



NUTRITIONAL STATUS ASSESSMENT OF PRIVATE PRIMARY SCHOOL CHILDREN IN URBAN AREA

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Abstract:

Objective; To assess the nutritional status of 5-12 years age children in urban area of Sialkot.

Methodology; Questionnaires were filled using anthropometric measurements of 100 students who were tabulated according to their height, weight, head circumference and mid-arm circumference in Allama Iqbal public school, Cantt. Sialkot.

Results; In our study 75% children are falling on 50th percentile. However it varies from gender to gender.

Conclusion; Our study revealed 25% malnutrition in children and more stunting is seen in boys of 10 to 12 years age group and in girls of 8 to 9 years age group.

Keywords; Nutritional status, socio-economic status, Height, Weight, Head Circumferences and Mid arm Circumferences.

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Introduction

Malnutrition can be defined as a pathological condition of varying degrees of severity and diverse clinical manifestations, resulting from deficient assimilation of the components of the nutrient complex.¹ It is a factor in an estimated 54% of all childhood deaths globally. In Pakistan, malnutrition is stated to be present in 50% to 60% of the children and is associated with mortality in young children. Malnutrition may be manifested as a delayed or stunted growth. The most powerful tool in growth assessment is the growth chart that can be used in the combination with accurate measurements of height, weight, and head circumference. Accurate measurement is a key component of assessing growth². However, the percentage of students with normal BMI was more in Govt. school. The percentage of obesity and overweight was more in private school children as compared to the government schools.

Regardless the ratio of the malnourished children was prevalent.³

Child growth is internationally recognized as an important indicator of nutritional status and health in populations. Stunting (low height-for-age) is acknowledged as the best indicator for child growth. It indicates chronic under-nutrition and reflects the cumulative effects of under-nutrition and recurrent infections. Thinness (the low head and the mid-arm circumferences-for-age) corresponds to wasting and indicates acute under-nutrition, usually because of the insufficient food intake or a high incidence of infectious diseases. Weight for age is the inadequate indicator for monitoring child growth beyond pre-school years due to its inability to distinguish between the relative height and the body mass, therefore, assessment is recommended by the World Health Organization (WHO) and the United States' Centers for Disease Control and Prevention (US



CDC) to assess under-weight in school-aged children and adolescents⁴. Interpretation of child growth in a population depends primarily on the growth reference used. Literature lacks data on nutritional parameters and indices of nutritional status with reference to the international growth references among Pakistani school-aged children. This study was aimed to compare age-specific and gender-specific height, weight, head and mid arm circumference percentiles and nutritional status relative to the international growth references among Pakistani school children. As Growth reference based on a nationally representative sample has not been developed for Pakistani children and Pakistan is one of the countries still using the 1977 National Center for Health Statistics (NCHS) reference for pediatric growth monitoring⁵. To assess the nutritional status of school going children of 5-12 years of old age we reviewed the correlation between age and nutrition using anthropometric measurements. This study aims to highlight the importance of nutrition. It was a cross sectional study among 100 students of a private school of Sialkot Cantt.

Methodology

A descriptive, cross-sectional study was conducted in Allama Iqbal Public High School in Sialkot, Cantonment.

The sampled schools were visited on pre-arranged dates in the summer 2023 by 5 trained medical students, under observation of Principal of school collected the data. Data collection activity in school was completed in two working days and it took four weeks to analyse the data.

A total of 100 school children of 5–12 years of age selected randomly from Allama Iqbal Public High School in Sialkot. After the informed consent of school and teachers, a structured questionnaire was filled out for each child. Anthropometric measurements were performed by the medical students. The Performa contained the child’s personal data, parental profile, income and family data, and anthropometric measurements including the weight, the height, the head circumference and mid-arm circumference. All instruments and equipment were calibrated to the set

standards on a daily basis, and the same instruments were used for all data collection. Data collection tools included a questionnaire form, an electronic weighing scale, a standard height scale and measuring tape for the head and the mid-arm circumference. The height measurement was in centimeters (cm) to the nearest 0.1 cm and weight was measured in kilogram (kg) to the nearest 0.5 kg with a range of 0-160 kg. The child was asked to stand relax, feet were placed together with heels, buttocks and shoulder blades against the wall and head was positioned in the Frankfurt horizontal plane. All measurements were taken in light, with summer school uniform and without shoes during morning.

Results:

Age	No. of Entries
5	2
6	15
7	24
8	16
9	13
10	12
11	6
12	10

Table-I, Distribution of Age:

We took the data from 100 students from which 39% were of 6 to 7 year, 41% between 8 to 10 years of age however 7% of the children were of 5 years age and 18% of children were of 12 years old.

Gender	No of Students
Male	51
Female	49

Table-II, Gender distribution:

Family System	No of Entries
Nuclear	43
Extended	26
Joint	31

Table-III, Family system:

Group	Income Range	No of Entities
Low socioeconomics	35000-50000	25
Lower Middle socioeconomics	50000-75000	38
Upper Middle socioeconomics	75000-100000	17



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High socioeconomics	100000+	20

Table-IV, Family income

Age	Mean weight calculated (kg)	Standard Weight (kg)
5	20	18
6	21	21
7	22	23
8	25	26
9	27	29
10	34	32
11	34	36
12	38	40

Table-V, Girls weight for age distribution

Age	Mean weight calculated (kg)	Standard Weight (kg)
5	17.5	18
6	18.5	20
7	24	22.4
8	25	26
9	30	28
10	33	32
11	36	37
12	38	41

Table-VI, Boys weight for age distribution

Age	Mean Calculated Height	Standard Height
5	102.5	102
6	114	116
7	123	122
8	122	128
9	133	133
10	127	139
11	130	144
12	155	150

Table-VII, Age for height distribution boys

Age	Mean Calculated Height	Standard Height
5	105	108
6	108	115.5
7	118	121
8	114	128
9	127	133
10	136	138
11	144	144
12	145	150

Table-VII, Age for height distribution girls

Age (years)	Low	Lower Middle	Upper Middle	High
5	1	0	1	0

6	5	3	3	4
7	4	11	3	6
8	4	4	4	4
9	1	9	2	1
10	6	2	3	1
11	2	1	1	4
12	2	8	0	0
Total	25	38	17	20

Table-VIII, age and socioeconomic distribution of children

Age	Mean Calculated Mid arm Circumference of boys	Mean Calculated mid arm Circumference of girls	Standard
5	21	18	18.5
6	20	19	19
7	19	20	19.5
8	21	20	20
9	23	21	21
10	24	21	22
11	24	21.5	23
12	26	24.2	24

Table-IX, Mid-Arm Circumference (Cm) Boys

The mid-arm circumference of boys and girls.

Majority of children have normal mid arm circumference though shunting is clearly seen in some cases but the ratio is minor in given sample of study which indicates that socioeconomic status plays important role in nutritional status.

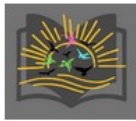
Age	Mean Calculated Head Circumference of boys	Mean Calculated Head Circumference of girls	Standard
5	44	42	51
6	52	50	51
7	47	48.1	51.5
8	51	50.4	52
9	54	54	52.5
10	53	53	53
11	56	53	53.5
12	58	56	54

Table-X, Head Circumference (Cm)

Discussion

The proper assessment of nutritional status in school going children is of utmost importance, because it is related to their growth, cognitive development, and academic performance. There are different methods for that.

Anthropometric measurements, such as height, weight, and body mass index, are most commonly used due to their



simplicity and objectivity.⁷ These provide information about the physical development of children.

Paternal socioeconomic status is directly associated with child nutritional status. Father's income is very important because he plays more active role in certain health-seeking decisions. The results showed that nutritional status of 25% children whose father were of low socioeconomic status were malnourished as compared to 75% children whose fathers were having middle to high socioeconomic status.

In our study, no significant relation was found between family size and nutritional status. It is at variance with that of various surveys conducted at the national and inter-national level. However, children examined in present study were not enough to draw a definite conclusion. We found the same results as revealed by Mushtaq et al.⁶

More stunting is seen in boys of 10 to 12 years age group and in girls of 8 to 9 years age group. A study conducted in Faisalabad in March, 2017 on nutritional status of children of private and public school expressed that most of the children of Govt. school were stunted as compared to private school children⁷.

Conclusion

Our study revealed 25% malnutrition in children. More stunting is seen in boys of 10 to 12 years age group and in girls of 8 to 9 years age group.

Recommendations

Accurate dietary intake assessment is crucial in understanding the nutritional intake of children. The implementation of government school feeding programs can play a pivotal role in addressing nutritional gaps, promoting regular attendance, and positively impacting educational outcomes.

Limitations

Several difficulties occur during the assessment processes, despite all benefits we have. Having a limited amount of resources and knowledge with minimal training can cause inaccurate results.

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