J. Indian Dietetic Association Volume 40, No.1, pp. 23-26, 2017

NUTRITION GARDEN AS AN EXPERIENTIAL LEARNING APPROACH FOR NUTRITION EDUCATION OF SCHOOL CHILDREN (13-15 YEARS)

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ABSTRACT

Objective: To educate school children about importance of nutrition through development of nutrition garden and to study the impact.

*Methods:*Nutrition intervention programme along with the development of nutrition garden was carried out in an urban school for 200 children for the duration of six months. Along with the school children, their parents and teachers were also involved in the intervention programme. Pre and post evaluation of knowledge was done by using the pre tested questionnaires to study the impact.

Results : Nutrition education given to the subjects using various activities enhanced the nutrition knowledge of the children, teachers and parents significantly ($p<0.05$).

Conclusion: The subjects perceived nutrition garden as more beneficial, feasible and helps to improve dietary practices. Nutrition education combined with nutrition garden is more effective.

INTRODUCTION

Schools are a vital part of every child's life. School based programmes at early stages will encourage children to adopt healthy living habits and practice them throughout their life. School programmes will have more impact on children when teachers and parents are actively involved. In India 45 per cent of children are stunted, 23 per cent are wasted and 40 per cent are underweight making up almost half of world's stunted children (Jain, 2013). Vitamin A deficiency, which causes blindness and increases morbidity and mortality among preschoolers, also remains a public-health problem (WHO, 2009). In a country marked by malnutrition fruits and vegetables have an

important role as "protective foods". The great advantage of looking at malnutrition as a problem in human ecology is that it allows for variety of approaches towards prevention, of which nutrition garden can be one. "School-based gardening programmes can be an excellent means of introducing new ideas about gardening and a useful channel for reaching others in the community" (FAO, 1997). Nutrition garden is an experiential learning approach where children are the active participants. It provides sustainable access to fruits and vegetables and helps to combat malnutrition (Graham et al., 2005). Therefore, the present study was undertaken with an objective to develop nutrition garden and to educate school children on importance of nutrition garden and to study the impact.

MATERIALS AND METHODS

A government high school located in Sarakki, Jayaprakash Nagar, Bengaluru district, Karnataka state was selected for the study. Two hundred children in the age group of 13-15 years along with their parents and school teachers were involved in the programme. Pre-tested and standardized questionnaires having 20 closed-ended statements related to basic health and nutrition concepts were used to assess the knowledge of the subjects pre andpost intervention. The intervention period included growing of vegetables in nutrition garden by school children from June-2014 to December-2014 under the supervision of class teachers and horticulture specialist of UAS (B). Along with this, by using various teaching aids nutrition education was imparted to subjects by lecture and group discussion for 12 weeks on different topics. Nutrition garden model given by Indian Institute of Horticultural Research (IIHR), Hesragatta, was modified and adopted for the laying of nutrition garden in the school premises. Required materials (saplings, vegetable seeds, portable trays and media) and assistance were obtained from the Dept. of Horticulture, UAS (B).

An individual's knowledge index was calculated by formula, Thus, after computing the knowledge scores, the respondents were grouped into high, medium and low categories

$$\textbf{Knowledge index} = \frac{\text{Score obtained}}{\text{Maximum score}} \times 100$$

by taking the mean and standard deviation as a measure of check.

Category	Score
Low	< Mean - SD
Medium	Mean ± SD
High	> Mean + SD

RESULTS AND DISCUSSION

Existing awareness and impact of the nutrition intervention programme: Overall nutrition knowledge of the students, parents and teachers were assessed before and after intervention using questionnaires. The mean score of the school children was found to be 7.38 before that increased to 13 after intervention (Table 1). The statistical analysis showed a significant difference in mean score of the children before and after intervention.

Forty two per cent of the children had low score before that decreased to 21 per cent after the programme. The percentage of average scores increased from 34 to 48 after intervention (Table 1). It was also interesting to note that higher nutrition knowledge scorers increased

after intervention.

Table 2 shows that among parents the low scorers decreased from 42 per cent to 17 per cent while the average scorers increased from 35 per cent to 50 per cent before and after intervention respectively. The percentage of high scores increased from 21 to 32 after intervention.

The mean score of parents at the beginning was 5.31 which increased to 10.15 at the end of nutrition intervention programme that was significant.

Overall nutrition knowledge of the teachers before and after intervention is given in the Table 3.The mean score of the teachers before was 11.34 which was observed to be 18.67 after intervention. The percentage of high scorers was found to be 10 at the beginning that increased to 35 after intervention programme.

Impact of the nutrition intervention programme:

Increase in knowledge of children, teachers and parents after their participation in nutrition intervention programme are shown in Table 1, 2 and 3. These results are on par with the findings of Yatnatti (2009), Wall et al. (2012) and Bhushanam and Usharani (2013) who reported the changes in food choice of children after their participation in nutrition intervention programme. These studies also reveal that there was increase in the knowledge of the subjects after their participation in the nutrition intervention programme.This can be attributed to teacher's co-operation, children's enthusiasm and parent's interest active participation in the nutrition intervention programme.

Conclusion:

Imparting nutrition knowledge to the community is an ongoing process and is found be more beneficial when combined with school garden cultivation. Nowadays nutrition garden is being used as an effective teaching tool to educate about nutrition practices and to influence the food habits of various sections of the community specially the school going children as it gives hand on experience.

Table 1: Impact of nutrition intervention on nutrition knowledge of the school children(N = 200)

Categories	Before		After		χ^2 value
	No.	%	No.	%	
Low (Mean - SD)	84	42.00	42	21.00	20.53*
Medium (Mean ± SD)	69	34.50	97	48.50	
High (Mean + SD)	47	23.50	61	30.50	

* Significant at 5 % level, Mean before - (7.38 ± 2.88), Mean after - (13 ± 2.51)

Table 2: Overall nutrition knowledge of the parents(N = 70)

Categories	Before		After		χ^2 value
	No.	%	No.	%	
Low (Mean - SD)	30	42.85	12	17.14	11.06*
Medium (Mean ± SD)	25	35.71	35	50.00	
High (Mean + SD)	15	21.42	23	32.85	

*Significant at 5 % level, Mean before - (5.31 ± 2.52), Mean after - (10.15 ± 2.05)

Table 3: Impact of nutrition intervention on nutrition knowledge of the teachers (N = 20)

Categories	Before		After		χ^2 value
	No.	%	No.	%	
Low (Mean - SD)	8	40.00	1	5.00	8.40*
Medium (Mean ± SD)	10	50.00	12	60.00	
High (Mean + SD)	2	10.00	7	35.00	

Significant at 5 % level, Mean before - (11.34 ± 2.03), Mean after - (18.67 ± 1.87)

Nutrition garden helps to reap fresh, safe (organic) and nutritious vegetables in a small area available. It also adds variety to the diet and plays a major role in combating hidden hunger. Therefore nutrition garden can be utilized as a practical experiential approach to impart nutrition knowledge.

ACKNOWLEDGEMENT

This study was conducted as a part of Master's degree at UAS, GKVK, Bengaluru-65. The research work was carried out at the Govt. High School Sarakki, JP Nagar, Bengaluru-78. We thank the school Head Master Mr. Prakash .T. and all the school teachers for their invaluable support, and caregivers and children who participated. The work was funded by Dr. Prem Nath Agricultural Science Foundation (PNASF), Bengaluru-94. We remain indebted to Dr. Prem Nath for his guidance and co-operation throughout the study. This paper was presented at the 48th Annual National Conference of the Indian Dietetic Association.

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