



Formulation of Food Exchange List and Its Impact on Nutritional Status of Orphan Children in Salem District in India

S.Dharani, L.Venipriyadharshini

Abstract: Orphan children are more prone to malnutrition when compared to normal children. Malnutrition is a major problem in India. Nearly 50% of the children are affected from undernourishment in India. The trunk objective of the study is to educate the orphan organization as well as children about the importance of food exchange list and its role in affray malnutrition in Salem. 100 orphan children with different age group were selected to conduct the study. Subjects were nutritionally assessed and the nutritional demand were noted. Formulated food exchange list were given and advised to implement in their organizations for a three months of interval. The level of progression on nutrition and education status was appraised by using pre and post questionnaires. 60% increase in knowledge was found by using pre and posttest evaluation using questionnaires. Awareness program on food exchange list to affray undernourishment results in greater knowledge improvement on orphan organizations as well as children in Salem region.

Keywords: Formulation – Development – Nutrition education Impact assessment.

I. INTRODUCTION

Asia is the home of the largest number of orphans worldwide, where 60–80 million children are orphans[1]. A new study by an international charity for orphaned and abandoned children found that India is home to 20 million orphans, a figure projected to increase by 2021. The study was conducted by SOS Children's Villages India, a charity providing family-based care for orphaned and abandoned children. The data analyzed in the study came from India's National Family Health Survey-3 (2005-2006), as well as from the national census. Under the terms of the study "orphan" was defined as a child who has been abandoned or has lost both parents [2]. Orphan children have to face with many problems including their basic needs such as food and safe water as well as parental care, supervision and protection etc. Most unfortunately, they are exposed to various kinds of child labor, exploitation, physical and sexual abuse also.

They can't enjoy the access to quality education, health care, protection and participation. Again, poverty and hunger is the order of the day for many of them. Resulting, they suffer from malnutrition & poor health.

Despite of being highlighted as one of the most priority issues under the Millennium Development Goals (MDGs) framework now it is also the priority of Sustainable Development Goals (SDGs), malnutrition remains an important public health concern in the developing world[3]. The insufficient protein consumption, but with sufficient calorie intake, distinguishes it from marasmus. Generally the disease can be treated by adding protein to the diet. However, malnutrition in all its forms regardless of child's age can have a long term impact on a child's physical and mental development and in severe cases may lead to death[4]. Dietary patterns analysis is an approach to examining the quality of a person's overall diet and therefore acknowledges that consumption of individual food or nutrients does not occur in isolation, which has been the focus of earlier diet-related nutritional epidemiological research[5][6]. Food exchange lists are the basis of meal planning. Food exchange lists are groups of measured foods of the same caloric value and similar protein, fat and carbohydrate. All foods of exchange lists make a specific contribution to a good diet. None of the exchange groups can itself supply all the nutrients needed for a well-balanced diet. Exchange lists are based on principles of good nutrition that apply to everyone though extremely help for diabetics. Food exchange lists help in manipulation of protein, calories and other nutrient [7].

II. MATERIALS AND METHODS

The study was conducted to selected orphan home's from Salem district Tamilnadu. Totally hundred orphan children were selected. The subjects were around the age range of 1 to 14 years in both sexes were involved in this investigation. Nutritional Assessment is the interpretation of anthropometric, biochemical (laboratory) clinical and dietary data to determine the nourishment status of the people[8]. Nutritional Assessment was carried out by using a questionnaire. Clinical and dietary assessments were also done. The selected samples were also subjected to Assessment of nutritional knowledge, attitude and practice of selected subject before education. Food exchange list has been formulated by comparing the demand of nutrients of the children. The main aim of the food exchange list is to maintain normal RDA requirement. The list comprised of good Protein, Normal Carbohydrates and Fat. Vitamins and Minerals, Cereals and Green leafy vegetables were increased gradually.

Manuscript published on January 30, 2020.

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Foods were included and compared with the targeted quality. The investigator carefully exchanged the food with the menu of the organization and included with locally available as well as low cost food. The investigator imparted education to the selected subjects and the organization.

The researcher advised the organization to implement the formulated food exchange list as an alternative for the present menu. A sample of seven days of menu was formulated with the help of food exchange list was taken into regular diet and observed. Further exchange of menu extended upto 3 months and evaluated for its results. The formulated sample menu was calculated for its nutritive value by NSI diet calculator and compared with RDA given by ICMR.

III. RESULTS AND DISCUSSION

Table- I Mean Value of Energy Intake of the subjects

S.no	Age	ENERGY (kcal)		Excess / Deficit	Percentage %
		*RDA	Intake of the subjects		
1	3-Jan	1060	985	-75	92.92
2	6-Apr	1350	1128	-222	83.55
3	9-Jul	1690	1528.63	-161.36	90.45
4	12-Oct (boys)	2190	1715.17	-474.82	79.96
5	12-Oct (girls)	2010	1945.76	-64.24	96.8
6	13-14 (boys)	2750	1693.38	-1056.6	61.57
7	13-14 (girls)	2330	1838.29	-636.61	78.89

*ICMR

Table- I shows that Energy intake of all the selected subjects were deficit when compared to RDA.

Table-II Mean Value of Protein Intake of the subjects

*ICMR

S.no	Age	PROTEIN (g)		Excess / Deficit	Percentage %
		*RDA	Intake of the subjects		
1	3-Jan	16.7	13.7	-3	80.03
2	6-Apr	20.1	13.65	-6.45	67.91
3	9-Jul	29.5	31.08	1.54	105.35
4	12-Oct (boys)	39.9	39.45	-0.455	98.87
5	12-Oct (girls)	40.4	34.53	-5.945	85.47
6	13-14 (boys)	54.3	25.59	-28.71	47.12
7	13-14 (girls)	51.9	37.91	-13.99	73.04

Table-II describes protein intake of the selected subjects were 7-9 age category subject's intake alone excess when compared to RDA and other category subjects protein intake were deficit when compared to RDA.

Table- III Comparison of the Nutritive value of Formulated Sample Menu and RDA

Nutrients	*RDA		Calculated Value	Percentage %
	Boys (10-12) years	Girls (10-12) years		
Energy (kcal)	2190	2010	2179	99
Protein (g)	39.9	40.4	39.7	98
Fat (g)	35	35	32	91
Calcium (mg)	800	800	788.2	98.5
Vitamin-A (mg)	600	600	591.4	98.5
Vitamin-C (mg)	40	40	37	92.5
Iron (mg)	21	27	25.18	93.2

*ICMR

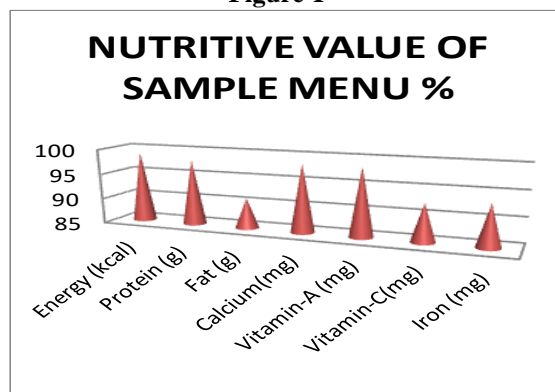
Table-III reveals that nutritive value of the sample menu using food exchange list the sample menu meets 99% of the RDA from 10-12 years of the age group in both category and then modification of portion size in the sample menu meets RDA by ICMR in other categories of age groups. Computed nutritive value is shown in figure-I

Table- IV Mean Value of the Scores Obtained by the Subjects

S.no	Tests	Scores	Percentage %
1	Pre-test	7	35
2	Post-test	19	95
3	Gain in scores	12	60

Table-IV shows that nutrition education of the subjects, which was measured in terms of gain in scores. 35% obtained from pretest was increased 95% after the nutrition education. Gain in scores having 60% of improvement.

Figure-I



IV. CONCLUSION

Food exchange list can be implemented permanently in various child care institutions to improve the nutritional status of the orphan children. Periodical nutrition education can be given to the organization to maintain healthy nutritional status of the children.

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