Original Article

NUTRITIONAL STATUS AMONG PRIMARY SCHOOL GOING CHILDREN LIVING IN URBAN AREA OF SINDH PAKISTAN

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Abstract

Background: Children's health is very important for their better learning and timely nourishment everywhere in the world. Malnutrition among school going children has remained a big challenge in under developed countries.
Methods: Cross-sectional study was conducted among 422 children of four Government Primary schools of Qasimabad, district Hyderabad after taking the proper consent and administration approval from the head of school. Multi stage simple random sampling technique was adopted. Study was approved from Institutional review board of Health Services Academy Islamabad.
Results: Out of total, 217 (51.4%) were boys and 205 (48.6%) were girls. Mean Height of boys and girls were 128.09 cm (±SD 12.90) and 130.36 cm (±SD 12.50) respectively. Mean Weight of boys was 25.27 Kgs (±SD 6.17) while in girls mean Weight was 26.83 Kgs (±SD 7.03). 17.57 cm (±SD 2.34) was mean MUAC for all participants and mean BMI was 15.42 (±SD 2.02). Prevalent of stunting and wasting were 24.4% and 18.3% respectively. While in 13.7% thinness (BMI for age) was seen. Stunting was statistically significant in girls 9-10 year (p value=.015, CI: .118-.823, OR=.311) and 11-≥12 years (p value=.018, CI: .215-.874, OR=.434). Pallor was more in girls (17%) and Dental caries were higher in boys (20.8%). Insufficient breakfast was done by 347 (82.2%), whereas 75 (17.8%) were doing sufficient breakfast. 341 (80.8%) students became ill during last year, out of that 80 (19%) were having history of hospitalization.
Conclusion: Poor polices and lack of food aid interventions regarding health of primary school going children was assessed during this study.
Key Words: Stunting, wasting, thinness, children, government primary schools

Introduction:

Children health is very important during their growth period. The school age period is nutritionally significant because this is the prime time to build up body stores of nutrients in preparation for rapid growth of adolescence.Malnutrition remains the world"s most serious health problem and the single biggest contributor to child mortality, nearly one third of the children in the developing world are either underweight or stunted. The health status of an adult is also depending on his childhood nutritional status [1]. Malnutrition is defined as different forms of poor nutrition leading to both underweight and overweight conditions caused by a complex array of issues, including dietary inadequacy, infections, and socio-cultural factors. Good nutrition builds a stronger immune system, better health and productivity. Malnutrition can lead to deficiencies of macro and micronutrients,wasting and stunting, and other diseases [2,3].The underlying factors like; clean drinking water, food security, education, good sanitation conditions and heath care services contribute to improve nutritional status in an individual and communities. These are caused by an association of dietary deficiencies; poor maternal and child health and nutrition; a huge burden of morbidity; and low micronutrient content in the soil, especially iodine and zinc. Many of these micronutrients have profound effects on immunity, growth, and mental development [4].

Primary school going children need more attention regarding to their physical and mental growth and it is the neglected group to do any food aid programme implemented by government or donor agencies. Principal aim of study was to improve nutritional status of primary school going children, with

prevalence of stunting and underweight in primary school going children.

Methodology:

A cross sectional study was conducted in Hyderabad Sindh by adopting the multistage cluster sampling. In first stage four government primary schools (GPSs) were selected randomly in taluka Qasimabad, district Hyderabad provided. In second stage students of primary section studying in class first to fifth standard were selected randomly selected. After written consent, signed by their parents /class teacher, a detailed interview was conducted on World Health Organization (WHO) adopted, pretested, validated questionnaire. Each questionnaire was consisting socio-demographic profile, Physical examination, anthropometric measurements,dietary practices and health profile regarding last year illness. Data was collected after a training of data collectors by Principal investigator prior to start the study. Ethical consideration was taken from Institutional Review Board (IRB) of Health Services Academy Islamabad.

Results: A total of 422 students were selected from four GPSs of Qasimabad. 217 (51.4%) were boys and 205 (48.6%) were girls (Table:1)

Table 1: Number and percentage of participants in Government Primary Schools

S No:	Name of school	Boys (%)	Girls (%)	Total (%)
1	GPS Shahbaz Town	83(57.2)	62(42.8)	145(34.3)
2	GPS BachalChandio	30(30)	70(70)	100(23.7)
3	GPS Shoro Goth	50(82)	11(18)	61(14.5)
4	GPS Peon Coloney	54(46.6)	62(53.4)	116(27.5)
Total		**217(51.4)**	**205(48.6)**	**422(100)**

The residential status of 329 (78%) were urban and 93 (22%) were belong to rural areas by birth. Parental occupation of 134 (31.8%) students was government servants and parents of 288 (68.2%) students were having private work or earn daily wedges. Government servants mostly were doing job like driver, peon, naibqasid, watchman, police constable and clerk. While parents were laborers, massons, shopkeepers, barbers, milk dispatchers and tea shop (dhaba) owners were categorized in private work.

Fathers of 106 (25%) pupils were illiterate and 316 (75%) were literate of which 165 (52.2%) had passed their primary, 111 (35.2%) were matriculated and 40 (12.6%) were graduated.

Where as literate mother was seen in 190 (45%) of study population among them 166 mothers (87%) were primary passed, 20 (11%) and 4 (2%) were matriculated and graduated mothers respectively. Remaining 232 (55%) participant's mothers were illiterate.Most of participants belonged to low and middle socioeconomic class. The mean income per month of participant's father/caregiver was Rs: 14681.27(±SD 7943.46).The Mean value of Mid Upper Arm Circumference (MUAC) was 17.57 cm (±SD 2.34) in whole study population. Gender wise in boys the MUAC Mean was 17.07 cm (±SD 1.96) and in girls Mean MUAC was 18.10 cm (±SD 2.59).the mean weight of study population was 26.03 Kgs (±SD 6.64) with the minimum value of 13.60 Kgs and the maximum value of 48.10 Kgs. While the mean weight of boys was 25.27Kgs (±SD 6.17) and in girls the mean weight was 26.83 Kgs(±SD 7.03). Total of study population were 5-10 years (whom WA z-score are available in WHO References 2007), 46 (18.3%) were underweight. Gender wise underweight was more seen in girls 18.7% (20) than in boys 17.9% (26). Thinness (BMI for age) was seen normal in 86.3% (364) and in 13.7% (58) thinness was present, out which 4.5% (19) were severely thinned.Regarding to illness in last year 341 (80.8%) were replied yes, and 81 (19.2%) said that, they were all right. The Mean BMI in the subject population was 15.42 (±SD 2.02) with the minimum value of 10.70 and maximum of 25.60. Boys were having the average of15.30 (±SD 1.84), while girls were at the average of 15.53. The physical examination revealed that, the prevalence of Pallor in the study population was 25.8% (109). Xerosis was present in 5.5% (23). Bitot's spots were observed in 2.6% (11), Koilonychia was absent in all 422 (100%) pupils, 33.9% (143) were having Dental caries, Mottled enamel was seen in 23.2% (98) participants and BCG vaccination mark was present in 59.2%(250) students (table 3).

Table 2: Sociodemographic characteristics of the study participants

Variables		Percentage (numbers)
Child's father education	Literate	316 (75)
	Illiterate	106 (25)
Child's Mother education	Literate	190 (45)
	Illiterate	232 (55)
Monthly income	14681.27 Mean	(422)
Age	5-6 years	16
	7-8 years	112
	9-10 years	124
	11-≥12 years	170
Age group wise mean weight	5-6 years	16
	7-8 years	112
	9-10 years	124
	11-≥12 years	170
Under weight Children	Boys	17.9(26)
	Girls	18.7(20)
Thinness BMI for age	Present	13.70(58)
	Absent	86.30(364)
Illness in last year	Reported ill	81(341)
	All right	19(81)
Age wise stunting	5 – 6 years	5
	7 – 8 years	23
	9 – 10 years	23
	11 – ≥12 years	52

Pallor was more observed in 5-6 years age group 56% and in 11-≥12 years age group 30%. Dental caries were also more seen in 5-6 years (43%) and were less seen in 11-≥12 years (28%). BCG vaccination mark was present higher in 5-6 years 75% as comparatively was less in 11-≥12 years age group.Stunting was statistically significance in girls (9-10 years) 16, out of 58 girls were stunted (p value=.015, CI: .118-.823) as compare to boys, who were 7, out of 66 were stunted. Stunting was also statistically significant in girls (11-≥12 years) present in 37, out of 98 (p value=.018, CI: .215-.874) as 15 out of 57 were having stunting. Thinness or BMI for age was also significance who were doing insufficient breakfast as 57 out of 347 were having <-2 SD BMI for age (p value=.002. CI: .033-.584) as who were doing sufficient breakfast seen in 2 out of 75 (table-2). Stunting was seen significantly associated in 97 out of 347, who were doing insufficient breakfast (p value<.001, CI: .094-.533) as compare to sufficient breakfast, in which 6 were stunted out of 75.Prevalence of Stunting (HA) in study population was present in 103 (24.4%). Gender wise prevalence of stunting of boys was seen in 18.9% (41), but in girls stunting was present in 30.2% (62), which is statistically significance (p value=0.007, CI:.384-.844).

Table 3: Gender wise distribution between boys and girls

Physical examination			
	Boys	**Girls**	**p value**
Pallor	37	72	<.001[*]
Xerosis	9	14	0.225
Bitot's spots	7	4	0.411
Koilonychia	0	0	
Dental caries	88	55	0.003[*]
Mottled enamel	60	38	0.027[*]
BCG mark	116	134	0.013[*]

*Significant p value

Mean height of study population was 129.19 cm (±SD12.74) with the minimum height of 95.00 cm and the maximum height of 167.10 cm. In the Boys Mean height was 128.09 (±SD 12.90) and in Girls the value of Mean height was 130.36 (±SD 12.50). The age group wise Mean height is given in Table: 9.
Dietary Practices:
Breakfast was categorized in two, one was sufficient breakfast consisting; egg, cereals, bread/roti, tea. And second category insufficient breakfast had; Rusk/biscuits, roti/bread and tea. 75 (17.8%) were doing sufficient breakfast and 347 (82.2%) were doing insufficient breakfast. 21.2% (46) boys were doing sufficient breakfast and 78.8% (171) were on insufficient breakfast. In girls 85.9% (176) were doing insufficient breakfast and 14.1% (29) were doing sufficient breakfast.Eating fruits regularly were told by 364 (86.3%) either bought by themselves or brought by their parents and 58 (13.7%) were denied to eat fruits. 276 (65.4%) replied yes to drink milk regularly especially before sleeping at home and 146 (34.6%) did not drink milk because of reasons, more common was their parents/caregiver could not afford it.

Discussion

Study has observed most of the students were having late enrolment in all four Government primary schools which were included in the study. Study shows with similar findings [5]. The socio demography of Bangladesh is almost same as in context of Pakistan so there were almost same findings of stunting seen as in present study [6,7,8]. A community based survey was conducted among school going children in Addis Ababa Ethiopia. Results showed 19.6% and 15.9% were stunted and underweight respectively. That findings near to our study findings although in Ethiopia poverty and food security are problems but in our study low socio economic status might be cause of same findings. In above said study underweight increase significantly with an increase in age, family size, and order of birth and in the absence

of hand washing facility [9,10]. As study conducted among primary school going children of Lahore aged 5-12 year were participated in that study, 32% children were found under nutrition or thin [11]. A study done on prevalence of malnutrition among primary and secondary school children in Bangalore, India [12,13,14]. After seven days trail order was reversed, results of measurement of cognitive function showed self reported alertness improved significantly in whole study population, and male participants were feeling more positive after eating breakfast [15]. Physical examination of pupil revealed that pallor was more in girls 17%. Bitot's spots and dental caries were more in boys 11.3% and 20.8% respectively. In NNS 2011 62% children are anemic under five which more than double as in study pallor was seen in 25.4%. According to NNS-2011, nutritional status is slightly better in urban areas as compare to rural areas and boys are better with their nutritional status than in girls. Regarding PDHS 2012-13 food security, poverty and illiteracy in women are main factors in malnutrition.

Conclusion

The study concludes that nutritional status of government primary school going children was not good enough as stunting, underweight and thinness is 24.4%, 15.3% and 13.7% respectively. Late enrolment of students in all four government primary schools was seen particularly in girls, whom mean age was 118.09 months (±SD 27.78). Pallor was present more in 72 (35.1%) girls. BCG vaccination mark was present in just more than half of the students (59.2%). Other contributing factors in malnutrition like low socio-economic status, illiteracy in parents, dietary pattern, food insecurity, poor health services and lack of micronutrients are major problems.

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