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Original Research Article

Community based descriptive study on assessment of nutritional status among preschool children Pullipakkam village, Tamil Nadu

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ABSTRACT

Background: Nutrition assessment is to obtain precise information on the prevalence of nutritional problems and identification of individuals at risk. 25.7% of Indian children under five years were underweight and 28.6% were stunted due to chronic under nutrition, India accounts for more than 3 out of 10 stunted children in the world. Under nutrition is substantially higher in rural areas. Hence, this study conducted. The objective of the study was to assess the nutritional status of preschool children (1-5 years) in Pullipakkam, field practice area of KIMSRC.
Methods: An observational study conducted in Pullipakkam from January 2017 to February 2017. 75 children aged 1–5 years were selected by simple random sampling. After getting informed consent from parents, Data were collected using structured questionnaire by interview method. Chi square test at 5% α were calculated by using SPSS 20V.
Results: Among 75 children, stunting (52.8%), wasting (62.3%), mid arm circumference less for age (13.3%). 73% had inadequate calories intake. There was no significant association ($p>0.05$).
Conclusions: The nutritional status of the children usually remains under question. Parents have to be properly health educated on balanced diet with locally available low cost foods has to given.

Keywords: Stunting, Wasting, Calories, Preschool children

INTRODUCTION

Nutrition by WHO: "The science of food and its relationship to heath, It is concerned primarily with the part played by nutrients in body growth, development and maintenance".[1] The nutritional status is influenced by the adequacy of food intake both in terms of quantity and quality and also by physical health of individual. The nutrition assessment is to obtain precise information on the prevalence and geographic distribution of nutritional problems of a given community and identification of individuals at risk.

Malnutrition is defined as pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients.[1] The effects of malnutrition on the community are both direct and indirect. The direct effects are subclinical nutrition deficiency diseases such as kwshiorkar, marasmus, vitamin and mineral deficiency diseases and indirect effects are high morbidity, mortality among young children and delayed physical and mental growth and development.[1]

From National Family Health Survey III, in India 7.6% of children under five years of age suffer from wasting due to acute under nutrition. More than one third of the

world's children who are wasted live in India.[2] 25.7% of Indian children under five years are underweight and 28.6% are stunted due to chronic under nutrition, India accounts for more than three out of every ten stunted children in the world. Under nutrition is substantially higher in rural than in urban areas.[2] The percentage of children severely underweight is almost five times higher among children whose mothers have no education than among children whose mothers have 12 or more years of schooling. India has the highest number of low birth weight babies per year at an estimated 7.4 million. Only 54.2% of newborns were put to breast within one hour of birth. Less than half of children (48.7%) under 6 months of age are exclusively breastfed. Only 31.7% children aged 6 to 23 months are fed appropriately according to all three recommended practices for infant and young child feeding.[2]

Despite recent achievement in economic progress in India, the fruit of development has failed to secure a better nutritional status among all children of the country. Hence this study attempt. The objective of the study is to assess the nutritional status of preschool children (1-5 years) in pullipakkam, field practice area of Karpaga Vinayaga Institute of Medical Sciences and Research Centre.

METHODS

We conducted Cross Sectional Study to assess nutritional status for children aged 1–5 years in Pullipakkam, Rural Health Centre, KIMS & RC from January 2017 to February 2017. The total no of children (1-5 years) in Pullipakkam were approximately 200. The required samples by minimum sample size determination for the population ranged 150-200 at 5% level of significance were 75, selected by simple random sampling.[3] Study participants aged 1 to 5 years were included in the study, after getting informed consent from parents. The children lesser than one year of age; the parents not given concern to participate were excluded.

Primary data were collected with structured questionnaire by interview method. The questionnaire contains variables such as age, sex, education and occupation of parents, family income, SES, breast feeding, EBF, weaning, immunization etc. The children were examined, hair, face, eyes, teeth, gums, skin, neck, nails etc. The anthropometric measurements such as weight (kgs), height (cm), mid arm circumference (cm), head and chest circumference (cm) were measured. Assessment of dietary intake was administered by 24 hrs recall method.

Calculation of anthropometric measurements for age:

We used IAP classification to classify normal and abnormality.[1,4] The formulas were;

1. Weight for age= (age in years *2)+8. The scores were graded as normal ≥81, Grade I= 71-80, Grade II= 61-70, Grade III= 51-60 and Grade IV ≤50

2. Height for Age were classified as Normal ≥96 cm, Mild impaired= 87.5 cm-95 cm, Moderate impaired= 80 cm - 87.4 cm and severe ≤79 cm.

3. Mid arm circumference was categorized as normal = 13.5 cm, mild/moderate= 12.5 cm–13.5 cm and severe ≤12.5 cm.

The Calories were classified as adequate and inadequate for given age. Age 1-3 years= 1060 and 4-6 years= 1350 were considered as adequate calories for age.[1,4]

Statistical analysis

Data were analyzed using statistical software SPSS 20 v. Frequency and percentages were calculated and represented in tables and graph. Chi square test was calculated to find the association at 5% level of significance.

RESULTS

Among 75 Study participants 58.5% were female and 41.5% were male. Majority of parents completed their middle school and most of the fathers were skilled workers and mothers were home maker. Nearly 64% were in middle class families and 58.5% possess pakka houses (Table 1). Most of deliveries held in Govt. hospital 52.8% were born by caesarian section. Colostrums had given 88.7%. Nearly 67.9% regularly dewormed (Table 2).

The distribution of weight for age was 25.33% were in grade I, 16% were in grade II, and 10.67 % were in grade III, 1.33% in grade IV. Height for age was 44% were mild impaired and 18.67% were moderately impaired. 13% had mid arm circumference lesser value for their age majority of children consumed mixed diet (92.5%).

In our study there were adequate (26.7%) and inadequate (73.3%) calories intake among the study participants. Among the study participants 50% had wasting even they received adequate calories 54.5% had wasting among inadequate calories in takers ($p>0.05$). Because of they had suffered with recent episodes of acute illness.

60% participants had stunting even they had adequate calories intake. 63.64% had stunting among inadequate ($p>0.05$). 20% them had lesser mid arm circumference even had adequate calories and 11% lesser mid arm circumference among inadequate calories intake which was also not statistically significant. It was because of the children were not consuming balanced diet and some were suffering with repeated episodes of fever, bronchial asthma and febrile fits (Table 3).

Among mildly impaired by height forage, 30.3% had grade I, 9.09% had grade II and 12.12% had grade III wasting. Among moderately impaired children 35.71% had grade I, 28.57% had grade II, 21.43% had grade III and 7.17% had grade IV wasting (p>0.05) (Table 4).

Table 1: Demographic profile of study participants.

Variables	N=75	Percentage (%)
Sex		
Male	31	41.5
Female	44	58.5
Educational status of father		
Illiterate	3	3.8
Primary school	11	15.1
Middle school	27	35.8
High school	13	17
Dip/intermediate	11	15.1
UG/PG	10	13.2
Educational status of mother		
Illiterate	3	3.8
Primary School	3	3.8
Middle School	31	39.6
High School	15	20.8
Dip/Intermediate	8	11.3
UG /PG	15	20.8
Occupational status of father		
Unskilled	14	18.9
Semiskilled	15	20.8
Skilled	34	45.3
Clerical	4	5.7
Semiprofessional	1	1.9
Professional	7	7.5
Occupational status of mother		
Home maker	63	84.9
Unskilled	7	7.5
Semiskilled	1	1.9
Skilled	4	5.7
Socio economic status		
Lower	1	1.9
Upper Lower	21	28.3
Lower Middle	26	34
Upper Middle	23	30.2
Upper	4	5.7
Type of house		
Kutcha	7	9.4
Semi pakka	24	32.1
Pakka	44	58.5
Family type		
Nuclear family	38	50.9
Joint family	26	34
Extended family	11	15.1

Table 2: Birth details and feeding practices of the study participants.

Variables	N=75	Percentage (%)
Mode of delivery		
Normal	35	47.2%
LSCS	40	52.8%
Place of delivery		
Govt. hospital	59	79.2%
Private hospital	16	20.8%
Preterm delivery	6	7.5%
Term delivery	69	92.5%
Birth spacing		
1–2 years	43	57%
3–4 years	30	40%
>5 years	2	3%
Birth weight		
<2.5 kg	16	21%
>2.5 kg	59	79%
Breast feeding		
Adequate	29	38%
Inadequate	46	62%
Colostrums		
Given	67	88.7%
Not Given	8	11.3%
Weaning practices		
Proper weaning	41	54.7%
Improper weaning	34	45.3%
Calories intake		
Adequate	20	26.7%
Inadequate	55	73.3%

Table 3: Calories intake with anthropometric measurements of study participants.

Variables	Adequate N (%)	Inadequate N (%)	Total N (%)
1. Weight for age*			
Normal	10 (50)	25 (45.45)	35 (46.67)
Grade I	5 (25)	14 (25.45)	19 (25.33)
Grade II	3 (15)	9 (16.36)	12 (16)
Grade III	2 (10)	6 (10.91)	8 (10.67)
Grade IV	0	1 (1.82)	1 (1.33)
2. Height for age*			
Normal	8 (40)	20 (36.36)	28 (37.33)
Mildly impaired	8 (40)	25 (45.45)	33 (44)
Moderately impaired	4 (20)	10 (18.18)	14 (18.67)
3. Mid arm circumference for age*			
Normal	16 (80)	49 (89.09)	65 (86.67)
Mild/moderate	1 (5)	3 (5.45)	4 (5.33)
Severe	3 (15)	3 (5.45)	6 (8)

*p>0.05.

Table 4: Weight for age vs height for age.

WT vs. HT	Normal N (%)	Mildly impaired N (%)	Moderately impaired N (%)	Total N (%)
Normal	18 (64.29)	16 (48.48)	1 (7.14)	35 (46.67)
Grade I	4 (14.29)	10 (30.3)	5 (35.71)	19 (25.33)
Grade II	5 (17.86)	3 (9.09)	4 (28.57)	12 (16)
Grade III	1 (3.57)	4 (12.12)	3 (21.43)	8 (10.67)
Grade IV	0	0	1 (7.17)	1 (1.33)
Total	28	33	14	75

DISCUSSION

In this study, most of children had a decreased in weight (53.33%) and height (62.67%) for their age and girls deprived than boys.[7,8] Yadav et al found 41.3% were under weight and 14% were severely underweight.[7] There were an increased number of children taking food from Anganwadi, this was correlated with Rajesh et al.[10] Mohamad et al found that 32% was under nourished it had association with maternal literacy and family members.[9]

Katyal et al found that 48% to 74% malnourished in under five age group.[11] Panigrahi et al found that there were 23.3%, 57.4% and 45.4% of children have wasting, stunting and underweight respectively.[12] Prevalence of wasting 52% and stunting 62% Which was higher than existing studies, Prevalence of all kind of under nutrition was more among boys than girls.[13]

The prevalence of under nutrition 66.5% among them grade I 46.2% more common in male (76.9%) than females (56.3%) had association with SES and breast feeding practices.[14]

Bhuvaneswari et al found that prevalence of moderate stunting and moderate wasting was 52.8% and 47.2%, severe stunting and wasting was in 15.2% and 19.6% children respectively and was no significant age wise or sex wise difference statistically in prevalence of under nutrition.[15] Preschool children were consuming diet which was inadequate 73% with respective energy, fat, iron, vitamin A and C. The prevalence of under nutrition was high as was found.[16]

CONCLUSION

In spite of several health programs offered by the Government of India, the nutritional status of the children usually remains under question. Nowadays, children forced to go to preschool at age 2 years, so they could not able to utilize the complete benefits of Anganwadi. Hence, parents have to be properly health educated on balanced diet with locally available low cost foods has to given.

Limitation

The nutritional assessment based on six domains, in this study we assessed anthropometric measurements and 24 hours diet recall method. It would have been better, assessed all other domains to establish significant results.

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