Malnutrition among School Children of Lucknow

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Abstract: *Malnutrition continues to be a primary cause of ill health and mortality among children. Poor nutritional status during childhood is the determinant of ill health outcomes. In many cases, family dietary patterns can be particularly attributed to genetic factor and hereditary cultural factor. This study was designed to study the nutritional status and eating behavior of school going children. The objective of the study is to assess the nutritional status of 7-9 year school going children. 100 school going student were selected from five different schools of Lucknow District. The study was carried out by using the tools to analyze the nutritional status and food consumptions pattern of children; self designed pretested questionnaire and water low classification was used to find out the nutritional status of children. Anthropometric data revealed that out of total children screened (n=100) according to nutritional status of height for age (stunted) 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe. The result shows that the nutritional status of school- aged children is considerably not satisfying. Awareness regarding importance of good nutrition and dietary knowledge are important of nutritional status of school children. It is recommended that mother should be given awareness about healthy, locally available, low cost food for good health of their children. Knowledge regarding foods avail essential nutrients for proper growth & development and nutritious recipes must be given to the mothers & encourage them to indulge their children in good eating habits etc.*

Keyword: School going children, Anthropometric, Nutritional status, wasted, stunted

1. Introduction

Nutrition is one of the basic requirements of any living organism to grow and sustain life. But the quality and quantity of nutrients necessary for normal growth and to keep an organism in good health during its life span varies with the age of the organism. Any major deviation in the nutrient intake either in quality or in quantity from its requirement can also affect growth and life span in a number of way particularly in the later period/growth is more influenced by nutrition [8]

It has now been generally accepted that nutritional anthropometry has a significant role in the direct assessment of nutritional status in preschool children. A number of anthropometric measurements have been suggested for studies. On growth and nutritional status, but height, weight, mid-upper arm circumference, head circumference, chest and fat fold (skin fold) at triceps are most frequently used. In spite of high prevalence of Protein Calorie Malnutrition among children, systematic and extensive growth studies in India are not adequate to highlight either the variation in growth or its change in different parts of the country in different communities. [8]

The childhood years (ages 6-11) are a unique developmental time when children undergo critical physical, cognitive, and social changes. During this time, children enter school, and their social context broadens beyond their families. Nutrition is the science that interprets the relationship of food to the functioning of the living organism. Nutritional status is the condition of health of an individual as influenced by nutrient intake and utilization in the body.[7] School are practical platform to deliver an integrated package of interventions, such as nutritious meal or snacks.[1] Nutritional status is the condition of health of an individual as influenced by nutrient intake and utilization in the body.[3]

Undesirable food habits and nutrition-related practices, which are often based on insufficient knowledge, traditions and taboos or poor understanding of the relationship between diet and health, can adversely affect nutritional status. However, people can adopt healthier diets and improve their nutritional well-being by changing their food and nutrition attitudes, knowledge and practices, if sufficient motivation is provided to do so.[4]

Malnutrition, in every form, presents significant threat to human health. In many cases, family dietary patterns can be particularly attributed to genetic factor and hereditary cultural factor. Breakfast consumption has been identified as a important factor in the nutritional well being of children [5]

Physical measurement like body weight, height, mid upper arm (MUAC) circumferences of arm and head circumferences of children had been extensively used to define health and nutritional status. According to the age, body weight and height, a number of indices and classification have been suggested, important among them are those proposed by water low (1977) using height-for-age, weight-for-age parameter. [6]

2. Objectives

1) Assessment of the degree of malnutrition among school going children (7-9 year) of Lucknow district.
2) To study the food consumptions pattern of school going children.

2.1 Research Design

The study was conducted recruiting school going children. Schools were selected from the Lucknow district, Uttar Pradesh.

2.2 Sample

A total of 100 school going children were selected randomly between the age group of 7-9 year.

3. Methodology

3.1 Questionnaire Method

The self constructed questionnaire was used to collect the information regarding general profile, anthropometric status and dietary intake. Pilot Study was conducted to assess the reliability and validity of the questionnaire.

3.2 Anthropometric survey

Nutritional status of the children was assessed by anthropometric measurements. Under nutrition that is wasting and stunted were identified according to water low's classification. Nutritional status of all the selected children was assessed by measuring body heights (cm) and weight (kg). Arm and head circumferences were also measured.

Interpretation of Indicators

$$\text{Weight/ Height (\%)} = \frac{\text{Weight of Child X 100}}{\text{Weight of normal child at same height}}$$

$$\text{Height/Age (\%)} = \frac{\text{Height of Child X 100}}{\text{Height of normal child at same height}}$$

Water Low Classification	Weight for Height (wasting)	Height for Age (stunting)
Normal	> 90	> 95
Mild	80 - 90	90 - 95
Moderate	70 - 80	85 - 90
Severe	< 70	< 85

3.3 Height and weight measurement

Height of each subject was measured in a standing position to the nearest 0.1 cm using non-stretchable steel tape. A weighing machine was used to measure body weight to the nearest of 0.5 kg. The individual were kept with minimum clothing and without shoes.

3.4 Dietary intake

The food consumption frequency was recorded in terms of intake of cereals, pulses, milk and milk product , green leafy vegetable , roots and tubes, fruits , meat and poultry, fat and oil and sugar.

3.5 Operational Definition

a) **Wasting** - Moderate and severe - below minus two standard deviations from median weight for height of reference population.
b) **Stunting** - Moderate and severe - below minus two standard deviations from median height for age of reference population.
c) **Statistical analysis:** SPSS (version) 20 was used to draw meaningful inferences from the collected raw data for statistical processing.

4. Results and Discussion

Table 1: Distribution of the samples according to their nutritional status

Attributes		Frequency (%)
Height for Age (Stunted)	Normal	38 (37.60)
	Mild	25(25.0)
	Moderate	22(21.9)
	Severe	15(15.0)
Weight for Height (Wasted)	Normal	45(44.5)
	Mild	30(29.8)
	Moderate	24(23.8)
	Severe	3(3.0)

According to nutritional status of height for age (stunted) found that 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe. So major finding was shows that the majorities of stunted student were higher than wasted student.

Table 2: Distribution of children according to their Head circumference

S. No	Head circumference (in cm)	Frequency	Percentage (%)
1.	15-20	65	65.0
2.	21-25	35	35.0
	Total	100	100.0

Out of 100 children 65.0% cases were under the range from 15-20cm. 35.0% cases were under the range from 21-25cm in head circumferences.

Table 3: Distribution of children according to their Arm circumference

S. No	Mid Upper Arm Circumference (MUAC) (in cm)	Frequency	Percentage (%)
1.	5-6	54	54.0
2.	7-8	46	46.0
	Total	100	100.0

Out of 100 children 54.0% cases were under the range from 5-6 cm. 46.0% cases were under the range from 7-8% in arm circumferences.

Table 4: Frequency distribution of the respondent on the basis of various food stuff (N= 100)

Food items	Daily		Weekly		fort	nightly	Monthly		Occasionally		Never	
	N	%	N	%	N	%	N	%	N	%	N	%
A.Grain												
Chapatti	92	92.0	7	7.0	1	1.0	-	-	-	-	-	-
Paratha	77	77.0	20	20.0	1	1.0	-	-	2	2.0	-	-
Rice	11	11.0	29	29.0	11	11.0	30	30.0	8	8.0	10	10.0
B.Pulses and legumes												
Red gram	-	-	21	21.0	21	21.0	12	12.0	35	35.0	11	11.0
Chola	2	2.0	31	31.0	26	26.0	20	20.0	9	9.0	12	12.0
Chana dal	11	11.0	43	43.0	21	21.0	8	8.0	4	4.0	13	13.0
Lentil	3	3.0	11	11.0	18	18.0	8	8.0	11	11.0	49	49.0
Pea	19	19.0	9	9.0	14	14.0	6	6.0	2	2.0	50	50.0
Fish	2	2.0	8	8.0	14	14.0	13	13.0	12	12.0	51	51.0
Egg	3	3.0	18	18.0	26	26.0	23	23.0	6	6.0	24	24.0
Meat	11	11.0	9	9.0	11	11.0	21	21.0	7	7.0	41	41.0
Walnut	3	3.0	23	23.0	38	38.0	18	18.0	9	9.0	9	9.0
Almond	16	16.0	50	50.0	17	17.0	8	8.0	4	4.0	5	5.0
Cashew nut	9	9.0	48	48.0	23	23.0	8	8.0	4	4.0	8	8.0
Pistachio	3	3.0	14	14.0	21	21.0	16	16.0	25	25.0	21	21.0
C. Fruits & vegetable												
Green leafy vegetable	25	25.0	42	42.0	17	17.0	10	10.0	1	1.0	4	4.0
Yellow vegetable	24	24.0	30	30.0	25	25.0	11	11.0	4	4.0	6	6.0
Apple	19	19.0	50	50.0	18	18.0	8	8.0	2	2.0	3	3.0
Guava	61	61.0	9	9.0	12	12.0	-	-	6	6.0	12	12.0
Banana	11	11.0	37	37.0	25	25.0	15	15.0	6	6.0	6	6.0
D. milk &milk product												
Ghee	22	22.0	55	55.0	12	12.0	6	6.0	1	1.0	4	4.0
Cheese	74	74.0	10	10.0	10	10.0	4	4.0	-	-	2	2.0
Curd	15	15.0	38	38.0	20	20.0	17	17.0	5	5.0	5	5.0
E.fat & oil												
Oil , fat	53	53.0	18	18.0	8	8.0	3	3.0	9	9.0	9	9.0
Sweets	41	41.0	7	7.0	21	21.0	11	11.0	11	11.0	11	11.0

Table 4 indicates the percentage of food consumption using by school going children. 92 % of respondent were eat chapatti daily , 77 % of respondent were eat paratha daily, 30 % of respondent were eat rice monthly, 35% of respondent were eat red gram occasionally, 31% of respondent were eat chola weekly, 43% of respondent were eat chana dal weekly, 49% of respondent were never eat lentil, 50 % of respondent never eat pea, 13 % of respondent were eat fish monthly, 26 % 0f respondent eat egg fort nightly, 21 % of respondent eat meat monthly.38% of respondent eat walnut fort nightly , 50 % of respondent eat almond weekly, 48% of respondent eat cashew nut daily, 21 % of respondent eat pistachio fort nightly, 42 % of respondent eat green leafy vegetable weekly, 50 % of respondent eat fruits weekly, 55 % of respondent eat ghee weekly , 41 % of respondent eat sweets daily.

5. Discussion

According to nutritional status of height for age (stunted) found that 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe.65.0% cases were under the range from 15-20cm. 35.0% cases were under the range from 21-25cm. 54.0%

cases were under the range from 5-6. 46.0% cases were under the range from 7-8%.

Food consumption daily by the entire subject includes grains, pulses and legumes, fruits and vegetable, milk and milk product and fat & oil. Regarding the consumption of cereals (chapatti, paratha , rice.) it was found that the good proportion (92%) of the cereals consumed daily by children and Consumption of pulses (lentil, chola, chana dal, and pea) by the children was found to be frequent 50% on weekly. Consumption of vegetable and fruits take by the children was found 60% on daily basis. Consumption of milk and milk product by the children were found 75% on daily, 53 % of respondents were found to consumption fat and oil daily.

According to finding of NIN (National Institute of Nutrition) (2003-2004) fast food consumed daily by the entire subject including cereals, fats and oils sugar and jiggery. Regarding the consumption of pulses it was found that a good proportion (71.33%) of the subject consumed the item daily and 22.66% consumed 4-6 times per week. Consumption of milk and milk products by the subject was also found to be frequent, 86.66% consumed milk on daily basis whereas, and 12.66% consumed milk 4-6 times per week. Percentage of the children (32%) consuming green leafy vegetable 4-6 times per week was higher than those (19.33%) who were consuming daily. Intake of all the nutrients in 7-9 year age group.[3].

6. Conclusion

Nutrition is important particularly for a school child. It the fast of the sleep hours and prepares a child for problem

solving for problem solving and memory spans and memory spans in the learning period at school. Children who skip breakfast do not make up for nutrients and energy deficits later in the day and tend to perform more poorly on tests of cognition than those who eat food. To sum up all these observations among 7-9 year school going children of Lucknow district on anthropometric status of the children reveled that out of 100 children category according to nutritional status of height for age (stunted) found that 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe. The food consumption is also effect the nutritional status of school going children. The nutritional status of school- aged children is considerably inadequate. Awareness of importance of nutrition and dietary knowledge are important of nutritional status of school children. It is recommended that mother should be given awareness about healthy locally available low cost food good health of their children, essential nutrients available foods and nutritious recipes and to encourage children to indulge in good eating habits etc. The knowledge of nutrition plays a vital role in food choices; any step towards improving this paves way for better nutritional choices and consequently a resultant better health.

7. Recommendation

Firstly, it is important for mother know the healthy nutrition among their children. Good nutrition make children physically active .Education, with the support of the health care community, combined with health policy and environmental change to support optimal nutrition and physical activity, are central to this health strategy.

Here is an emphasis on foods that are rich in nutrients and that provide increased amounts of dietary fibre. To recommend diets low in saturated and Trans fats. Healthy foods include fruits, vegetables, whole grains, legumes, low-fat dairy products, fish, poultry, and lean meats. Fruits, vegetables, and fish are often inadequately consumed by children and adolescents. Because the major sources of saturated fat and cholesterol in children's diets are full-fat milk and cheese and fatty meats, use of low-fat dairy products and lean cuts of meat in appropriate portion sizes will be critical in meeting dietary needs and nutrient requirements.

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