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HEAD START EVALUATION AND RESEARCH CENTER, UNIVERSITY OF KANSAS. REPORT NO. VIII, PHYSICAL DEVELOPMENT OF CHILDREN IN THE HEAD START PROGRAM IN THE CENTRAL UNITED STATES.
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Information on the nutritional habits of 154 Head Start children from rural, small city, and metropol tan areas in the central United States was obtained from questionnaires answered by the children's mothers. The information was restricted to what foods the children liked and disliked, except that a determination of the quantity of milk consumed per day by each child was attempted. In addition, a 1-week menu from each Head Start center involved was analyzed to check its nutrient sufficiency. The data indicated that over 80 percent of all children were reported as receiving three or more glasses of milk per day. There was no significant differences in preferences of foods between the three groups of children, nor were there significant differences in the menus of Head Start centers in the three areas. The menus were all satisfactory. It was concluded that if the children received their preferred food frequently, their nutritional needs would be met quite well, although no such indications of consumption quantities, other than for milk, were obtained. A short report on the anthropometric measurements of Head Start children is also included. (WD)

The University of Kansas Head Start Research and Evaluation Center

VIII.

"Physical Development of Children in the Head Start Program in the Central United States."

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VIII A

"Anthropometric Measurements of Children in the Head Start Program."

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ANTHROPOMETRIC MEASUREMENTS OF CHILDREN IN THE HEAD START PROGRAM

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In conjunction with the Head Start Progran of the University of Kansas Head Start Evaluation and Research Center, and anthropometric measurement study was made of a group of children in the program. Permanent personnel of the Head Start Program were trained by Dr. William Bass to take the necessary measurements and observations. Of prime interest were patterns of tooth eruption, and basic head and body dimensions were taken on each child.

The study sample consisted of a group of 148 individuals, all school children; there were 76 males and 72 females with a total age range of 4 years, 4 months to 6 years, 7 months. All were Caucasian, though ethnic origin was not determined. They were residents of Missoula, Montana, Lincoln and Omaha, Nebraska. The children were examined once except for a control group used to check measurements, which was measured twice.

At the examination, every child was measured by a trained anthropometrist, according to a fixed schedule involving general body, head and face dimensions, as well as dental observations. The measurements included the following:

Head length - from glabella to opisthocranion
Head Breadth - from euyon to euryon
Total facial width - bizygomatic breadth from zygion to zygion
Total facial height - nasion to gnathion

Body dimensions were taken with an anthropometer on the left side with the subject's shoes removed. The measurements included;

Weight
Height
Acromial height - from the most lateral projection of the acromion of the scapula to the floor.
Stylion height - from the distolateral end of the styloid process of the radius to the floor.
Dactylion III height - from the middle of the tip of the middle finger when the fingers are removed from contact with the thigh and are pointing perpendicularly downwards to the floor.
Suprasternal height - from the middle of the anterior-superior border of the manubrium sterni to the floor.
Symphyseal height - form the middle of the anterior-superior border of the symphysis pubis to the floor.

The dental examination was specifically designed to note the eruption sequence of the deciduous and permanent dentition. Conditions noted were:

Deciduous tooth present.
Adult tooth present.
Not fully erupted adult tooth.
Deciduous tooth has been lost and not yet replaced by adult tooth.

The following observations were made in regard to dental eruption patterns in the children studied:

In the age range 4 years to 4 years 12 months, both males and females showed a consistent absence of the first permanent molar (6-year molar).

In the age range 5 years to 5 years 12 months (the largest group of subjects), the females showed the largest number of erupted 6-year molars and both central and lateral incisors.

Also evident were the loss of deciduous teeth in the females. The males lagged in both of these categories.

In the age range 6 years to 6 years 12 months, the males showed an increased incidence of erupted 6 year molars and incisors, equaling the rate of the females in the same age range.

In this preliminary report, it should be made clear that due to the small and restricted sample a limited amount of data is available. In the final report a more complete and detailed analysis of the existing data will be presented.

The University of Kansas Head Start Research and Evaluation Center

VIII B

A Nutritional Survey of Children in Head Start Centers in the Central United States

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A Nutritional Survey of Children in Head Start Centers in the Central United States

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Abstract

This study was undertaken to evaluate the effectiveness of using a questionnaire to evaluate the nutritional status of children in head start centers in rural, small city and metropolitan areas in central United States. Since parents usually speak more freely about food likes and dislikes of their children than about actual quantities of food consumed, we used this approach to obtain knowledge of foods which the children were familiar with and liked. The only quantitative data that we attempted to obtain was with respect to the quantities of milk consumed daily.

In addition to the questionnaire data, we obtained and analyzed one weeks menus from each of the head start centers involved in this study to determine their contribution to the nutritional status of these children.

The data obtained from the questionnaires are of questionable value as quanities of food consumed is concerned, but these data do give some indication of the foods which these children would prefer to eat.

The nutritional analysis of the Head Start center menus indicated that the centers which we studied were providing adequate amounts and varieties of food for children of this age.

There were no significant differences in the food preferences of the children in the three different areas studied nor in the types of food served in the centers in these areas.

A Nutritional Survey of Children in Head Start Centers in Central United States[1]

Marie Z. Cross

Introduction

This study was undertaken to evaluate the effectiveness of using a questionnaire to evaluate the nutritional status of children in Head Start centers in rural, small city and metropolitan areas in central United States. Evaluation of nutritional status on the basis of data obtained from questionnaires is hazardous at best and doing this without having a nutritionist obtain the history made it even more difficult. Since parents usually speak more freely about food likes and dislikes of their children than about actual quantities of food consumed, we used this approach to obtain knowledge of foods which the children were familiar with and liked. The only quantitative data that we attempted to obtain was with respect to the quantities of milk consumed daily.

In addition to the questionnaire data, we obtained and analyzed one weeks menus from each of the Head Start centers involved in this study to determine their contribution to the nutritional status of these children.

Procedure

A nutritional questionnaire was answered by the mother of each of the 154 children that were included in this study. The research team members were instructed in the manner in which the questionnaire should be used and in ways to establish rapport with the parent during the interview. The questionnaire (see Figure 1) was designed to determine the children's food likes, dislikes and preferences. It was our purpose to see if this approach might result in our obtaining an accurate and honest answer to questions involving quantities of food consumed by the child. In this particular study the only quantity asked for was the amount of milk consumed.

Insert Figure 1 here

The questionnaire data was analyzed according to the type of area the children lived in namely, rural, small city or metropolitan area.

The breakfast or lunch and snack menus were obtained from each center for the week of April 10th through April 14th. These menus were analyzed for nutrient content assuming average pre-school age servings. The Agricultural Handbook No. 8 entitled Composition of Foods, and published by the United States Department of Agriculture was used as the source for determining the nutrient content of the menus. The entire five day food intake was analyzed and the total values were divided by five to get a value for an average daily intake of each of the nutrients. Using the National Research Council's recommended daily allowances as a standard we calculated the percentage of the child's daily nutritional needs which were supplied by the Head Start center's lunch program.

Results and Discussion

Table 1. summarizes the data obtained from the questionnaires. The results are expressed as percentages of children who liked certain of the nutritionally important foods and in the case of milk, those who received adequate amounts each day. The high percentage of children who were reported to receive three or more glasses of milk per day led us to suspect that the mothers may have given the answer they thought they should give rather than an honest value for the amount of milk comsumed by their child.

Insert Table 1 here

In most cases where a child was reported to like meat, fish or poultry he liked all three but if a preference was cited it was most frequently chicken. In the fruit group bananas, apples and oranges were most frequently cited as preferences with oranges occurring less frequently than the other two.

The questions relating to vegetables preferences indicated carrots as the most frequently liked raw vegetables. In the cooked vegetable group potatoes, green beans and corn were cited most often as favorites.

If the children received their preferred foods frequently it would indicate that their nutritional needs were being met quite well. The foods most frequently reported as favorites are foods which are valuable sources of nutrients needed by children of pre-school age.

There were no significant differences in preferences of foods between children in a small city, rural or metropolitan area. As Table 1 shows most mothers felt their children recieved enough food but some of them indicated it was not always the right food.

About one-half of the children's favorite snacks would be classified as nutritious including such foods as milk, fruit and cheese while the other one-half preferred sweet snacks such as cookies and candy. The reported consumption of candy by these children was quite high with the children from the rural area consuming slightly less candy than those in the small city or metropolitan area.

Table 2 shows the amounts of the different essential nutrients provided by the lunch programs in the Head Start centers in the three areas studied. In addition this table shows the percent of the total days nutritional needs for the 3-6 year old that was provided by the school lunch program. The three areas differed in the type of meal and or snacks offered which in turn effected the type and amount of food served and hence the amounts of certain nutrients supplied. The children in the rural area received only lunch while those in the small city area received lunch plus a snack. In the metropolitan area the children received breakfast and a snack. In spite of these differences, all of the children received at least one-third of their days requirements of all but one of the nutrients and in most cases over one-half of their nutritional needs. In some cases the daily requirements were exceeded due to certain foods being included in the diet which were exceptionally high in those nutrients.

Insert Table 2 here

The data in Table 2 can be used only as a general indication of what the children actually received since we do not know the actual amounts of foods which were served and we don't know how much each individual child ate. However, these data do indicate that the Head Start centers which were studied were providing meals which gave generous amounts of the nutrients needed by children in this age group. This should provide good nutritional training for these children and, hopefully some of this experience and training would be carried to their homes.

Conclusions

The data obtained from the questionnaires are of questionable value as far as quanties of food consumed is concerned, but these data do give some indication of the foods which these children would prefer to eat.

The nutritional analysis of the Head Start center menus indicated that the centers which we studied were providing adequate amounts and varieties of food for children of this age.

There were no signifiaant differences in the food preferences of the children in the three different areas studied nor in the types of food served in the centers in these areas.

FOOTNOTES

The research reported herein was performed pursuant to a contract with the office of Economic Opportunity, Executive Office of the President, Washington, D.C., 20506. The opinions expressed herein are those of the author and should not be construed as representing the opinions or policy of any agency of the United States Government.

Table 1.

Summary of questionnaire data from the three areas studied

	Small City	Rural	Metropolitan
Total No. of children studied	46	51	57
Percent of children receiving 3 or more glasses of milk daily.	80.4	82.3	89.5
Percent of children who liked meat, fish, or poultry.	84.8	90.0	87.7
Percent of children who liked fruit.	100.0	96.0	96.5
Percent of children who liked vegetables.	84.8	92.1	66.6
Percent of mothers who reported their children ate enough.	91.3	78.4	77.0
Percent of children who ate candy frequently.	75.0	78.5	64.0

Table 2.

Evaluation of the menus from the Head Start Centers in the three areas studied.

	Small City (lunch & snack)		Rural (lunch only)		Metropolitan (breakfast & snack)	
Nutrient	Am't per day	% of day's requirement supplied	Am't per day	% of day's requirement supplied	Am't per day	% of day's requirement supplied
Calories	677	42.3	769.0	47.6	604.0	37.6
Protein(gms.)	31.3	78.2	33.0	82.5	17.3	43.2
Calcium(mgs.)	665.0	83.0	382.0	47.7	359.0	44.9
Iron(mgs.)	3.6	36.0	4.4	44.0	3.2	32.0
Vit. A(IU's)	2767.	110.0	3274.0	131.0	1322.0	52.8
Ascorbic Acid(mgs)	87.6	175.0	44.0	88.0	47.0	94.0
Thiamin(mgs)	.43	71.0	.38	63.3	.34	56.0
Riboflavin(mgs)	.80	80.0	.78	78.0	.58	58.0
Niacin(mgs)	7.46	67.8	5.86	53.2	3.1	28.0

THE UNIVERSITY OF KANSAS HEAD START EVALUATION & RESEARCH CENTER

QUESTIONAIRE

R-50 Cross-Bass Research Project

(To be carried out following the OEO Parent Interview)

Dr. Marie Cross, Investigator, Dept. Human Development

Dr. William Bass, Department of Anthropology

Does he (she) like milk?_____

About how much milk does he drink each day?_____

Does he like meat, chicken, or fish?_____

Would he rather eat: Baked beans?_____
Ham and beans?_____
Peanut butter sandwich?_____
Maccaroni and cheese?_____

Does he like fruit?_____

What kind of fresh fruit does he eat most often?_____
If not mentioned above, ask:
If he likes and eats: Apples_____
Oranges_____
Bananas_____

How often does he eat canned or dried fruit?_____

Does he like vegetables?_____
What is his favorite raw vegetable?_____
What are his favorite cooked vegetables?_____

If not mentioned above, ask:
Does he like? Green peas?_____
Green beans?_____
Cabbage?_____
Potatoes?_____

Do you feel the child eats enough?_____
Too much?_____
Not enough?_____

If he snacks between meals, what are his favorite snacks?_____

_____

Does he eat much candy?_____ Does he drink much pop?_____

_____

CHILD'S NAME_____ CHILD'S NO._____

CENTER NAME_____ CLASS NO._____

CENTER NO._____

Figure 1