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Effectiveness of 'Krishna Poshak Mix' on Nutritional Status of Rural Anganwadi Children

Manda Shankar Mulik[1], Avinash H. Salunkhe[2]

Clinical Instructor, Krishna Institute of Nursing Sciences Karad, Dist-Satara (Maharashtra), India

Vice Principal, KINS, Karad, Krishna Institute of Nursing Sciences Karad., Dist-Satara (Maharashtra), India

Abstract: ***Aim & Objectives: To evaluate the effectiveness of 'Krishna Poshak mix' on nutritional status of Anganwadi children, find out an association between nutritional status & demographic variables. Material & methods: evaluative approach with pre & post test control group design was used. Study was conducted on 54 Children admitted in Anganwadi at Malkapur village. By using non probability purposive sampling technique with randomly allocation of groups by tossing coin. The experimental group was given 'Krishna Poshak mix' laddus 50 gms two laddus daily for one month. Whereas control group receives adlib ICDS supplementary diet for one month. Results: From experimental group 2, 16, 8, 1 subject having respectively normal, mild, moderate & sever degree malnutrition & in control group 1, 20, 4, 2 subjects having respectively normal, mild, and moderate & sever degree malnutrition. Experimental group Anganwadi children gained more weight pre & posttest Mean 13.61 & 14.08 & mid arm circumference pre & posttest Mean 14.90 & 15.14 after getting Krishna Poshak Mix laddus than control group weight pre & posttest Mean13.62 & 13.78 & mid arm circumference pre & posttest Mean 14.64 &14.74. There was no statistically significant association between pre interventional assessment nutritional status score and socio-demographic variables.***

Key words: Anganwadi children, Krishna Poshak mix laddus, nutritional status.

1. Introduction

In India, about 35% of total population is children below 15 years of ages. They are not only large in number but vulnerable to various health problems and considered as special risk group. Majority of the child hood sickness and death are preventable by simple low-cost measures. Children always need special care to survive and thrive. Among the condition contribute to the morbidity and mortality of children. Malnutrition is the most widespread condition affecting health of the children. It is widely prevalent in India mainly as under nutrition[1]. According to UNICEF estimates globally, malnutrition is an underlying factor in more than half the deaths of children under five years of age.[1] According the NFHS- 3 in the year 2005- 2006, the trends in children's nutritional status in India was 38% were stunted (too short for age), 19% were wasted (too thin for height), 46% were underweight (too thin for age) [2].

In Maharashtra the survey showed that the trend in children's nutritional status was 37.9 % were stunted (too short for age), 14.6 % were wasted (too thin for height), 39.7 % were underweight (too thin for age) [3]. Millennium Development Goals (MDG) 4 calls for a two-third reduction in mortality of children aged less than 5 years between 1990 & 2015 [4] And (MDG) 1 pertains to eradicate prevalence of underweight children less than 5 years of age. Thus these interventions like introduction of appropriate and adequate complementary foods are keys to meet MDG- 1 & MDG-4 and require special and sustained focus[5]. By considering all these factors Late Dr. Kulkarni was working under the dept. of Preventive and Social Medicine of Krishna Institute of Medical Sciences Karad prepared a recipe of Krishna Poshak mix laddus. For this recipe he used ingredients like jawar, rice, wheat, Bengal gram dhal, black gram dhal, green gram dhal, ground nuts, ghee & jaggery which are locally available. These ingredients are easily available & affordable to all the people & its mixture provides all the nutrients to meet the daily requirement of children along with their daily diet. This recipe was presented at 26th National Conference of IAPSM at Surat from 27-01-99 to 30-01-99. 'Krishna Poshak Mix' laddus are made from the cereals which are roasted, which make it delicious & have good smell & very good taste, which make the children's to eat it with lots of interest even in the full stomach.

2. Literature Survey

An experimental study was conducted to assess the effectiveness of providing Hyderabad mix in improving the weight of children (3-5yrs) with mild malnutrition. A total of 60 samples were chosen, intervention group (30) was provided with Hyderabad mix for a period of 2 months and the control group was not given any intervention. Structured questionnaire was used to collect the demographic data and the anthropometric measurements were compared with the WHO Standard values. The study result showed an improvement in weight of majority of sample (70.8 percent). The researcher concluded that the Hyderabad mix will be effective in improving the weight of children with malnutrition [6]

A study was done on "locally available and natural therapeutic foods for immunomodulation in Protein energy malnutrition" because in children with PEM, there is significant impairment of all specific and non-specific immune responses which may lead to significant growth altering, developmental retardation and micronutrient deficiencies. Hence cheap and easily available dietary supplements like Hyderabad mix which enhance immune recovery are designed in the process of nutritional rehabilitation by WHO as well. The study have shown beneficial effects on supplementation of Hyderabad mix to children for 15 days and the study have revealed that there is improvement in children by assessing the hematological and

immunological parameters of children with moderate to severe malnutrition. [7]

A study was carried out in two governmental schools for the intervention programme. Only malnourished children between 6 to 10 yrs of age were selected for the intervention trial which was carried out for three months with two values added traditional foods of superior nutritional composition which were Paushtic laddu and Mathari. Assessment of nutritional status was done by 24 hr recall method and anthropometric measurements were taken before and after the intervention period. The results showed an improvement of weight from 75 to 89% and height values from a deficit of 25 to 11% after 90 days of feeding trial. The study concluded that a feeding with nutritious supplements for malnourished children did bring about improvement in their nutritional status [8].

A cross- sectional study was conducted to assess the nutritional status and dietary intake of pre-school children of urban slums of Varanasi District. A sample size of 520 preschool children was selected. The result showed that according to Water low Classification, about 75% of preschool children were malnourished with 20% suffering with severe degree of malnutrition. Although the intake of protein and vitamin A was comparatively better in more than 90% of children, consumption of calories, iron and calcium was below 50% of Recommended Dietary Allowance [9]

Objectives 1. To assess nutritional status of Anganwadi children before giving 'Krishna Poshak mix'. 2. To evaluate the effectiveness of 'Krishna Poshak mix' on nutritional status of Anganwadi children. 3. To find out an association between nutritional status & demographic variables of Anganwadi children.

3. Materials and Methods

The evaluative approach was used; pretest post test control group design was used. Independent variables of the study were 'Krishna Poshak Mix' laddus & ad-lib ICDS supplementary diet and dependent variables of the study were Nutritional status of selected Anganwadi children. Study was conducted on 54 Children admitted in selected Anganwadi no. – 138 & 152 in Malkapur village. By using non probability purposive sampling technique with randomly allocation of group by tossing coin.

Data were collected, tabulated and analyzed in terms of objective of the study using descriptive and inferential statistics. Data collection tool- structured interview schedule for assessing the back ground factors of the children and for nutritional status anthropometric measurement.

4. Results

The socio demographic variables of age, sex, degree of malnutrition, education of mother, occupation of father, type of family & whether child having any recurrent infection are given in table No. 1.there was no significant difference in the distribution of these variables in study & control groups. The demographic data of both the subjects showed that majority of subjects were from the age group of 3.6 - 4.5 years & females in study group & males in control group. The majority subjects from both the group had mild degree malnutrition. In study group majority of the mothers have secondary education were as in control group have primary education. In both the group maximum children are not having any recurrent infection.

Table 1: Distribution of subjects is according to socio demographic variables

Sr. no.	Demographic variable	Experimental group		Control group	
		Frequency	%	Percentage	%
1	Age in years				
	2.5 – 3.5	8	29.62	9	33.33
	3.6 – 4.5	11	40.74	11	40.74
	4.6 - 5.5	7	25.92	7	25.92
	5.6 – 6.5	1	3.7	_	--
2	Sex				
	Male	12	44.44	15	55.55
	female	15	55.55	12	44.44
3	Degree of malnutrition				
	Normal	2	7.4	1	3.7
	Mild	16	59.25	20	74.07
	Moderate	8	29.62	4	14.8
	Severe	1	3.7	2	1 7.40
4	Education of mother				
	No formal education	-	--	1	3.7
	Primary education	9	33.33	15	55.55
	Secondary Education	15	55.55	7	25.92
	Higher secondary	1	3.7	2	7.4
	Graduate & above	2	7.4	2	7.4
5	Occupation of father				
	Unemployed	--	--	-	--
	Service	8	29.62	15	55.55
	Farmer	10	37.03	5	18.51
	Business.	9	33.33	7	25.92
6	Type of family				
	Joint	10	37.03	13	48.14
	Nuclear	16	59.25	14 --	51.85
	Extended	1	3.7		--
7	Whether child having any illness				
	Recurrent respiratory infection	2	7.4	6	22.22
	Worm infestation	--	--	--	--
	Allergic condition	--	--	3	11.11
	Recurrent diarrhoea, dysentery	--	--	--	--
	No any other	25	92.59	18	66.66

Table 2: Pre test & post test Mean Median and SD of weight & mid arm circumference of children in experimental and control group

	experimental group				control group			
	Weight		Mid-arm circumference		Weight		Mid-arm circumference	
	Pre test	Post test	Pre test	Post test	Pre test	Post test	Pre test	Post test
Mean	13.61	14.08	14.90	15.14	13.62	13.78	14.64	14.74
Median	13.1	13.7	15	15	13.2	13.4	14.5	14.6
SD	1.97	2.04	1.07	1.13	2.26	2.35	1.19	1.26
Paired 't' value	14.72 with 26 df		7.94 with 26 df		4.64 with 26 df		2.41 with 26 df	
P value	Extremely significant		Extremely significant		Extremely significant		Significant	

Table 2 shows that the children from experimental group gained adequate weight & mid arm circumference in the post interventional assessment than pre interventional

assessment. Also paired 't' test value shows that there is significant increase of weight & mid arm circumference after the intervention & P value is < 0.0001. Other parameters such as height, chest circumference and head circumference did not show any improvement because of time limitation for study. Over all table No. 2 shows that mean, median and SD of post test of experimental group is little more than control group which indicates intervention of experimental group that is Krishna Poshak mix laddus is more effective than intervention of control group on the nutritional status of Anganwadi children.

Table 3: Association between experimental group nutritional status and socio-demographic variables of the Anganwadi children

S. No	Variables	Normal	Mild	Moderate	Severe	Chi Square (c^2)	P value	Df
1	**Age in years**							
	2.5 – 3.5	0	7	1	2	3.919	0.6382	3
	3.6 & above	1	13	3	0			
2	**Sex**							
	Male	1	7	0	1	5.363	0.1471	3
	Female	1	9	8	0			
3	**Mothers age**							
	21 – 25 yrs	2	8	8	1	7.816	0.500 *	3
	Above 26 yrs	0	8	0	0			
4	**Mother education**							
	Below primary	0	8	1	0	4.084	0.2525	3
	Above primary	2	9	6	1			
5	**Type of family**							
	Joint & extended	1	6+1	3	0	2.311	0.5104	3
	nuclear	0	10	5	1			
6	**Monthly income**							
	Below 4000	0	4	1	1	4.886	0.1804	3
	Above 4000	2	11	8	0			
7	**Mother Occupation**							
	House wife	2	14	8	1	1.485	0.6857	3
	Others	0	2	0	0			

*- indicates that significantly associated with nutritional status score.

Table 4: Association between control groups nutritional status and socio-demographic variables of the Anganwadi children

S. No	*Variables*	*Normal*	*Mild*	*Moderate*	*Sever*	*Chi square (c^2)*	*P value*	*Df*
1	**Age in years**							
	2.5 – 3.5	0	7	1	2	4.272	0.23	3
	3.6 & above	1	13	3	0			
2	**Sex**							
	Male	0	12	3	0	4.523	0.21	3
	Female	1	8	1	2			
3	**Mothers age**							
	21 – 25 yrs	1	15	2	0	5.625	0.13	3
	Above 26 yrs	0	5	2	2			
4	**Mother education**							
	Below	0	14	1	1	2.838	0.42	3
	Above	1	7	2	1			
5	**Type of family**							
	Joint	1	7	3	2	5.771	0.21	3
	nuclear	0	13	1	0			
6	**Monthly Income**							
	Below 4000	0	7	1	2	4.272	0.23	3
	Above 4000	1	13	3	0			
7	**Mother Occupation**							
	House wife	1	16	1	0	9.225 *	0.03	3
	Others	0	4	3	2			

*- indicates that significantly associated with nutritional status score.

Table 3 & 4 shows that there was no statistically significant association between pre test nutritional status assessment and socio-demographic variables except in experimental group mother's age shows association because of dominant figure is in 20-25 years age group & in control group mothers occupation shows association that is also due to dominant figure is in house wife occupational group.

5. Discussion

Though we are making many efforts today to increase the nutritional status of children but still the malnutrition rate is same. There is needed to make aware to people about nutritional status of their children. National Institute of Nutrition, Hyderabad made effort to prepare Hyderabad mix food which has been found to bring about significant improvement in the growth rate of pre-school children [10]. Studies have also shown that the formula advised by the National Institute of Nutrition, Hyderabad specially prepared protein mixtures provide an increase of weight after 22 days to 3 weeks or little later [11]

In the present study we have estimated that Krishna Poshak mix laddus have significantly increased the Nutritional Status of Anganwadi children in the study subjects as compared to the control group. This finding was supported by Owino et. al. has reported that supplementation of energy dense foods have improved the hemoglobin concentration [12]. Nazni et. al. in their study observed that Supplementation of fortified beverage for 6 months has significantly improved the hematologic and anthropometric measurements and significantly lowers the prevalence of anaemia deficiency among the children [13].

Because of short duration for study not able to change degree of malnutrition but because of roasted ingredients

recipe gives very good smell & taste. Children accept it willingly & interestingly.

6. Conclusion

From this study it could be concluded that the Krishna Poshak mix plays an important & beneficial role in improving the post interventional nutritional status of Anganwadi children. Thus it is effective strategy which can help in improving anthropometric measurement of children & this can indirectly help in reducing the mortality & morbidity rate among fewer than five children. This recipe can be prepared in home by using locally available dietary articles which is also helpful in cost effectiveness.

7. Future Scope

a) **Nursing education**- Nurse Educator should conduct mass education programme for the community people nutrition and reinforce them to provide their children Krishna Poshak mix laddus to improve nutritional status of their children. Also she can organize nutrition exhibition and explain the nutritive values of Krishna Poshak mix laddus and their effectiveness on nutritional status of the children's.
b) **Nursing administration** - The findings of a study could be utilized by the nursing administrator for the prevention of malnutrition among the children, also for the lactating mother and pregnant women in the community.
c) **Nursing practice**- Nurses has major role in the preventive aspects. To prevent the child from malnutrition and to keep the every child healthy should advice to their parents about Krishna Poshak mix laddus for their children.
d) **Nursing research**: There is great need to conduct more research to become community people familiar with this recipe.

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Author Profile

Manda Shankar Mulik, M.Sc. (N) is working as Clinical Instructor in Krishna Institute of Medical Sciences Deemed University Krishna Institute of Nursing Sciences Karad. Dist-Satara (Maharashtra) 415539

Prof. Avinash H. Salunkhe, M.Sc. (N) is working as Vice Principal, Krishna Institute of Medical Sciences Deemed University, Krishna Institute of nursing sciences Karad. Dist-Satara (Maharashtra) 415539