

Research Article

Nutrient Consumption and Hygiene and Sanitation Practices of Primary School Children (Urban & Rural) in Bareilly, Uttar Pradesh

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Abstract: Children form an important proportion of the vital human potential of any country and therefore their health and wellbeing is of great importance. Like preschool children, primary school children are of concern from nutrition view point as they are still in a growing age physically and their intellectual development is rapid. Earlier studies conducted in the Bareilly region had shown high prevalence of child malnutrition including vit A, energy and calcium deficiency. These deficiencies contribute to ill growth, poor physical development as well as low performance in school. Therefore nutrition education was imparted to the primary school children of backward areas through a combination of media and the impact was studied in terms of knowledge and practices. A total of one hundred and fifty children of 7-9 years were purposively selected. A pretested survey schedule was used for pre and post exposure data collection. A combination of folders, booklets, charts, group discussion, lectures, picture books & puzzles were used for imparting the messages. Knowledge scores and practices obtained after nutrition education showed a significant improvement due to given programme. Also an overall improvement was noticed with respect to the nutrient consumption in both urban and rural group of children.

Keywords: Children, nutrition, Knowledge scores, malnutrition

INTRODUCTION

Children are the supreme assets and future of any nation. They are a group at great risk in regard to health problems, particularly malnutrition. In India the children of age group of 0-14 years forms a big part of the population of 29% of Total population in 2013 [1]. Globally Around 165 (26% in 2011) million children and in India 61.7 Million (in 2011) under the age of 5 are stunt or underweight for their age [2] and around 100 million children between the age of 6-11 are not enrolled in primary schools [2].

Uttar Pradesh is the largest populous state of the country having a population of 1998,12,341 which forms a large percentage of the population of the country. India's literacy rate is known to be as low as 73.00 percent according to the latest censuses. Among the various measures which the government has taken to improve the literacy rate in the country, the most important one is the establishing of more primary schools for imparting education to children.

The number of children attending primary schools has increased largely. The primary schools may not only be considered as a place for teaching the

children their curriculum but may also be used as a channel for some intervention programmes.

Lack of knowledge about the dietary requirements and nutritive value of different foods are the contributory causes for the widespread occurrence of malnutrition among vulnerable sections of the population in the developing countries. So the importance of nutrition education as a means for improving the nutrition of the community in the developing countries has been increasingly realized during recent years.

India's major nutritional problems are Proteins Energy Malnutrition, Nutritional Anaemia, Vitamin A Deficiency (VAD) & Iodine Deficiency Disorders. These diseases cause greater morbidity and mortality amongst the children [3].

The government has planned various programmes and schemes to improve the nutritional status of the children. Integrated Child Development Programme, Balwadies & Anganwadies are some of the programmes at village level. Although most of these programmes concentrate on the children under five years of age group which is most vulnerable but the

children of primary school age are not well off. The nutritional requirements of the body are high during this age because this too is a rapid growth phase of a human physique. Further it is also now known that the health of an adult depends on his/her nutritional status during childhood. Schools are important setting for nutrition education because they reach most children and parents. Teacher claim respect and can have a huge influence on children's attitude and behaviour. In rural area the nutritional status of children are low due to lack of knowledge and awareness about health & nutrition. Rural children in comparison to their urban counterparts have greater requirements for intervention programmes.

Therefore the major objective of the present study in to assess the impact of nutrition and health intervention programme on cognitive learning of primary school children.

METHODOLOGY

The present study was conducted in primary schools of Bareilly district. Primary school of government, private, public schools and Saraswati Shishu Mandir of Bareilly District Constituted the population of the study. The children within 7-9 years of age were selected randomly from the identified schools. Seventy five children from rural and urban areas each constituted the total sample of 150.

For testing knowledge the method as suggested by Kumar et al [4] and others [6] was used. A set of 30 questions of multiple choice nature and were prepared for testing knowledge of the subject children. Diet

survey was conducted by a combination of diet diary, 24 hours recall and weighthment method.

Nutritive value of diets consumed per day by the children was calculated in terms of protein, Fat, calories, calcium, iron, β -carotene, thiamine, Riboflavin & niacin using the food composition tables of Gopalan et al [5]

The messages were related mainly to increased consumption of foods & nutrients in general and particularly energy, vitamin A, calcium & iron. Message related to hygiene and sanitation were given an important place. The posters, folders, booklets, lectures, picture books, puzzles along with group discussion were the media used.

Nutrition education was imparted twice a week and it continued for six months. After nutrition education, to asses the impact on nutrition knowledge, post exposes knowledge test was done within 48 hours for gain in knowledge and after 15 days for retention of knowledge. In order to asses the changes in practice, diet survey was conducted and practices related to hygiene and sanitation were also recorded 15 days after the education.

RESULTS AND DISCUSSION

The results of the present study conducted on the primary school children are discussed. Table 1 shows the percent gain and retention in knowledge scores of rural group and urban group respondents. Percentages of scores were 0 to 33.33 percent= low, 36 to 66.66 percent= medium and 70 to 100 percent- high.

Table-1:Gain and retention of knowledge

Categories	Mean percent knowledge level			
	Gain in knowledge		Retention of knowledge	
	Urban	Rural	Urban	Rural
Low	17.4	15.2	17.25	14.44
Medium	37.5	47.2	48.52	44.00
High	73.0	78.4	83.73	82.00

In general there was a considerable gain in knowledge. The scores of gain fell between 0 to 92 percent with the mean of 42.7 percent in urban group. High to medium gain was noticed among more than 45 percent of the respondents. There was a significant gain also in knowledge of urban group, the percent gain being 46.93.

In an effort to find out how much knowledge the children were able to retain after some gap, the knowledge test was again conducted after leaving a two week's gap. During their period the investigator did not contacted the subjects for nutrition education however, the folders and picture books were left with them. Mean scores obtained at the end of this gap showed that there was a decline. Whereas the mean percentage scores for

gain immediately after nutrition education was 42.7 in urban children, the corresponding percentage after the gap (called the retention) was only 28.8. In rural children the corresponding percentage after the gap was 26.43 against 35.33 percent which was immediately after nutrition education. It is also important to notice that the knowledge after two week's gap was significantly higher in urban group but not significant in rural group.

In the present study the mean nutritive value of home diets consumed at pre-exposure and post exposure level in presented in Table 2. in terms of protein, fat, energy, calcium, Fe, β -carotene, thiamine, riboflavin and niacin.

Table-2: Mean nutrition value of daily diet of children.

Nutrients	Urban		Rural	
	Pre-exposure	Post Exposure	Pre-exposure	Post-Exposure
Protein (g)	26.24	36.43	23.55	31.75
Fat (g)	23.78	37.43	19.81	32.78
Calories (Kcal)	1145.8	1781.79	1382.96	1706.09
Calcium (mg)	288.40	831.44	229.83	617.75
Iron (mg)	3.81	15.93	11.84	17.46
β -carotene (ug)	896.40	7291.83	483.35	4396.75
Thiamine (mg)	1.64	2.07	1.14	2.50
Riboflavin (mg)	0.59	1.17	0.55	1.84
Niacin (mg)	12.10	15.27	12.80	16.80

At the pre-exposure stage when compared with the allowances recommended by ICMR (2011) it was found that almost all the nutrients were inadequate in the diets of both urban and rural group with only thiamine reaching the RDA Value. An overall improvement was noticed with respect to the nutrient consumption in both urban and rural group of children. The improvements were significant for all the nutrients calculated in urban group. In rural children improvements were also significant except for protein and calcium. In spite of the improvement the values for calories and iron did not reach the RDA.

When compared with the urban group the changes in nutrients consumption of the rural group are

few. The changes in the protein and calcium consumption are significant in the urban group but not significant in rural group which may be attributed to the limited intake of milk due to economic constraints in rural area.

The observation made on the study subjects before and after the nutrition and health education about practices related to hygiene and sanitation are presented in Table 3. At pre-exposure stage when children were asked whether they cleaned their teeth daily or not, only 37.33 percent responded in 'Yes' whereas a much larger proportion (62.66%) said 'No' in urban group.

Table-3: Practices related to hygiene and sanitation

Hygiene and sanitation practices	Urban		Rural	
	Pre-exposure	Post-exposure	Pre-exposure	Post-exposure
<u>Do children clean their teeth daily ?</u>				
Yes	37.33	69.33	9.33	89.33
No	62.66	30.66	90.66	10.66
<u>What do children use to clean their teeth ?</u>				
Tooth powder or Paste				
Koyla	92.00	100.00	62.66	89.33
Finger only	0.00	0.00	14.66	1.33
Any other	8.00	0.00	22.66	9.33
	0.00	0.00	0.00	0.00
<u>Condition of nails</u>				
Long and dirty	22.66	1.33	9.33	20.00
Short and dirty	45.33	30.66	66.66	30.66
Long and clean	29.33	68.00	20.00	44.00
Short and clean	2.66	0.00	4.00	5.33
<u>Frequency of bath</u>				
Daily	54.66	62.66	42.66	50.66
Thrice a week	22.66	29.33	41.33	42.66
Twice a week	13.33	8.00	10.66	6.66
Once a week	9.33	0.00	5.33	0.00
<u>Whether children wash fruits before they eat?</u>				
Yes	25.33	100.00	8.00	85.33
No	74.66	0.00	92.00	14.66
<u>Whether children wash their hands before each meal ?</u>				
Yes	25.33	100.00	22.66	90.66
No	74.66	0.00	77.33	9.33

In the rural group the situation was worse with only 9.33 percent saying 'Yes' and the 90.66 percent 'No'. Out of those who cleaned teeth daily, majority used tooth powder or paste. The other simply cleaned their teeth with finger without applying anything else on it. Only in rural area a small proportion (14.66%) used Koyla.

Both in rural and urban group, majority had dirty nails, either short or long. Only a very small proportion it 2.66 percent in urban children and 4.00 percent in rural children had clean and short nails.

Having a bath was not a common practice especially among the rural children. At the pre-exposure stage those who bathed daily formed 54.66 percent in urban group but 42.66 percent in rural group. In urban group 22.66 percent took bath daily, 13.33 percent twice a week and 9.33 percent once a week.

In rural group 41.33 percent took bath thrice a week 10.66 percent twice a week & 5.33 percent once a week. probably such a practice was followed due to cold conditions prevailing during survey period.

At the pre-exposure stage only 25.33 percent of the urban group children & 8 percent of the rural group subjects washed fruits before they ate them and remaining did not wash the fruits.

Scores obtained for answers regarding washing of hands before each meal revealed that the condition in general was very poor at the pre-exposure level. The percentage of children responding 'Yes' was 25.33 in urban area and 22.66 in rural area. Hygiene and sanitation practices in general improved by the post exposure stage in both the group, indicating that the education was effective. The percent of subjects who cleaned teeth daily increased from 37.33 percent in pre-exposure stage to 69.33 percent in the post exposure stage in urban group. In rural group percent of subjects increased from 9.33 to 89.33 percent. When the impact of nutrition education on hygiene and sanitation practices was analysed statistically by allotting scores to each practice it higher scores to correct practice and lower scores to incorrect ones, it was noticed that the practices in general improved statistically in both the groups due to the imparted education.

FINDINGS OF THE STUDY

To meet the objective of the present study is “ nutrient consumption & hygiene & sanitation practices of primary school children”

Knowledge scores obtained after nutrition education showed a significant improvement due to the given programme. Knowledge retention studied after a gap of two weeks showed a decline, when compared with the immediate post exposure knowledge.

Improvement in proportion of children having healthy hygiene and sanitation practices were observed at post-exposure stage in both the groups. More number of children (79.00%) started to clean their teeth regularly in comparison to the pre-exposure stage (23.33%). Condition of nails was also improved. A daily bath was reported by 56.66 percent of children at post-exposure level instead of 48.66 percent at pre-exposure stage. More number of children started washing fruits before they ate them. Washing of hands before each meal become more common.

In nutrient intake an overall improvement was noticed with respect to the nutrient consumption in both urban and rural group of children.

On the whole it may be concluded that the combination of media helped the primary school children to grasp information and to change their practices related to diet, hygiene and sanitation. Thus a combination of media is useful for educating the primary school children. Finding of the present study impphasize the need for formulating school programmes of nutrition education through combination of media for a longer duration of time and also after regular intervals.

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