Original Research Article

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Assessment of nutritional status and preference of nutritional supplements among anganwadi children

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ABSTRACT

Background: Integrated Child Development Scheme (ICDS) was launched in India during 1975, to tackle the high prevalence of malnutrition among under 5 children. NFHS 3 (2005-06) reports that only 33% of ICDS services were utilized by them. To ensure the effectiveness of the scheme, nutritional status of under 5 children and the form of nutritional supplement - either Hot Cooked Meals (HCM) or Take Home Ration (THR), preferred by the beneficiaries must be assessed.

Methods: A Cross sectional study was done among under 5 children in 2015 for a period of 2 months, in three randomly selected villages, Rural Field Practice Area, Sri Venkateshwaraa Medical College Hospital & Research Centre, Puducherry. Weight and Height were measured for all the eligible children using standard procedures. World Health Organization (WHO) growth standards were used to assess their nutritional status. The mothers were enquired about the nutritional supplement utilization, type of nutrition supplement (HCM/THR) utilized by their children and the reasons for preference. Statistical significance was assessed by chi-square test.

Results: Among 153 children enrolled, 138 (90%) were consuming HCM and 15 (10%) were THR utilizers. The overall prevalence of under nutrition was 59%. The prevalence of underweight, stunting and wasting were 28%, 28% and 38.5% respectively and it was found significantly (p value <0.05) higher among THR utilizers (74%, 60% and 53% respectively) than those receiving HCM (25%, 36% and 23%).

Conclusions: HCM was preferred more than THR. The children receiving HCM were better nourished than THR utilizers.

Keywords: Undernutrition, ICDS, Nutritional supplement

INTRODUCTION

Nutritional status of children is an indicator of nutritional profile of entire country. In India, among under 5 children under nutrition is found to be the major public health problem. 2

According to the National Family Health Survey (NFHS-3) data, lack of proper nutrition is particularly a serious problem in rural areas.³ The major outcome of under

nutrition during childhood is that, it disturbs the normal psychological and intellectual development and results in morbidity and mortality.⁴

The rapid survey of children data by UNICEF in 2013 based on anthropometric assessment, reported the prevalence of underweight, stunting and wasting in India to be 31.7%, 37.2% and 15% respectively.⁵

The three most commonly used anthropometric indices to assess the nutritional status of children are weight for age,

weight for height and height for age. World Health Organization (WHO) recommends the usage of growth chart with z – score classification to assess the nutritional status of under 5 children. To improve the nutritional status, Government of India, has taken various measures, one among them is provision of nutrition supplements under Integrated Child Development Services (ICDS) through Anganwadi centre, since 1975.

ICDS was launched in India, as a unique programme for women and child care. Nutrition supplement is given either in the form of Hot Cooked Meals (HCM) or Take Home Ration (THR). For children in the age group of 6 months to 6 years, the supplement provides 500kcal/day and 12-15 grams of protein/day. For severely malnourished children the nutritional supplement provided 800 kcal/day and 20-25 grams of protein/day.⁷

Even after four decades of implementation of ICDS programme, NFHS 3 reports only 33% of children under 6 years utilize any form of services, and under nutrition still, exists as public health challenge. Thus the study was planned as it has become necessary to determine the prevalence of under nutrition and to the find out the reason(s) for non-utilization of nutrition supplement and the type of supplement utilized with the reason(s) for preference.

METHODS

After Institutional Scientific and Ethical clearance, a cross sectional study was conducted in 2014, for a period of 2 months, in the field practice area of rural health training centre (RHTC), Sri Venkateshwaraa Medical College Hospital & Research Centre (SVMCH & RC), Puducherry. Out of 6 villages under service area of RHTC, 3 villages were selected by simple random sampling method. Children in the age group of 1-5 years residing in the study area, not seriously ill, present at home at least during one of three house visit, whose parent/care taker consented to participate their child in the study were considered eligible for the study. The total number of children residing in the study area was 153 and, all of them were eligible hence considered as study participants. Considering the prevalence of under nutrition in Tamil Nadu to be 66.5% (p =66.5%, q =33.5%, d =9%, non-response rate =20%), the minimum required sample size came as 120, since only 153 eligible children were in the study area, all of them were included in the study.

Mothers were enquired about the ICDS nutritional supplement utilization, type of supplement utilized and reason for preferences. To the study population, anthropometric assessment was done following standard methods. Weight was measured with Tarring weighing scale and was recorded to nearest 0.1 kg. Height was measured with standard inch tape and was recorded to the last completed 0.1 cm. World Health Organization (WHO) Growth Chart was used to classify under

nutrition based on z-score values. Any child, was considered to be undernourished if, he/she had values plotted in the growth chart, as follows

Weight for age < -2SD = Underweight Height for age < -2SD = Stunting Weight for height < -2SD = Wasting

Data was entered in Microsoft Excel and analysed with SPSS 23. Frequency, proportion, means and standard deviation was used for descriptive parameters. Chi square test was applied to find out the statistical significance.

RESULTS

Out of total 153 children enrolled, majority (77.2%) of the children were in the age group of 2-5 years. The mean age was 3 ± 1.6 years. Fifty seven percent of the children were boys. Most (92%) of them were Hindu and nearly half (44.5%) of them belonged to Class III socio – economic status, according to modified BG Prasad classification (Table 1).

Table 1: Socio-demographic details of the study participants (n=153).

Socio demographic parameter	N(%)
Age	
< 2 years	35(23.1)
2 – 5 years	118(77.2)
Sex	
Boys	87(56.8)
Girls	66(43.2)
Socio economic status	
Upper (I)	17(11.1)
Upper middle(II)	33(21.6)
Lower middle(III)	68(44.5)
Upper lower(IV)	29(18.9)
Lower(V)	6(4.1)
Religion	
Hindu	141(92.3)
Muslim	3(2.2)
Christian	9(6.3)

Table 2: Association of gender and nutritional status among study population (n=153).

Gender	Normal (%)	Under nutrition (%)	Total (%)
Boys	33 (54)	54(60)	87(57)
Girls	30(46)	36(40)	66(43)
Total	63	90	153

 $X^2=0.71$, p value > 0.05

Out of eligible children, fifty nine percent of them were undernourished, while forty-one percent were normal. Undernutrition was higher among male children (60%), but it was not statistically significant (p value > 0.05) (Table 2).

The overall prevalence of wasting was high (38.5%), as compared to underweight (28%) and stunting (28%) (Figure 1).

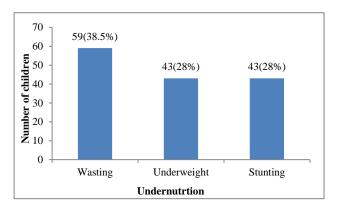


Figure 1: Profile of undernourished children (n=153).

All the children were receiving nutrition supplement. Majority (90%) of them, received HCM and rest were THR utilizers. Under nutrition was higher among THR utilizers (80%) than HCM utilizers (56%) and it was statistically significant (p value <0.05) (Table 3). Wasting, underweight and stunting among THR utilizers were 11 (74%), 9 (60%) and 8 (53%) respectively, while, it was 35 (25%), 26 (36%) and 32 (23%) among HCM utilizers (Figure 2).

Table 3: Association between nutritional status among HCM receivers and THR utilizers (n=153).

Study population	HCM receivers (%)	THR utilizers (%)
Normal	60(44)	3(20)
Undernourished	78(56)	12(80)
Total	138	15

 $X^2=7.3$, p value < 0.05.

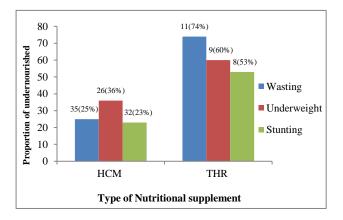


Figure 2: Distribution of undernourished children based on type of nutritional supplement utilized (n=153).

According to the caregivers of HCM utilizers, in addition to provision of free nutritious cooked food, the major reason for sending their wards to Anganwadi Centres (AWC) was provision of pre-school non formal education, taking care of their children from morning to evening, thereby, reducing the caregiver burden.

The three common reasons encountered by the caregiver of THR utilizers, for not sending their child to AWC to utilize HCM were, THR could be utilized for the cattle's feed, distance of AWC from their house was more, fear of carelessness in handling the child at AWC. It was also found that there was improper utilization of THR, as most often it is shared by all family members.

DISCUSSION

Under nutrition is one of the major causes of death among under 5 children.

The prevalence of under nutrition in our study was 59%. Anuradha et al observed the prevalence of under nutrition to be 66.5% in their study. This variation could be due to study area variability (rural-urban variation).

In this study, the prevalence of under nutrition was higher among male children (54%), however the association was not found significant [p value >0.05]. Thakur MS et al also observed higher prevalence of under nutrition among male children (67.1%) and the association was significant [p value <0.05].

In the present study, there was higher prevalence of wasting (38.5%) as compared to underweight (28%) and stunting (28%). Singh JP et al also observed the higher prevalence of wasting (60.67%) in their study.⁴

In this study, under nutrition was higher among THR utilizers (80%) as compared to those consuming, HCM (44%). Azara et al observed that there was significant weight gain with THR in malnourished child. With such controversial findings, conclusion could not be made regarding the effectiveness of THR. This could be overcome by conducting study, among larger population.

CONCLUSION

The prevalence of under nutrition was higher among THR utilizers. Inspite of THR being nutritionally equivalent to HCM given at AWC, the under nutrition is reported comparatively in higher proportion. This could be due to failure of proper utilization of THR at home. This problem can be tackled by means of Health education about the nutritive value of THR and it's role in prevention and control of malnutrition. The fear of carelessness in handling the child at AWC could be overcome by developing good rapport between Anganwadi workers and the caregiver of study population to gain their confidence.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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