

Utilisation of Supplementary Nutrition Service at Anganwadi Centres in a Block of Ganjam District, Odisha: A Cross-sectional Study

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ABSTRACT

Introduction: In India, the Integrated Child Development Services (ICDS) scheme provides a package of services to different groups of the target population. The Anganwadi Centre (AWC) is the focal point for delivery of these services. At AWCs, supplementary food is provided to children below six years, adolescent girls, pregnant women and lactating mothers.

Aim: To assess the pattern of utilisation of supplementary nutrition by the beneficiaries and to explore the factors leading to non utilisation of supplementary nutrition.

Materials and Methods: This was a cross-sectional study conducted from October 2016 to October 2018 in AWCs in Ganjam district, Odisha, India. Multistage random sampling was used to select the AWCs. By using table of random numbers, 24 AWCs were selected. From each AWC, 12 beneficiaries were selected randomly. So a total of 288 beneficiaries were selected. Out of 288 beneficiaries, 240 beneficiaries were eligible for

supplementary nutrition. Rates and proportions were calculated. The Chi-square test was used for testing association between variables.

Results: All the AWCs were providing supplementary food as per menu chart and were using standard measure for distribution of raw food. Supplementary food was consumed by 188 (78.3%) beneficiaries. The reason given by most of the respondents {28 (53.8%)} for non utilisation of supplementary nutrition was that they did not like the taste of the food. A statistically significant association was found between utilisation of supplementary nutrition and factors like education, socio-economic status and occupation of women.

Conclusion: Although supplementary nutrition was provided by all the AWCs, it was not consumed by some beneficiaries due to lack of variety, taste and bad quality of food. The Take Home Ration (THR) was shared among the family members resulting in dilution of the service.

Keywords: Anganwadi services, Hot cooked meals, Integrated child development services, Take home ration

INTRODUCTION

The ICDS scheme was launched on 2nd October 1975 by Government of India. The main purpose of this scheme was to improve maternal and child health [1]. The ICDS scheme provides a package of services to different groups of the target population comprising of children below the age of six years, pregnant women and lactating mothers, women in the reproductive age group (15-44 years) and adolescent girls (11-18 years). These beneficiaries receive integrated package of services like supplementary nutrition, preschool education, immunisation, health check-up, referral services and nutrition and health education. These services are provided through the frontline honorary workers called as Anganwadi Workers (AWWs). The AWC is the focal point for delivery of these services.

At AWCs, supplementary food provided is almost one-third of calories and half of protein requirements for each day. It is provided to children below six years, adolescent girls, pregnant women and lactating mothers. Supplementary food is provided for 300 days in a year which suggests six days per week or 25 days per month. The quantity of nutrition and type of meal differs according to the type of beneficiary. Nutrition supplement is given either in the form of Hot Cooked Meals (HCM) or THR [2].

By providing supplementary food, the anganwadi attempts to bridge the caloric gap between the recommended dietary allowance and average dietary intake. Highly malnourished children are under focus with special supplementary diet and referred to medical services for their betterment [3]. In spite of all these benefits, the utilisation of supplementary food is low. In India, supplementary nutrition is utilised by only 48% of children and in the state of Odisha it is utilised by 75% of children [4]. Thus, the present study was conducted in Ganjam district of Odisha to assess the pattern of utilisation of supplementary nutrition by the beneficiaries and to explore the factors leading to

non utilisation of supplementary nutrition. According to 2011 census, Ganjam district is the most populated district of Odisha. Majority of the people (78.2%) reside in rural areas. The major occupation is cultivation and agricultural labour [5].

MATERIALS AND METHODS

This was a cross-sectional study conducted from October 2016 to October 2018 for a duration of one year. Ethical clearance was obtained from Institutional Ethics Committee of Maharaja Krushna Chandra Gajapati Medical College and Hospital, Berhampur, Odisha, India. (Letter no. 505)

Sample size calculation: Sample size was calculated using the formula $4pq/12$. As per National Family Health Survey (NFHS) 4, the utilisation of any kind of service from anganwadi center by children less than 6 years of age was 78% [4]. Taking this as p, with confidence interval of 95% and an allowable error of 5%, sample size was calculated. Adding 5% non response rate, the sample size was estimated to be 288.

Inclusion criteria: The study population consisted of beneficiaries of ICDS belonging to six groups i.e., children aged six month to three years, children between 3-6 years of age, adolescent girls in the age group of 11-18 years, pregnant women, lactating mothers and non pregnant, non lactating women in reproductive age group (15-45 years).

Exclusion criteria: Those who were not willing to participate and those who were not available during the time of visit were excluded from the study.

Study Procedure

Multistage random sampling was used to select the AWCs. There are 22 blocks in Ganjam district. In the first stage one block i.e.,

Chatrapur was selected randomly by lottery method. Then a list of all AWCs in Chatrapur block was obtained. It was decided to include 10% of AWCs for the study purpose keeping in view the constraint of time. By using table of random numbers, 24 AWCs were selected out of 239 total AWCs in Chatrapur block. The beneficiary list was obtained from the AWW and from each AWC, 12 beneficiaries were selected randomly i.e., two beneficiaries from each group. So a total of 288 beneficiaries were selected from 24 AWCs. As the present study is a part of a larger study, out of 288 beneficiaries, 240 beneficiaries were eligible for supplementary nutrition.

Permission was obtained from Child Development Project Officer. In each of the selected AWC, AWW and Anganwadi Helper (AWH) were contacted. From the anganwadi registers, names of the twelve randomly selected beneficiaries (two from each group) belonging to different households were collected. The houses of beneficiaries were visited with the help of AWH. An informed consent was obtained in local language after explaining the purposes of the study. Three sets of questionnaires were used for data collection. The first set consisted of a checklist to assess the infrastructure and logistic at AWCs. The second was a pretested semi-structured questionnaire for service providers i.e., AWWs in local language. It had two parts, one regarding socio-demographic profile of AWWs and the other was regarding services provided by them (out of which six questions were regarding supplementary nutrition). Each AWW had to fill the questionnaire provided to them. The third set was a pretested semi-structured questionnaire for beneficiaries in local language. It had questions regarding socio-demographic profile of the beneficiaries, utilisation and satisfaction level of different services in the past six months. There were six questions regarding supplementary nutrition utilisation and reasons for non utilisation. The beneficiaries were verbally interviewed with the help of this questionnaire. In case of children aged six month to three years and 3-6 years, their mothers were interviewed. Modified BG Prasad scale was used to assess the socioeconomic status of the beneficiaries [6].

STATISTICAL ANALYSIS

The data were entered and were analysed using the statistical software Statistical Package for the Social Sciences (SPSS) version 17. Rates and proportion were calculated. The Chi-square test was used for finding the association. A p-value of less than 0.05 was considered to be statistically significant.

RESULTS

Morning snacks and HCMs as per weekly menu chart were provided in all AWCs (100%). All the AWCs (100%) were using standard measure for distribution of raw food. Only 20.8% AWCs were using standard measure for distribution of cooked food. In 4 AWCs (16.7%) there was interruption in providing supplementary food in the past six months [Table/Fig-1].

Provision for supplementary nutrition	Yes n (%)	No n (%)
Morning snacks and lunch as per menu chart	24 (100)	0
Use of standard measure for weighing of raw food	24 (100)	0
Use of standard measure for distribution of cooked food	5 (20.8)	19 (79.2)
Interruption of supplementary nutrition in last six months	4 (16.7)	20 (83.3)

[Table/Fig-1]: Activities related to supplementary nutrition at AWCs (N=24).

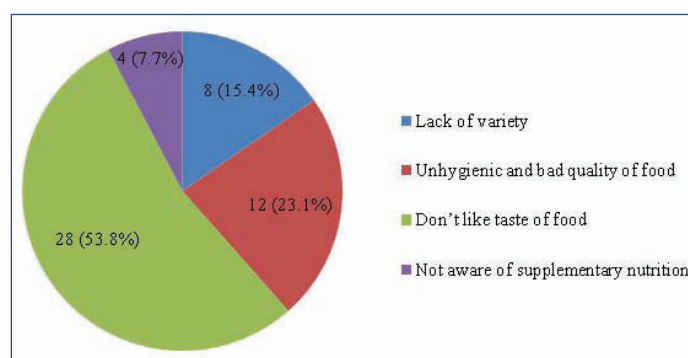
Out of total 240 recipients of supplementary nutrition 188 (78.3%) consumed it and among them all utilised the service for more than 21 days in a month. The consumption of supplementary food was least among adolescent girls [Table/Fig-2]. Children in the age group of 3-6 years were provided HCMs, whereas the rest were provided THR. Among the children aged six months to three years, two had severe acute malnutrition for which they were provided additional

calories and proteins in the form of THR. All those who were provided THR shared it with their family members.

Beneficiaries	Utilising n (%)	Not utilising n (%)
Children (6 months to 3 years)	40 (83.3)	8 (16.7)
Children (3 to 6 years)	41 (85.4)	7 (14.6)
Adolescent girls	34 (70.8)	14 (29.2)
Pregnant women	36 (75)	12 (25)
Lactating mothers	37 (77.1)	11 (22.9)
Total (N=240)	188 (78.3)	52 (21.7)

[Table/Fig-2]: Utilisation of supplementary nutrition. Beneficiaries in each group=48

The main reason cited for not using the services was that they didn't like the taste of food (53.8%) followed by unhygienic and bad quality of food (23.1%). This indicates that more emphasis should be given to improve the taste and quality of food [Table/Fig-3].



[Table/Fig-3]: Reasons for non utilisation of supplementary nutrition (N=52).

In the present study, statistically significant association was found between utilisation of supplementary nutrition and factors like education ($p<0.001$), socioeconomic status ($p=0.008$) and occupation of mothers ($p=0.003$) [Table/Fig-4].

Factors	Utilising n (%)	Not Utilising n (%)	p-value
Type of family			
Joint	116 (82.3)	25 (17.7)	0.077
Nuclear	72 (72.7)	27 (27.3)	
Socio-economic status			
Upper	6 (54.5)	5 (45.5)	0.008*
Upper middle	28 (65.1)	15 (34.9)	
Middle	40 (74.1)	14 (25.9)	
Lower middle	68 (85)	12 (15)	
Lower	46 (88.5)	6 (11.5)	
Education			
Illiterate	21 (52.5)	19 (47.5)	<0.001*
Primary	54 (75.0)	18 (25.0)	
Secondary	63 (87.5)	9 (12.5)	
≥Higher secondary	50 (89.3)	6 (10.7)	
Occupation			
Homemaker/Unemployed	122 (73.1)	45 (26.9)	0.003*
Working/Student	66 (90.4)	7 (9.6)	

[Table/Fig-4]: Association of supplementary nutrition utilisation with various factors (N=240).

*Chi-square test, *Significant association ($p<0.05$)

DISCUSSION

Supplementary nutrition was envisaged to provide the prescribed amount of calories and protein to the beneficiaries. In the present study, morning snacks and HCMs as per weekly menu chart were provided in all AWCs. All the AWCs were using standard measure for

distribution of raw food while only 20.8% AWCs were using standard measure for distribution of cooked food. Regarding regularity of supplementary nutrition it was found that four AWCs (16.7%) had interruption in providing supplementary food in the past six months. The supplementary nutrition was not provided for 4-5 days in the said AWCs because of engagement of the AWWs in other activities like pulse polio drives and attending meetings. When the standard measures are not used to distribute cooked food or when there is no continuity in distribution of supplementary food, the objectives of ICDS to provide nutritious food to the vulnerable group, especially children, pregnant women and lactating mothers are not fulfilled. Similar findings were obtained in studies by Saha M and Biswa R, in West Bengal and Dixit S et al., in Madhya Pradesh, where all the AWCs provided food as per weekly menu [7,8]. In another study by Dogra A, in Jammu only 36% AWCs followed weekly menu chart and 58% AWCs used standard measure for weighing raw food [9]. Studies by Singh Rathore M et al., in Rajasthan and Chudasama R et al., in Gujarat reported that there was interruption of supplementary nutrition in 27% and 47% AWCs, respectively [10,11]. While Singh Rathore M et al., has not mentioned the reason behind it, Chudasama R et al., has stated that the main reason for interruption in supplementary nutrition was shortage of supply of food material from the authority.

In the present study, supplementary nutrition was consumed by 78.3% beneficiaries and among them all consumed it for more than 21 days in a month. Supplementary nutrition was least utilised among adolescent girls (70.8%). It was also found that all the beneficiaries of THR shared the supplementary food with their family members. Supplementary nutrition aims at fulfilling the nutrition gap of the beneficiaries. If the utilisation of supplementary nutrition is not 100%, ICDS cannot achieve its objective of bridging the calorie gap between recommended dietary allowance and average dietary requirement of the vulnerable target population. Khan AA et al., in his study in Uttar Pradesh reported that, highest percentage of utilisation of supplementary food was among children aged six months to three years (63.6%) and lowest was among children aged 3-6 years (6.8%). In the same study, 25.8% pregnant women, 17.5% lactating mothers and 24.2% adolescent girls utilised supplementary nutrition [12]. In studies by Joseph JE and Mathew S in Kerala and Alim F and Jahan F, in Uttar Pradesh 75% of children had received supplementary nutrition through ICDS [13,14]. In another study by Prinja S et al., in north India 83.6% children took away the supplementary nutrition provided at AWC [15]. Thus, there is better utilisation of supplementary nutrition in the present study as compared to studies conducted in other parts of the country.

Different reasons were given by beneficiaries for not consuming supplementary nutrition. The main reason cited was that they didn't like the taste of food (53.8%). In a study conducted by Biswas AB et al., in West Bengal, improper cooking (45.9%) and poor quality material (44.7%) were most common reasons for non acceptability of supplementary nutrition. The least common reason cited was lack of variety in food (8.9%) [16]. During an impact assessment of ICDS in Madhya Pradesh, 24.9% pregnant women and 7.6% lactating mothers mentioned that there was no one at home who can go and take food from AWC [17]. Hence, to increase the utilisation of supplementary food, the taste and quality of food should be improved, keeping the nutritive value intact.

While analysing the factors affecting the consumption of supplementary food a statistically significant association was found between utilisation of supplementary nutrition and factors like education ($p < 0.001$), socio-economic status (SES) ($p = 0.008$) and occupation of mothers ($p = 0.003$). Khan AA et al., in his study found that among beneficiaries, 92.8% of literate mothers and 100% working mothers were utilising supplementary nutrition but there was no significant association [12]. Rather statistically significant association was found between

utilisation of supplementary nutrition and factors such as children of higher age group, female gender and lower caste [12]. In a study by Patni MM et al., there was no significant difference in utilisation of supplementary nutrition and working status of mothers where 30% working mother and 33.3% housewives were adequately utilising supplementary nutrition [18]. On the contrary, in the present study mothers with higher educational qualification and working mothers utilised the supplementary nutrition most. This may be due to the fact that literate and working mothers are aware about the benefits of supplementary food.

Limitation(s)

This study was restricted to only 10% AWCs of a block of Ganjam district. So, results of the study cannot be generalised.

CONCLUSION(S)

Although supplementary nutrition was provided by all the AWCs, it was not consumed by some beneficiaries due to lack of variety, taste and bad quality of food. Hence, emphasis should be given to improve the taste and quality of food, keeping the nutritive value intact. The THR was shared among the family members resulting in dilution of the objective of providing additional calories and proteins to the beneficiaries. So the mothers should be advised regarding the benefits of supplementary nutrition and THR. Supplementary nutrition should be provided without interruption to the beneficiaries as per norms, in order to improve nutritional status of the beneficiaries. It will also improve attendance at AWCs.

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