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Original Paper

Estimation of nutrition status of school going children in the local area District Kohat, Pakistan

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***Abstract*— There are many determinants of malnutrition among school-going children. These include poverty, illiteracy and inadequate diet. To assess the nutritional status of primary and high school children in an urban area of Kohat. A cross-sectional study was performed in a primary and high school of Government sector in the rural area of Kohat. A total of 750 children between the ages of 4-15 years were studied. A total of 750 children between the ages of 4-15 were analyzed for this study. Out of 750 school-going students, 300(40%) were found positive, and 450(60%) were found normal according to age. Gender-wise analysis shows that in male students 105 were found positive for stunting and 75 male students were underweight. In overall female students, 69 were found stunting and 51 were found underweight. According to the age group between 4 to 10 years 45 female students were found stunting and 30 were found underweight. While in the age of 11 to 15 years 24 students were stunting and 21 students were underweight. Gender wise prevalence of stunted and underweight showed more boys than girls. A lot more efforts are required in economic, educational, and media to improve the nutritional condition of the new generation of Kohat, Pakistan.**

Keywords*— Stunting, Underweight, Malnutrition

I. INTRODUCTION

Variety of poor outcomes including growth retardation, historically, the science of nutrition developed in and development of psychosocial difficulties. Water low 1995 of disease entities brought about reported that, etiology of linear growth retardation is by inadequate diet. Nutritional status is the condition of multi-factorial but has been explained by three major health of an individual as influenced by nutrient intake factors: poor nutrition, high levels of infection and and utilization in the body. In developing world, approximately nutrients in preparation for rapid growth of adolescence 146 million children are underweight, out of these [1].Therefore, it becomes very important to know thenutritional status of school going children; the building machine was used to measure the body weight to the blocks of state and country and hence the present nearest 0.5 kg. Malnutrition is a major public health problem in Pakistan, a South Asian nation with over 130 million people. Half of its children aged five years or less are stunted, over a third (38%) are underweight, and a quarter of all births are low birth weight [2]. These high levels of malnutrition contribute to about half of the 740,000 child deaths that occur every year in Pakistan [3] In view of the scale of the problem in children under five, nutritional programmes in Pakistan during the last few decades have been targeted at this age group. However, malnutrition is a significant problem in older children as well, a fact that is often overlooked by policy makers and programme managers. Though little is known about the state of nutrition in this older group, studies conducted in the 1980s indicate that malnutrition is a significant problem in this population, with prevalences ranging from 47-70% in male school children in rural Pakistan [4],[5]. The situation among school-aged children in urban squatter settlements in Pakistan is even less well known. These settlements contain a large proportion of the rapidly growing urban population, with high levels of malnutrition already documented in the under-five child population [6] To assess the nutritional status of 7-10 year old Anthropometric. Rapid migration to urban areas in the twentieth century has been accompanied by the development of slums [7]. These are unorganized settlements in urban areas with run-down housing, overcrowding, poor water and sanitation, poverty, and social disorganization. According to an estimate, nearly 1/3rd of the world's population lives in slums. Whereas in the least developed countries, more than 60% of urban populations lived in slums [8]. With this current trend, it is anticipated that the number of slum dwellers may reach 2 billion by 2030 in the next twenty years. (2050) may reach to 3 billion

. In Karachi, one of the largest cities and economic hubs of Pakistan, there are more than 600 slum areas accommodating nearly 65 percent of the Karachi population [9]. The presence of slums has global and regional implications, affecting health, education, and child mortality. People living in slum areas are influenced by their surrounding environment [10] Children living in these areas are more susceptible to acquiring infections and vulnerable to nutritional ailments. These ailments may adversely affect the child's intellectual development and productivity in later life. Numerous studies delineate the situation of malnutrition in children living in slum areas specifically the children in their first five years of life [11]. Little information is available on the situation of malnutrition among school-going, children and adolescents, of 5–15 years of age living in these areas. This paucity of data makes it difficult to develop policies and strategies on why and how the nutritional situation of these children and adolescents can be improved. The present study is thus designed to explore the nutritional status of school-going children aged 5 to 15 years living in urban slums in Karachi. Malnutrition contributes directly or indirectly to more than 60% of 10 million child deaths each year1.In the developing world, 43% of children are stunted and 9% are wasted [12] .There are many determinants of malnutrition among school-going children. These include poverty, illiteracy amongst parents and environmental factors, diseases, inadequate diet etc., which are even more powerful than genetic predisposition in producing deviations from the reference values3. School-going children are at increased risk of malnutrition because of many factors like poverty, lack of maternal knowledge regarding proper nutritional requirements of growing children, and poor hygienic practices. Mothers tend to give money to children and they buy poor-quality food from canteens or from stalls outside the schools. Primary school age is a dynamic period of physical growth and mental development of a child. Research indicates that nutritional deficiencies and poor health in primary school-age children are among the causes of low enrolment, high absenteeism, early dropout, and poor classroom performance [13]. Thinness corresponds to wasting and indicates acute malnutrition, usually because of insufficient food intake or a high incidence of infectious diseases. Stunting results from long-term nutritional deprivation inadequate childcare and poor environmental and sociocultural conditions. It is associated with higher morbidity and mortality and delayed mental development. Poor educational achievement and reduced intellectual capacity, and is a strong predictor of human capital and social progress [14]. To explore the nutritional status of school going children aged 5 to 15 years, living Takht Bhai Mardan. To explore gender wise the nutritional status of school going children. To explore prevalence of the nutritional status of school going children.[15] Cunducted a study both mean weight and height were higher in females than males. The overall prevalence of under nutrition was 19.2%. The prevalence of underweight was lowest in 5 year female (0.0%) and highest in 6 year male (21.5%). For Stunting 7 year males recorded the lowest (0.0%) and 12 year males the highest (28.5%) prevalence. The highest and lowest prevalence of wasting was recorded in 6 year old females (2.56%) and 9 year old males (24.6%) respectively. Prevalence of thinness was lowest in 13 year old females (14.2%) and highest in 13 year old males (47.1%). The nutritional status of school age children in this health block are comparatively better even though a large number of children still fall below the cutoff for various nutritional indicators.[16] performed a study was to investigate nutritional status of 7-10 years school going children. A total of 150 school going children were selected from four different schools of Allahabad district, India. Data on dietary intake was collected by using 3 days dietary recall method. Heights, weights and Mid Upper Arm Circumference were measured. Haemoglobin levels of children were estimated by cyanmethaemoglobin method. Clinical status assessing anemia was also recorded. Consumption of all the nutrients by majority of the students was comparatively less than the recommended dietary allowances. [17] Assest a study about low socioeconomic status, low literacy rate and large family size seem to be associated with poor health status of primary school children. A lot more efforts are required on economic, political, educational and media fronts to improve the nutritional condition of the future generation of Pakistan. Keywords: Malnutrition, primary school, stunting. Under weight. [18] The present study showed that only 34 % children had habit of brushing both time morning and at night before going to bed. Only 22% of children used correct brushing technique. Most common malpractice among children was eating chalk 12%. Regarding oral health status of school children dental caries 54.7% followed by dental cavities (52.7%) were most common problems found. Conclusions: Oral hygienic practices were poor need.[19] Nutritional status of 327 boys and girls attending a high school in Dhaka City has been reported in this study. Weight for age (Wt/Age), height for age (Ht/Age) and weight for height (Wt/Ht) of the study participants were calculated and compared with the National Center for Health Statistics (NCHS) reference standards. Only 0.6% children were severely stunted and 4.3% were moderately stunted. In addition, 3.7% children were moderately wasted and 0.6% children were severely wasted. One girl was severely and 2.1 % children were moderately underweight level. The overall nutritional status of the study samples was better than country situation and cannot be the similar to that of same age group of population of the country. Here, the children of the privileged class represent a typical group of population of the city.[20] It was found that 56.25 % of the respondent drink water from deep tube well and 42.50 % from Tube well, 66.25 % take nutritional supplements and their type of supplement is vitamins/minerals (61.25%), about 31.25% kids take fast foods few days a week and most of the children do not participate in physical activity, of about 81.25 %. We found kids from low-income and less-educated families had a dietary pattern which is poor in terms of balanced diet. These urban slum school children's diets were inadequate for macronutrients and micronutrients, which poses a threat to significant nutritional and health consequences. It is important to emphasize the need to develop healthy food supply and habits.

II. Materials And Methods

This observational, cross sectional study was conducted in Kohat from April 2023 to September 2023. After ethical approval, students of 4-15 years were selected from the Government schools located area. Demographic information along with weight and height of the selected children were taken and plotted to gender specific, growth charts.

The School Health Program was carried out on regular basis in the Rural Block. For the purpose of the present paper, the survey was findings from schools surveyed from May 2023 to October 2023 were included. The age of the children were determined using school records. In the schools nutritional status of children were assessed as follows: Weight: Measured using a floor type weighing scale with due respect to the standardization of the equipment and procedure. The measurements were taken to the nearest .5Kg. Height: was taken using a measuring tape applied to the wall.

A. Study Area and Period

The study was conducted in Kohat, which is located Khyber Pakhtunkhwa. The Study was conducted from April 2023 to September 2023.

B. Study Design

Institutional based cross-sectional study design was used.

C. Study Population

All secondary and primary school students (age group 4-15) were the source population, whereas sampled or selected students were study population of this study.

D. Sample Size Determination

The sample size was determined using a single population formula, the standard normal deviate.

III. Results

A total of 750 children between the ages of 4-15 were analyses for this study. Out of 750 school going students 300 (40%) were found positive and 450 (60%) were found normal according to age. Gender wise analysis shows that in male students 105 were found positive for stunting and 75 male students were underweight. In overall female students 69 were found stunting and 51 were found underweight has been shown in (Table I) and (Figure 1).

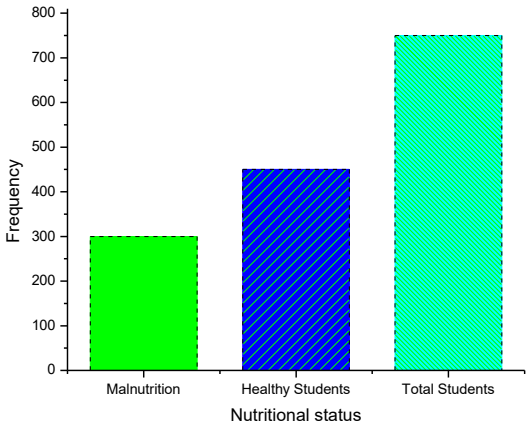

Fig. 1. Overall nutritional status of school aged children

(Figure 2) shows that according to age group wise between 4 to 10 years 75 male students were found stunting and 45 were found underweight. While in the age of 11 to 15 years 30 students were stunting and 30 students were underweight.

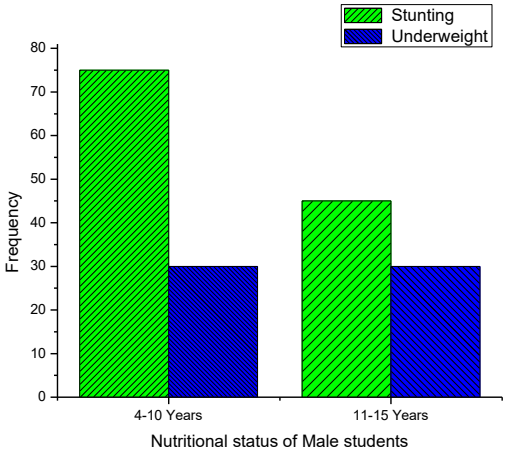

Fig. 2. Aged wise nutritional status of Male students

(Figure 3) shows that according to age group wise between 4 to 10 years 45 female students were found stunting and 30 were found underweight. While in the age of 11 to 15 years 24 students were stunting and 21 students were underweight. High Malnutrition were found in lower age of both sexes.

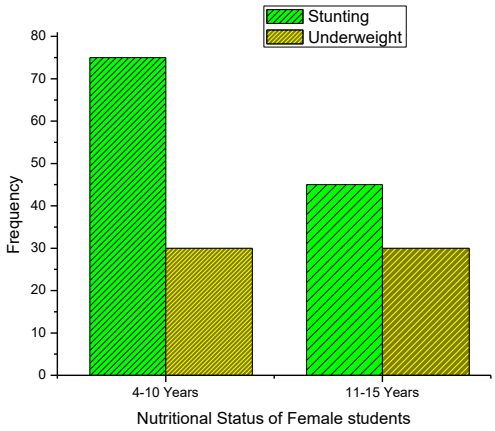

Fig. 2. Aged wise nutritional status of Female students

IV. Discussion

This study was conducted at a small level in an urban area of Kohat of Pakistan and children belonging to middle socioeconomic class were included. Malnutrition continues to be a major problem in Kohat Pakistan. In the current study the overall prevalence of Out of 750 School going students 300 (40%) were found positive and 450(60%) were found normal according to age. Gender wise analysis shows that in male students 105 were found positive for stunting and 75 male students were underweight. In overall female students 69 were found stunting and 51 were found underweight. Similar work is also conducted by Mansur et al 2017. that the nutritional status in terms of prevalence of underweight, stunting and thinness were found to be 30.85%, 24.54% and 10.05% respectively among rural school going children of Kavre district. It was revealed that 37.87% was underweight, 29.59% was stunted and 11.25% was thinness among male children whereas in female

children, 26.27% was underweight, 21.24% was stunted and 9.27% was thinness. Hence, high prevalence of underweight, stunting and thinness were observed in male than in female children. The current study also shows that according to age group wise between 4 to 10 years 45 female students were found stunting and 30 were found underweight. While in the age of 11 to 15 years 24 students were stunting and 21 students were underweight.

TABLE I. THE OVERALL NUTRITIONAL STATUS OF SCHOOL GOING STUDENTS

Total samples	Positive sample	Negative samples	Male		Female	
			stunting	underweight	stunting	underweight
750	300 (40%)	450 (60%)	105 (14%)	75 (10%)	69 (9.2%)	51 (6.8%)

The difference in stunted and underweight showed more boys than the girls. In the Pre nursery group more boys were stunted than girls, the ratio being 70%:30%, on the contrary underweight was more in boys than in girls, with the ratio of 57%:43%. In the Primary section both stunting and underweight were more in boys as compared to the girls. The ratios were54.8%:45.2% and 82.9%:17% respectively. Similar research work also performed by Ahsan et al 2020. Of the total 571 children, 348 (56.4%) were boys and 223 (43.6%) were girls. Nearly 89 (15.5%) children including 52 (10.5%) boys and 37(6.4%) girls had normal anthropometric indices. Stunting was the most frequent anthropometric failure (n=219, 38.3%) followed by wasting (n= 163, 28.51%) and underweight (n=100, 17.5%) respectively. Gender disparity was observed in the distribution of malnutrition with boys had higher frequency of stunting, wasting and underweight than girls. Malnutrition contributes directly or indirectly to more than 60% of 10 million child deaths each year. In the developing world, 43% of children are stunted and 9% are wasted. There are many determinants of malnutrition among school-going children. These include poverty, illiteracy amongst both parents and environmental factors, diseases, inadequate diet. To assess the nutritional status of primary and high school children in an urban area of Mardan, the largest city of Pakistan. A cross sectional study was performed in a primary and high school of Govt sector in a middle class area of Kohat, Pakistan. A Total of 750 children between the ages of 4-15 years were studied. A systematic random sampling technique was applied for sample collection A total of 750 children between the ages of 4-15 were analyses for this study. Out of 750 school going students 300(40%) were found positive and 450(60%) were found normal according to age. Gender wise analysis shows that in male students 105 were found positive for stunting and 75 male students were underweight. In overall female students 69 were found stunting and 51 were found underweight. According to age group wise between 4 to 10 years 45 female students were found stunting and 30 were found underweight. While in the age of 11 to 15 years 24 students were stunting and 42 students were underweight. The difference in stunted and underweight showed more boys than the girls. In the Pre nursery group more boys were stunted than girls, the ratio being 70%:30%, on the contrary underweight was more in boys than in girls, with the ratio of 57%:43%.

V. CONCLUSIONS

The findings of the study revealed that slightly above one third (37.8%) school going children of Kohat were thin, anemic, overweight and obese respectively. The finding of our study revel that the lower aged of both gender were 1/3rd of children were found anemic, malnourished and underweight. So the parents, doctors and government should focus on the nutritional status of the children. On the bases of the aims of the study the Estimation of nutrition status of school going children in district Kohat, Pakistan of aged 4 to 15 years, The results of the present study will be useful to make specific policies to over less this nutritional problem of school-going children, So the parents, doctors and government should focus on the nutritional status of the children in their various developmental and health care programs.

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