

Assessment of Nutritional Status of Pre-School Children's of Bangalore Urban

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Abstract- Malnutrition is the major cause of death among children of under 5 year age groups. WHO says around 45% of deaths among children of under 5 years age group are due to underweight and it mostly occur in low and middle income countries. At the same time in these countries the rates of childhood overweight and obesity are also said to be increasing. The developmental, economic, social and medical impacts of the global double burden of malnutrition are serious and lasting, for individuals and their families, for communities and countries. The objectives of this study was to assess the nutritional status of pre-school children and knowledge of parents about nutrition and hygiene practices and to assess the influence of socio-economic status of family on nutritional status of the child. A sample of 50 boys and 50 girls belonging to 3-4 years age group were selected. The anthropometric measurements like height, weight, BMI and MUAC of pre-school children were taken and noted. The general information, economic status and knowledge, attitude and practice based questionnaire was distributed to pre-school children parents. Findings of the study showed that Majority of the boys and girls weight was normal. Higher percentage (86%) of boys were having healthy weight when compared to girls (66%). Very low percentage of boys (18%) and (6%) girls were short for their age. Very low percentage of boys and girls fall in the category of underweight (10%, 6%) overweight (8%, 6%) and obese (2%) category. The MUAC of pre-school boys and girls obtained shows 98% were healthy and 2% were overweight and (96%) are healthy and (4%) are overweight. When knowledge, attitude and practices of parents assessed showed that 82% of parents had a good knowledge about nutrition and hygiene but they lack the positive attitude and practices. It can be concluded that nutritional status of girls has improved over time and is showing a positive results. There is little or no significant difference between socio-economic status and nutritional status. The improved educational qualifications, purchasing capacity and overall quality of life in recent year's shows improved nutritional status.

Key words: Socio-economic status, Anthropometry, Mid-upper arm circumference, Body mass index (BMI).

INTRODUCTION:

Malnutrition literally means poor nutrition and technically includes both under and over nutrition. In the context of developing countries, under nutrition is generally the main issue of concern especially in pre-school children and infants. Though industrialization and the change in eating habits have increased the prevalence of over nutrition. The term malnutrition addresses 3 broad group of conditions under nutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age) micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess and overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and some cancers). Prevalence in India: According to the Press Information Bureau Delhi which posted a page on "Malnutrition among Child" on 16th March 2022, The estimated prevalence of underweight, malnourished and severely malnourished children under 5 years of age is obtained under National Family Health Survey conducted by the Ministry of health and Family Welfare. According to the reports of the NFHS-5 (2019-21) the nutritional status of children under 5 years have improved when compared with NFHS-4 (2015-16). According to the comparison report between NFHS-5 (2019-21) and NFHS-4 (2015-16), stunting, wasting and underweight prevalence has reduced from 38.4% to 35.5%, 21.05 to 19.3% and 35.8% to 31.2% respectively. Government has granted a high priority to address the issue of malnutrition and is also implementing several direct target interventions and schemes like Anganwadi services, Pradhan Mantri Matru Vandana Yojana (PMMVY), Scheme for Adolescent Girls, Nutritional Rehabilitation Centres for severely malnourished children's established by Ministry of Health and Family Welfare and Umbrella Integrated Child Development Services (ICDS) schemes, Poshan Abhiyaan launched on 8th March 2018 and much more schemes to reduce malnutrition in the Country. Globally: According to World Health Organization (WHO) Globally in 2020, 149 million children under 5 years were estimated to be stunted (too short for age), 45 million were estimated to be wasted (too thin for height) and 38.9 million were overweight or obese. WHO says around 45% of deaths among children of under 5 years age group are due to underweight and it mostly occur in low and middle income countries. At the same time in these countries the rates of childhood overweight and obesity are also said to be increasing. The developmental, economic, social and medical impacts of the global double burden of malnutrition are serious and lasting, for individuals and their families, for communities and countries. Prevalence in Karnataka: As per the reports released by Union Ministry Of Health and Family Welfare in 2019, Karnataka is said to have 35.2% of children under age of five were underweight and 36.2% children were stunted. As per Niti Aayog data (August 2021) nearly 3.5 lakh children were moderately malnourished and about 8,000 were severely malnourished in Karnataka. Later when the

state government conducted a morbidity screening in 2021 in view of pandemic almost similar results were obtained as Niti Aayog data. According to the article published by Deccan Herald in 26th March 2023 Niti Aayog identified 112 districts with highest rate of malnutrition and also having the lowest composite indicators in terms of health, nutrition, education, agriculture, financial inclusion, skill development and basic infrastructure. Out of 112 districts identified by Niti Aayog Yadgir alone contains 64% of children under age of three were either stunted, wasted or underweight. According to Karnataka Human Development Report 2022 at Yadgir, Haveri, Kalaburgi, Raichur, Koppal, Ballari, Bidar, Gadag, Bagalkot and Vijaypur Districts are facing poverty and malnutrition as major challenge. Kalaburgi, Raichur, Yadgiri, Koppal, Ballari, Bidar and Gadag Districts are where the nutrition is a concern.

MATERIALS AND METHODS

The study was conducted in urban part of Bengaluru, Karnataka. A total of 50 subjects of boys and 50 subjects of girls belonging to 3-4 year age group were taken in the study. The pre-school children with age of 3-4 year with any major medical conditions (eg. Juvenile diabetes, Congenital heart diseases) were excluded from the study. Anthropometric measurements like Height for age, Weight for age, BMI and Mid-upper arm circumference of pre-school children's were taken. A complete K/A/P questionnaire was developed and distributed to parents to extract information on numerous topics such as General information's, Socio-economic status, Educational level and qualifications of parents and knowledge, attitude, practice towards food, nutrition, hygiene and sanitation. A systemic closed-ended questionnaire was created and the subject's parents were instructed on the study before the questionnaire was distributed.

STATISTICAL ANALYSIS

The graph was plotted (CDC -2022) to assess the height for age and weight for age and BMI. For assessing socio-economic status modified kuppaswamy scale (2022) was considered. Statistical analysis included coding and decoding the questions, and the same was subjected to statistical analysis. Data were then classified, tabulated and expressed as means, standard deviations and percentages.

RESULTS AND DISCUSSION

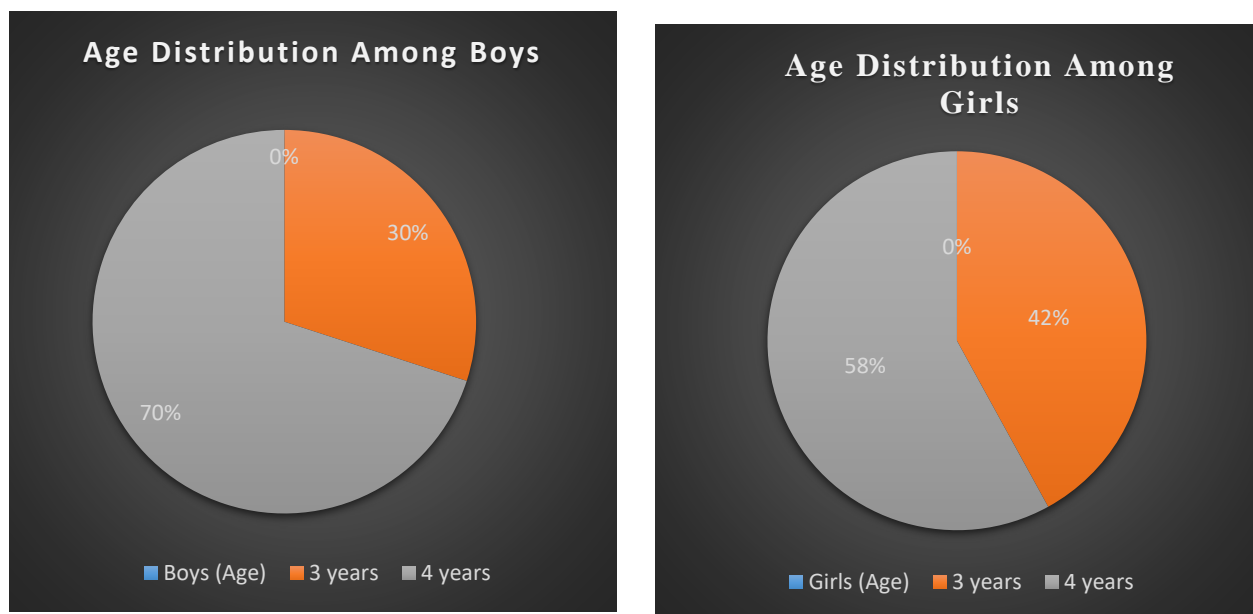


Figure-1: Age distribution among pre-school children's (3-4 years)

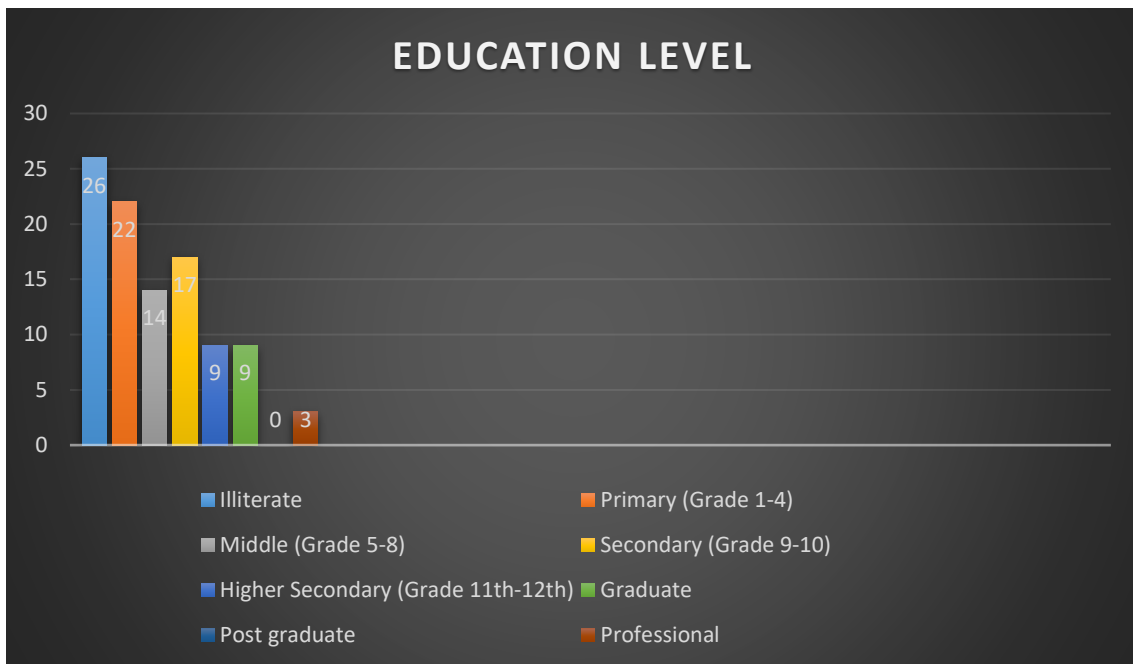


Figure-2: Level of education among pre-school children's parents

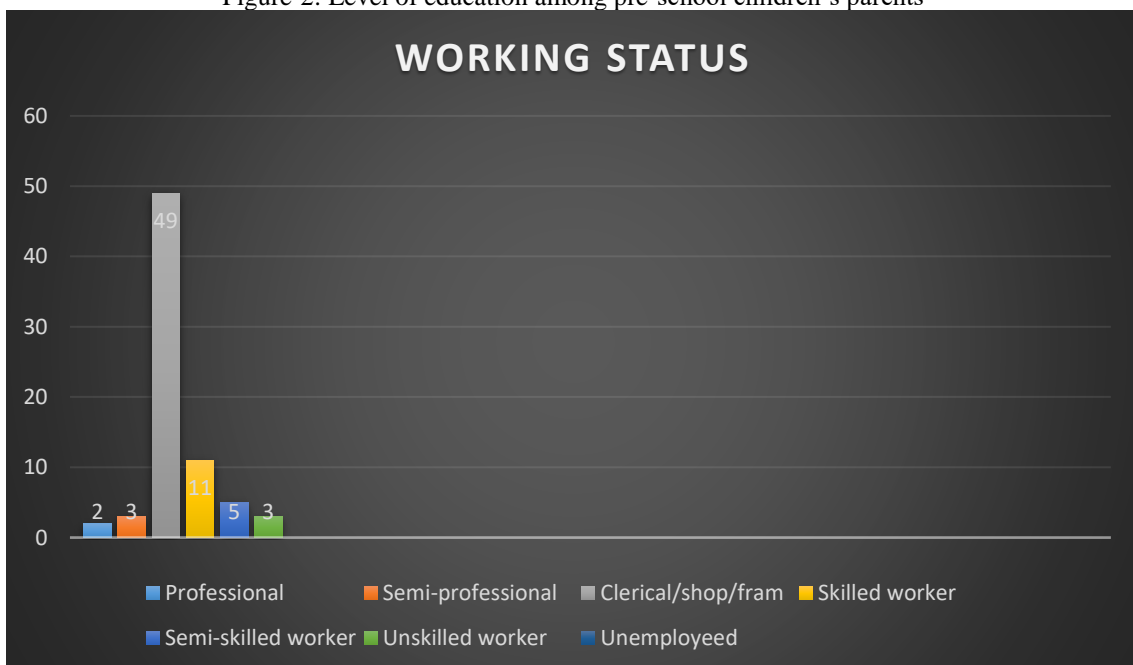


Figure-3: Working status

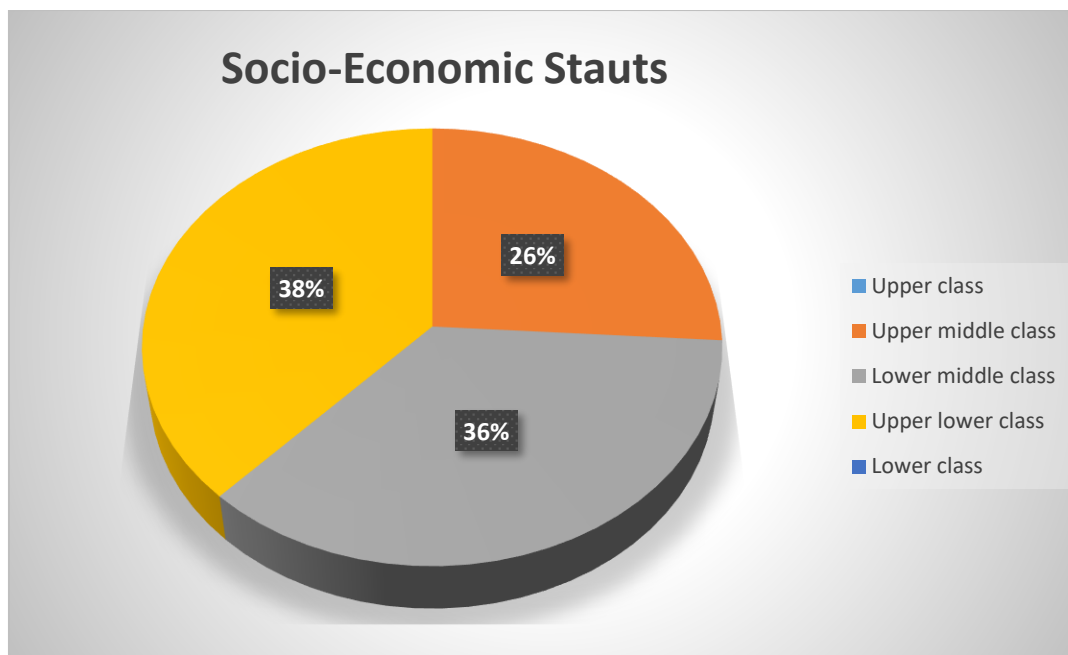


Figure-4: Socio-economic status

Figure 1, 2, 3 & 4 reveals that the higher percentage of subjects (64%) belong to age group 4 years and (36%) of subjects belong to the age group 3 years. The higher percentage of subjects parents are illiterate (26%) followed by primary grade (22%) and only (9%) were graduates. Higher percentage of the respondents working status is clerical/shop/farm (49%). The equal representation of nuclear (49%) and joint (50%) family was observed among the respondents. Majority of the respondents were vegetarian (67%) followed by non-vegetarian (30%), vegan (3%) and ova-vegetarian (0%), by this it can be assumed that child's protein status may be low. The higher percentage of the respondents belongs to upper-lower class (38%) followed by lower middle and upper middle class.

TABL-1 Anthropometric Status of Children's

Anthropometric measurements (Boys)	N	Mean	Standard Deviation	Significance Of P value
Height	50	98.4	5.08	0.931
Weight	50	14.7	1.50	0.868
BMI	50	15.15	1.00	0.938
MUAC	50	18.8	0.80	0.844

Anthropometric measurements (Girls)	N	Mean	Standard Deviation	Significance Of P value
Height	50	100	4.23	0.540
Weight	50	15.4	1.85	0.459
BandMI	50	15.32	1.44	0.883
MUAC	50	18.78	0.84	0.697

Table-1, reveals the mean height, weight, BMI and MUAC values of the subjects. The mean height among boys and girls was 98.4 cm and 100 cm. The mean weight among boys and girls was 14.7 kg and 15.4 kg. The BMI was 15.15 kg/m² and 15.32 kg/m² respectively. The mean MUAC measurements was 18.8cm and 18.78cm respectively. The P value obtained using independent t test shows p value is <0.05 consider as statistically significant. There is no significant difference in anthropometric measures of pre-school boys and girls.

TABLE-2 COMPARISON OF NUTRITIONAL STATUS OF PRE-SCHOOL BOYS AND GIRLS (3-4 YEARS)

BOYS	N	%	GIRLS	N	%
HEIGHT			HEIGHT		
Short	9	18.0	Short	3	6.0
Healthy height	34	68.0	Healthy height	27	54.0
Over growth	7	14.0	Over growth	20	40.0
WEIGHT			WEIGHT		

Underweight	5	10.0	Underweight	2	4.0
Healthy weight	43	86.0	Healthy weight	33	66.0
Overweight	1	2.0	Overweight	13	26.0
Obese	1	2.0	Obese	2	4.0
BMI			BMI		
Underweight	5	10.0	Underweight	3	6.0
Healthy weight	41	82.0	Healthy weight	43	86.0
Overweight	4	8.0	Overweight	3	6.0
Obese	-	-	Obese	1	2.0
MUAC			MUAC		
Severe	-	-	Severe	-	-
Moderate	-	-	Moderate	-	-
Healthy	49	98.0	Healthy	48	96.0
Overweight	3	2.0	Overweight	2	4.0

Table-2, The nutritional status of pre-school boys and girls was compared and it shows, Majority of the boys and girls weight was normal. Higher percentage (86%) of boys were having healthy weight when compared to girls (66%). Very low percentage of boys (18%) and (6%) girls were short for their age. Very low percentage of boys and girls fall in the category of underweight (10%, 6%) overweight (8%, 6%) and obese (2%) category. The MUAC of pre-school boys and girls obtained shows 98% were healthy and 2% were overweight and (96%) are healthy and (4%) are overweight.

Table-3: Z SCORE FOR HEIGHT FOR AGE AND WEIGHT FOR AGE FOR BOYS AND GIRLS

BOYS	N	Z score for height for age	Z score for weight for age
3 years	15	1.56	-0.4
4 years	35	-2.13	-1.5

GIRLS	N	Z score for height for age	Z score for weight for age
3 years	21	3.0	2.17
4 years	29	-1.49	-1.63

Table-3, The results obtained shows that boys belonging to 3 years age group has z score height for age is 1.56 and weight for age is -0.4 this implies they have normal height for age and weight for age. The z score of 4 years age group boys shows -2.13 height for age and -1.5 z score for weight for age that implies that 4 year age group children are marginally stunted and has healthy weight. The results obtained for 3 years age group girls has z score of height for age is 3.0 and weight of age is 2.17 this implies they are well nourished. The z score of 4 years age group girls shows -1.49 height for age and -1.63 for weight for age this implies all the girls falling to age group of 4 years are normal for their height for age and weight for their age.

TABLE-4: KUPPASWAMY SCALE COMPARISON WITH NUTRITIONAL STATUS

Kuppaswamy scale (Boys)	N	Percent
26-29 UPPER	nil	nil
16-25 UPPR MIDDLE	13	26.0
11-15 LOWER MIDDLE	18	36.0
5-10 UPPER LOWER	19	38.0
<5 -LOWER	nil	nil
Total	50	100

Kuppaswamy scale (GIRLS)	N	Percent
26-29 UPPER	nil	nil
16-25 UPPR MIDDLE	13	26.0
11-15 LOWER MIDDLE	18	36.0
5-10 UPPER LOWER	19	38.0
<5 -LOWER	nil	nil
Total	50	100

Parameters	Mean	SD	P Value
Height			
Boys	98.46	5.08	0.93
Girls	100.0	4.24	0.54
Weight			
Boys	14.70	1.50	0.868
Girls	15.40	1.852	0.459
BMI			
Boys	15.15	1.007	0.983
Girls	15.32	1.440	0.883
MUAC			
Boys	18.82	0.800	0.84
Girls	18.78	0.840	0.697

Table-4, The results obtained for socio-economic status of boy's shows that 26% belonged to upper middle class, 36 % lower middle class and 38% upper lower class. The socio-economic status of girls shows that 26% belongs to upper middle class, 36% lower middle class and 38% upper lower class. When socioeconomic status and nutritional status was compared it showed there is little or no significant difference. There is an improvement in nutritional status in recent years as the purchasing capacity and over quality of life of an individual is showing a positive growth.

CONCLUSION:

The study has shown that majority of the boys and girls fall under healthy height and weight and very few boys and girls fall under underweight, overweight and obese categories. The nutritional status of girls has improved and is slightly better when compared with that of boys. The study reveals that the parents have a good knowledge but some lack positive attitude and practice about the food, food groups and hygiene and sanitation. Although highest percentage of parents were uneducated still they had a basic knowledge about what foods and food groups are good for their children's. The study also reveals that the socio-economic factors isn't majorly affecting the nutritional status of the children. Therefore it can be concluded that the increased urbanization, purchasing capacity , advanced and smart technologies and social media is bringing positive change in people's life thereby even illiterates are well also well aware of healthy foods and habits.

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