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A Study on Anthropometrics and Biochemical analysis among the school going children in Thanjavur district

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Abstract

The present study to investigate the anthropometrics and biochemical analysis among the school going children in Thanjavur District The majority of 60 percentage had normal general appearance, 18 percentage had good general appearance, 65 percentage had normal face appearance, 29 percentage had bright face appearance, 69 percentage had normal hair texture and six percentage respondents had dry and rough hair texture. 98 percentage had normal eyes and Two percentage was pigmentation of the selected samples, the majority of 91 percentage had normal lips and nine percentage had angular stomatitis. 97 percentage had normal pale tongue. 98 percentage had normal gums and two percentage had bleeding gums, 89 percentage had normal teeth seven percentage had motile teeth. 98 percentage had normal skin and two percentage had loss of luster in the selected subjects. The mean heamoglubin level was found to be 7.73 gm/dl, the mean total serum protein level was found to be 4.95 gm/dl, the mean serum albumin level was found to be 3.2 gm /dl and the mean serum globulin level was found to be 2.26 gm / dl. So, proper nutritional counseling and awareness programme was necessary to eradicate these nutritional deficiency disorders.

Keywords: Nutritional Anthropometrics, Biochemical analysis, Thanjavur

Introduction

The school age period has been called the latent time of growth. The rate of growth slow and body changes occur gradual decline in the food requirement per unit of body weight. The child nutrition who eat will can learn well and only children who will can build the future USDA's food assistance programmers recognize the inseparable links among health, nutrition and educational success to give children access to a more nutrients diet to improve their eating habits through nutrition education and to encourage the consumption of foods (Anita , and Abraham, 2002).

Elementary school children are usually better fed than preschool children. Group acceptance is extremely important at this time and the children needs to be able to keep up to with his classmates and to have a sense of accomplishment (Anita Attlee, 2003).

School children have established a particular pattern of nutrient intake relative to their peers. Although wide ranges of food intake and thus of energy and nutrients of continue to be observed. Those who consume the greatest amount of food consistency do so where as

those consuming smaller amounts maintain these lesser intakes relative to their peers-difference in intake between males and females gradually increase to age 12 and then become marked. Boys consume greater quantities of food that contains energy and nutrients than girls (Debashri Ray, 2002).

The period of growth in contrast to the dramatic changes that occur in infancy and adolescence. Although physical growth may be less remarkable and more stead than during these preschool and middle school year are a time significant growth in the social., Cognitive and emotional areas (Benn, 2005).

During the school years changes in children are rarely dramatic. During this period 6-12 years children continue to grow and develop. Each year bring unique changes as children mature promotion of dental health during the school years long tern dividends school years children teeth are shed and replaced by permanent ones for the short period of time. When the front teeth are missing, biting may may be difficult cutting food into small pieces and serving food that is easy to bite such as bananas and orange slices makes eating easier for the children (Carolynn, 2000).

School children consume inadequate diet and so they are malnourished school children usually skip their meals due to various reasons; poverty, ignorance and disturbed emotional status due to maladjustment in schools are some of the factors, which produce malnutrition among school children. (Gropper, 2005). Therefore the present study on anthropometrics and biochemical analysis among the school going children in Thanjavur District" The study was undertaken with the following objectives.

Methodology

The methodology pertaining to "A study on anthropometrics and biochemical analysis among the school going children in Thanjavur District" was discussed under the following headings.

I. Selection of area
II. Selection of Subjects
III. Formulation of the Questionnaire
IV. Collection of Date
V. Assessment of Nutritional Status
A. Anthropometric Measurements
B. Clinical Assessments
C. Biochemical Analysis
D. Dietary Assessments
VI. Analysis and Interpretation of the date.

Selection of Area

The study was carried out in the Tanjore District. Four schools in Tanjore Districts viz. Government Higher Secondary School Vadaseri. Government Higher Secondary School Thirumangalakottai, Elementary School, Pattukkottai and NAVABHARATH Matriculation School Tanjore were selected. Two hundred school going children in the age group of 7 to 12 years belongs to low income groups were selected by convenient sampling method.

Formulation of the questionnaire

In order to collected the informations from the selected subjects, a questionnaire cum interview schedule schedule was prepared. The schedule includes general information like age, Education like age, Educational level, Birth order, types of family, family income, life style pattern, health status and Assessment of nutritional status like anthropometric measurement, clinical assessments, Biochemical Analysis, Dietary pattern and food consumption pattern.

Collection of date

The direct interview method was adopted as it makes possible face to face communication and interstimulation between the interviewer and interviewee. The scope of enquiry is greatly enlarged by this method.

Assessment of nutritional status

An Assessment of nutritional status should be done routinely for every one in a health care system. However a different type of assessment should be done on the basically healthy person than on someone and critically ill. (Journal of nutrition and dietetic, 2001).

Anthropmetrics Measurement

According to (Geetha *et al*. 2002) Nutrition anthropometic deals with the measurement o body at various ages and levels of nutritional status. It helps even in the assessment of sub clinical stages of malnutrition. It has been recognized as a reliable tool in the identification of nutritionally vulnerable groups. It is one of the important and simple method of assessment of growth and development.

Weight : The weight of the sample was taken by using a bathroom scale they were made to stand erect, bare footed and with minimum clothing the weight was measured to the measurement of 0.5 kg. the balance was checked for accuracy each time before taking the measurement.

Height : When measuring the height of school children respondent must stand erect, feet should be together with the head against the wall of measuring board.

Body mass Index: An index of a person's weight in relation to height determined by dividing the weight in (kg) by the suare of the height (in meters)

$$BMI = \frac{\text{Weight}}{\text{Height (m)}^2}$$

Clinical Assessment

Clinical assessment includes determining the nature, severity and duration of the nutritional as well as the usual components of nutritional assessment.

Biochemical analysis

Biochemical test are the most objective measures of nutritional status. However their precision and accuracy are vulnerable to the methods used. (Eleanor noss whitney, 1996). Hemoglobin, serum proein, serum albumin, and serum globulin was analyzed for 25 sub samples by the use of standard procedures to determine the health status of the subjects.

Results and Discussion

The results of the present "A study on anthropometrics and biochemical analysis among the school going children in Thanjavur district" are discussed in nutritional status through Anthropometrics measurement of the subjects, Clinical assessments of the subjects and Biochemical Analysis of the subjects Age distribution of the subjects are tabulated in Table – I.

Table – I Age distribution of the subjects

S.No.	Age group in years	Number of Subjects	Percentage
1.	6-7	-	-
2.	7-8	20	10
3.	8-9	52	26
4.	9-10	72	36
5.	10-11	32	16
6.	11-12	24	12

Table – I indicates that the selected school children were between the age up group of seven to twelve. The majority of 36 percentages were 9-10 years old, 26 percentages were 8-9 years old and 10 percentages were 7-8 years old. The average children in the age of 6-12 years are considered as school age. (Deva Mittal, 2001). 6-12 years is corresponding fairly closely to the school grades first through seventh in the United States (Sunitha kamari, 2003)

Gender of the subjects

Gender of the subjects are tabulated in Table – II

Table – II Gender of the subjects

S.No.	Age group in years	Number of Subjects	Percentage
1.	Male	88	44
2.	Female	112	56

The Table – II indicates the majority of 56 percentage were female and 44 percentage were male in the selected samples.

Educational qualification of the subjects

Educational qualifications of the subjects are tabulated in Table – III.

Table – III Edudational qualification of the subjects

S.No.	Age group in years	Number of Subjects	Percentage
1.	II	-	-
2.	III	50	25
3.	IV	42	21
4.	V	72	36
5.	VI	36	18

Table – III reveals that the majority of 36 percentage were studied V standard and the 25 percentage were III standard in selected areas.

Anthropometric measurements

Anthropometric measurements of the subjects

Anthropometric measurement of the subjects are tabulated in Table - IV

Table – IV Anthropometric measurements of the subjects

S.No.	Number of subjects	Height (Cm)		Weight (kg)		Body Mass index	
		Mean Value	Standard Value	Mean Value	Standard Value	Mean Value	Standard Value
1.	200	124.96	131-137	23.24	29.32	14.26	18-25

Table – IV indicates that the anthropometric measurements of the selected subjects. The mean value of the height was found to be 124.96cm, which was lower than the standard value (131-137cm). the mean value of the weight was 23.24kg, which was lower than this standard value (29-32kg) and the mean value of the body mass index was found to be 14.26 which was lower than this standard value. (18-25). Anthropometric assessment means physical measurements of body weight and dimensions. Body composition may be estimated from anthropometric measurements. (Sriram – 2003).The Antropometric measurements varies with age and degree of nutrition and as a result are useful in assessing imbalance of protein and energy. They can be severe degree of malnutrition. (Mamta Srivastava – 2003).

Clinical assessment of the subjects

Clinical Assessment of the subject are tabulated in the Table – V

Table V reveals that the majority of 60 percentage had normal general appearance 18 percentages had good general appearance, 65 percentage had normal face appearance and 29 percentage had bright face appearance 69 percentages had normal hair texture and six percentage had dry and rough hair texture, 98 percentage had normal eyes and two percentage had pigmentation. 91 percentage had normal lips and 9 percentage were angular stomatitis, 97 percentage had normal pale tongue 98 percentage had normal gums and 2 percentage had bleeding gums, 89 percentage had normal teeth 7 percentage had motile teeth 98 percentages had normal skin and 2 percentage had loss of luster in the selected subjects.

In sufficient vitamin – A can cause poor growth and serious health problems in children. The most characteristic and specific signs of vitamin-A deficiency are eye lesions. (Benn, 2005).Vitamin – A deficiency is more advanced, it leads to night blindness due to the absence of retinal is the visual pigment, rhodpsin, of the ratina. (Benncs, 2005). Riboflavin deficiency is highly prevalent in India. It present with symptoms such as cracking of lip at the centre (cheilosis), angular stomatitis, and the lips and tongue assume a purplish red and shiny appearance. Clinical symtoms appear when total body pool of ascorbic acid decrease to 300mg, the skin becomes rough and dry. There are small pete cheal hemorrhages around hair follicles, large hemorrhages are called ecchymosed inadequate fluid intake, its leads to loss of luster the skin become dry (Dallman, 2003).

Table – V Clinical status of the subjects

S.No.	Clinical signs	Number of the Subjects	Percentage
I.	General Appearance		
	Good	36	18
1.	Fair	20	10
2.	Poor	24	12
3.	Normal	120	60
4.	Face		
II	Bright, clear	58	29
1.	Swollen	12	6
2.	Normal	130	65
3.	Hair		
III.	Normal	178	89
1.	Loss of luster	10	8
2.	Dry and rough	12	6
3.	Eves		
IV	Conjunction	-	
1.	Pigmentation	4	2
2.	Discharges	2	1
3.	Normal	194	97
4.	Mouth		
V	Lips		
A	Normal	182	91
1.	Angular Stomatitis	18	9
2.	Tongue		
B	Normal	194	97
1.	Pale	6	3
2.	Gums		
C	Normal	196	98
1.	Bleeding	4	2
2.	Retracted	-	-
3.	Teeth		
D	Chalky Teeth	8	4
1.	Mottle	14	7
2.	Normal	178	89
3.	Skin		
VI	Normal	196	98
1.	Loss of Luster	4	2
2.			

Specific deficiency of vitamin B6 pyridoxine can be only experimentally produced well – defined clinical syndrome due to isolated vitaminB6 deficiency of vitamin B-complex specific deficiency of vitamin-B6 can only produced experimentally, such studies shows that deficiency causes a loss of appetite. (Sachdeva, 2004). Potassium necessary for proper functioning is of the heart muscle. The energy requirement is essential for a maintain the beating of the heart and circulation of the blood, breathing and many other movement of internal organs. (Sohald, 2003).

Bio chemical analysis

Biochemical analysis of the subjects has bee presented in Table – VI

Table – VI Biochemical analysis of the subjects

S.No.	Biochemical analysis	Mean Value	Percentage
1.	Haemoglobin Level (gm/dl)	7.73	12-16
2.	Serum protein level(gm/dl)	4.95	6.2-8.0
3.	Serum albumin level (gm/dl	3.2	3.5-5.5
4.	Serum globulin level (gm/dl)	2.26	2.3-3.6
2.	No	196	98

The Table VI indicates that the mean haemoglubin level was found to be 7.73 gm/dl, the mean total serum protein level was found to be 4.95 gm/dl, the mean total serum protein level was found to be 4.95 gm/dl, the mean serum albumin level was found to be 3.2 gm/dl and the mean serum globulin level was found to be 2.26mg/dl.

Conclusion

The present study entitled "A study on anthropometric and biochemical analysis among the school going children in tanjore district" was undertaken with the specific objectives to assess the nutritional and health status of the school children. The selected school children were between the age group of seven to twelve majority of the subjects. The majority of 36 percentage were 9-10 years old 26 percentage were 8-9 years old and 10 percentage were 7-8 years old.

The majority of 56 percentage were female and 44 percentage were male in the selected samples. The majority of 36 percentages were V standard and the 25 percentages were III standard in selected areas. Anthropometric measurements of the selected subjects. the mean value of the height was found to be 124.96cm which was lower that the standard value (131-137cm). the mean value of the weight was 23.24kg, which was lower than this standard value (29-32kg) and the mean value of the body mass index was found to be 14-26 which was lower than this standard value. (18-25).

The majority of 60 percentage had normal general appearance, 18 percentage had good general appearance, 65 percentage had normal face appearance, 29 percentage had bright face appearance, 69 percentage had normal hair texture and six percentage respondents had dry and rough hair texture. 98 percentage had normal eyes and Two percentage was pigmentation of the selected samples, the majority of 91 percentage had normal lips and nine percentage had angular stomatitis. 97 percentage had normal pale tongue. 98 percentage had normal gums and two percentage had bleeding gums, 89 percentage had normal teeth seven percentage had motile teeth. 98 percentage had normal skin and two percentage had loss of luster in the selected subjects. The mean heamoglubin level was found to be 7.73 gm/dl, the mean total serum protein level was found to be 4.95 gm/dl, the mean serum albumin level was found to be 3.2 gm /dl and the mean serum globulin level was found to be 2.26 gm / dl. So, proper nutritional counseling and awareness programme was necessary to eradicate these nutritional deficiency disorders.

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