

Impact of nutrition garden on availability of Child nutrition requirement under Dibrugarh District, Assam, India

S.B. Saikia¹, D. Sharmah^{2*}, S. Baruah³, S. Sarma⁴ and S. Paul⁵

Krishi Vigyan Kendra (AAU), Dibrugarh, Assam, India

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ABSTRACT

In present day context fulfilling the nutritional requirement of a person as per RDA is lacking due to various reasons such as adulteration in food, lack of awareness in nutrition of food items, method of cultivation of crops, preparation of recipes which leads to under nutrition in many individuals in the society. The present study was conducted in 2019-20, 2021-22 in Dibrugarh district to find out the impact of nutritional garden in Anganwadi centres. The result of the study revealed an improvement in availability and utility of vegetables from the gardens for beneficiaries of the centres. The per capita availability of all the nutrients increased especially in protein from 4.54% to 50%. The knowledge level of anganwadi workers and helpers increased highest in post harvest management and value addition from 30% to 93% after attending training programme, awareness programmes and interactions with targeted beneficiaries. Establishment of nutrition garden in anganwadi centres contributes to nutrient availability above 50 % in protein, vitamin A & vitamin C and increased vegetable consumption (45.00 %) in the selected centres.

Key words: Nutrition garden, Anganwadi workers, Trainings and Nutrition

Introduction

Food the most essential thing for every human being needs proper management. All the vital nutrients such as carbohydrate, protein, fat, vitamins, minerals and water perform an outstanding activity collaboratively without any the health of a human being deteriorates. The nutrients provided by vegetables and fruits protect the cells and acts as antioxidants. Establishment of nutrition garden can play a vital role in supplementation of required nutrients to human beings. Borthakur *et al.* (2021) demonstration of nutrition garden resulted in increased home-stead vegetable production and consumption of excess vegetables. Similar findings were also reported by Singh *et al.* (2022). They revealed that there was

an improvement in availability and consumption of vegetables at both household and individual level after demonstrations. The knowledge level of beneficiaries on various aspects of kitchen gardening also improved through training programmes. Suri (2020) stated that *Community and nutrition gardens can play an important role in enhancing national food security and dietary diversity to combat malnutrition.*

Anganwadi centres are institutions for development of physically, mentally and culturally for children of 3 to 5 years age. Being the first school for a child, these centres are the prime institutions through which a child build's the foundation and reacts accordingly in future. A child during this stage comes to a different environment for the first time and has to culminate with all those variances

overcoming obstacles if any. A healthy child can be successful in overcoming both physical and mental problems without delay. Nutritive food is an important factor for development of a growing child. The anganwadi workers must ensure that the children of their centres get all the nutrients from five food groups.

Considering the above facts the present study was undertaken to assess the knowledge level of anganwadi workers and anganwadi helpers regarding nutrition garden as well as to find out impact of nutrition garden in respect of nutrition of the children in anganwadi centres.

Materials and Methods

The present study was conducted during 2019-20 and 2021-22 with 5 numbers of Anganwadi centres of Pulunga ICDS Project, Chabua which is located at Panitola block of Dibrugarh district. Initially malnutrition status of two centres of the ICDS Project, Chabua was collected then awareness camp followed by training programme were conducted for 20 Anganwadi workers including helpers. Pre and post training knowledge test were performed to anganwadi workers and helpers with a structured schedule to find out their level of knowledge in the aspect of nutrition, effects of deficiency of nutrients to health and establishment of nutrition garden. Besides trainings other activities such as critical inputs, interactions with farm women along with Anganwadi workers and helpers, mothers and child were planned and conducted time to time. The informations related to establishment of nutrition garden and importance of nutrients for child and mother etc. were emphasized.

List of Selected Anganwadi centres for nutrition garden

1. No.3 Merellipothar (estb:2004)
2. Deodhaikopou (estb:2002)
3. Potlonga (estb:2002),
4. JharalineNewline (estb: 2019) and

5. No.4 Chabua teaestate (estb:2002)

Selection was made through purposive sampling technique considering within 15- 25 numbers of beneficiaries in each centre. An area of 200 sqm was taken for establishment of nutrition garden per centre. The vegetables produced from the gardens were used in the mid day meal program of the beneficiaries and the nutrients available was recorded through proper survey both in Kharif and Rabi seasons. Accordingly year round data on of nutritional garden was collected and statistically analysed. The impact of establishing nutrition garden and nutrient availability, average yield per unit and food composition tables given by Gopalan *et al.* (1989) were considered respectively. Finally the nutrient availability was compared with the recommended dietary allowances given by ICMR (2010) and analyzed statistically.

Results and Discussion

The result on Malnutrition status of children is enumerated in the Table 1 depicts the nutritional status of the village children of the total population of all the villages (15646 Nos). The malnourished children upto 1 year was 15 number boys and 31 number girls. Above 1 year to 3 years there were 27 number malnourished boys and 25 number malnourished girls. In case of 3 to 6 years children, there were 31 number malnourished boys and 32 number malnourished girls. In case of severally malnourished, there were 2 number boys and 1 number girl child in the village.

Background information of Anganwadi workers and helpers

Majority (40 %) of respondents were of age group 20-30 followed by (30 %) of respondents in the age group 40-50. Regarding their qualification it is revealed from the table that majority (40 %) of respondents had education upto higher secondary level and only (20 %) of respondents had education below

Table 1. Malnutrition status of children (1-6 years) of two centres of Pulunga ICDS Project

Block	Total population	No. of Malnourished children of two centres of the block						Severally malnourished	
		0-1 yr		1 yr -3yrs		3 yrs-6 yrs		6 months-3 yrs	3 yrs-6 yrs
		Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
Pulunga ICDS	15646	15	31	27	25	31	32	2	1

Source: ICDS block, Pulunga, 2019-20

high school level, however it is encouraging to see that (10%) of respondents had education upto graduate and above. With reference to number of children in the centres of age group 3-5 years, the table indicates that majority (85%) of respondents had children between 15-20 numbers followed by (10 %) of respondents had children above 20 numbers and only (5)% of respondents had children below 15 numbers (Table 2).

An encouraging picture on pre and post knowledge of anganwadi workers and helpers, which

Table 2. Background profile of the Anganwadi workers and helpers (N=20)

Sl. No.	Particulars	f	Percent population
1	Age		
	20-30	8	40
	30-40	4	20
	40-50	6	30
2	above 50	2	10
	Qualification		
	Under Matric	4	20
	HSLC	6	30
3	HSSLC	8	40
	Graduate and above	2	10
	Period of service in the centres		
	> 5 years	1	5
4	5 years-10 years	9	45
	Above 10 years	10	50
	No. of children in the centres (age group 3-5 years)		
4	> 15	1	5
	15-20	17	85
	< 20	2	10

As per formulated questionairre

shows that after training their knowledge increased in all the aspects highest (93%) in post harvest management and value addition, followed by intercultural operations (90%) (Table 3). It could be inferred that as storage of abundant production of fruits and vegetables is essential, hence they took interest in it and gained more knowledge. This is in conformity with the findings of Singh *et al.* (2021) stating that after training, knowledge in all aspects of vegetable production has been enhanced by kitchen gardening.

Table 5 reflects the availability of nutrients before and after establishing nutrition garden. It shows that the per capita availability of nutrients per day increased after intervention of kitchen garden. It could be inferred that after attending trainings and demonstrations by anganwadi workers and helpers they gained knowledge on nutrients for children, also they were able to prepare variety foods incorporating vegetables from their gardens which were easy to reach for them. The findings of Borthakur *et al.* (2021) and Singh *et al.* (2021) that nutritional kitchen garden significantly reduce the malnutrition status of village by reducing illnesses by more than 50%. confiremed the present findings.

Conclusion

It can be concluded that by taking proper care of health, occurrence of many diseases can be prevented. The major problem like malnutrition can be addressed to a maximum extent by consumption of nutritive fresh vegetables. The findings of the present study revealed that establishment of nutrition garden can play a vital role in self sufficiency of

Table 3. Pre and Post training knowledge regarding establishment of nutrition garden (N=20)

Sl. No	Particulars	Knowledge of anganwadi workers and helpers			
		Before Training		After Training	
		f	%	f	%
1	Land preparation and layout	13	64	16	80
2	Improved seed varieties	3	15	16	80
3	Time of sowing seeds	6	30	17	85
4	Time to time maintenance of garden	4	20	15	75
5	HYV seeds	2	10	14	70
6	Biofertilizers	2	10	14	70
7	Intercultural operations	12	60	18	90
8	Harvesting	8	40	16	80
9	Post harvest management and value addition	6	30	19	93
10	Pest management	6	30	15	75

Table 4. Per unit Production and consumption of vegetables before and after establishment of nutrition garden

Particulars	Production (kg)	Purchase (kg)	Consumption (kg)
Before intervention	150.00	70.00	220.00
After intervention	350.00	-	320.00
Change	200.00		100.00
Percent change (%)	133.33		45.00

Table 5. Per capita availability of nutrients before and after establishing nutrition garden

Nutrients	Per capita availability of nutrients per day		% RDA		Difference (%)
	Before	After	Before	After	
Protein (gm)	0.91	10.05	4.54	50.00	+45.46
Iron (mg)	1.86	3.81	14.28	29.28	+15.00
Calcium (mg)	85.02	157.02	14.17	26.17	+12.00
Vitamin A (mcg)	135	210	45.00	70.00	+25.00
Vitamin C (mg)	12.0	22.5	80.00	150.00	+70.00
Fat (gm)	2.4	6	8.00	20.00	+12.00

nutrients and food security. Moreover availability of vegetables from own households or anganwadi centres can be ascertained safe and fresh. Establishing nutrition garden in anganwadi centres is very effective and beneficial as the produce can be used in its mid-day meal programmes. Further production from nutrition gardens make easy to reach, cheaper in rate, safe for use and highly nutritious for the small growing kids which can help in better moulding. It is also found that demonstrations, awareness programmes and critical inputs resulted in more impact from nutrition gardens.

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