4	9	14.1	8	12.5
TV-dinners	6	9.4	9	14.1	49	76.6
Beef	51	79.7	5	7.8	8	12.5
Pork	31	48.4	25	39.1	8	12.5
Chicken	52	81.3	8	12.5	4	6.3
Fish	29	45.3	30	46.9	5	7.8
Lamb	8	12.5	11	17.2	45	70.3
Eggs	58	90.6	3	4.7	3	4.7
Cheese	53	82.8	7	10.9	4	6.3
Soft drinks or Kool- Aid	32	50.0	22	34.4	10	15.6
Candy	18	28.1	25	39.1	21	32.8
Chewing gum	13	20.3	22	34.4	29	45.3
Cookies	35	54.7	21	32.8	8	12.5
Sweet rolls or doughnuts	12	18.8	37	57.8	15	23.4
Prepared cakes	0	0.0	23	35.9	41	64.1
Prepared pastry	7	10.9	23	35.9	34	53.1

TABLE XVIII (Continued)

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part B. Negro

Foods	Responses of Negro Families N=53					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	9	17.0	31	58.5	13	24.5
Frozen vegetables	14	26.4	27	50.9	12	22.6
Frozen meats	20	37.7	15	28.3	18	34.0
Bread mixes	14	26.4	12	22.6	27	50.9
Cake mixes	24	45.3	14	26.4	15	28.3
Fresh vegetables	40	75.5	12	22.6	1	1.9
Fresh fruits	37	69.8	14	26.4	2	3.8
Cereals to be cooked	41	77.4	10	18.9	2	3.8
Ready-to-eat cereals	33	62.3	15	28.3	5	9.4
TV-dinners	8	15.1	15	28.3	30	56.6
Beef	35	66.0	16	30.2	2	3.8
Pork	31	58.5	19	35.8	3	5.7
Chicken	50	94.3	2	3.8	1	1.9
Fish	15	28.3	33	62.3	5	9.4
Lamb	4	7.5	8	15.1	41	77.4
Eggs	50	94.3	1	1.9	2	3.8
Cheese	35	66.0	15	28.3	3	5.7
Soft drinks or Kool- Aid	32	60.4	20	37.7	1	1.9
Candy	30	56.6	21	39.6	2	3.8
Chewing gum	30	56.6	20	37.7	3	5.7
Cookies	37	69.8	14	26.4	2	3.8
Sweet rolls or doughnuts	25	47.2	23	43.4	5	9.4
Prepared cakes	20	37.7	20	37.7	13	24.5
Prepared pastry	19	35.8	12	22.6	22	41.5

TABLE XVIII (Continued)

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part C. Latin American

Foods	Responses of Latin American Families N=28					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	10	35.7	10	35.7	8	28.6
Frozen vegetables	7	25.0	13	46.4	8	28.6
Frozen meats	11	39.3	6	21.4	11	39.3
Bread mixes	4	14.3	12	42.9	12	42.9
Cake mixes	8	28.6	14	50.0	6	21.4
Fresh vegetables	22	78.6	6	21.4	0	0.0
Fresh fruits	21	75.0	7	25.0	0	0.0
Cereals to be cooked	18	64.3	5	17.9	5	17.9
Ready-to-eat cereals	22	78.6	5	17.9	1	3.6
TV-dinners	1	3.6	3	10.7	24	85.7
Beef	20	71.4	3	10.7	5	17.9
Pork	12	42.9	13	46.4	3	10.7
Chicken	23	82.0	5	17.9	0	0.0
Fish	2	7.1	12	42.9	14	50.0
Lamb	1	3.6	4	14.3	23	82.1
Eggs	25	89.3	1	3.6	2	7.1
Cheese	18	64.3	3	10.7	7	25.0
Soft drinks or Kool-Aid	21	75.0	7	25.0	0	0.0
Candy	1	3.6	14	50.0	13	46.4
Chewing gum	3	10.7	14	50.0	11	39.3
Cookies	20	71.4	5	17.9	3	10.7
Sweet rolls or doughnuts	9	32.1	16	57.1	3	10.7
Prepared cakes	2	7.1	12	42.9	14	50.0
Prepared pastry	2	7.1	7	25.1	19	67.9

TABLE XVIII (Continued)

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part D. Upper Socioeconomic Level

Foods	Responses of Families of Upper Socioeconomic Level N=30					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	17	56.7	9	30.0	4	13.3
Frozen vegetables	20	66.7	6	20.0	4	13.3
Frozen meats	4	13.3	12	40.0	14	46.7
Bread mixes	0	0.0	8	26.7	22	73.3
Cake mixes	4	13.3	16	55.3	10	33.3
Fresh vegetables	25	83.3	5	16.7	0	0.0
Fresh fruits	26	86.7	4	13.3	0	0.0
Cereals to be cooked	14	46.7	11	36.7	5	16.7
Ready-to-eat cereals	23	76.7	5	16.7	2	6.7
TV-dinners	1	3.3	2	6.7	27	90.0
Beef	29	96.7	0	0.0	1	3.3
Pork	11	36.7	17	56.7	2	6.7
Chicken	26	86.7	3	10.0	1	3.3
Fish	10	33.3	18	60.0	2	6.7
Lamb	6	20.0	5	16.7	19	63.3
Eggs	28	93.3	1	3.3	1	3.3
Cheese	30	100.0	0	0.0	0	0.0
Soft drinks or Kool-Aid	12	40.0	14	46.7	4	13.3
Candy	6	20.0	9	30.0	15	50.0
Chewing gum	1	3.3	13	43.3	16	53.3
Cookies	12	40.0	15	50.0	3	10.0
Sweet rolls or doughnuts	5	16.7	21	70.0	4	13.3
Prepared cakes	0	0.0	10	33.3	20	66.7
Prepared pastry	2	6.7	8	26.7	20	66.7

TABLE XVIII (Continued)

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part E. Middle Socioeconomic Level

Foods	Responses of Families of Middle Socioeconomic Level N=25					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	16	64.0	6	24.0	3	12.0
Frozen vegetables	14	65.0	7	28.0	4	16.0
Frozen meats	12	48.0	4	16.0	9	36.0
Bread mixes	7	28.0	8	32.0	10	40.0
Cake mixes	6	24.0	13	52.0	6	24.0
Fresh vegetables	21	84.0	3	12.0	1	4.0
Fresh fruits	22	88.0	3	12.0	0	0.0
Cereals to be cooked	12	48.0	7	28.0	6	24.0
Ready-to-eat cereals	22	88.0	2	8.0	1	4.0
TV-dinners	2	8.0	6	24.0	17	68.0
Beef	18	72.0	5	20.0	2	8.0
Pork	18	72.0	6	24.0	1	4.0
Chicken	22	88.0	3	12.0	0	0.0
Fish	11	44.0	11	44.0	3	12.0
Lamb	3	12.0	4	16.0	18	72.0
Eggs	24	96.0	1	4.0	0	0.0
Cheese	22	88.0	3	12.0	0	0.0
Soft drinks or Kool- Aid	15	60.0	9	36.0	1	4.0
Candy	5	20.0	14	56.0	6	24.0
Chewing gum	3	12.0	11	44.0	11	44.0
Cookies	19	76.0	4	16.0	2	8.0
Sweet rolls or doughnuts	5	20.0	14	56.0	6	24.0
Prepared cakes	0	0.0	7	28.0	18	72.0
Prepared pastry	2	8.0	8	32.0	15	60.0

TABLE XVIII (Continued)

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part F. Lower Middle Socioeconomic Level

Foods	Responses of Families of Lower Middle Socioeconomic Level N=25					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	7	28.0	15	60.0	3	12.0
Frozen vegetables	7	28.0	15	60.0	3	12.0
Frozen meats	5	20.0	10	40.0	10	40.0
Bread mixes	6	24.0	3	12.0	16	64.0
Cake mixes	10	40.0	9	36.0	6	24.0
Fresh vegetables	19	76.0	6	24.0	0	0.0
Fresh fruits	18	72.0	6	24.0	1	4.0
Cereals to be cooked	21	84.0	3	12.0	1	4.0
Ready-to-eat cereals	16	64.0	5	20.0	4	16.0
TV-dinners	4	16.0	4	16.0	17	68.0
Beef	21	84.0	2	8.0	2	8.0
Pork	17	68.0	6	24.0	2	8.0
Chicken	22	88.0	3	12.0	0	0.0
Fish	10	40.0	12	48.0	3	12.0
Lamb	1	4.0	5	20.0	19	76.0
Eggs	22	88.0	1	4.0	2	8.0
Cheese	17	68.0	7	28.0	1	4.0
Soft drinks or Kool- Aid	15	60.0	9	36.0	1	4.0
Candy	11	44.0	13	52.0	1	4.0
Chewing gum	14	56.0	9	36.0	2	8.0
Cookies	19	76.0	6	24.0	0	0.0
Sweet rolls or doughnuts	14	56.0	8	32.0	3	12.0
Prepared cakes	9	36.0	5	20.0	11	44.0
Prepared pastry	8	32.0	5	20.0	12	48.0

TABLE XVIII (Continued)

FREQUENCY OF FOOD PURCHASES BY FAMILIES OF THE
145 PRESCHOOL CHILDREN

Part G. Lower Socioeconomic Level

Foods	Responses of Families of Lower Socioeconomic Level N=65					
	Often		Sometime		Seldom or Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Frozen fruit juice	13	20.0	34	52.3	18	27.7
Frozen vegetables	12	18.5	31	47.7	22	33.8
Frozen meats	26	40.0	17	26.2	22	33.8
Bread mixes	13	20.0	22	33.8	30	46.2
Cake mixes	24	36.9	21	32.3	20	30.8
Fresh vegetables	41	63.1	21	32.3	3	4.6
Fresh fruits	40	61.5	21	32.3	4	6.2
Cereals to be cooked	46	70.8	12	18.5	7	10.8
Ready-to-eat cereals	41	63.1	17	26.2	7	10.8
TV-dinners	8	12.3	15	23.1	42	64.6
Beef	38	58.5	17	26.2	10	15.4
Pork	28	43.1	28	43.1	9	13.8
Chicken	55	84.6	6	9.2	4	6.2
Fish	15	23.1	34	52.3	16	24.6
Lamb	3	4.6	9	13.8	53	81.5
Eggs	59	90.8	2	3.1	4	6.2
Cheese	37	56.9	15	23.1	13	20.0
Soft drinks or Kool-Aid	43	66.2	17	26.2	5	7.7
Candy	27	41.5	24	36.9	14	21.5
Chewing gum	28	43.1	23	45.4	14	21.5
Cookies	42	64.6	15	23.1	8	12.3
Sweet rolls or doughnuts	22	33.8	33	50.8	10	15.4
Prepared cakes	13	20.0	33	50.8	19	29.2
Prepared pastry	16	24.6	21	32.3	28	43.1

Most of the families, 92.4 per cent, reported the purchase of fresh milk for family use. Only 1.4 per cent of the families used evaporated milk and 27.6 per cent indicated using powdered milk. Dried milk is a commodity supplied through federal funds to low income families. It was not determined for this study which families received commodities.

The per capita consumption of milk for the entire group of 145 families was 1.86 quarts per week. When milk consumption was analyzed on the basis of socioeconomic level, the following means were determined: upper level, 3.40 quarts; middle level, 2.34 quarts; lower middle level, 1.58 quarts; and the lower socioeconomic level, 1.07 quarts per person per week. The range was from zero to 7.50 quarts per person per week. As the socioeconomic level decreased, the per capita purchase of milk declined. However, all but 25 of the 145 children had at least one meal served at the nursery school or child development center. Milk was included in the meals served to the children. Therefore, milk consumption may have been higher for this age group than for other family members.

GROWTH AND DEVELOPMENT OF
PRESCHOOL CHILDREN

Growth is a manifestation of life in the young child and its rate and quality are related to the general health, nutrition, and environmental care of the individual. A decrease in growth rate precedes other so-called "specific" signs of malnutrition (60). The level of height and weight of children is important and meaningful when compared with norms.

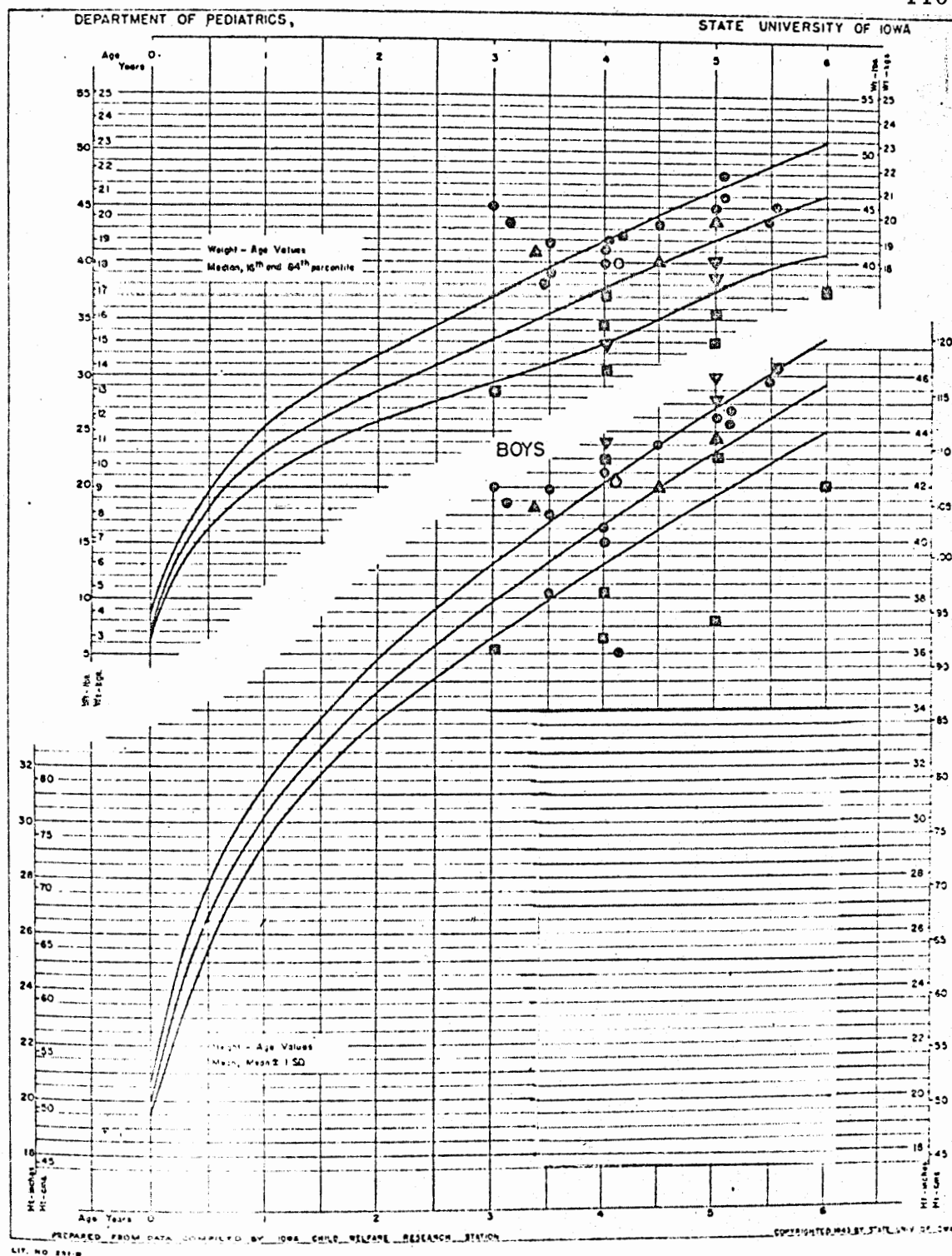
The Iowa growth standards for the preschool child showing the norms of growth for children from birth through six years of age were chosen by the author to expedite the evaluation of the child's nutritional status. Charts of height-age and weight-age for boys and for girls were developed at the University of Iowa. The norms represent a relatively high level of growth. This high level of growth accrues from the selection of subjects, most of whom were of the upper socioeconomic level. The chart for the preschool child is given for the first six years of growth with the age scale divided into semiannual intervals. On each chart there is a set of three curves for height and three curves for weight. The middle curve gives the average value. Since height is normally distributed for age groups, the mean value was used, and since weight is slightly skewed for

age groups, the median-50th percentile was used. The outside curves for height represent points on the height scale that are one standard deviation above the average and one standard deviation below the average.

If a child's growth in height follows along the upper curve he is ranking at the eighty-fourth percentile among children of his sex, age, race, and geographic environment. If he is following the lower curve, he is ranking at the sixteenth percentile.

Rate of growth in length is a better criterion of adequacy of nutrition in infancy and childhood than are changes in body weight. The relative weight for height is superior to either value alone. Jackson (60) states, "Deviations from expected growth may indicate satisfactory or unsatisfactory nutrition, but they warrant an investigation into the heredity, environment, history of disease, and quality of the diet."

The 145 preschool children were compared to the Iowa norms of weight-age and height-age for children from birth to six years of age. Figure 5 compares the height-age and weight-age of 29 boys of the Anglo-American ethnic group to the Iowa standards for boys, ages three through six. Fifteen boys were of the upper socioeconomic level, six boys of the middle socioeconomic level, one of the lower



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Figure 5

Comparison of Growth of 29 Anglo-American Boys
With Iowa Norms for Preschool Children

middle socioeconomic level, and seven boys from the lower socioeconomic level.

Only one five-year-old boy of the lower socioeconomic level was of average height, while five of the boys of this group ranked less than one standard deviation below the average. One four-year-old boy of this group ranked above one standard deviation for those of his sex, age, and ethnic group. In the upper socioeconomic level, one boy was more than one standard deviation below the mean for his height group. Five of the younger boys were more than one standard deviation above the average, and four boys were along the upper curve or one standard deviation more than the mean.

Five boys of the lower socioeconomic level ranked below the 16th percentile according to the weight-age Iowa norms, but 11 of the boys from the upper socioeconomic group clustered about the 84th percentile curve, with two of the three-year-old boys well above the 84th percentile for this weight-age group.

Figure 6 compares the height-age and weight-age of 17 Anglo-American girls, eight in the upper socioeconomic level and nine from the lower socioeconomic level. All but three girls of the lower socioeconomic level were significantly below average height when compared to the Iowa

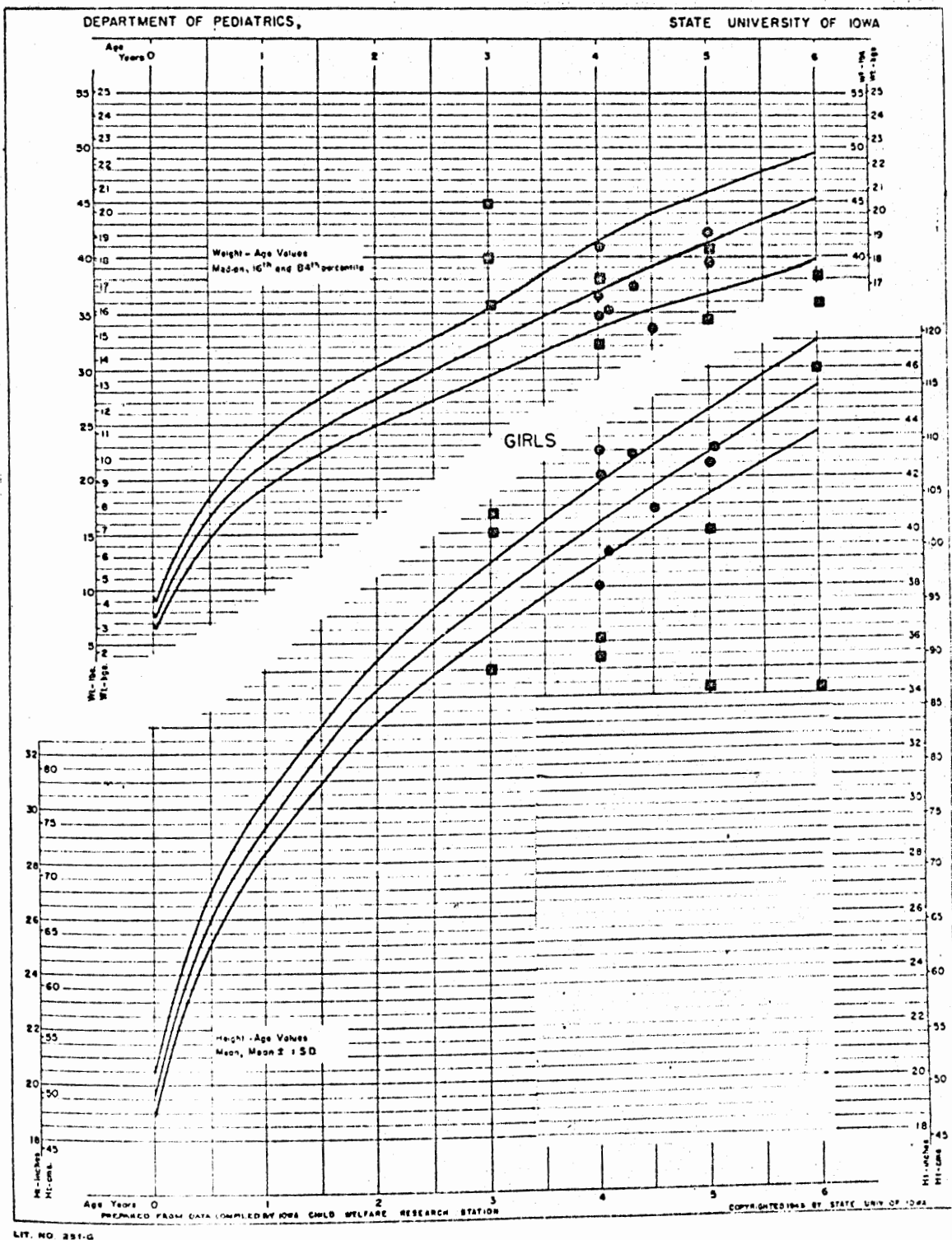


Figure 6

Comparison of Growth of 17 Anglo-American Girls

With Iowa Norms for Preschool Children

standards for height-age for preschool children. One six-year-old girl was slightly above average in height. According to weight-age norms, four of this group were below the 16th percentile curve, and two ranked on or above the 84th percentile curve for girls, three through six years. In contrast, only one girl from the upper socioeconomic level was below the 16th percentile and none were above the 84th percentile. It appears that the eating patterns of the children may be influenced by the socioeconomic level.

The weight-age and height-age chart for 11 Latin American boys participating in the study are shown in Figure 7. One three-year-old boy was above the 84th percentile on the weight-age chart and was below the 16th percentile on the height-age chart. A five-year-old and a six-year-old child were below the 16th percentile for both weight-age and height-age.

Figure 8 compares the weight-age and height-age of eight Latin American preschool girls according to Iowa norms. Two girls were from the upper middle socioeconomic level, five girls were from the lower socioeconomic level, and one girl was from the middle socioeconomic level. One child was above the mean for height and four were one standard deviation below the mean. The weight-age chart indicated that four of the girls were in the 16th percentile rank or

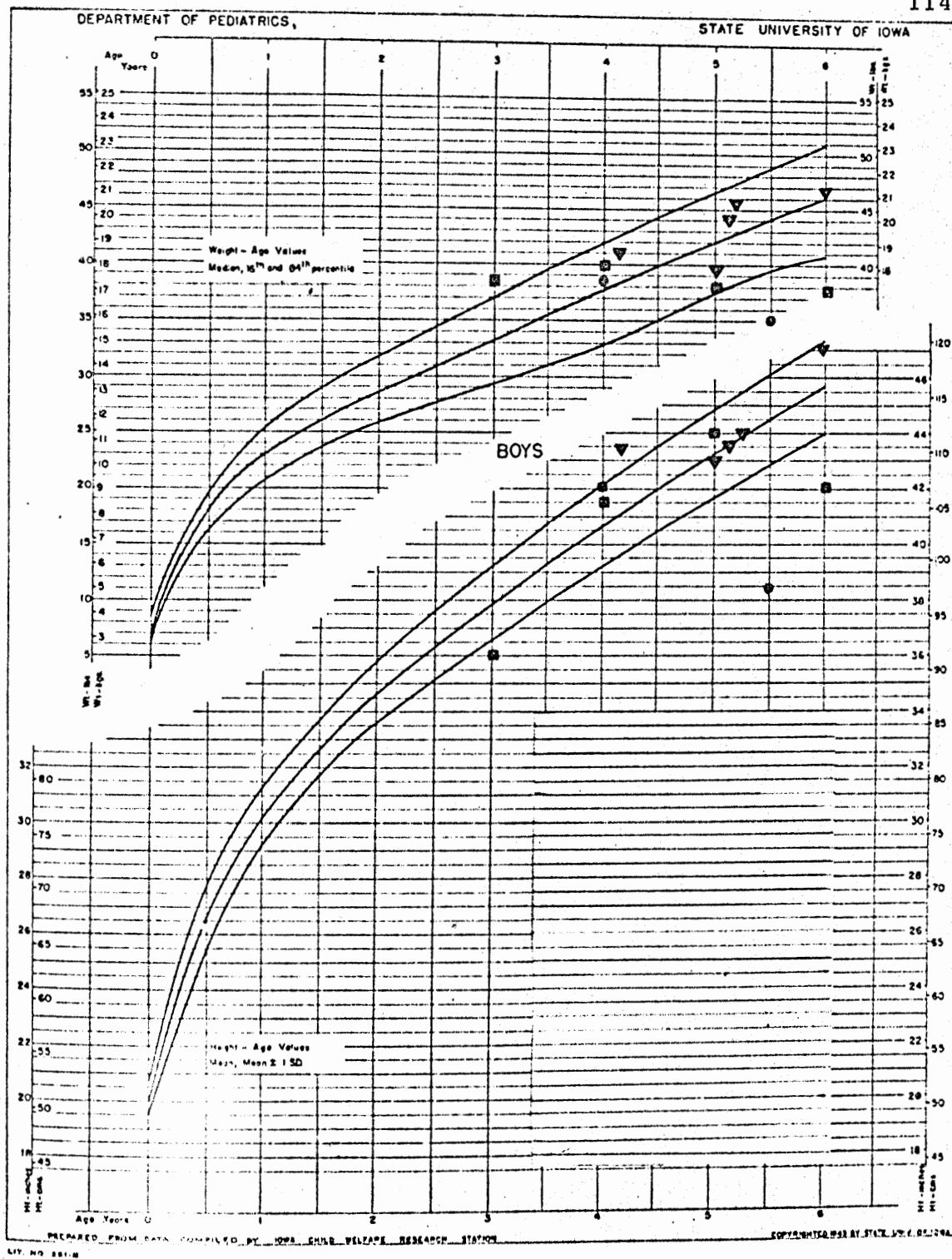


Figure 7

Comparison of Growth of 11 Latin American Boys
with Iowa Norms for Preschool Children

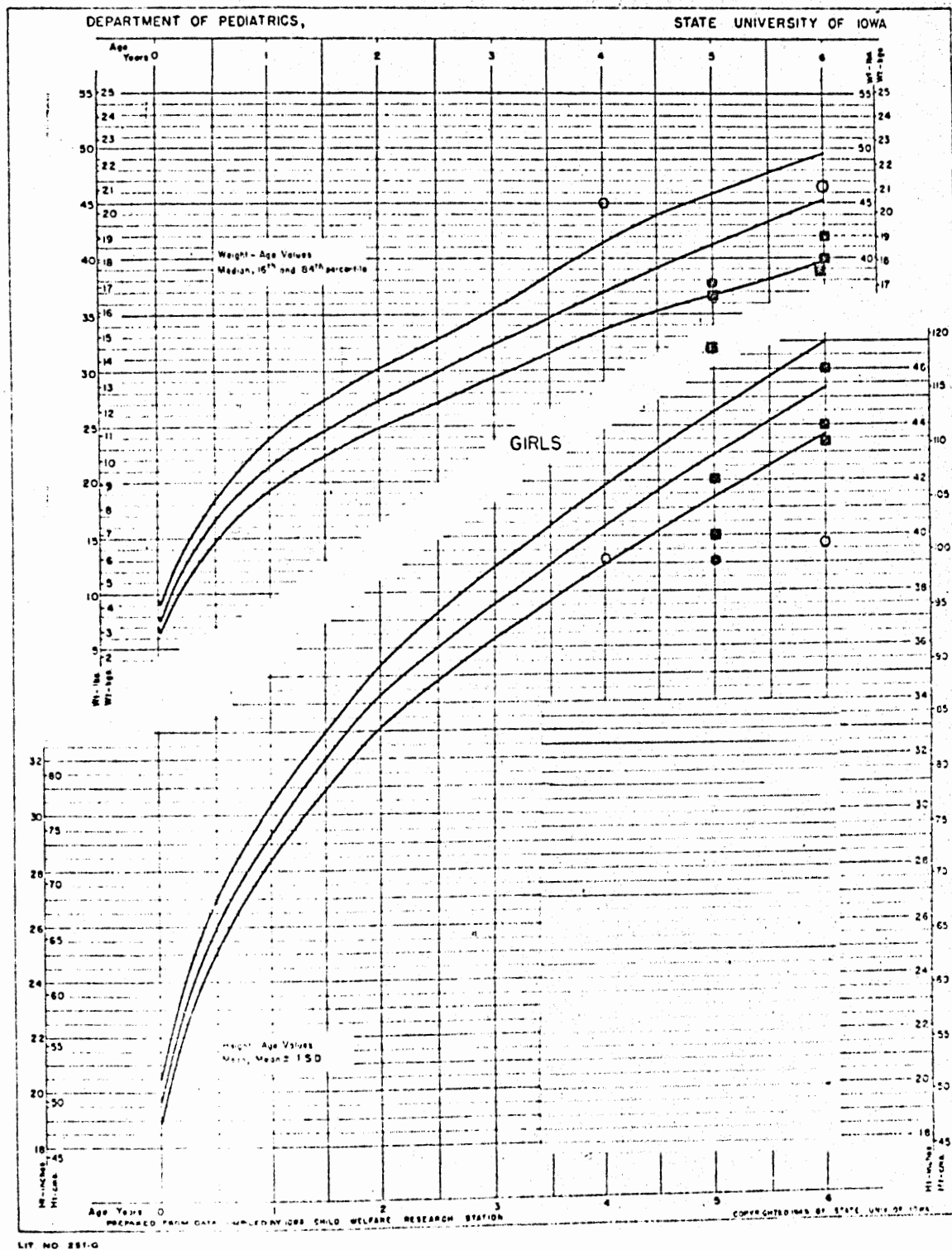


Figure 8
Comparison of Growth of 8 Latin American Girls
with Iowa Norms for Preschool Children

below. Two girls from the lower middle socioeconomic level were above the mean.

The charts indicated that the Anglo-American and Latin American boys follow the Iowa norms more closely than the girls. The weight-age and height-age graphs for Negro children were not included since all four socioeconomic levels were not represented in the Negro families included in the study.

The mean height for the 145 preschool children was 42.1 inches. The standard deviation was 3.7 inches. In other words, 84.0 per cent of these children were 45.8 inches or more tall; 16.0 per cent were 38.4 inches or less in height. The range for the heights of the 145 preschool children participating in the study was from 29.2 inches to 53.0 inches.

The mean weight for the 145 preschool children was 40.3 pounds and the standard deviation was 7.4. The lower limit of one standard deviation less than the mean is 32.9 pounds. The upper limit of one standard deviation above the mean is 47.7. The range of weight for these children was from 26.0 pounds to 60.0 pounds.

The Anglo-American boys tended to be taller than the Iowa norms which is consistent with the growth trends of children in the United States. The Iowa Norms were

developed over 25 years ago. There is an existing need for the development of norms for weight-age and height-age for Negro and Latin American children. Growth studies especially of preschool children in different socioeconomic and ethnic groups in the United States would provide practical information for improved welfare of the child.

Information was recorded by parents concerning the child's birth weight and the early feeding practices of the child as an infant. The mean weight of the 145 preschool children at birth was 6.64 pounds and the standard deviation 1.26 pounds. The range of birth weights was from 3.0 pounds to 9.2 pounds.

Children from the Anglo-American group and the upper socioeconomic level generally were larger than children from other groups at birth.

<u>Ethnic Group</u>	<u>Mean Weight at Birth (pounds)</u>	<u>Standard Deviation (pounds)</u>
Anglo-American		
Girls	6.70	1.27
Boys	7.34	0.91
Negro		
Girls	6.20	1.20
Boys	6.50	1.16
Latin American		
Girls	6.00	1.50
Boys	6.70	0.79

Latin American girls tended to weigh the least at birth, however, the Latin American boys usually weighed more than the Negro children at birth. Boys from the upper socioeconomic level tended to weigh the most while girls from the lower socioeconomic level generally weighed the least at birth. The mean weight for girls was less than that for boys in each study group. The mean birth weight decreased with each lower socioeconomic level.

The average weight at birth of the children included in the sample according to socioeconomic level was as follows:

<u>Socioeconomic Level</u>	<u>Mean Weight at Birth (pounds)</u>
Upper	7.4
Middle	7.0
Lower Middle	6.6
Lower	6.4

One interesting fact was that the mean weight at birth of the Latin American group was 6.1 pounds, the lowest birth weight for any group participating in the study. A total of 22 premature births were reported. Eighteen of these were from the lower socioeconomic level. No premature births were reported for the upper socioeconomic

level. Two were reported for each of the remaining socioeconomic levels.

The mean months of breast and bottle feeding was 13 months, the standard deviation 4.73. The range of breast and bottle feeding was from two weeks to 26 months. A greater percentage of the children from the lower socioeconomic level and the Latin American families than from other groups were bottle fed only. The Negro mothers breast fed their children the shortest period of time. A greater percentage of mothers in the upper than in other socioeconomic levels breast fed their babies. The methods of feeding the children as infants are shown in Table XIX. The study confirms findings by Salber (50) that there is more breast feeding among the higher socioeconomic levels.

Children enrolled in the Head Start Child Development Day Care Centers are given medical examinations. The major factors observed in checking health records of the preschool children were that about 35.0 per cent of the children had colds frequently, and 40.0 per cent had dental health problems.

Preschool children have much illness. This is not necessarily a reflection on their general health or the care they receive. It is principally due to the child's

TABLE XIX
 INFANT FEEDING PRACTICES REPORTED BY MOTHERS
 OF 144 PRESCHOOL CHILDREN*

Classification of Family	Feeding Practices					
	Both Breast and Bottle Fed		Breast Fed Only		Bottle Fed Only	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Ethnic Group						
Anglo-American N=64	15	23.4	8	12.5	41	64.1
Negro N=52	13	24.5	1	1.9	39	73.6
Latin American N=28	4	14.3	1	3.6	34	82.1
Socioeconomic Level						
Upper N=30	9	30.0	4	13.3	17	56.7
Middle N=24	8	32.0	3	12.0	14	56.0
Lower Middle N=25	2	8.0	1	4.0	22	88.0
Lower N=65	13	20.0	2	3.1	50	76.9

*One mother was deceased.

encounter with the world's acute communicable diseases to which he has not yet become immune. Stitt (97) states "The sick child 'spends' his resources in the fever, the illness itself." Food intake is curtailed and impaired food utilization may occur during the illness. Some impairment of both appetite and utilization may linger for sometime after the illness. Therefore, the preschool child's diet should be carefully planned to meet the child's immediate needs. Health records for the children enrolled in the Head Start Child Development Day Care Centers indicated the following as current health problems:

<u>Health Problem</u>	<u>Number</u>
Respiratory infections	42
Virus infection of eyes	4
Heart murmur	5
Arrested tuberculosis	3
Anemia	3
Pinworms	2
Dental caries	54
Enlarged tonsils	15

A fundamental concept of the management of any disease is removal of the cause or factor which conditions it. Nizel (88) indicated the form and frequency of the use of sweets are the two most pressing factors in caries production. Therefore, this author recommended that sticky sweets be eliminated from the diet, and that between-meal snacks

include detergent foods. Raw fruits, raw vegetables, unsweetened juices, cheddar cheese, and unsweetened milk have been recommended for snacks for a person susceptible to caries. Foods to be avoided include: carbonated beverages, flavored milks, dried fruits, sugar-coated cereals, cookies, and chocolate.

One of the most common environmental factors that influences food selection is cost. The low income families are most likely to buy the most available and least expensive foods, which are usually breads, cereals and sweets. Nizel (88) states,

If one period in the tooth development and maturation cycle (pre-eruptive, newly erupted or post-eruptive) were to be selected as the most sensitive to nutrient change, it would be the newly erupted stage. This would mean that dietary guidance would be of maximal benefit to the one-to-three-year-old for preservation of the integrity of his deciduous teeth and to the six- to 14-year-old for preservation of his permanent teeth.

EATING PATTERNS OF PRESCHOOL CHILDREN

Forming good eating habits early in life is one of the fundamentals for good health. As the child passes the fast-growing period of infancy, he becomes more selective and more independent about food. Krause (67) suggests that "the preschool period is sometimes difficult because the appetite wanes, the rate of growth is slow and irregular, weight often

drops, and the child is beginning to find wider horizons of activity offering greater interests." Desire for food becomes erratic and reaches a minimum between the second and third year. The "won't eat" era is a normal phase of development. It is during this period that parents must be careful not to foster poor eating habits by overanxious urging or by bribing the child to eat. Appetite usually tends to improve as the child approaches school age (92).

The recommended daily allowance set by the National Academy of Sciences-National Research Council for the child of one to three years is 1,300 calories a day. When checking children's diets to make certain that the child is getting the nutrients needed for growth, one may look at groups of foods that together furnish all the needed essentials in the total day's food. Although this method is not as accurate as a detailed analysis of the diet, the method may be used to determine trends of the dietary pattern or patterns when a large group of individuals are being investigated. Food may be divided according to type, into groups which generally may be depended upon as good sources of specific nutrients. The Basic Four Food Group plan--"A Guide to Good Eating"--is an example of an approved plan which meets the standards of the Recommended Dietary Allowances of the National Academy of Sciences-National Research Council (Appendix H). A copy of this plan was given to each Latin American family participating in the study.

The guide is based on four basic food groups. Foods from each group contribute the essential nutrients necessary for health and for growth. This plan was used in determining the eating patterns of the 145 families. Table XX reveals that the preschool children had better diets than other members of the family. High percentages of individuals of all study groups included the meat, fish, and poultry group of foods.

Mothers from all groups except those in the two middle socioeconomic levels had an inadequate supply of milk, Table XXI. The diets were generally low in foods which are considered good sources of ascorbic acid. Only a fourth of the Negro fathers had milk included in the diets. Vegetables were eaten more frequently by the mothers than by other family members with the exception of the preschool child. Findings from the reports of families with teenagers concur with findings from other studies as to the inadequacy of the diets of the teenage population as a whole (50).

The two groups of children enrolled in the Head Start Programs were fed breakfast, a morning snack, lunch, and an afternoon snack at the child development center. The children at the Texas Woman's University School were fed a morning snack and lunch. The children at Incarnate Word University Nursery School had a mid-morning snack only, and were dismissed from the nursery school before lunch.

TABLE XX

FOODS EATEN BY MEMBERS OF 145 FAMILIES
ACCORDING TO ETHNIC GROUPS

Ethnic Group and Family Members	Food Group					
	Meat, Fish Poultry		Dark Green or Yellow Vegetables		Milk	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Anglo-American</u>						
Fathers	45	86.5	40	76.9	28	53.8
Mothers	61	95.3	55	85.9	30	46.9
Child	62	96.9	54	84.4	63	98.4
Teenagers	35	54.7	28	43.8	35	54.7
<u>Negro</u>						
Fathers	25	92.5	18	66.7	7	25.9
Mothers	50	94.3	44	83.0	18	34.0
Child	53	100.0	49	92.5	47	88.7
Teenagers	30	56.6	28	52.8	23	43.4
<u>Latin American</u>						
Fathers	19	100.0	11	57.8	7	36.8
Mothers	28	100.0	14	50.0	13	46.4
Child	24	85.7	15	53.6	23	82.1
Teenagers	9	32.1	9	32.1	12	42.9

TABLE XX (Continued)

FOODS EATEN BY MEMBERS OF 145 FAMILIES
ACCORDING TO ETHNIC GROUPS

Ethnic Group and Family Members	Food Group					
	Cereals and Breads		Food Sources of Ascorbic Acid*		Meat Sub- stitutes**	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Anglo-American</u>						
Fathers	37	81.1	38	73.0	23	44.2
Mothers	53	82.8	48	75.0	34	53.1
Child	58	90.6	45	70.3	45	70.3
Teenagers	34	53.0	28	43.8	22	34.4
<u>Negro</u>						
Fathers	11	40.7	15	55.5	18	66.7
Mothers	35	60.0	36	67.9	29	54.7
Child	50	94.3	45	84.9	44	83.0
Teenagers	29	54.7	21	39.6	21	39.6
<u>Latin American</u>						
Fathers	17	89.4	19	10.0	11	57.8
Mothers	25	89.3	21	75.0	15	53.6
Child	26	92.9	24	85.7	18	64.3
Teenagers	16	57.1	14	50.0	11	39.3

*Citrus fruits, tomatoes, raw cabbage, chili peppers, or strawberries.

**Cheese, dry beans, peanut butter, eggs.

TABLE XXI

FOODS EATEN BY MEMBERS OF 145 FAMILIES

ACCORDING TO SOCIOECONOMIC LEVELS

Family Member and Socio- economic Level	Food Group											
	Breads and Cereals		Fruits		Meat Sub- stitutes		Meats		Vegetables		Milk	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Upper</u>												
Father (N=29)	19	65.5	22	75.9	13	44.8	25	86.2	21	72.4	18	62.1
Mother (N=30)	22	73.3	24	80.0	17	56.7	30	100.0	26	86.7	14	46.7
Child (N=30)	26	86.7	23	78.7	24	80.0	29	96.7	23	76.7	30	100.0
<u>Middle</u>												
Father (N=24)	19	65.5	19	65.5	14	48.3	23	79.3	21	72.4	13	44.8
Mother (N=25)	24	100.0	21	87.5	12	50.0	24	100.0	24	100.0	16	66.7
Child (N=25)	24	96.0	17	68.0	16	64.0	24	96.0	23	92.0	22	88.0

TABLE XXI (Continued)

FOODS EATEN BY MEMBERS OF 145 FAMILIES
ACCORDING TO SOCIOECONOMIC LEVELS

Family Member and Socio- economic Level	Food Group											
	Breads and Cereals		Fruits		Meat Sub- stitutes		Meats		Vegetables		Milk	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
<u>Lower Middle</u>												
Father (N=16)	10	34.5	9	31.0	9	31.0	14	48.3	9	31.0	5	17.2
Mother (N=25)	21	84.0	17	68.0	14	56.0	25	100.0	18	72.0	13	52.0
Child (N=25)	24	96.0	23	92.0	18	72.0	25	100.0	22	88.0	22	88.9
<u>Lower</u>												
Father (N=29)	17	58.6	22	75.8	16	55.2	27	93.1	18	62.1	6	20.7
Mother (N=45)	45	69.2	43	66.2	34	52.3	59	90.8	45	69.2	18	27.7
Child (N=65)	60	92.3	51	78.5	49	75.4	61	93.8	50	76.9	59	90.8

Many of the parents of the children at the Texas Woman's University Nursery School indicated that the child ate with the family on his return home from the nursery school. Because of the inconsistency of the eating procedures of the nursery schools a comparison of the observed eating habits was omitted from this study.

Lowenberg (50), who has made extensive observations of the reaction of children to food, suggests that the child's acceptance of food represents a favorable reaction to color, flavor, texture, and temperature of the food as well as to the size of the servings and the attitude and atmosphere in which it is presented. Young children in their curiosity about their environment like to experience the feel of food. Many foods are more easily manipulated with the hands than with utensils. The preparation of foods such as strips of meat, wedges of lettuce, or raw vegetables as finger foods allows the child to experience the feel of foods. The methods most frequently used in food preparation by the families of the three ethnic groups were analyzed. Stewing, or boiling, was the most popular method of preparing vegetables for all ethnic groups. Table XXII shows a larger percentage of the Anglo-American families served baked vegetables and the Latin American families served more raw vegetables than the Negro families. However, the Negro families prepared vegetables by broiling more frequently than did the families from other ethnic groups.

TABLE XXII

METHODS MOST FREQUENTLY USED IN FOOD PREPARATION
BY FAMILIES OF THREE ETHNIC GROUPS

Food Group and Ethnic Group	Method of Preparation Most Frequently Used in Per Cent					
	Baked	Fried	Stewed or Boiled	Broiled	Raw	Other
<u>Vegetables</u>						
Anglo-American	17.2	3.1	89.1	1.6	23.4	3.1
Negro	11.3	5.7	84.9	20.8	15.1	0.0
Latin American	7.1	0.0	64.3	10.7	32.1	0.0
<u>Meats</u>						
Anglo-American	37.5	51.6	6.3	57.8	1.6	0.0
Negro	45.3	92.5	17.0	30.2	0.0	0.0
Latin American	39.3	57.1	7.1	14.3	0.0	3.6
<u>Fruits</u>						
Anglo-American	4.7	0.0	12.5	3.2	89.1	14.1
Negro	20.8	13.2	35.8	7.5	81.1	7.5
Latin American	0.0	0.0	25.0	0.0	96.4	0.0
<u>Eggs</u>						
Anglo-American	6.3	90.6	29.7	0.0	0.0	0.0
Negro	1.9	100.0	24.5	0.0	0.0	0.0
Latin American	0.0	92.9	14.3	0.0	0.0	0.0

Most of the Negro families fried the meat, but only about 50.0 per cent of the Anglo-American or Latin American families reported frying as the most frequent method for meat preparation. The Anglo-American families broiled meats more frequently than did families of other ethnic groups.

Raw fruits were popular with all ethnic groups. Over 20.0 per cent of the Negro families baked fruits, while over one-third stewed fruits.

Frying was the most frequently used method of preparing eggs in all three ethnic groups. This was also true for all socioeconomic levels.

Raw vegetables were prepared and served most frequently by the families of the upper socioeconomic level, while a higher percentage of families of the lower middle socioeconomic level stewed vegetables. The families of the middle socioeconomic level frequently broiled and baked meats. Fruits were eaten raw and eggs were fried by a high percentage of families of all socioeconomic levels.

(Table XXIII.)

TABLE XXIII

METHODS MOST FREQUENTLY USED IN FOOD PREPARATION BY
FAMILIES OF FOUR SOCIOECONOMIC LEVELS

Food Group and Socio- economic Level	Method of Preparation Most Frequently Used (Per cent)					
	Baked	Fried	Stewed or Boiled	Broiled	Raw	Other
<u>Vegetables</u>						
Upper	6.7	0.0	86.7	0.0	40.0	6.7
Middle	16.0	0.0	84.0	8.0	8.0	0.0
Lower						
Middle	12.0	0.0	92.0	8.0	28.0	0.0
Lower	14.5	7.7	76.9	16.9	16.9	0.0
<u>Meats</u>						
Upper	36.7	33.3	0.0	63.3	0.0	0.0
Middle	52.0	44.0	4.0	72.0	0.0	0.0
Lower						
Middle	44.0	96.0	16.0	28.0	0.0	0.0
Lower	38.5	81.5	15.4	20.0	1.5	0.0
<u>Fruits</u>						
Upper	6.7	0.0	10.0	3.3	90.0	20.0
Middle	0.0	0.0	16.0	0.0	88.0	0.0
Lower						
Middle	12.0	4.0	24.0	4.0	96.0	8.0
Lower	13.8	9.2	32.3	4.6	83.1	7.7
<u>Eggs</u>						
Upper	3.3	90.0	16.7	0.0	0.0	0.0
Middle	8.0	84.0	32.0	0.0	0.0	0.0
Lower						
Middle	0.0	96.0	40.0	0.0	0.0	0.0
Lower	1.5	100.0	20.0	0.0	0.0	0.0

A number of studies have been undertaken to determine the adequacy of the homemaker's knowledge of what to feed the family, the sources of nutrition information, and how nutritional knowledge relates to actual practices in feeding families. Results indicate that those who have studied "about what to eat" have a better knowledge of nutrition than those who have not, and the principal source of information seems to be the schools. The homemakers with the best nutritional knowledge appear to do a better job of feeding their families. Formal educational attainment of the homemaker seems to be the single most important factor in gauging the homemaker's nutritional knowledge. It has been pointed out that the homemaker's greatest need for more nutritional knowledge is with regard to ascorbic acid-rich fruits and vegetables, carotene-rich fruits and vegetables, and the adult's need for milk.

Only 26.2 per cent of the mothers participating in the present study reported knowledge of the "Food for Fitness Guide" or the Basic Four Food Groups. It was interesting to note that 21 of the 38 mothers that responded in the affirmative were Negro women. This would suggest that the nutrition classes which had been conducted near the housing area in which this group resided may have had an influence on the diets of the children.

The irregularity of evening meals and the odd hours for snacks were factors mentioned by many of the Negro families as influencing the child's eating patterns. Latin American mothers mentioned irregular hours of the parents as a predominant factor influencing the child's eating practices. Other factors mentioned less frequently by parents were: "foods are prepared according to the father's likes," "the child eats better when the father is at home," and "the child tends to overeat."

Various studies have indicated that choices of foods may be influenced by: income, urbanization, education of the mother, nutritional knowledge of the mother, employment of the mother, number of children in the family, marketing practices of the family, and the use of convenience foods.

An effort was made in the survey to determine the sources of nutritional information most helpful to homemakers in planning, preparing, and serving nutritious meals to the preschool child.

Ethnic group responses as to the most helpful sources of nutritional information indicated that Anglo-American women checked magazines and friends and relatives as the most helpful sources of information; Negro homemakers reported friends and television were the most helpful; and

Latin American homemakers checked friends and relatives as the most helpful sources of nutritional information (Table XXIV). Less frequently used sources of nutritional information reported by the total sample were dietitians, bulletins, radio, home demonstration agents, and newspapers. The source of nutritional information checked by the 145 families follows:

<u>Sources of Information</u>	<u>Total</u>	
	<u>Num- ber</u>	<u>Per cent</u>
Magazines	63	43.4
Newspapers	38	26.2
Radio	12	8.3
Doctor	21	14.5
Dietitian	5	3.4
Home Demonstration Agent	20	13.8
Books	39	26.9
Bulletins	7	4.8
Television	65	44.8
Relatives	57	39.3
Friends	94	64.8

Approximately 65.0 per cent of the homemakers represented in this study indicated that friends were the most helpful source of nutritional information. Both television and magazines were considered helpful by about 45.0 per cent of the homemakers. The analysis of data on the basis of socioeconomic levels revealed that over 70.0 per cent of the homemakers of the upper and 60.0 per cent of the homemakers of the middle socioeconomic levels checked magazines as most helpful (Table XXV). Homemakers of the lower

TABLE XXIV

SOURCES OF NUTRITIONAL INFORMATION AS REPORTED
BY MOTHERS OF 145 PRESCHOOL CHILDREN
ACCORDING TO ETHNIC GROUPS

Sources of Information	Ethnic Group					
	Anglo- American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Magazines	37	57.8	17	32.1	9	32.1
Newspapers	23	36.0	13	24.5	2	7.1
Radio	2	3.2	10	18.9	0	0.0
Doctor	13	20.3	7	13.2	1	3.6
Dietitian	3	4.7	0	0.0	2	7.1
Home Demonstration Agent	5	7.8	15	28.3	0	0.0
Books	22	34.4	10	18.0	7	25.0
Bulletins	6	9.4	1	1.9	0	0.0
Television	15	23.4	44	83.0	6	21.4
Relatives	28	43.8	18	34.0	11	39.3
Friends	33	51.6	46	86.8	15	53.6

TABLE XXV

SOURCES OF NUTRITIONAL INFORMATION AS REPORTED BY MOTHERS OF 145 PRESCHOOL
CHILDREN ACCORDING TO SOCIOECONOMIC LEVEL

Sources of Information	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Magazines	22	73.3	15	60.0	12	48.0	14	21.5
Newspapers	12	40.0	8	32.0	5	20.0	13	20.0
Radio	0	0.0	0	0.0	1	4.0	11	16.9
Doctor	5	16.7	7	28.0	4	16.0	5	7.7
Dietitian	2	6.7	2	8.0	1	4.0	0	0.0
Home Demonstration Agent	2	6.7	4	16.0	5	20.0	9	13.8
Books	14	46.7	8	32.0	5	20.0	12	18.5
Bulletins	2	6.7	2	8.0	2	8.0	1	1.5
Television	1	3.3	4	16.0	16	64.0	44	67.7
Relatives	12	40.0	11	44.0	11	44.0	23	35.4
Friends	13	43.3	13	52.0	18	72.0	50	76.9

socioeconomic level checked friends and television as being the most helpful sources of information.

The attitudes of the preschool child concerning food may influence his eating patterns. Six factors were investigated (Table XXVI). Over 50.0 per cent of the children of the two upper socioeconomic levels and of the Anglo-American group came to meals on time. The Latin American children were less likely to reach meals at a scheduled time. A larger number of children from the upper socioeconomic level enjoyed eating, however, more than 50.0 per cent of all children apparently enjoyed eating (Table XXVII). The Latin American children were more apt to be indifferent to foods than were children in any other group (46.5 per cent). In contrast, only 1.9 per cent of the Negro children were indifferent to foods. Yet it was reported that 28.3 per cent of the Negro children had to be urged to eat and only 3.6 per cent of the Latin Americans had to be urged to eat. There appears to be an inconsistency in responses.

Very few children in any group were reported to "go on food jags." This fact differs with some studies that have been made of the younger children.

TABLE XXVI

ATTITUDES CONCERNING FOODS OF 145 PRESCHOOL
CHILDREN ACCORDING TO ETHNIC GROUPS

Child's Attitude	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Comes to meals on time	16	53.3	14	56.0	9	36.0	23	35.4
Enjoys eating	21	70.0	14	56.0m	13	52.0	36	55.4
Indifferent to food	3	10.0	4	16.0	3	12.0	10	15.4
Has to be urged to eat	5	16.7	1	4.0	7	28.0	9	13.8
Late for meals	3	10.0	1	4.0	0	0.0	3	4.6
Goes on food jags	3	10.0	4	16.0	0	0.0	4	6.2

TABLE XXVII

ATTITUDES CONCERNING FOODS OF 145 PRESCHOOL CHILDREN
ACCORDING TO SOCIOECONOMIC LEVELS

Child's Attitudes	Ethnic Groups					
	Anglo- American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Comes to meals on time	35	54.7	22	41.5	5	17.9
Enjoys eating	37	57.9	31	58.5	16	57.1
Indifferent to food	7	10.9	1	1.9	12	46.5
Has to be urged to eat	6	9.4	15	28.3	1	3.6
Late for meals	3	4.7	0	0.0	4	14.3
Goes on food jags	7	10.9	4	7.5	0	0.0

A total of seven questions was included in the questionnaire to determine the eating behavior patterns of the 145 preschool children. In response to the question, "Has your child asked to have certain foods served at home which he has eaten elsewhere?" 61.1 per cent of the Anglo-American, 64.2 per cent of the Negro, and 50.0 per cent of the Latin American mothers responded "sometimes" (Table XXVIII). A larger percentage of Anglo-American mothers than of other mothers reported that the preschool child was allowed to select his own foods, to decide how much of each food he would eat, and to leave the table when he had finished eating. The Negro mothers (20.8 per cent) were the only ethnic group allowing the preschool child to "frequently" eat dessert first. More of the Anglo-American mothers than of the Negro or Latin American mothers reported that the child tasted all new foods served.

One-fourth of the Latin American children ate desserts at the evening meal while only 18.9 per cent of the Negro children frequently had desserts at the evening meals. The Anglo-Americans had desserts more frequently than other groups. A larger percentage of Latin American (35.7 per cent) did not eat breakfast regularly as compared to Anglo-American children (4.7 per cent) and Negro (11.3 per cent).

TABLE XXVIII

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN

ACCORDING TO ETHNIC GROUPS

PART A. ANGLO-AMERICAN (N=64)

Behavior Patterns of Child	Degree of Frequency					
	Frequently		Sometimes		Never	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	5	7.8	41	61.1	18	28.1
2) Has your child sucked his thumb?	13	20.3	6	9.4	44	68.8
3) Is your child allowed to:						
Select which foods (of those served) he will eat?	24	37.5	26	40.6	14	21.9
Decide how much of each food he will eat?	39	60.9	20	31.3	5	7.8
Leave the table when he has finished eating?	42	65.6	15	23.4	7	10.9
Eat dessert first?	0	0.0	17	26.6	47	73.4
4) Is your child required to:						
Eat all food on his plate?	23	35.9	21	32.8	20	31.3
Eat all food on his plate before getting dessert?	29	45.3	24	37.5	11	17.2
Taste all new foods served?	38	59.4	20	31.3	6	9.4
Use the proper silver?	40	62.5	21	32.8	3	4.7
5) Does your child eat breakfast?	61	95.3	2	3.1	1	1.6
6) Does your child watch television during meal time?	8	12.5	33	51.6	23	35.9
7) Is your child given a dessert at the evening meal?	24	37.5	39	60.9	1	1.6

TABLE XXVIII (Continued)

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN

ACCORDING TO ETHNIC GROUPS

PART B. NEGRO (N=53)

Behavior Patterns of Child	Degree of Frequency					
	Frequently		Sometimes		Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	3	5.7	34	64.2	16	30.2
2) Has your child sucked his thumb?	14	26.4	10	18.9	29	54.7
3) Is your child allowed to:						
Select which foods (of those served) he will eat?	6	11.3	37	69.8	10	18.9
Decide how much of each food he will eat?	17	32.1	27	50.9	9	17.0
Leave the table when he has finished eating?	27	51.0	23	43.4	3	5.7
Eat dessert first?	11	20.8	13	24.5	29	54.7
4) Is your child required to:						
Eat all food on his plate?	25	47.2	22	41.5	6	11.3
Eat all food on his plate before getting dessert?	30	56.6	18	34.0	5	9.4
Taste all new foods served?	29	54.7	20	37.7	4	7.5
Use the proper silver?	32	60.4	17	32.1	4	7.5
5) Does your child eat breakfast?	47	88.7	6	11.3	0	0.0
6) Does your child watch television during meal time?	4	7.5	32	60.4	17	32.1
7) Is your child given a dessert at the evening meal?	10	18.9	42	79.2	1	1.9

TABLE XXVIII (Continued)

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN
ACCORDING TO ETHNIC GROUPS

PART C. LATIN AMERICAN (N=28)

Behavior Patterns of Child	Degree of Frequency					
	Frequency		Sometimes		Never	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	1	3.6	14	50.0	13	46.4
2) Has your child sucked his thumb?	1	3.6	3	10.7	24	85.7
3) Is your child allowed to:						
Select which foods (of those served) he will eat?	6	21.4	14	50.0	8	28.6
Decide how much of each food he will eat?	13	46.4	11	39.3	4	14.3
Leave the table when he has finished eating?	11	39.3	15	53.6	2	7.1
Eat dessert first?	0	0.0	5	17.9	23	82.1
4) Is your child required to:						
Eat all food on his plate?	16	57.2	9	32.1	3	10.7
Eat all food on his plate before getting dessert?	12	42.9	9	32.1	7	25.0
Taste all new foods served?	15	53.6	9	32.1	4	14.3
Use the proper silver?	11	39.3	11	39.3	6	21.4
5) Does your child eat breakfast?	18	64.3	9	32.1	1	3.6
6) Does your child watch television during meal time?	3	10.7	8	28.6	17	60.7
7) Is your child given a dessert at the evening meal?	7	25.0	19	67.9	2	7.1

Analysis of eating behavior according to the socioeconomic status revealed that a larger percentage of the children from upper socioeconomic level families tasted more new foods than children from the other groups represented (Table XXIX). Breakfast was frequently eaten by 100 per cent of the children in this group. Children from the upper socioeconomic status ate more desserts but never ate the dessert first. In the upper socioeconomic level, children were more frequently allowed to serve themselves than were children in other groups. Children from the lower middle socioeconomic level were generally required to eat all the food on the plate.

The Latin American children (57.2 per cent) ate all food served on the plate more frequently than did Anglo-American (35.9 per cent) and Negro children (47.2 per cent). About 20.0 per cent of the Anglo-American and Negro children frequently sucked their thumb as infants, while only 3.6 per cent of the Latin American children sucked their thumbs.

A small percentage of all children looked at television "frequently" while eating. A larger percentage of the Latin American parents (21.4 per cent) were less likely to require children to use the proper silver than were the Anglo-American parents (4.7 per cent) or Negro parents (8.5 per cent).

TABLE XXIX

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN
ACCORDING TO SOCIOECONOMIC LEVELS

PART A. UPPER (N=30)

Behavior Patterns of Child	Frequently		Sometimes		Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	1	3.3	19	63.3	10	33.3
2) Has your child sucked his thumb?	5	16.7	4	13.3	21	70.0
3) Is your child allowed to:						
Select which foods (of those served) he will eat?	13	43.3	15	50.0	2	6.7
Decide how much of each food he will eat?	22	73.3	8	26.7	0	0.0
Leave the table when he has finished eating?	18	60.0	8	26.7	4	13.3
Eat dessert first?	0	0.0	5	16.7	25	83.3
4) Is your child required to:						
Eat all food on his plate?	10	33.3	11	36.7	9	30.0
Eat all food on his plate before getting dessert?	14	46.7	11	36.7	5	16.7
Taste all new foods served?	20	66.7	6	20.0	4	13.3
Use the proper silver?	15	50.0	12	40.0	3	10.0
5) Does your child eat breakfast?	30	100.0	0	0.0	0	0.0
6) Does your child watch television during meal time?	2	6.7	15	50.0	13	43.3
7) Is your child given a dessert at the evening meal?	15	50.0	15	50.0	0	0.0

TABLE XXIX (Continued)

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN
ACCORDING TO SOCIOECONOMIC LEVELS

PART B. MIDDLE (N=25)

Behavior Patterns of Child	Frequently		Sometimes		Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	1	4.0	14	56.0	10	40.0
2) Has your child sucked his thumb?	4	16.0	3	12.0	18	72.0
3) Is your child allowed to: Select which foods (of those served) he will eat?	10	40.0	9	36.0	6	24.0
Decide how much of each food he will eat?	15	60.0	6	24.0	4	16.0
Leave the table when he has finished eating?	16	64.0	7	28.0	2	8.0
Eat dessert first?	0	0.0	4	16.0	21	84.0
4) Is your child required to: Eat all food on his plate?	6	24.0	11	44.0	8	32.0
Eat all food on his plate before getting dessert?	11	44.0	9	36.0	5	20.0
Taste all new foods served?	16	64.0	6	24.0	3	12.0
Use the proper silver?	16	64.0	7	28.0	2	8.0
5) Does your child eat breakfast?	22	88.0	2	8.0	1	4.0
6) Does your child watch television during meal time?	2	8.0	9	36.0	14	56.0
7) Is your child given a dessert at the evening meal?	9	36.0	15	60.0	1	4.0

TABLE XXIX (Continued)

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN

ACCORDING TO SOCIOECONOMIC LEVELS

PART C. LOWER-MIDDLE (N=25)

Behavior Patterns of Child	Frequently		Sometimes		Never	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	1	4.0	18	72.0	6	24.0
2) Has your child sucked his thumb?	4	16.0	5	20.0	16	64.0
3) Is your child allowed to:						
Select which foods (of those served) he will eat?	3	12.0	18	72.0	4	16.0
Decide how much of each food he will eat?	6	24.0	15	60.0	4	16.0
Leave the table when he has finished eating?	10	40.0	13	52.0	2	8.0
Eat dessert first?	4	16.0	7	28.0	14	56.0
4) Is your child required to:						
Eat all food on his plate?	16	64.0	9	36.0	0	0.0
Eat all food on his plate before getting dessert?	18	72.0	6	24.0	1	4.0
Taste all new foods served?	14	56.0	8	32.0	3	12.0
Use the proper silver?	16	64.0	8	32.0	1	4.0
5) Does your child eat breakfast?	20	80.0	5	20.0	0	0.0
6) Does your child watch television during meal time?	2	8.0	17	68.0	6	24.0
7) Is your child given a dessert at the evening meal?	5	20.0	20	80.0	0	0.0

TABLE XXIX (Continued)

EATING BEHAVIOR PATTERNS OF PRESCHOOL CHILDREN
ACCORDING TO SOCIOECONOMIC LEVELS

PART D. LOWER (N=65)

Behavior Patterns of Child	Frequently		Sometimes		Never	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?	6	9.2	38	58.5	21	32.3
2) Has your child sucked his thumb?	15	23.1	7	10.8	43	66.2
3) Is your child allowed to:						
Select which foods (of those served) he will eat?	10	15.4	35	53.8	20	30.8
Decide how much of each food he will eat?	26	40.0	29	44.6	10	15.4
Leave the table when he has finished eating?	36	55.3	25	38.5	4	6.4
Eat dessert first?	7	10.8	19	29.2	39	60.0
4) Is your child required to:						
Eat all food on his plate?	32	49.2	21	32.3	12	18.5
Eat all food on his plate before getting dessert?	28	43.1	25	38.5	12	18.5
Taste all new foods served?	32	49.2	29	44.6	4	6.2
Use the proper silver?	36	55.4	22	33.8	7	10.8
5) Does your child eat breakfast?	54	83.1	10	15.4	1	1.5
6) Does your child watch television during meal time?	9	13.8	32	49.2	24	36.9
7) Is your child given a dessert at the evening meal?	12	18.5	50	76.9	3	4.6

In reply to the question, "Are there any foods your child likes that you feel are not good for him?" the mothers mentioned the following items most frequently: sweets, cokes, artificial sweetners, candy, and gum. The Latin American mothers listed pickles, lemons, and cold drinks. Sixty-five per cent of the mothers indicated that the children ate the above foods often, 20.0 per cent sometimes ate these foods and 10.0 per cent seldom ate these snack items.

The mothers were requested to rate their child's daily diet. The ratings were: excellent, 17.9 per cent; good, 64.8 per cent; fair, 15.2 per cent; and 1.4 per cent rated the diets as poor.

Vitamin supplements were being given to 40 per cent of the children regularly. When asked on whose recommendation the vitamin supplements were given, the mothers named the following:

<u>Recommending vitamins</u>	<u>Per cent</u>
Physician	28.3
The mother	12.4
Relatives	2.8
Books and magazines	2.8
Others	2.1

In reply to the question concerning snacks, mothers and child care center personnel indicated that fruit juices, raw fruits, and cookies are often served at snack time. Candies, gum and soft drinks were mentioned most frequently by the families of the lower socioeconomic levels as snack choices. Sweets and money were the items most frequently given as "rewards" by this group, while the families from the upper socioeconomic level were most likely to give praise, love, and trips for "rewards."

Responses concerning methods employed by parents to encourage desirable eating habits indicated the Negro and Anglo-American families were most likely to "remind the child" or to reason with the child. Negro parents reportedly gave rewards for good behavior more frequently than other groups (Table XXX).

Rewards for eating were more frequently a practice of families of the lower socioeconomic levels. Reminding the child to eat was a reported practice among parents of all socioeconomic levels (Table XXXI).

TABLE XXX

METHODS EMPLOYED BY PARENTS TO ENCOURAGE DESIRABLE
EATING HABITS OF 145 PRESCHOOL CHILDREN
ACCORDING TO ETHNIC GROUPS

Method of Encouragement	Ethnic Group					
	Anglo- American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Rewards	5	7.8	13	24.5	2	7.1
Coaxing	18	28.1	7	13.2	7	25.0
Reminding	29	45.3	23	43.3	10	35.7
Restricting	3	4.6	5	9.4	6	21.4
Others	9	14.0	13	24.5	3	10.7

TABLE XXXI

METHODS EMPLOYED BY PARENTS TO ENCOURAGE DESIRABLE
EATING HABITS OF 145 PRESCHOOL CHILDREN
ACCORDING TO FOUR SOCIOECONOMIC LEVELS

Method of Encouragement	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower N=65	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Rewards	1	3.3	2	8.0	4	16.0	13	20.0
Coaxing	5	16.7	9	36.0	3	12.0	9	13.8
Reminding	13	43.3	7	28.0	10	40.0	31	47.7
Restricting	2	6.7	0	0.0	4	16.0	8	12.3
Other	5	16.7	3	12.0	6	24.0	10	15.4

One question on the survey related to the methods used in disciplining the preschool child. The Negro parents and the parents of the two lower socioeconomic levels were more apt to discipline by spanking while parents of the upper socioeconomic levels were inclined to also discipline by scolding (Tables XXXII and XXXIII). Spanking, as a method of disciplining the preschool child, was reported by a higher percentage of parents in all but the upper socioeconomic level than reported using any other method of discipline. Scolding was the second most frequently reported method of discipline employed for the preschool child. Isolation of child from the family group and forbidding the use of television were used as disciplinary measures by the Latin American parents. The parents of the upper socioeconomic level have a tendency to use more methods of discipline for children than do other groups.

TABLE XXXII

METHODS OF DISCIPLINE EMPLOYED BY PARENTS
OF 145 PRESCHOOL CHILDREN ACCORDING TO
ETHNIC GROUPS

Discipline Used	Ethnic Group					
	Anglo-American N=64		Negro N=53		Latin American N=28	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Spanking	32	50.0	46	86.8	17	60.7
Scolding	29	45.4	13	24.5	15	53.6
Ignoring	7	10.9	1	1.9	1	3.6
Denials of a pleasure	6	9.4	6	11.3	2	7.1
Isolated from family	5	7.8	4	7.5	5	17.9
Not allowed to watch television	6	9.4	4	7.5	6	21.4

TABLE XXXIII

METHODS OF DISCIPLINE EMPLOYED BY PARENTS OF
145 PRESCHOOL CHILDREN ACCORDING
TO SOCIOECONOMIC LEVELS

Discipline Used	Socioeconomic Level							
	Upper N=30		Middle N=25		Lower Middle N=25		Lower	
	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent	Num- ber	Per cent
Spanking	15	50.0	14	56.0	19	76.0	47	72.3
Scolding	19	63.3	8	32.0	7	28.0	23	35.4
Ignoring	1	3.3	3	12.0	0	0.0	5	7.7
Denials of a pleasure	4	13.3	2	8.0	1	4.0	7	10.8
Isolated from family	4	13.3	3	12.0	2	8.0	5	7.7
Not allowed to watch television	4	13.3	2	8.0	1	4.0	9	13.8

TWENTY-FOUR HOUR FOOD INTAKE

The 24-hour food intake was recorded by a parent for each of the 145 preschool children participating in the study. The day's diet was evaluated in accordance with "A Guide to Good Eating," based on the Basic Four Food Groups as recommended by the National Nutrition Council. The diets were related to the standard by means of a rating scale, which included three categories: "adequate," "incomplete," and "omission." To be considered adequate all food groups were present in desired amounts for a preschool child. "Incomplete" indicated that the food group was represented in the diet but not in the desired quantity to meet nutritional needs of the growing child. "Omission" indicated that the foods from the food group were not represented in the diet.

An evaluation of the diets of 145 preschool children is shown in Figure 9. Food from the cereal and bread group was adequate for the greatest percentage (80.7) of the children. Approximately three-fourths of all children had two or more servings of meat, fish or poultry. Over 50.0 per cent had two or more servings of green and/or yellow vegetables. Less than 50.0 per cent of the children had a sufficient intake of fruits and vegetables which are excellent sources of vitamins A and C.

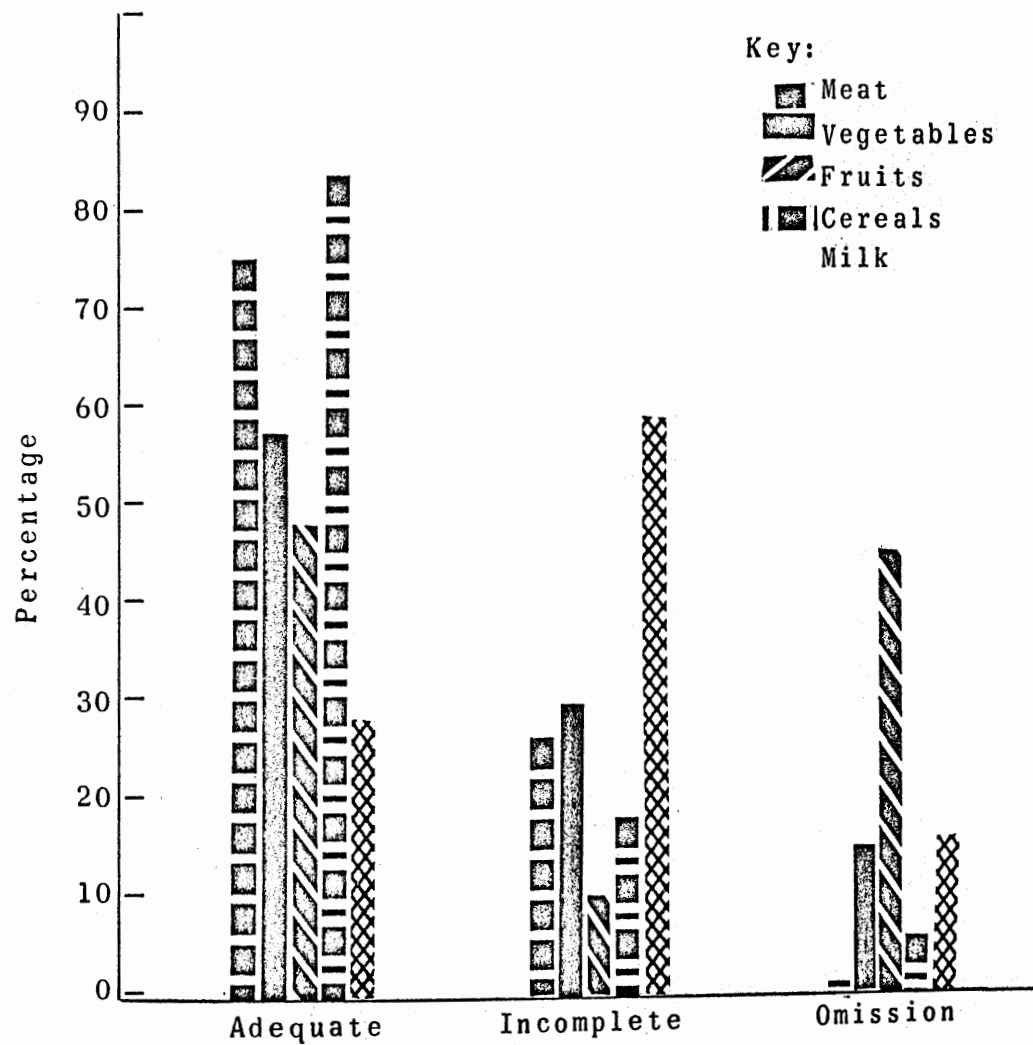


Figure 9
Comparison of Adequacy of Five Food Groups
in the Diets of 145 Preschool Children

Only 26.0 per cent of the children had sufficient milk intake. However, 57.0 per cent of the children included some milk in the diet, but 16.6 per cent had no milk intake for the 24-hour period. Fruits or rich sources of vitamin C foods were omitted from 42.1 per cent of the diets.

The comparison of the total food intake of the 145 preschool children according to ethnic groups is given in Figure 10. Over 82.0 per cent of the Anglo-American and Latin American children included meat in their diets in adequate amounts. Most of the Negro children, 94.3 per cent, included adequate amounts of bread and cereals in the diet. More of the Negro and Latin American children than of the Anglo-American children included adequate amounts of vegetables in their diets. Approximately 50.0 per cent of all ethnic groups had an adequate supply of vitamin C rich foods in the diets.

A smaller proportion of the Anglo-American children than of Negro or Latin American children had an adequate consumption of milk. About one fourth of the Negroes included some milk in the diet and over 50.0 per cent of the Latin American children included milk in the diet.

Figure 11 shows the group according to the four socioeconomic levels. A higher proportion of the children of the two upper socioeconomic levels have adequate intakes

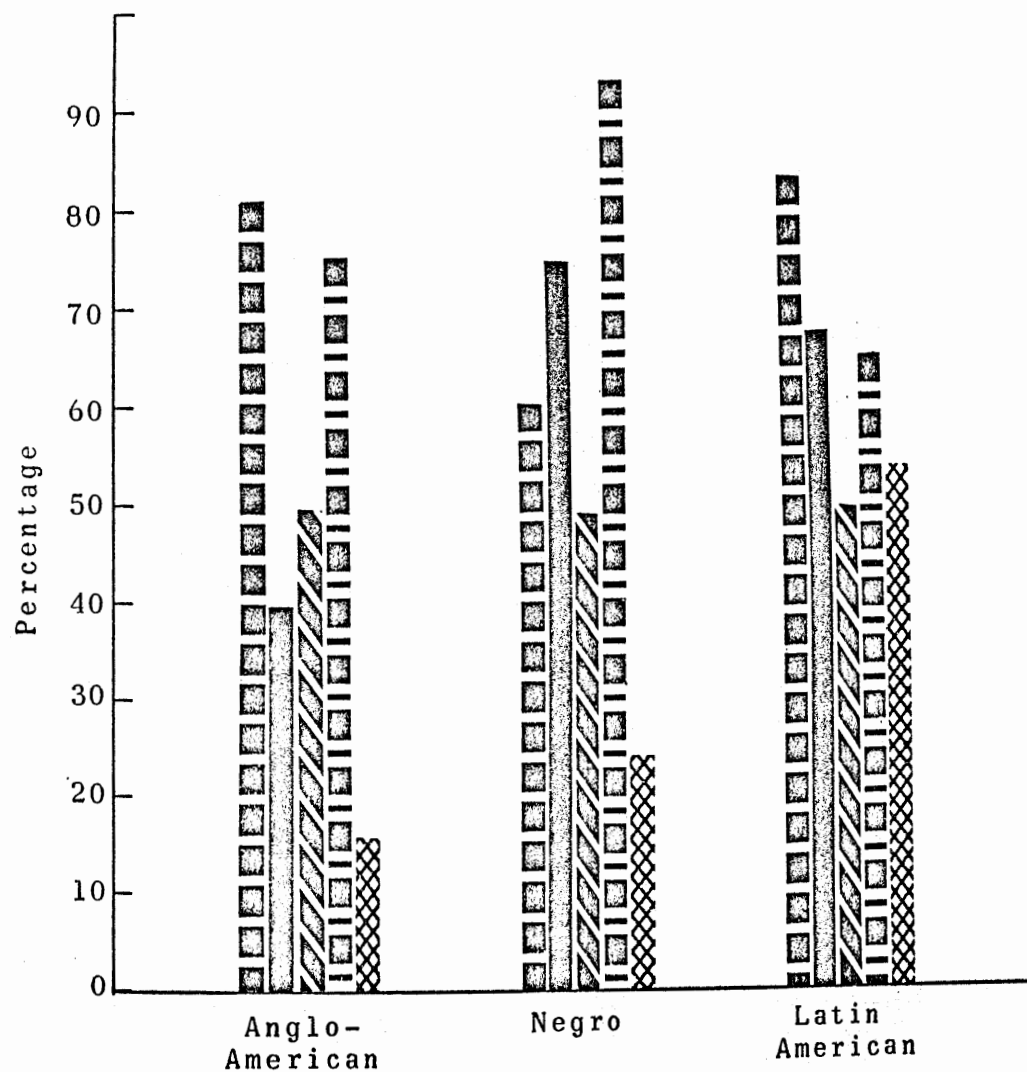


Figure 10

Comparison of Adequacy of Five Food Groups
in the Diets of 145 Preschool Children
According to Three Ethnic Groups

Key:

- Meat
- Vegetables
- Fruits
- Cereals
- Milk

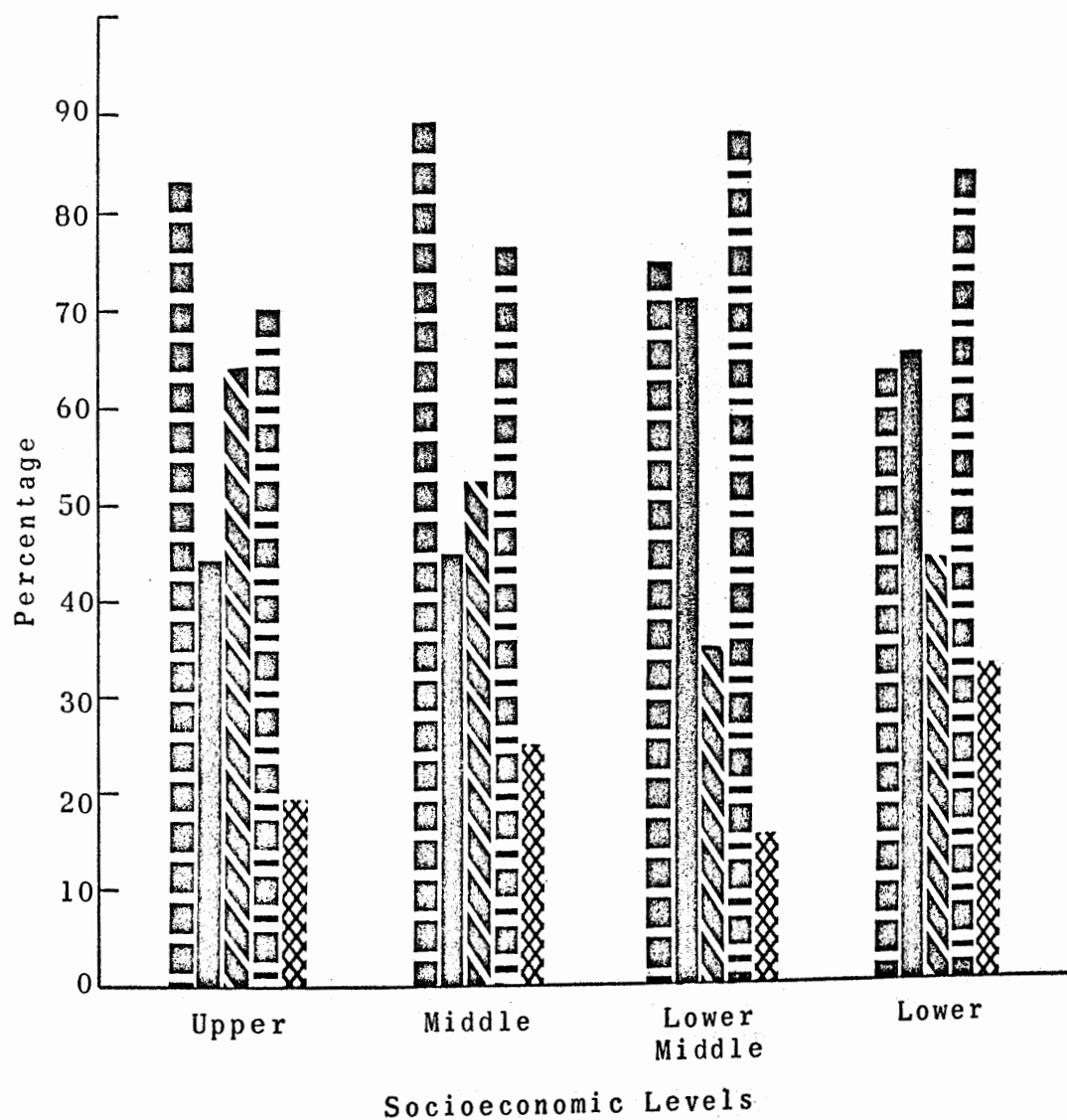


Figure 11
Comparison of Adequacy of Five Food Groups in
the Diets of 145 Preschool Children Accord-
ing to Four Socioeconomic Levels

Key:
 ■ Meat
 ■ Vegetables
 ■ Fruits
 ■ Cereals
 ■ Milk

of meat and fruits. A higher percentage of children in the two lower than in the two upper socioeconomic levels had diets adequate in vegetables. The highest proportion of children having adequate milk consumed were children of the lowest socioeconomic level. A high percentage of children in all socioeconomic levels, particularly the lower levels, tended to have adequate consumption of breads and cereals.

FOOD PREFERENCE CHECK LIST

An instrument entitled "Food Preference Check List" was administered to determine the preferences of the 145 preschool children and their parents for 100 foods listed under seven food groups. Each food could be checked in one of four categories: enjoys eating; accepts; refuses to eat; or unfamiliar, never served in the home. Only the 98 families with both a father and a mother present in the home were used for the data analysis for this instrument.

The categories, "enjoys eating" and "refuses to eat," were used in analyzing the data. The mean and standard deviations were determined for the preschool children, the mothers, and the fathers as a group. In addition, means and standard deviations were determined for these same family members according to ethnic groups and according to socioeconomic levels of the participating families (Table XXXIV).

TABLE XXXIV
 MEAN AND STANDARD DEVIATIONS FOR TOTAL NUMBER OF FOODS
 ENJOYED AND REFUSED BY 98 PRESCHOOL CHILDREN
 AND THEIR PARENTS

Subject	Mean	Standard Deviation
<u>All Subjects</u>		
Child "enjoys "	62.43	12.85
Mother "enjoys "	69.88	13.88
Father "enjoys "	67.40	14.89
Child "refuses "	10.57	10.10
Mother "refuses "	4.19	4.46
Father "refuses "	6.77	6.76
<u>Anglo-American</u>		
Child "enjoys "	60.55	13.97
Mother "enjoys "	70.98	14.03
Father "enjoys "	69.86	16.11
Child "refuses "	13.27	10.64
Mother "refuses "	4.96	5.20
Father "refuses "	5.90	6.10
<u>Negro</u>		
Child "enjoys "	66.69	9.70
Mother "enjoys "	70.17	11.75
Father "enjoys "	67.97	11.56
Child "refuses "	5.90	7.16
Mother "refuses "	2.93	3.18
Father "refuses "	7.17	7.49
<u>Latin American</u>		
Child "enjoys "	60.89	12.36
Mother "enjoys "	66.28	15.87
Father "enjoys "	59.50	13.23
Child "refuses "	10.44	9.79
Mother "refuses "	4.06	3.31
Father "refuses "	8.56	6.88

TABLE XXXIV (Continued)

MEAN AND STANDARD DEVIATIONS FOR TOTAL NUMBER OF FOODS
ENJOYED AND REFUSED BY 98 PRESCHOOL CHILDREN
AND THEIR PARENTS

Subject	Mean	Standard Deviation
<u>Upper Socio-Economic Level</u>		
Child "enjoys "	58.24	11.82
Mother "enjoys "	70.48	11.63
Father "enjoys "	69.45	16.74
Child "refuses "	15.55	10.81
Mother "refuses "	3.86	4.66
Father "refuses "	7.14	6.26
<u>Middle Socio-Economic Level</u>		
Child "enjoys "	62.43	16.57
Mother "enjoys "	69.52	19.90
Father "enjoys "	67.26	17.61
Child "refuses "	12.09	9.59
Mother "refuses "	6.74	5.61
Father "refuses "	7.26	6.44
<u>Lower-Middle Socio-Economic Level</u>		
Child "enjoys "	67.73	9.84
Mother "enjoys "	70.13	13.09
Father "enjoys "	66.80	12.89
Child "refuses "	7.33	7.44
Mother "refuses "	3.13	3.56
Father "refuses "	6.40	6.81
<u>Lower Socio-Economic Level</u>		
Child "enjoys "	63.77	10.42
Mother "enjoys "	69.45	10.00
Father "enjoys "	65.87	11.00
Child "refuses "	6.35	8.38
Mother "refuses "	3.13	2.54
Father "refuses "	6.23	7.34

The mean number of food likes ranged from 70.98 for Anglo-American mothers to 59.50 for Latin American fathers. The mean number of food likes of the children ranged from 58.24 to 67.73 foods. Means were highest for Negro children and for children whose families were classified in the lower middle socioeconomic level, and lowest for children included in the upper socioeconomic level.

The mothers had the highest means for food likes in all ethnic and socioeconomic groupings. The mean for the mothers was highest for Anglo-American mothers but the highest and lowest means differed only by 4.7 foods. The mean number of food likes for fathers ranged from 59.50 foods for Latin American fathers to 69.86 foods for Anglo-American fathers.

The means for the total number of foods disliked ranged from 15.55 for children in the upper socioeconomic level to 2.93 foods for Negro mothers. Except for Negro families, the mean number of foods refused was higher for the children than for either parent in the same grouping. The mean number of foods disliked by the children ranged from 15.55 for children whose families were classified in the upper socioeconomic level to 5.90 for Negro children.

Within each category used in the data analysis, the mean number of food dislikes was lowest thers.

The mean for mothers was lowest for Negro mothers (2.93 foods) and highest for mothers of the middle socioeconomic level (6.74 foods).

The mean number of food dislikes for fathers ranged from 8.56 for Latin American fathers to 5.90 for Anglo-American fathers. Negro fathers had a higher mean for food dislikes than did the Negro children, 7.17 and 5.90 foods, respectively.

The number and percentage of preschool children, mothers, and fathers accepting each of the 100 food items were determined for each ethnic group. Results may be found in Table XXXV.

TABLE XXXV

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART A. MAIN DISHES

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Beef roast	78.1	75.4	64.2	93.7	88.4	92.8	92.3	100.0	100.0
Pork roast	46.8	39.6	50.0	67.1	63.4	60.7	55.7	70.3	73.6
Ham	71.8	86.7	75.0	89.0	84.6	64.2	84.6	88.8	68.4
Lamb	21.8	9.4	10.7	23.4	23.0	28.5	38.4	11.1	21.0
Chicken	95.3	94.3	92.8	92.1	94.2	92.8	96.1	88.8	89.4
Fish	79.6	56.6	42.8	75.0	67.3	42.8	80.7	62.9	68.4
Shrimp	50.0	28.3	14.2	85.9	63.4	32.1	78.8	22.2	36.8
Frankfurters (Hot dogs)	78.1	96.2	89.2	46.8	71.1	78.5	55.7	55.5	68.4

1 - Anglo-American

2 - Negro

3 - Latin American

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART A. (CONTINUED) MAIN DISHES

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Hamburgers	93.7	96.2	85.7	96.8	88.4	96.4	94.2	85.1	78.9
Sandwich meat	60.9	92.4	82.1	53.1	81.1	78.5	65.6	74.0	63.1
Corned beef hash	17.1	18.8	17.8	34.3	38.4	17.8	30.7	44.4	52.6
Sausage	57.8	67.9	71.4	65.6	84.6	64.2	84.6	88.8	78.9
Liver	21.8	33.9	28.5	59.3	46.1	53.5	63.4	48.1	57.8
Salt pork	12.5	49.0	32.1	15.6	48.0	53.5	19.2	66.6	63.1
Bacon	78.1	88.6	89.2	84.3	100.0	89.2	86.5	96.2	89.4
Stew	51.5	79.2	53.5	82.8	92.3	71.4	76.9	96.2	57.8
Tamales	34.3	24.5	71.4	57.8	28.8	71.4	65.6	18.5	73.6
Canned chopped meat	28.1	54.7	32.1	15.6	59.6	28.5	32.6	51.8	31.5

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART A. (CONTINUED) MAIN DISHES

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Bologna	71.8	86.7	78.5	48.4	76.9	60.7	61.5	44.4	63.1
Spaghetti and meat balls	84.3	92.4	50.0	81.2	86.5	39.2	76.9	85.1	57.8
Macaroni and cheese	76.5	86.7	35.7	76.5	92.3	64.2	80.7	85.1	52.6
Eggs	81.2	88.6	82.1	78.1	94.2	92.8	82.6	100.0	100.0
Soups	68.7	94.3	71.4	100.0	86.5	92.8	80.7	62.9	78.9
Cheese	82.8	84.9	57.1	84.3	96.1	71.4	86.5	92.5	63.1
Chili con Carne	43.7	35.8	25.0	65.6	40.3	57.1	78.8	37.0	63.1
Chicken and rice	82.8	69.8	96.4	78.1	78.8	92.8	73.0	74.0	84.2

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART B. VEGETABLES

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Asparagus	20.3	13.2	10.7	67.1	42.3	50.0	57.6	29.6	47.3
Green beans	56.2	75.4	50.0	89.0	92.3	82.1	84.6	92.5	68.4
Dried beans	48.4	84.9	64.2	67.1	80.7	67.8	71.1	85.1	73.6
Beets	23.4	49.0	10.7	35.9	53.8	39.2	51.9	44.4	42.1
Broccoli	25.0	16.9	7.1	73.4	32.6	35.7	61.5	33.3	15.7
Brussel sprouts	15.6	11.3	0.0	59.3	23.0	25.0	50.0	25.9	15.7
Cabbage	32.8	54.7	28.5	67.1	63.4	64.2	67.3	48.1	36.8
Cauliflower	18.7	15.0	3.5	64.0	26.9	42.8	51.9	25.9	21.0
Cucumbers	37.5	49.0	25.0	71.8	63.4	57.1	75.0	40.7	42.1
Carrots	75.0	73.5	64.2	79.6	75.0	85.7	67.3	66.7	63.1

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART B. (CONTINUED) VEGETABLES

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Corn	85.9	84.9	89.2	87.5	96.1	85.7	94.2	44.4	89.4
Celery	46.8	39.6	57.1	65.6	63.4	78.5	67.3	51.8	68.4
Hominy	31.2	49.0	35.7	39.0	44.2	42.8	44.2	55.5	21.0
Lima beans	32.8	69.8	10.7	67.1	76.9	28.5	65.6	77.7	21.0
Blackeyed peas	46.8	79.2	35.7	71.8	80.7	46.4	65.6	92.5	52.6
Green peas	62.5	79.2	35.7	85.9	84.6	57.1	75.0	92.5	57.8
Irish potatoes	82.8	92.4	60.7	95.3	94.2	57.1	88.4	92.5	47.3
Sweet potatoes	45.3	83.0	75.0	71.8	96.1	67.8	69.2	85.1	63.1
Okra	23.4	47.1	25.0	68.7	75.0	46.8	61.5	48.1	10.5
Squash	32.8	35.8	21.4	79.6	53.8	57.1	63.4	25.9	52.6

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART B. (CONTINUED) VEGETABLES

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Spinach	43.7	75.4	50.0	81.2	71.1	53.5	63.4	70.3	31.5
Radishes	20.3	22.6	17.8	57.8	38.4	32.1	59.6	33.3	26.3
Rutabagas	4.6	22.6	17.8	26.5	38.4	32.1	23.0	29.6	5.2
Onions	32.8	33.9	35.7	70.3	75.0	71.4	75.0	85.1	68.4
Turnip greens	18.7	56.6	7.1	48.4	92.3	21.4	55.7	85.1	15.7
Tomato	59.3	77.3	64.2	90.6	98.0	89.2	84.6	81.4	94.7
Raw cabbage	35.9	39.6	25.0	62.5	53.8	42.8	55.7	33.3	57.8
Raw carrots	71.8	50.9	67.8	73.4	63.4	64.2	75.0	55.5	73.6
Sauerkraut	17.1	24.5	25.0	60.9	32.6	35.7	65.6	25.9	31.5
Lettuce	62.5	66.0	50.0	92.1	86.6	92.8	88.4	88.8	89.4
Chili pepper	6.2	11.3	25.0	29.6	23.0	60.7	67.3	37.0	84.2

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART C. FRUITS

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Apple	96.8	98.1	92.8	84.3	98.0	89.2	90.3	92.5	89.4
Avocado	23.4	20.7	53.5	65.6	32.6	89.2	69.2	11.1	68.4
Banana	93.7	92.4	89.2	89.0	92.3	89.2	90.3	85.1	94.7
Cantaloupe	67.1	49.2	78.5	81.2	90.3	82.1	90.3	74.0	89.4
Grapefruit	64.0	54.7	57.1	84.3	65.6	85.7	75.0	59.2	84.2
Orange	87.5	96.2	92.8	95.3	94.2	92.8	90.3	100.0	89.4
Peaches	89.0	100.0	89.2	95.3	96.1	67.8	94.2	92.5	94.7
Pineapple	64.0	79.2	64.2	84.3	86.5	71.4	76.9	77.7	84.2
Prunes	45.3	69.8	50.0	60.9	67.3	46.4	50.0	70.3	52.6
Raisins	70.3	69.8	85.7	65.6	65.6	57.1	57.6	55.5	63.1
Strawberries	70.3	83.0	64.2	92.1	73.0	71.4	80.7	48.1	78.9
Watermelon	82.8	92.4	100.0	90.6	90.3	89.2	86.5	92.5	89.4

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART D. BREADS AND CEREALS

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Biscuits	89.0	92.4	92.8	93.7	96.1	85.7	94.2	100.0	89.4
Cornbread	76.5	98.1	78.5	84.3	98.0	75.0	86.5	100.0	89.4
Pancakes	87.5	96.2	85.7	87.5	96.1	85.7	84.6	100.0	94.7
Hot rolls	89.0	92.4	89.2	93.7	98.0	92.8	96.1	100.0	78.9
Whole wheat bread	46.8	47.1	32.1	78.1	40.3	46.4	67.3	55.5	47.3
Graham crackers	84.3	90.5	71.4	84.3	76.9	60.7	61.5	66.7	63.1
Saltine crackers	85.9	94.3	89.2	84.3	92.3	78.5	82.6	92.5	84.2
Rice	81.2	69.8	82.1	82.8	73.0	76.4	80.7	85.1	89.4
Corn grits	32.8	64.1	32.1	32.8	50.0	42.8	46.1	70.3	26.3
Cooked cereal	67.1	77.3	85.7	71.8	65.6	71.4	63.4	62.9	63.1
Ready-to-eat cereal	98.4	92.4	89.2	64.0	88.4	85.7	63.4	66.7	63.1
Tortillas	46.8	33.9	82.1	73.4	28.8	85.7	75.0	11.1	84.2

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART E. BEVERAGES

Beverage	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Milk, sweet	87.5	90.5	89.2	65.6	90.3	82.1	82.6	70.3	78.9
Buttermilk	12.5	39.6	28.5	32.8	59.6	46.4	36.5	33.3	15.7
Chocolate milk	85.9	94.3	85.7	59.3	78.8	67.8	75.0	81.4	73.6
Cocoa	82.8	83.0	85.7	71.8	84.6	82.1	73.0	66.7	78.9
Kool-Aid	85.9	92.4	89.2	43.7	86.5	71.4	40.3	92.5	73.6
Soft drinks	84.3	96.2	92.8	76.5	96.1	92.8	76.9	100.0	78.9

TABLE XXXV (Continued)

FOODS ENJOYED BY 145 PRESCHOOL CHILDREN AND THEIR PARENTS

ACCORDING TO ETHNIC GROUPS

PART F. DESSERTS AND SWEETS

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
Cake	92.1	94.3	92.8	84.3	94.2	82.1	75.0	96.2	63.1
Candy	96.8	94.3	92.8	78.1	80.7	53.5	75.0	66.7	52.6
Cookies	96.8	100.0	96.4	84.3	90.3	71.4	76.9	66.7	68.4
Custards	73.4	77.3	53.5	67.1	70.3	50.0	67.3	74.0	31.5
Doughnuts	90.6	94.3	92.8	76.5	88.4	71.4	86.5	77.7	84.2
Gelatin (Jello)	89.0	92.4	89.2	76.5	82.6	78.5	73.0	81.4	57.8
Ice cream	95.3	98.1	100.0	92.1	88.4	85.7	88.4	85.1	89.4
Jelly	82.8	94.3	89.2	76.5	80.7	57.1	75.0	92.5	73.6
Molasses	46.8	77.3	50.0	40.6	75.0	39.2	63.4	59.2	47.3
Pie	81.2	92.4	89.2	93.7	86.5	78.5	88.4	85.1	63.1

Foods	Children			Mothers			Fathers		
	1	2	3	1	2	3	1	2	3
			85.7		71.5	42.8	67.3	66.	7
ise	73.4	98.1	64.2		2.6	71	86.5	81.4	

The main dishes enjoyed by over 75.0 per cent of the fathers, mothers, and children of all ethnic groups were chicken, hamburgers, bacon, and eggs. Main dishes enjoyed by a higher percentage of children than of parents were frankfurters, hamburgers, sandwiches, bologna, and spaghetti and meat balls. The main dishes enjoyed by the highest percentage of children in each ethnic group are shown in Table XXXV I.

Both liver and corned beef were checked as liked by less than 25.0 per cent of the children in each ethnic group. A higher percentage of Latin American children than of children in the other two groups enjoy tamales, pork roast, sausage, and chicken and rice. In general, the percentages of children liking the main dishes were highest for the Negro group. The percentages were especially higher for Negro children for easy-to-prepare dishes, lunch and sandwich meats, liver, and pork.

In general, a higher percentage of Negro mothers than of Negro fathers liked many of the main dishes listed. The reverse was true for the Anglo-American parents. A lower percentage of Latin American mothers than of mothers in the other two groups enjoyed many of the main dishes listed.

TABLE XXXVI

MAIN DISHES ENJOYED BY PRESCHOOL CHILDREN
IN DESCENDING RANK ORDER AS CHECKED
BY ETHNIC GROUPS

Rank	Ethnic Group					
	Anglo-American N=52		Negro N=27		Latin American N=19	
	Food	Per cent	Food	Per cent.	Food	Per cent
1	Chicken	95.3	Hot Dogs	96.2	Chicken with Rice	96.4
2	Hamburgers	93.7	Hamburgers	96.2	Chicken	92.8
3	Spaghetti Meat Balls	84.3	Chicken	94.3	Hot Dogs	89.2
4	Cheese	82.8	Soup	94.3	Bacon	89.2
5	Chicken and Rice	82.8	Sandwich Meat	92.4	Hamburgers	85.7
6	Eggs	81.2	Spaghetti Meat Balls	92.4	Eggs	82.1
7	Fish	79.6	Eggs	88.6	Bologna	78.5
8	Beef Roast	78.1	Bacon	88.6	Ham	75.0
9	Hot Dogs	78.1	Ham	86.7	Sausage	71.4
10	Bacon	78.1	Macaroni Cheese	86.7	Tamales	71.4

Foods "never served at home or unfamiliar" to the child were checked by the parents. The mean number of main dishes checked as unfamiliar or not served at home was 3.3 for the Anglo-American, 2.4 for the Negro, and 4.0 for the Latin American families. Main dishes frequently refused by the preschool children are shown in Table XXXVII. Li was at the top of the list for children of all ethnic groups. Shrimp was also high on the list. Salt pork was poorly accepted by Anglo-American children and tamales by both Anglo-American and Negro preschool children.

The 26 main dishes listed were checked by the 64 Anglo-American families 212 times as never being served at home. Main dishes were checked 129 times and vegetable dishes 207 times by the Negro families as never being served in the home. The 27 Latin American families checked main dishes 106 times and vegetables 226 times as unfamiliar foods. The 32 vegetables were checked 288 times by this group of parents as being unfamiliar and never served in the home. Main dishes and vegetables were checked a total of 447 and 721 times, respectively. The totals may indicate that a limited number of vegetables were served in the family meals. The foods ranked highest as "never served or unfamiliar," listed by ethnic groups, are shown in Table XXXVII.

TABLE XXXVII

MAIN DISHES REFUSED BY PRESCHOOL CHILDREN
AS CHECKED BY ETHNIC GROUPS

Ethnic Group	Main Dishes	Frequency	
		Number	Per cent
Anglo-American N=52	Liver	19	29.6
	Chili	13	20.3
	Tamales	12	18.7
	Shrimp	10	15.6
	Salt Pork	10	15.6
Negro N=27	Liver	18	33.9
	Shrimp	15	28.3
	Tamales	13	24.5
	Corned Beef	10	18.8
	Lamb	5	.9
Latin American N=19	Liver	15	53.5
	Shrimp	8	28.5
	Salt Pork	8	28.5
	Macaroni and Cheese	8	28.5
	Fish	7	25.0

The data were analyzed to determine which among the 28 main dishes listed were most unfamiliar to the children of the three ethnic groups. Table XXXVIII illustrates that although there were intercategory variations, several of the same meat dishes were unfamiliar to the children of at least two ethnic groups.

The only vegetable checked as enjoyed by 75.0 per cent or more of the children in the three ethnic groups was corn. In general, higher percentages of Negro than of Latin American or Anglo-American children enjoyed the vegetables listed. Other foods enjoyed by 75.0 per cent or more of the children were: Anglo-American--Irish potatoes and carrots; Negro--Irish potatoes, dried beans, sweet potatoes, blackeyed peas, green peas, tomatoes, green beans, and spinach; Latin-American--sweet potatoes, green beans, and spinach. The vegetables enjoyed by the children, listed in descending rank according to ethnic groups, may be found in Table XXXIX.

TABLE XXXVIII

MAIN DISHES MOST UNFAMILIAR TO PRESCHOOL CHILDREN
 ACCORDING TO ETHNIC GROUPS

Rank	Anglo- American	Per cent	Negro	Per cent	Latin American	Per cent
1	Salt Pork	64.0	Lamb	50.9	Lamb	67.2
2	Lamb	53.1	Tamales	32.0	Corned Beef	60.7
3	Corned Beef	43.7	Shrimp	26.4	Shrimp	46.4
4	Canned Hash	34.3	Canned Hash	13.2	Canned Hash	42.8
5	Shrimp	20.3	Chili	6.0	Salt Pork	28.5

TABLE XXXIX

VEGETABLES ENJOYED BY PRESCHOOL CHILDREN
IN DESCENDING RANK ORDER AS CHECKED
BY ETHNIC GROUPS

Rank	Ethnic Group					
	Anglo-American N=52		Negro N=27		Latin American N=19	
	Food	Per cent	Food	Per cent	Food	Per cent
1	Corn	85.9	Irish Potato	92.4	Corn	89.2
2	Irish Potato	82.8	Dried Beans	84.6	Sweet Potato	75.0
3	Carrots	75.0	Corn	84.6	Raw Carrots	67.8
4	Raw Carrots	71.8	Sweet Potato	83.0	Carrots	64.2
5	Green Peas	62.5	Blackeyed Peas	81.1	Tomato	64.2
6	Lettuce	62.5	Green Peas	81.1	Dried Beans	64.2
7	Tomato	59.3	Tomato	77.3	Irish Potato	60.7
8	Green Beans	56.2	Green Beans	75.4	Green Beans	57.1
9	Dried Beans	48.4	Spinach	75.4	Celery	57.1
10	Blackeyed Peas	46.8	Carrots	73.5	Spinach	50.0
11	Celery	46.8				50.0

More mothers than fathers indicated liking many of the vegetables listed in the survey form. This was particularly true for the Latin American group. The vegetables, "unfamiliar or refused," by the highest percentages of children are shown in Table XL. Strong flavored vegetables were frequently evident among the group of "unfamiliar or refuse to eat" vegetables for both children and parents.

The mean number of vegetable dishes checked as unfamiliar or not served at home was 4.5 by Anglo-American families; 4.0 by Negro families, and 8.5 by Latin American families. The comparison of the means may indicate that Latin American diets do not have a large variety of foods served in the home. The variety of foods ranked as most frequently not served in the family meals may indicate that "strong flavored" vegetables are the least desired.

The vegetables most unfamiliar or not served in the home by the highest percentage of families in each ethnic group was determined. The most unfamiliar vegetables in descending rank order were as follows: Anglo-American--rutabaga, chili peppers, hominy, Brussels sprouts, and radishes; Negro--Brussels sprouts, broccoli, asparagus, cauliflower, and chili peppers; Latin-American--Brussels sprouts, rutabaga, broccoli, asparagus, and beets. These

TABLE XL

VEGETABLES REFUSED BY PRESCHOOL CHILDREN

AS CHECKED BY ETHNIC GROUPS

Ethnic Group	Vegetable	Frequency	
		Number	Per cent
Anglo-American N=52	Onions	27	42.1
	Chili Peppers	26	40.6
	Asparagus	26	40.6
	Cauliflower	23	35.9
	Cabbage	22	34.3
Negro N=27	Onions	18	33.9
	Chili Peppers	17	32.0
	Sauerkraut	13	24.5
	Radishes	10	18.8
	Raw Cabbage	8	15.0
	Okra	8	15.0
Latin American N=19	Raw Cabbage	13	46.4
	Chili Peppers	12	42.8
	Asparagus	9	32.1
	Sauerkraut	9	32.1
	Beets	8	28.5

data further illustrate the unpopularity of strong flavored vegetables among the families of the preschool children.

Fruits were well-liked by parents and children of the three ethnic groups. The only fruit enjoyed by less than 25.0 per cent of any ethnic group was avocados, enjoyed by only 20.7 per cent of the Negro children and by 11.1 per cent of the Negro fathers. Avocados were especially liked by the Latin American families. Among the well-liked fruits for children in all groups were watermelon, oranges, apples, bananas, and peaches. Except for Negro families, prunes were not as well liked as were other fruits.

Twelve food items were listed under the category "Breads and Cereals." The rank order of the percentages of children in each ethnic group enjoying these foods is found in Table XLI.

Breads were enjoyed by both parents and children. Whole wheat bread was less well liked than were other breads. In general, both cooked and prepared cereals were enjoyed by a higher percentage of children than of parents. Grits were most enjoyed by Negro families, tortillas by Latin American families.

TABLE XLI

BREADS AND CEREALS ENJOYED BY PRESCHOOL CHILDREN
 IN DESCENDING RANK ORDER AS CHECKED
 BY ETHNIC GROUPS

Ethnic Group					
Anglo-American N=52		Negro N=27		Latin American N=19	
Food	Per cent	Food	Per cent	Food	Per cent
Prepared cereals	98.4	Cornbread	98.1	Biscuits	92.8
Hot rolls	89.0	Saltine crackers	94.3	Hot rolls	89.2
Biscuits	89.0	Hot rolls	92.4	Prepared cereals	89.2
Pancakes	87.5	Biscuits	92.4	Saltine crackers	89.2
		Prepared cereals	92.4		

Milk was enjoyed by a higher percentage of children than of parents in all ethnic groups. The acceptance of buttermilk was lower than that for either sweet milk or chocklate milk and was less for children and for fathers than for mothers. Soft drinks were enjoyed by a higher percentage of Latin American and Negro families and by mothers than was milk. The percentages of children enjoying the beverages listed are shown in Table XLII.

Table XLIII illustrates how well desserts were accepted by the children participating in the study. Acceptance of the dssserts listed was quite similar for all groups. Custard was less well accepted by the Latin American than by other ethnic groups. Molasses was enjoyed by a higher percentage of the Negro families than by families in other ethnic groups.

Peanut butter was enjoyed by more children than by their parents. Although mayonnaise was enjoyed by all groups, the percentages for Latin American were lower than for Negro or Anglo-American groups.

Data concerning the total number of foods accepted, "enjoys," and the total number of foods rejected, "refuses," by the preschool children and their parents were analyzed statistically. Differences between boys and girls as to the total number of foods liked and the total number of

TABLE XLII

BEVERAGES ENJOYED BY PRESCHOOL CHILDREN
 IN DESCENDING RANK ORDER AS CHECKED
 BY ETHNIC GROUPS

Rank	Ethnic Group					
	Anglo-American N=52		Negro N=27		Latin-American N=19	
	Beverage	Per cent	Beverage	Per cent	Beverage	Per cent
1	Milk	87.5	Soft Drinks	92.8	Soft Drinks	96.2
2	Kool-aid	85.9	Chocolate Milk	94.3	Kool-aid	94.3
3	Chocolate Milk	85.9	Kool-aid	92.4	Sweet Milk	89.2
4	Soft Drinks	84.3	Sweet Milk	90.5	Chocolate Milk	85.7
5	Cocoa	82.8	Cocoa	83.0	Cocoa	85.7
6	Buttermilk	12.5	Buttermilk	39.6	Buttermilk	28.5

TABLE XLIII

DESSERTS AND SWEETS ENJOYED BY PRESCHOOL CHILDREN
 IN DESCENDING RANK ORDER AS CHECKED
 BY ETHNIC GROUPS

Ethnic Group					
Anglo-American		Negro		Latin American	
Food	Per cent	Food	Per cent	Food	Per cent
Cookies	96.8	Cookies	100.0	Ice cream	100.0
Candy	96.8	Ice cream	98.1	Cookies	96.4
Ice cream	95.3	Cake	94.3	Candy	92.8
Cake	92.1	Candy	94.3	Doughnuts	92.8
Doughnuts	90.6	Doughnuts	94.3	Cake	92.8
Gelatin	89.0	Jelly	94.3	Gelatin	89.2
Pie	81.2	Pie	92.4	Pie	89.2
		Gelatin	92.4	Jelly	89.2

foods disliked were analyzed using the t-test. Sex differences were non-significant for this preschool group. The boys had a mean of 60.76 and the girls a mean of 63.68 for the number of food likes. Boys had a mean of 11.81 and girls a mean of 9.64 for "refuse to eat" foods.

Of the total group of 145 families, 98 households had both a mother and a father present in the home. Therefore, only this group of 98 families was used in the data analysis concerning the relationship between family members as to the total number of foods liked and disliked. Coefficients of correlations were determined among family members for both the total number of foods liked and the total number of foods disliked. Children's likes and dislikes were compared with those of both the father and the mother. In addition the likes and dislikes of the parents were compared. Coefficients of correlation were found for the above comparisons for all subjects as a group, for each of the three ethnic groups, and for each of the four socioeconomic levels. Results of the data analysis are shown in Table XLIV.

When the data for the total number of food likes were analyzed, the correlation coefficients were significant for the following: child and mother--total families and families of all ethnic and socioeconomic groupings;

TABLE XLIV

SUMMARY OF ANALYSIS OF RELATIONSHIPS BETWEEN 98
PRESCHOOL CHILDREN AND THEIR PARENTS AS TO
THE NUMBER OF FOODS ENJOYED AND REFUSED

*Family Member Comparisons	Coefficient of Correlation	Level of Significance
<u>ALL SUBJECTS</u>		
Total Foods "Enjoyed"		
Child and Mother	.4816	.01
Child and Father	.2017	.05
Mother and Father	.4272	.01
Total Foods "Refused"		
Child and Mother	.1516	ns
Child and Father	.1758	ns
Mother and Father	.3012	.01
<u>ETHNIC GROUPS</u>		
Anglo-American		
Number of Foods "Enjoyed"		
Child and Mother	.4390	.01
Child and Father	.1380	ns
Mother and Father	.3766	.01
Number of Foods "Refused"		
Child and Mother	-.1004	ns
Child and Father	.2062	ns
Mother and Father	.2489	ns

*Families with both a father and a mother

TABLE XLIV

SUMMARY OF ANALYSIS OF RELATIONSHIPS BETWEEN 98
PRESCHOOL CHILDREN AND THEIR PARENTS AS TO
THE NUMBER OF FOODS ENJOYED AND REFUSED

Continued

Family Member Comparisons	Coefficient of Correlations	Level of Significance
Negro		
Number of Foods "Enjoyed"		
Child and Mother	.4501	.05
Child and Father	.4511	.05
Mother and Father	.4813	.01
Number of Foods "Refused"		
Child and Mother	.5076	.01
Child and Father	.4495	.05
Mother and Father	.6153	.01
Latin American		
Number of Foods "Enjoyed"		
Child and Mother	.7108	.01
Child and Father	.2296	ns
Mother and Father	.4638	ns
Number of Foods "Refused"		
Child and Mother	.5823	.05
Child and Father	-.0226	ns
Mother and Father	.2793	ns

TABLE XLIV

SUMMARY OF ANALYSIS OF RELATIONSHIPS BETWEEN 98
PRESCHOOL CHILDREN AND THEIR PARENTS AS TO
THE NUMBER OF FOODS ENJOYED AND REFUSED

Continued

Family Member Comparisons	Coefficient of Correlation	Level of Significance
<u>SOCIO-ECONOMIC LEVELS</u>		
Upper		
Number of Foods "Enjoyed"		
Child and Mother	.4079	.05
Child and Father	.2155	ns
Mother and Father	.4131	.05
Number of Foods "Refused"		
Child and Mother	.1356	ns
Child and Father	.2180	ns
Mother and Father	.3306	ns
Middle		
Number of Foods "Enjoyed"		
Child and Mother	.5656	.01
Child and Father	.2502	ns
Mother and Father	.5478	.01
Number of Foods "Refused"		
Child and Mother	-.2136	ns
Child and Father	.0235	ns
Mother and Father	.0331	ns

TABLE XLIV

SUMMARY OF ANALYSIS OF RELATIONSHIPS BETWEEN 98
 PRESCHOOL CHILDREN AND THEIR PARENTS AS TO
 THE NUMBER OF FOODS ENJOYED AND REFUSED

Continued

Family Member Comparisons	Coefficient of Correlation	Level of Significance
Lower-Middle		
Number of Foods "Enjoyed"		
Child and Mother	.7136	.01
Child and Father	.7081	.01
Mother and Father	.7019	.01
Number of Foods "Refused"		
Child and Mother	.7461	.01
Child and Father	.8021	.01
Mother and Father	.9199	.01
Lower		
Number of Foods "Enjoyed"		
Child and Mother	.3600	.05
Child and Father	-.0345	ns
Mother and Father	.0193	ns
Number of Foods "Refused"		
Child and Mother	.3149	ns
Child and Father	-.0285	ns
Mother and Father	.3448	ns

child and father--total families, Negro families and families of the lower middle socioeconomic level; mother and father--total families, Anglo-American families, Negro families, and families of the three upper socioeconomic levels. All of the above correlations were positive in nature. The highest correlation coefficients were found for families of the lower middle socioeconomic level.

Data analysis of the total number of foods disliked revealed the following relationships were significant: child and mother--Negro families, Latin American families, and families of the lower middle socioeconomic level; child and father--Negro families, and families of the lower middle socioeconomic level; mother and father--total families, Negro families, and families of the lower middle socioeconomic level. All of the above correlations were positive in nature. All correlation coefficients for both food likes and dislikes were significant for Negro families and for families of the lower middle socioeconomic level. The relationship was stronger for the lower middle socioeconomic group comparisons than for any of the other similar group comparisons. More Negro families were included in the lower middle socioeconomic level.

CHAPTER V

C O N C L U S I O N S A N D R E C O M M E N D A T I O N S

The purpose of this study was to compare the eating behavior and food acceptance of preschool children, three through six years of age, representative of three ethnic groups and four socioeconomic levels. The sample included 145 preschool children from families consisting of a total of 826 household members. The preschool children were selected from two university nursery schools and two Head Start Child Development Centers from four urban communities typical of different areas of Texas. For the purpose of data analysis, the preschool children were classified into three ethnic groups--Anglo-American, Negro, and Latin American--and four socioeconomic groups--upper, middle, lower middle and lower. The study was made in the Spring of 1968.

Six instruments, designed by the author, were used to obtain information for the study. An "Inventory of Family Information With Emphasis on Eating Practices," a 24-Hour Record of the Food Eaten by Your Child," and a "Food Preference Check List" were completed by the parents of the

preschool children participating in the study. An "Eating Attitude Record," "Daily Food Reaction Record," and "Child's Record" were completed by the staff members of the cooperative child development centers and nursery schools.

The specific purposes of the study were to: compare the height and weight of boys and girls residing in homes of different socioeconomic and ethnic backgrounds; evaluate diets of representative preschool children in terms of the four basic food groups; investigate the child's acceptance or rejection of foods as determined by the child's likes and dislikes of 100 foods; compare the number of foods "enjoyed" and "refused" by the children with those of their parents; consider the influence of the educational level of the parents, the occupational status of the chief income earner, the annual family income, and cultural background factors of the family on food acceptance and eating behavior of the preschool child; analyse the amount of money spent per person for food, the marketing practices, and the use of convenience foods by families of different socioeconomic levels; investigate some of the psychological and sociological factors which may influence food acceptance of preschool children; and examine the media of receiving nutritional information. The data were analyzed statistically to determine the relationship of factors being investigated.

The family size ranged from two to 11 members, with a mean of 5.7 individuals. The average size family was well above the national family mean of 3.5. The participants in the study included 98 fathers, 144 mothers, 65 preschool boys and 78 preschool girls. One out of every three households constituted a broken home with no father present in 32.4 per cent of the homes. Approximately three-fourths of the Anglo-American parents were living together, while one-half of the Negro families had only one parent in the home. Two-thirds of the Latin American homes had both parents present. For the households in the upper socioeconomic level, 96.7 per cent were headed by males. However, in the lower socioeconomic group, 55.4 per cent of the households were headed by females. The data indicated the higher the socioeconomic group the fewer broken homes.

Slightly more than one-half of the homemakers were employed outside of the home. About one-half of the fathers and two-thirds of the mothers came from urban backgrounds. About two-thirds of the Anglo-American fathers were college graduates and one-third of these fathers had an advanced degree. The largest group, 47.3 per cent, of the Latin American fathers had only an elementary school education or less; however, six of the Latin American fathers were college graduates with advanced degrees. Approximately half of the Negro fathers had attended high school, but there were no Negro fathers with college degrees.

Over 60.0 per cent of the families had an income of \$5,000 or less, and 22.8 per cent of the families had an annual income of \$10,000 or more. Over 50.0 per cent of the families had moved in the last two years.

Approximately 70.0 per cent of the Anglo-American families shopped two or more times weekly; whereas, 71.4 per cent of the Latin American families and 58.5 per cent of the Negro mothers shopped weekly. In Negro families, the father and the children frequently assisted with the shopping.

Families of the two higher socioeconomic levels purchased frozen vegetables, fruits, fruit juices and fresh fruits and vegetables more frequently than did families of the two lower socioeconomic levels. Latin American and Negro families reported the more frequent purchases of soft drinks, cookies, sweet rolls, and prepared cakes. Among the foods reported as purchased frequently by over half of the families were fresh vegetables and fruits, cereals, beef, pork, chicken, eggs, cheese, soft drinks, and cookies. Fresh milk was reported as used in 92.4 per cent of the 145 families with a mean milk consumption of 1.86 quarts per person per week. As the socioeconomic level decreased, the per capita purchase of milk declined.

Approximately 26.0 per cent of the mothers had knowledge of the Basic Four Food Groups. The sources of nutritional knowledge most frequently listed by the mothers were friends, television, magazines, and relatives. Professional individuals as sources for nutritional information were infrequently mentioned. Upper income families tended to rely on published information, whereas lower income families and Negro mothers tended to depend upon friends and relatives and television for nutritional information.

Fifty-eight per cent of the preschool children were reported to enjoy eating and the majority came to the family meals on time. The child's daily diet was rated as excellent by 17.9 per cent of the mothers and as good by 64.8 per cent of the mothers.

An investigation of methods most frequently used in food preparation revealed that vegetables were most commonly "boiled," meat and eggs fried, and fruits served raw. Mothers of the lower socioeconomic level and Negro mothers more frequently fried meat; whereas mothers from the upper socioeconomic level reported the greatest variety in methods of meat preparation.

The majority of the mothers, 65.5 per cent, reported having special rules regarding the child's behavior at the table. However, only about one in three mothers strictly

enforced these rules. The most frequent methods used to encourage the child to eat were reminding the child to eat or coaxing the child to eat. Spanking and scolding were methods of discipline most frequently reported for the preschool child. Mothers of the upper socioeconomic level tended to use the most variety in disciplining the child. A higher percentage of the Negro mothers than of mothers of the other ethnic groups gave rewards for certain types of behavior. The rewards were usually money or sweets. The mothers of the upper socioeconomic level were most likely to give verbal praise or approval and special privileges to the child.

One in four mothers frequently allowed the child to select the foods he would eat from among those served. Approximately half of the children were frequently allowed to decide for themselves how much of each food to eat and were usually allowed to leave the table when they had finished eating. The above practices were more common among the Anglo-American mothers. Negro children were frequently allowed to eat dessert at the beginning of the meal. One in 10 children frequently watched television during mealtime. Latin American parents were less likely than parents of other study groups to require the preschool child to use the proper silver in eating and more apt to require the child to eat all the food served.

A majority of the mothers, 56.6 per cent, indicated the preschool child liked foods that in the mother's opinion were not good for the child. Among the foods mentioned were candy, cookies, carbonated beverages, and gum. Latin American mothers frequently listed pickles and lemons.

The growth of the children was evaluated in terms of the University of Iowa Norms for height-age and weight-age groups. The Anglo-American and Latin American boys more nearly followed the Iowa Norms than did the girls of the same ethnic groups. However, the Anglo-American boys tended to be taller than the norms. The 145 children ranged in height from 29.2 to 53.0 inches with a mean height of 41.0 inches. Weights ranged from 26 to 60 pounds with a mean weight of 43 pounds.

Mean birth weights for the preschool children ranged from 6.0 pounds for Latin American girls to 7.34 pounds for Anglo-American boys. Eighteen of 22 premature births reported were found among families of the lower socioeconomic level.

A higher percentage of children from the Latin American and lower socioeconomic level than from the other study groups had been bottle fed as infants. The highest proportion of the children breast fed as infants were found among the families of the upper socioeconomic level.

The most commonly reported health problems of these children were respiratory infections and dental caries. Forty per cent of the children were given vitamin supplements, usually prescribed either by the physician or by the choice of the child's mother.

An evaluation of the 24-hour food intake of the 145 preschool children indicated that the cereal and bread food group was adequate for the greatest percentage of the diets. Approximately three-fourths of all children had two or more servings of meat, fish, or poultry. Over 50.0 per cent had two or more servings of green and/or yellow vegetables. Less than 50.0 per cent of the children had a sufficient intake of fruits and vegetables which are excellent sources of vitamins A and C. Only 26.6 per cent of the children had sufficient milk intake. The comparison of the total food intake of the 145 preschool children according to ethnic groups revealed that over 82.0 per cent of the Anglo-American and Latin American children included meat in their diets in adequate amounts. More of the Negro and Latin American children than of the Anglo-American children included adequate amounts of vegetables in their diets. Approximately 50.0 per cent of all ethnic groups had an adequate supply of vitamin C-rich foods in the diets. A smaller proportion of the Anglo-American children than of Negro or Latin American children had an adequate consumption of milk. Fifty per cent of the Latin American children included milk

in the diet. The higher proportion of the children, those of the two upper socioeconomic levels, had adequate intakes of meat and fruits. A higher percentage of the children in the two lower than in the two upper socioeconomic levels had diets adequate in vegetables. The highest proportion of children having adequate milk consumption were children in the lowest socioeconomic level.

Each family checked a list of 100 foods as to the relative degree of acceptance of each food. Unfamiliar foods and those never served in the home were indicated. The mean number of food likes ranged from 70.98 for Anglo-American mothers to 59.50 for Latin American fathers. The mean number of food likes for the children was highest for the Negro children and for children from families of the lower middle socioeconomic level, and lowest for children included in the upper socioeconomic level. Mothers had the highest mean for food likes and the lowest mean for food dislikes in all ethnic and socioeconomic groupings.

Except for Negro families, the mean for the number of foods refused was higher for the children than for either parent in the same ethnic or socioeconomic grouping. The mean number of foods disliked was highest for children from the families in the upper socioeconomic level and lowest for Negro children.

Chicken, hamburgers, bacon, and eggs were enjoyed by 75.0 per cent of the families of all ethnic groups. Main dishes enjoyed by a higher percentage of children than of parents were frankfurters, hamburgers, sandwiches, bologna and spaghetti and meat balls. In general, the percentage of children liking main dishes and vegetables was highest for Negro children. Liver was the meat most disliked by preschool children of all ethnic groups. Shrimp was high on the list of disliked main dishes. Salt pork was poorly accepted by Anglo-American children and tamales by both Anglo-American and Negro children. Lamb, corned beef, shrimp, and hash were among the main dishes most unfamiliar to the children.

Corn was the vegetable most enjoyed by the families as a group. Among the vegetables enjoyed by the highest percentages of children were Irish potatoes, sweet potatoes, green peas, green beans, spinach, and tomatoes. Among the vegetables refused by the highest numbers of children were onions, chili peppers, asparagus, sauerkraut, and cabbage. The vegetables most unfamiliar to the children included mainly strong flavored vegetables.

In general, fruits were well-liked by families of the three ethnic groups. Avocados were not well accepted by children and fathers of Negro families but were especially enjoyed by Latin American families.

Both breads and cereals were enjoyed by families of the three ethnic groups. Whole wheat bread was less well liked than other breads. Grits were most enjoyed by Negro families, tortillas by Latin American families.

More children than parents enjoyed milk. Soft drinks were enjoyed by a higher percentage of American and Negro families, and by mothers, than was milk. The acceptance of the desserts listed was quite similar for all ethnic groups. More children than parents enjoyed peanut butter.

Data concerning the total number of food likes and dislikes of the children, fathers, and mothers, were statistically analyzed. Sex differences were non-significant for the preschool children. A significant positive correlation was found between the total number of foods liked by the mother and the child for all ethnic and socioeconomic groupings.

A significant positive correlation was found between the total number of foods liked by the child and the father for Negro families and for families of the lower middle socioeconomic level. A positive relationship was found between food likes of the parents for total families, Anglo-American families, Negro families, and families of the three upper socioeconomic levels.

All correlation coefficients for the total number of foods disliked were significant for Negro families and for families of the lower middle socioeconomic levels. In addition, there were significant positive correlations between the total number of foods disliked by the mother and child, for Latin American families; and for the mother and father, for the total group of families. Coefficients were highest for families of the lower middle socioeconomic level, the group that included the highest proportion of Negro families.

The study suggests the need for further research in the following areas: food preferences of children of ages three through six; factors related to these food preferences; factors contributing to differences between parents' and children's acceptance of foods; and cultural implications based on food acceptance and rejection. It would seem that longitudinal research on food attitudes would be profitable.

Food selection patterns begin in infancy and develop into lifetime practices. Research of the behavioral aspects of eating patterns would furnish background information for better understanding of food habits, their formation, and their vulnerability to change. It is important that nutrition education start with the present habits of the individual, reinforce the good aspects of the dietary patterns, and replace the poor with new habits. A study of food acceptance

of children with Head Start experiences in comparison to other deprived children who have not had this experience seems valid. A comparison of height-age and weight-age of children with different socioeconomic backgrounds within a given ethnic group may be desirable.

An understanding of children's food preferences and prejudices can be of value both to those who plan and supervise the feeding of children and to those who are engaged in promoting sound food habits through nutrition education.

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A P P E N D I X A

I N T R O D U C T O R Y L E T T E R

To: Parents of Nursery School Children

Young children need certain foods for growth and health. A need exists to establish good eating habits during this developmental period, not only because young children are receptive to change but that throughout the growing years these individuals will benefit from improved patterns of eating. A study of the eating habits of nursery school children seems worthy of investigation. I am attempting such a study. The purpose of the study is to determine the eating behavior patterns and food acceptance of nursery school children from families having different cultural and socioeconomic backgrounds from four geographical areas of Texas.

Although the completion of the enclosed questionnaires will require some time and effort, your cooperation will make possible a worthwhile contribution to the area of child development and nutrition.

The following questionnaires are enclosed:

- 1) Inventory of family information with emphasis on eating practices
- 2) Record of the food eaten by the child yesterday (a week day)
- 3) Food preference check list:
 - One to be checked by husband
 - One to be checked by wife
 - One to be checked for nursery school child.

Please complete the questionnaires and return to Sister Mary Claude on or before May 15th. Your assistance in this endeavor will be greatly appreciated.

Sincerely yours,

Allena K. Pace
Graduate Student
Texas Woman's University

A P P E N D I X B

I N V E N T O R Y O F F A M I L Y I N F O R M A T I O N
W I T H E M P H A S I S O N E A T I N G
P R A C T I C E S

Family Name: _____ Date: _____
Address of Family: _____ Town: _____
Child's Name: _____

PART I. DEMOGRAPHIC CHARACTERISTICS

1. Check ethnic group:

Anglo _____ Latin American _____
Non-white _____ Other _____

2. Background of husband and wife: Please check the words that best describe your family.

	Husband	Wife
Childhood community		
<u>Urban</u>		
<u>Suburban</u>		
<u>Rural</u>		
Location of community		
<u>Texas</u>		
<u>Another state</u>		
<u>Another country</u>		

	Husband	Wife
Age		
<u>19 years or less</u>		
<u>20-29 years</u>		
<u>30-39 years</u>		
<u>40-49 years</u>		
<u>50 years or more</u>		
Education--highest grade completed it:		
<u>Elementary</u>		
<u>Junior High</u>		
<u>Senior High</u>		
College		
<u>One year</u>		
<u>Two years</u>		
<u>Three years</u>		
<u>Four years</u>		
<u>More</u>		
Occupation		
<u>Employed full-time</u>		
<u>Employed part-time</u>		
<u>Unemployed</u>		
<u>Indicate occupation</u>		

3. How many individuals live in the home? _____

Individuals in Household Other than Husband and Wife		Age at Last Birthday
Children Boys:		
Girls:		
Others:		

4. Are husband and wife:

☐ Living together ☐ Separated ☐ Other
☐ Divorced ☐ Deceased

5. Religion: _____

PART II. SOCIOECONOMIC STATUS

6. What is the family income?

Salary (take home pay)

<input type="checkbox"/> Less than \$3,000	<input type="checkbox"/> \$9,000 to \$10,999
<input type="checkbox"/> \$3,000 to \$4,999	<input type="checkbox"/> \$11,000 to \$12,999
<input type="checkbox"/> \$5,000 to \$6,999	<input type="checkbox"/> \$13,000 to \$14,999
<input type="checkbox"/> \$7,000 to \$8,999	<input type="checkbox"/> \$15,000 or more

Income other than salary or wages:

<input type="checkbox"/> Children's Aid	<input type="checkbox"/> Welfare
<input type="checkbox"/> Pensions	<input type="checkbox"/> Investments
<input type="checkbox"/> Social Security	<input type="checkbox"/> Others

7. How many years have you spent in your present house or apartment?

<input type="checkbox"/> One year or less	<input type="checkbox"/> Four years
<input type="checkbox"/> Two years	<input type="checkbox"/> Five years
<input type="checkbox"/> Three years	<input type="checkbox"/> Six years or more

8. How many rooms are in the house or apartment?

<input type="checkbox"/> Two or less rooms	<input type="checkbox"/> Five rooms
<input type="checkbox"/> Three rooms	<input type="checkbox"/> Six rooms
<input type="checkbox"/> Four rooms	<input type="checkbox"/> More than six rooms

9. How many bathrooms do you have?

<input type="checkbox"/> No bath	<input type="checkbox"/> Two baths
<input type="checkbox"/> One bath	<input type="checkbox"/> More than two baths

10. You are:

<input type="checkbox"/> Renting	<input type="checkbox"/> Obtaining free rent
<input type="checkbox"/> Paying on house	<input type="checkbox"/> Living in a house that is mortgage free

11. In what type of housing do you live?

<input type="checkbox"/> Apartment	<input type="checkbox"/> House
<input type="checkbox"/> Duplex	<input type="checkbox"/> Other (list)

PART III. FOOD PURCHASING PRACTICES AND EATING HABITS

12. Who in the family buys most of the food?

☐ Husband, only ☐ Children
☐ Wife, only ☐ Others
☐ Husband and wife
 together

13. How often do you buy food?

☐ Every day ☐ Once a week
☐ Three times a week ☐ Other (list)
☐ Twice a week _____

14. About how much money did you spend for food last week?

\$ _____

15. Do you buy these foods?

Foods	Often	Sometime	Seldom or Never
<u>Frozen fruit juice</u>			
<u>Frozen vegetables</u>			
<u>Frozen meats</u>			
<u>Bread mixes</u>			
<u>Cake mixes</u>			
<u>Fresh vegetables</u>			
<u>Fresh fruits</u>			
<u>Cereals to be cooked</u>			
<u>Ready-to-eat cereals</u>			
<u>TV-dinners</u>			
<u>Beef</u>			

Foods	Often	Sometime	Seldom or Never
<u>Pork</u>			
<u>Chicken</u>			
<u>Fish</u>			
<u>Lamb</u>			
<u>Eggs</u>			
<u>Cheese</u>			
<u>Soft drinks or Kool-Aid</u>			
<u>Candy</u>			
<u>Chewing gum</u>			
<u>Cookies</u>			
<u>Sweet rolls or doughnuts</u>			
<u>Prepared cakes</u>			
<u>Prepared pastry</u>			

16. Do you buy the following kinds of milk? About how much each week does your family use?

Types of Milk Used Often by Family	Yes	No	Amount Used by Family Weekly
<u>Fresh</u>			
<u>Evaporated</u>			
<u>Powdered</u>			
<u>Other (list)</u>			

17. How do family members accept new foods or new methods of food preparation?

_____ Willingly _____ Reluctantly _____ Not at all

18. Do family members eat most of their meals at home?

_____ Yes _____ No

19. Where do family members eat when away from home and about how many times each week do they eat away from home?

Eating Places Away from Home	Number of Times Per Week			
	Husband	Wife	Children	
			6 years and under	7-12 years of age
<u>School</u>				
<u>At work</u>				
<u>Cafe</u>				
<u>Cafeteria</u>				
<u>Take lunch</u>				
<u>Other (list)</u>				

20. There are many ways in which the homemaker can get help concerning the food needs of the family. Which one(s) have been most helpful in the planning, preparing and serving food for your preschool child?

Sources of Information			
<u>Magazines</u>		<u>Books</u>	
<u>Newspapers</u>		<u>Bulletins</u>	
<u>Radio</u>		<u>Television</u>	
<u>Doctor</u>		<u>Relatives</u>	
<u>Dietitian</u>		<u>Friends</u>	
<u>Home Demonstration agent</u>		<u>Others</u>	

21. Please check (✓) if the members of your family, living at home, ate certain foods yesterday.

Food Group	Husband	Wife	Children	
			6 years and under	7 through 12 years
Dark green or yellow vegetable				
Citrus fruits, tomatoes, raw cabbage, chili peppers, strawberries				
Meat, poultry, or fish				
Milk (write in the number of cups per person)				
Cereals and bread				
Cheese, dry beans, or peanut butter				

PART IV. HISTORY OF NURSERY SCHOOL CHILD

Child's name: _____

22. Date of birth: _____

23. Approximate weight at birth: _____

24. Was the child full term? _____ Premature? _____

25. Which of the following describes the method used in feeding your child as an infant?

Method	Check one	Length of Time
Both breast and bottle fed		
Breast fed only		
Bottle fed only		

26. Does the family have special "rules" regarding the child's behavior at the table?

_____ Yes _____ No If yes, give an example:

27. Are rules enforced?

_____ Strictly _____ Usually _____ Seldom

28. What method of discipline is most frequently used to correct child? (check only one)

_____ Spanking _____ Denials of pleasure
 _____ Scolding _____ Isolated from family
 _____ Ignoring _____ Not allowed to watch television
 _____ Other (list) _____

29. Which of the following describes your child's attitude toward foods or meals?

_____ Comes to meals on time _____ Late for meals
 _____ Enjoys eating _____ Goes on food jags
 _____ Indifferent to food _____ Others (list) _____
 _____ Has to be urged to eat _____

30. What method do you use to encourage your child to eat?

_____ Give rewards _____ Restrict or withhold pleasures
 _____ Coaxing
 _____ Remind child to eat _____ Others (list) _____

31. Is your child rewarded for certain types of behavior?

_____ Yes _____ No If yes, what is given as a reward?

32. Child's eating habits:

Eating Habits	Break-fast	Lunch	Supper	Snack
Person(s) with whom child eats:				
<u>Alone</u>				
<u>Entire family</u>				
<u>Part of family</u>				
<u>(list individuals)</u>				
<u>Others (list)</u>				
Approximate length of time child eats:				
<u>5 minutes or less</u>				
<u>6-15 minutes</u>				
<u>16-30 minutes</u>				
<u>More than 30 minutes</u>				

33. Is your child allergic to any food?

_____ Yes _____ No If yes, list food(s) _____

34. List three favorite foods of:

Child: _____

Husband: _____

Wife: _____

Are there foods that your child refuses to eat?

_____ Yes _____ No If yes, list food(s) _____

35. Do you give your child a vitamin supplement?

_____ Yes _____ No If yes, how much and how often?

What is the name of the vitamin supplement? _____

On whose recommendation do you give the vitamin supplement?

36. Does your child have problems with his or her teeth?

_____ Yes _____ No

37. Has your child had a skin problem within the last year?

_____ Yes _____ No

38. Does your child have colds frequently?

_____ Yes _____ No

39. How do you usually prepare these foods for your child?

Food	Method of Preparation Most Frequently Used				
	Baked	Fried	Stewed or Boiled	Broiled	Raw Other
<u>Vegetables</u>					
<u>Meats</u>					
<u>Fruits</u>					
<u>Eggs</u>					

40. Behavior patterns of child: Check the column that best describes the behavior patterns of your child.

Behavior Patterns of Child	Frequently	Sometimes	Never
1) Has your child ever asked to have certain foods served at home which he has eaten elsewhere?			
2) Has your child sucked his thumb?			
3) Is your child allowed to:			
Select which foods (of those served) he will eat?			
Decide how much of each food he will eat?			
Leave the table when he has finished eating?			
Eat dessert first?			
4) Is your child required to:			
Eat all food on his plate?			
Eat all food on his plate before getting dessert?			
Taste all new foods served?			
Use the proper silver?			
5) Does your child eat breakfast?			
6) Does your child watch television during meal time?			
7) Is your child given a dessert at the evening meal?			

A P P E N D I X C

R E C O R D O F T H E F O O D E A T E N B Y
Y O U R C H I L D Y E S T E R D A Y

Day of week: _____

Time of Day	Name Food Eaten by Child	Approximate Amount Eaten	Method of Food Preparation	Individual With Whom Child Ate
Breakfast				
Lunch				
Supper				
Snacks				

1. Is the above similar to the food eaten by your child each day? _____ Yes _____ No If no, what is different? _____

2. Are there any foods which your child likes that you feel are not good for him?

____ Yes ____ No If yes, what food(s)? _____

How often does he eat these food(s)?

____ Often ____ Sometimes ____ Seldom

3. How would you rate your child's daily diet?

____ Excellent ____ Good ____ Fair ____ Poor

4. About how many bottles of soft drinks such as cokes does your child usually drink each day?

____ None ____ Two
____ One ____ Three or more

5. Have you heard of the "Food for Fitness Guide"?

____ Yes ____ No If yes, will you list the four food groups as you remember them:

Group I:

Group II:

Group III:

Group IV:

6. What time does your child usually arrive home from nursery school or the day care center? _____

Does the child eat soon after arriving home from nursery school or the day care center?

____ Often ____ Sometimes ____ Seldom or Never

7. Is there any unusual circumstance in the family situation which you feel might influence the child's eating behavior patterns?

____ Yes ____ No If yes, please explain _____

A P P E N D I X D

Una Guia Para Comer Bien



**Leche y sus
Productos**

Consuma Diariamente:

3 o más vasos de leche—Niños
vasos más chicos para algunos niños
menores de 9 años

4 o más vasos—Jóvenes

2 o más vasos—Adultos

Queso, helado o mantecado y
otros alimentos hechos con leche
pueden suplir parte de la leche

2 o más porciones

Carnes, ave y pescado,
huevos o queso
—con frijoles secos,
alverjas y nueces, como
suplentes

**Grupo de
Carnes**



**Vegetales
y Frutas**

4 o más porciones

Incluya vegetales
verdes o amarillos; frutas
citrosas o tomates

4 o más porciones

Enriquecidos con
vitaminas o de grano
entero. Con la leche
se aumenta su valor
alimenticio

**Panes
y Cereales**



Es la base para una buena dieta con
suma más de estos y otros alimentos según
sea necesario para el crecimiento, activi-
dad y para guardar un peso adecuado.

© 1967, 3ra. Edición—Propiedad Lit.
gráfica de 1958, 1964, National Dairy
Federation—Erling 6066

A P P E N D I X E

E A T I N G A T T I T U D E R E C O R D

Recorder's Name: _____

Date: _____

Directions: Please check () the column which best describes the child's behavior.

Name of Child	Description of Child's Behavior Patterns at Table					Other Remarks			
	Attitude at Table	Physical Appearance	Posture at Table						
	Happy	Quiet	Cross	Well	Upset	Relaxed	Restless	Tense	

A P P E N D I X F

DAILY FOOD REACTION RECORD

Recorder's Name _____ Date _____

Reaction	Name _____												Name _____											
	Main Dish	Vegetable		Bread	Dessert	Milk	Milk Left	Main Dish	Vegetable		Bread	Dessert	Milk	Milk Left	Main Dish	Vegetable		Bread	Dessert	Milk	Milk Left			
First two foods tasted:																								
First																								
Second																								
Food left on plate at end of meal																								
Number of extra servings																								
Total time of eating meal																								

A P P E N D I X G

C H I L D ' S R E C O R D

Child's Name: _____ Center _____

Parent's Name: _____

Street Address: _____ Telephone _____

1. Child's attendance record at nursery school:

_____ Regular

_____ Somewhat irregular (misses once or twice per week)

_____ Seldom (misses 3 or more times per week)

2. Child's health record:

Weight _____ Height _____

Health problems within last 6 months:

3. Comments from nursery school attendant concerning the eating patterns and behavior of nursery school child.

A P P E N D I X H

F O O D P R E F E R E N C E C H E C K L I S T

Directions: Check () only one column. The terms used may be defined as follows:

Enjoys eating: Foods for which you have a definite feeling of liking; may be your favorite foods.

Accepts: Foods which you eat but may have no particular feeling for, one way or the other; these may be foods you do not like but eat because "they are good for you" or better than anything else on the table.

Refuses to eat: Foods you will not eat.

Unfamiliar: Never served in home.

Foods	Usual Attitude			
	Enjoys Eating	Accepts	Refuses To Eat	Unfamiliar Never Served At Home
<u>Main Dishes</u>				
<u>Beef roast</u>				
<u>Pork roast</u>				
<u>Ham</u>				
<u>Lamb</u>				
<u>Chicken</u>				
<u>Fish</u>				
<u>Shrimp</u>				
<u>Frankfurters (Hot dogs)</u>				
<u>Hamburgers</u>				
<u>Sandwich meat</u>				
<u>Corned beef hash</u>				

Foods	Usual Attitude			
	Enjoys Eating	Accepts	Refuses To Eat	Unfamiliar Never Served At Home
<u>Sausage</u>				
<u>Liver</u>				
<u>Salt pork</u>				
<u>Bacon</u>				
<u>Stew</u>				
<u>Tamales</u>				
<u>Canned, chopped meat</u>				
<u>Bologna</u>				
<u>Spaghetti and meat balls</u>				
<u>Macaroni and cheese</u>				
<u>Eggs</u>				
<u>Soups</u>				
<u>Cheese</u>				
<u>Chili con carne</u>				
<u>Chicken and rice</u>				
<u>Vegetables</u>				
<u>Asparagus</u>				
<u>Green beans</u>				
<u>Dried beans</u>				
<u>Beets</u>				

Foods	Usual Attitude			
	Enjoys Eating	Accepts	Refuses To Eat	Unfamiliar Never Served At Home
<u>Broccoli</u>				
<u>Brussels sprouts</u>				
<u>Cabbage</u>				
<u>Cauliflower</u>				
<u>Cucumbers</u>				
<u>Carrots</u>				
<u>Corn</u>				
<u>Celery</u>				
<u>Hominy</u>				
<u>Lima beans</u>				
<u>Blackeyed peas</u>				
<u>Green peas</u>				
<u>Irish potatoes</u>				
<u>Sweet potatoes</u>				
<u>Okra</u>				
<u>Squash</u>				
<u>Spinach</u>				
<u>Radishes</u>				
<u>Rutabagas</u>				
<u>Onions</u>				
<u>Turnip greens</u>				

Foods	Usual Attitude			
	Enjoys Eating	Accepts	Refuses To Eat	Unfamiliar Never Served At Home
<u>Tomato</u>				
<u>Raw cabbage</u>				
<u>Raw carrots</u>				
<u>Sauerkraut</u>				
<u>Lettuce</u>				
<u>Chili pepper</u>				
<u>Fruits</u>				
<u>Apple</u>				
<u>Avocado</u>				
<u>Banana</u>				
<u>Cantaloupe</u>				
<u>Grapefruit</u>				
<u>Orange</u>				
<u>Peaches</u>				
<u>Pineapple</u>				
<u>Prunes</u>				
<u>Raisins</u>				
<u>Strawberries</u>				
<u>Watermelon</u>				
<u>Breads and Cereals</u>				
<u>Biscuits</u>				

Foods	Usual Attitude			
	Enjoys Eating	Accepts	Refuses To Eat	Unfamiliar Never Served At Home
<u>Cornbread</u>				
<u>Pancakes</u>				
<u>Hot rolls</u>				
<u>Whole wheat bread</u>				
<u>Graham crackers</u>				
<u>Saltine crackers</u>				
<u>Rice</u>				
<u>Corn grits</u>				
<u>Cooked cereal</u>				
<u>Ready-to-eat cereal</u>				
<u>Tortillas</u>				
<u>Beverage</u>				
<u>Milk, sweet</u>				
<u>Buttermilk</u>				
<u>Chocolate milk</u>				
<u>Cocoa</u>				
<u>Kool-Aid</u>				
<u>Soft drinks</u>				
<u>Desserts and Sweets</u>				
<u>Cake</u>				

Foods	Usual Attitude			
	Enjoys Eating	Accepts	Refuses To Eat	Unfamiliar Never Served At Home
<u>Candy</u>				
<u>Cookies</u>				
<u>Custards</u>				
<u>Doughnuts</u>				
<u>Gelatin (Jello)</u>				
<u>Ice cream</u>				
<u>Jelly</u>				
<u>Molasses</u>				
<u>Pie</u>				
<u>Spreads</u>				
<u>Peanut butter</u>				
<u>Tomato catsup</u>				
<u>Mayonnaise</u>				

This is the food preference list of the: (check one)

_____ husband

_____ wife

_____ Nursery school child _____
(Name)