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Impact of Nutrition Counselling Intervention of Mothers on Dietary Intake of their Preschool Children

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Abstract: Nutrition of Pre-School child is of paramount importance, because the foundation for life time health, strength and intellectual vitality is laid during this period. Nearly half of all deaths in children under 5 are attributable to under nutrition. India is one among the many countries where child malnutrition is severe. A mother is the principle provider of the primary care that her child needs during the first five years of life. Hence knowledge of mothers has an important role in the maintenance of nutritional status of the children. This research study was conducted with an objective to evaluate impact of nutrition counselling intervention of mothers on dietary intake of their preschool children. Mothers and their preschool children aged 3-5 years belongs to pravaranagar region of Ahmednagar District, Maharashtra State, India were selected for the study. 300 mothers were selected as samples for the counselling intervention programme study. Out of these 300 mothers 153 mothers treated as the experimental group for intervention and the other 147 as the control group. The experimental group received nutrition education through counselling by the researcher, while the control group did not. In the present study, 24 hour dietary recall method was used to collect information related to dietary patterns of the children. Dietary intake of the preschool children in the experimental group and control group was assessed before and after the intervention programme. The significant ($p<0.01$) increase in the intake of the nutrients by preschool children in the experimental group is highly appreciable..

Key Words: Knowledge, Attitude, Practices, Nutrition, Mother, Preschool children

Introduction

Worldwide, adequate nutrition is being increasingly emphasized as a human right. The nutrition of preschool children is of considerable importance not only because of concern over their nutrition in formative stage of life but is widely perceived to have a substantial and persistent impact on their physical and mental development and on their health status and productivity as adults (Scrimshaw, 2001).Most of the child psychologists have stated that preschool stage from about 2 to 5 years is the most important of all the stages of development, and a fundamental analysis of that stage strongly points to the same conclusion. It is unquestionably the period during which the foundations are laid for the complex behaviour structures that are built in a child's life time (Bijou, 1975).

Nutrition of Pre-School child is of paramount importance, because it is the foundation for life time health, strength and intellectual vitality which is laid during this period. Today's child is a citizen of tomorrow and has valuable hand in nation building. Inadequate nutrition among the children leads to develop improper development of their body and mind, resulting into lower level of efficiency (Nazrin Ahmed, 2012).

Globally in 2020, an estimated 22 percent of children under five years of age were stunted, 6.7 percent were wasted, and 5.7 percent were overweight. Children in rural settings and poorer households, whose mothers received no formal education, were more vulnerable to stunting and wasting. Children in urban areas and wealthier households were at higher risk of overweight.(SOFI 2022)

India is one among the many countries where child malnutrition is severe. As per NFHS 5 (2019-21), in India 35.5 % of children under age five years are stunted (too short for their age) and 32.1 % are underweight (weight-for-age), which indicates that, near about half of the country's children are chronically malnourished.

As per NFHS 5 (2019-20), in Maharashtra, 35.2% of children under age five are stunted, or too short for their age, which indicates that they have been undernourished for some time. 27.3 % are wasted, or too thin for their height, which may result from inadequate recent food intake or a recent illness. 36.1% are underweight, which takes into account both chronic and acute undernutrition.

The problem of malnutrition has caught the attention of policy makers and researchers for several decades. Various studies and surveys have been conducted to find out the root causes of child malnutrition. All these studies including the National Family Health Surveys (NFHS) reveal that malnutrition is not the result of a single cause; the problem is multifaceted, the causes acting singly or in combination with other complex factors like poverty, purchasing power, health care, ignorance on nutrition and health education, female illiteracy, social convention etc (Children in India, 2012).

A mother is the principle provider of the primary care that her child needs during the first five years of life. Nutritional awareness of mothers plays an important role in the health of children aged 0-5 years. The type of care she provides depends to a large extent on her knowledge and understanding of some aspects of basic nutrition and health care (KiranpreetKaur, et al 2015).

It is believed that interventions providing counseling to the mothers on initiating and continuing appropriate and adequate complementary feeding in child's early life, together with improved personal hygiene and child caring practices, may effectively prevent malnutrition(Roy SK, et al 2005). Various health education interventions on awareness level of mothers, calorie intake, protein intake, and weight gain targeting under-five malnourished children have been developed and implemented in different parts of the world, but

evidence is lacking from the developing countries. Child health and nutrition programs based on health education initiatives promote mother's awareness level and specific behavioral changes in caregivers, which would improve the malnutrition status of children. Studies have shown that nutrition-related knowledge of a mother has a positive impact on the nutritional status of her children (Appoh LY, Krekling S. 2005).Nutrition education plays a significant role in bringing a permanent and favourable solution to the problem of malnutrition among school children (Sati and Dahiya, 2012; and Ramchandran, 2013).

Considering above background, which highlighted the importance of mother's knowledge regarding preschool children, this study was conducted to find out the Impact of nutrition counselling intervention of mothers on dietary intake of their preschool children.

Objective of the study

- To counsel and educate mothers towards nutrition of preschool children
- to evaluate impact of nutrition counselling intervention of mothers on dietary intake of their preschool children

Hypothesis

- There will be no significant relationship between counselling of mothers on nutrition significantly improved dietary intake of children

Material and Methods

Sample Selection

The study was carried out in 40 villages of pravaranagar region, which are situated in Rahata, Shrirampur, Rahuri and Sangamner Talukas of Ahmednagar District of Maharashtra State. The List and names of the preschool children (3-5 years of age) and their mothers, had been collected from the various preschools and anganwadicentres of 40 selected villages. ‘‘Stratified random sampling’’ was used for selection sample for the present study. Mothers who agreed to participate were included in the study. 504 mothers were selected as a sample for the study. The selected mother became the respondents of the study. Before the counselling intervention programme, the baseline survey was conducted to ascertain the knowledge of mothers about nutrition. A pre-tested questionnaire was used to collect the information on socio-economic/demographic and knowledge of mothers about nutrition of selected 504 mothers. Finding from the base line study, Out of selected 504 mothers, 308 mothers had poor knowledge on nutrition. Among the 308 mothers, 300 mothers and their respective preschool children were selected as sub sample for the counselling intervention programme study. Out of these 300 mothers and their respective preschool children, 153 mothers and their respective preschool children were selected and treated as the experimental group for

counselling intervention and the other 147 as the control group. The educational level of the mother was considered as the matching variable for both the experimental and the control groups.

Method of data collection

A pre-test–post-test control group design was chosen. The data was collected before and after the study in both the control and the experimental group. A structured education intervention protocol was developed and used for intervention. The experimental group received nutrition education through counselling by the researcher, while the control group did not. After the intervention, the final data collection was undertaken in both the experimental and control groups after the 3 months gap period from the completion of nutrition counselling intervention programme.

In the present study, 24 hour dietary recall method was used to collect information related to dietary patterns of the children. Food frequency questionnaire was used for both experimental and control group. Information regarding the intake of food consumed by selected preschool children was collected from their respective mothers (respondents) for pre and post intervention. The food items consumed were categorized as Cereals, pulses, green leafy vegetable, other vegetables, roots and tubers, milk and milk products fruits, fat and oils**,** sugar and jaggery etc. The daily dietary recall for three consecutive days was taken and was averaged out for one day. Average the dietary intake of food groups of selected preschool children was compared with recommended balanced diet for Children(Dietary guidelines for Indians ICMR, 2010).

Result and discussion

Table 1: Distribution of Mothers for counselling intervention programme on the basis of educational level

Mothers educational level	Selected Mothers(n=300)		Total(n=300)
	EG(n=153)	CG(n=147)	
Illiterate (unable to read and write)	3	2	5
Primary School	24	23	47
Secondary School	68	68	136
Higher Secondary School	29	28	57
Under graduate (UG)	20	16	36
Graduate /Post graduate(PG)	9	10	19
Total	153	147	300

EG=Experimental Group **CG**=Control Group **n**=number

Education is one of the most personal variables likely to have a positive impact on acquisition of knowledge by the respondents and development of attitude and practices by them. Hence in the present study sub sampled mothers were

distributed on the basis of educationallevel for the nutrition counselling intervention programme. These mothers were further classified into two groups in such a way that they could be matched.

Educational level wise distribution of the selected mothers in the sub sample shown in thetable-1indicates that most of 136mothers had educational status up to secondary level. Followed by 57 had up to higher secondary school level,47 up to primary school level, 36 up to under graduate (UG) level,19 up to graduate/postgraduate (PG) level. Only 5 mothers were illiterate in the counselling intervention programme

Impact of nutrition counselling intervention of mothers on dietary intake of their preschool children

To evaluate the dietary intake and consumption pattern of preschool children after nutrition counselling intervention of mothers. Data regarding food consumption pattern of the preschool children was collected through 24 hour dietary recall method and average intake of different food groups are presented here

(a) Cereal

In the present study wheat and rice was found to be staple food of the preschooler. The average mean of cereals consumption by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of cereals after imparting nutrition counselling of mothers. The change of increase in the consumption of cereals was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1. While in the control group statistically significant change was not observed in cereal consumption (Table 2 and figure 2).

(b) Pulses

The popular pulses consumed, in the locality were pigeon pea (turdal), bengal gram (chana) dal, soybean. The average mean pulses consumption by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of pulses after imparting nutrition counselling of mothers. The change of increase in the consumption of pulses was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1.While in the control group significant change was not observed in pulses consumption(Table 2 and figure 2).

(c) Green leafy vegetable

In the present study area green leafy vegetables like Fenugreek (Methi), spinach and others vegetables are grown abundantly, relatively inexpensive and easily available. Before imparting nutrition counselling of mothers consumption ratio of green leafy vegetables by preschool children in the both experimental and control group was found very poor as compared to

recommended standard by ICMR. The average mean of green leafy vegetables consumption by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of green leafy vegetables after imparting nutrition counselling of mothers. The change of increase in the consumption of green leafy vegetables was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1.While in the control group significant change was not observed in green leafy vegetables consumption (Table 2 and figure 2).

Table 2 : Daily mean intake of food items by pre-school children

Food Group	BDA Std.	Experimental Group (N = 153)					Control Group(N = 147)					Diff.	t-value	
		Pre		Post		Mean Diff	Pre		Post		Mean Diff		EG	CG
		Mean	S. D.	Mean	S. D.		Mean	S. D.	Mean	S.D.				
Cereal (g)	120	89.50	10.43	102.00	12.02	12.50	89.60	10.36	91.23	11.79	1.63	10.87	-10.29**	-1.26
Pulses (g)	30	17.44	6.92	23.00	5.13	5.56	17.30	7.04	18.20	7.09	0.90	4.66	-7.77**	-1.05
Green leafy	50	12.54	3.11	32.40	14.29	19.86	12.78	3.24	13.17	3.06	0.39	19.47	-12.15**	-0.23
Other Veg.	100	29.90	7.87	42.20	14.92	12.30	29.94	7.98	29.91	8.33	-0.03	12.33	-9.34**	+0.027
Roots and	100	30.22	10.38	44.30	14.04	14.08	29.95	10.34	32.74	10.80	2.79	11.29	-10.43**	-2.24
Fruits (g)	100	11.91	8.43	33.10	11.31	21.19	12.39	8.57	14.55	7.90	2.16	19.03	-9.04**	-0.94
Milk (ml)	500	105.14	39.31	171.00	65.51	65.86	106.24	40.53	108.77	47.69	2.53	63.33	-11.08**	-0.51

Fats & oil	25	18.54	4.37	21.76	4.78	3.22	18.75	4.38	17.71	4.34	-1.04	4.26	-6.74 **	+1.99
Sugar and	20	19.18	4.86	20.88	3.89	1.7	19.31	4.86	17.95	4.71	-1.36	3.06	-3.45 *	-0.3

g= grams ml= milliliter std=standard S.D. = Standard Deviation

Mean Difference = (Post-Pre)Difference = (Experimental - Control) in mean differences

*** Significant at 5% level ** Significant at 1% level**

(d) Other Vegetable:-

The other vegetables consumed by preschool children were cluster beans, cabbage, cauliflower, brinjal, tomato, ladies finger, drumstick, and others. The average mean consumption of other vegetables by pre-school children in the experimental group during pre and post assessment periods shows that there was a significantly increase in the consumption of other vegetables after imparting nutrition counselling of mothers. The change of increase in the consumption of other vegetables was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in table 2 and figure 1.While in the control group significant change was not observed in other vegetables consumption (Table 2 and figure 2).

(e) Roots and Tubers

Commonly used roots and tubers in the surveyed area were potato and carrot. The root and tubers consumed by preschool children were potato and carrot. The average mean consumption of root and tubers by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of root and tubers after imparting nutrition counselling of mothers. The change of increase in the consumption of root and tubers was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1.While in the control group significant change was not be observed in root and tubers consumption(Table 2 and figure 2).

(f) Fruits

In the present study area commonly seasonable available fruits were pomegranate, guava, banana, sapota, custard apple, papaya and mango. Before imparting nutrition counselling of mothers consumption ratio of fruits by preschool children in the both experimental and control group was found very poor as compared to recommended standard by ICMR. The average mean consumption of fruits by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of fruits after imparting nutrition counselling of mothers. The

change of increase in the consumption of fruits was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1.While in the control group significant change was not observed in fruits consumption (Table 2 and figure 2).

(g) Milk and milk products

The average mean consumption of milk and milk products by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of milk and milk products after imparting nutrition counselling of mothers. The change of increase in the consumption of milk and milk products was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1.While in the control group significant change was not observed in milk and milk products consumption (Table 2 and figure 2).

(h) Fat and Oil

The average mean consumption of fat and oil by pre-school children in the experimental group during pre and post assessment period shows that there was a significantly increase in the consumption of fat and oil after imparting nutrition counselling of mothers. The change of increase in the consumption of fat and oil was mainly due to the impact of the intervention. This change was statistically significant at 1% level as observed in the table 2 and figure 1.While in the control group significant change was not observed in fat and oil consumption(Table 2 and figure 2).

(i) Sugar and sugar products

The average mean consumption of sugar and sugar products by pre-school children in the experimental group during pre and post assessment period shows that there was a slightly increase in the consumption of sugar and sugar products after imparting nutrition counselling of mothers. This change was statistically significant at 5 % level as observed in the table 2 and figure 1.While in the control group sugar and sugar products intake was slightly decrease as compared to ICMR BDA standard. A significant change was not observed in the control group(Table 2 and figure 2).

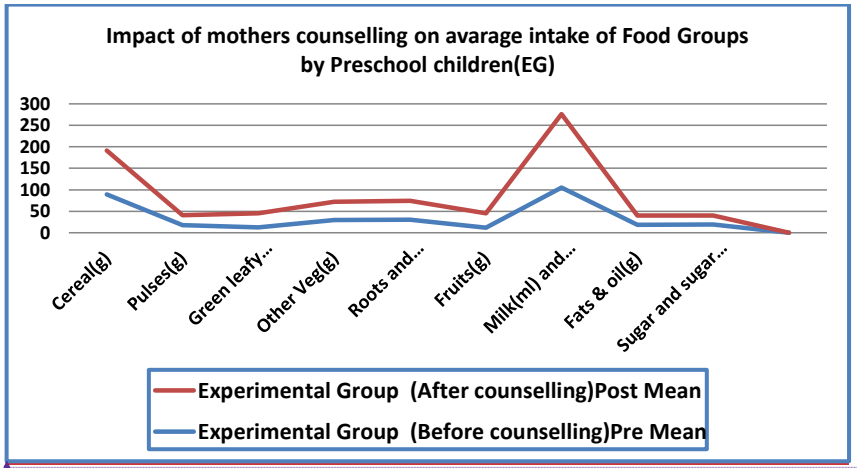

Figure 1 : Impact of Mothers counselling on intake of Food Groups by preschool children in Experimental Group (EG)

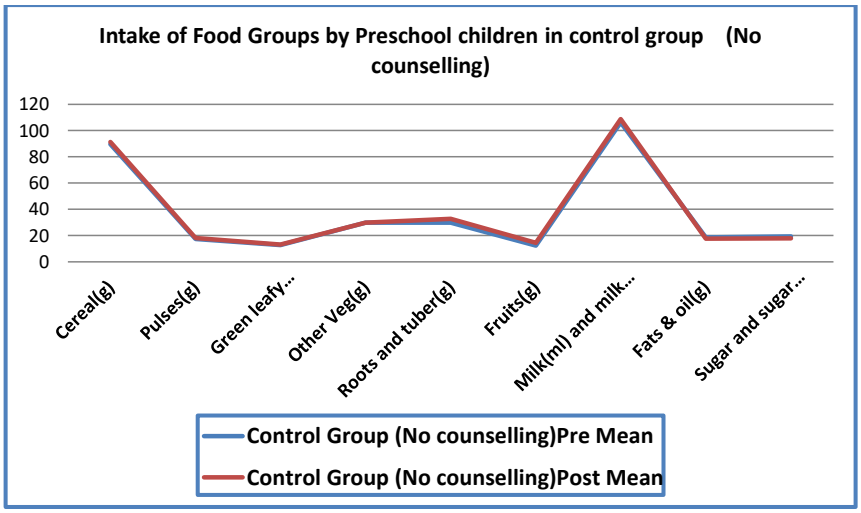

Figure 2: Intake of Food Groups by preschool children in Control Group (No counselling)

The similar finding with this result was found in a study done by NurcanYabanc et al (2014), the study found that the mothers who have higher level nutritional knowledge feed their children more with vegetable, fruit, legumes, and less sugared drinks such as pops, juice and fast foods than the mothers who have lower level of nutritional knowledge. Also, higher nutritional knowledge level mothers avoid giving the foods which contains artificial to their children, and

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believe more the knowledge about nutrition-health. Mothers‟ nutrition knowledge level affects children's eating habits.

This is also supported by a study on evaluate the impact of a nutritional intervention in the first year of life on the dietary quality of 3 to 4 year old children done by Marcia Regina Vitolo (2010) et al. found that the prevalence of poor diet in the intervention group was lower compared with the control group [relative risk (RR) = 0.30; 95% CI = 0.13–0.71). The number of children who achieved the 75th percentile for the vegetable and fruit component score was higher in the intervention than in control group (RR = 1.95; 95% CI = 1.31–2.89 and RR = 1.49; 95% CI = 1.07– 2.07, respectively). The result concluded that dietary counselling for mothers during the first year of life improves the overall dietary quality of children in a low-income population.

The nutrition counselling imparted to mothers will help in providing nutritious foods to their children as also echoed by Pabayo et al., (2012), who has also stated that Mothers‟ nutritional knowledge has a positive effect on their children‟s eating habits. According to Garg (2006) counselling can be effective to the extent that it affects health knowledge, dietary attitude and dietary practices.

The research confirms the indispensability of Counselling mothers on nutrition especially in the view of pivotal role mother plays in preschool children age group who are our future capable citizens. The research therefore, recommended that, there is need to provide nutrition education to mothers by nutritional experts which will go a long way in improving children nutritional status.

Conclusion

From the above results, it is overall concluded that significant ($p<0.01$) increase in the intake of the food groupsby preschool children in the experimental group is highly appreciable and a good behaviour changes from the mothers and their preschool children can be expected in the long run. Counselling must win acceptance of a practice, arouse a desire in mothers to benefit from it, obtain the involvement of mother and support the maintenance of changes in dietary habits. It is mostly direct communication with mothers to accept the programme and to increase their motivation to benefit from it. There may be many obstacles like culture, superstitions and human tendency to seek earliest solution for everything.

Recommendations

Our empirical results strongly suggest that mother’s nutrition knowledge has a positive effect on the diets of children, particularly for preschoolers.

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