

Research Paper :

## Impact of nutrition education on pregnant and lactating mothers

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### ABSTRACT

The present work was under taken to study knowledge of the pregnant and lactating mothers regarding consumption of nutrients, and to evaluate changes in knowledge and practice status of the subjects due to nutrition education imparted to them. One hundred and fifty pregnant and lactating mothers with at least one living child were purposely selected. The nutrition education was provided to these subjects. The inferences were drawn with the help of suitable statistical tools, wherever felt necessary. Majority of the overall subjects had no knowledge of protein and vitamins at initial phase of the nutrition education. The change in knowledge status during post evaluation period was significant in illiterate mothers only. Insignificant changes in other educational categories indicated high level of pre-knowledge. Further, significant amelioration in knowledge and practice aspects (mean  $\pm$  SD scores) were observed due to nutrition education. These findings suggested significant impact of nutrition education imparted to the pregnant and lactating mothers.

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For the women of all races, reproduction involves considerable physiological stress as pregnancy, parturition and lactation make great nutritional demands on their bodies and are accomplished by additional health hazards (Anonymous, 1950, 1961). The nourishment of the mother before conception and during pregnancy is at utmost important for the delivery of a healthy baby. It has been reported that the babies conceived before and born during the hunger period are shorter and lighter in comparison to the counterparts receiving adequate nutrition. The infants born to the under nourished women have low vitality and poor resistance to infections due to inadequate supply of the nutrients by these mothers (Bajjal and Sharma, 1992).

Improvements in income, diet and sanitary conditions ameliorate nutrition and health of the mothers and infants, and thereby maternal and infant mortalities are reduced (Swaminathan, 1971). Earlier studies conducted in Varanasi revealed consumption of deficient quantities of nutrients during pregnancy even in educated and 'well to do' families. Most probably, it happened due to misconceptions regarding nutritious diets and lack of nutritional knowledge in these mothers (Mohapatra *et al.*, 1993; Mridula, 2003).

In this perspective, the present study was undertaken to study knowledge of the pregnant and lactating mothers regarding consumption of nutrients and to evaluate changes in the knowledge and practice status of the subjects due to nutrition education imparted to them.

### METHODOLOGY

One hundred and fifty pregnant and lactating mothers

with at least one live child, were purposely selected from four randomly selected villages of Harahua Community Development Block of Varanasi District (U.P.). The nutrition education was provided on various aspects of health care delivery, nutrients and nutritional requirements and feeding practices to the subjects. Various health education aids were utilized for thorough understanding of the content material.

Questionnaire-cum-Interview Technique was employed to collect the required information. Qualitative items were scored on scientific basis and finally mean and standard deviation were also worked out. Finally inferences were drawn with the help of appropriate statistical tools wherever felt necessary (Gupta and Srivastava, 1998; Garrelt, 1982).

### Background information:

Majority of the subjects were illiterate house wife belonging to age more than 25 years, nearly one third mothers (31 per cent) belonged to upper castes, followed by scheduled caste group (24 per cent) and middle castes. The percentages of mothers in middle and scheduled caste group were almost similar. Further, one third mothers were from the families of per capita income below poverty line. The distribution of nuclear and joint families was almost equal.

### FINDINGS AND DISCUSSION

It is evident (Table 1) that majority of the overall subjects had no knowledge at all about protein (90.7%). There were only 6.0% subjects who reiterated that protein

**Table 1: Knowledge of protein and consequences of its deficiency according to literacy status of the subjects**

Literacy status	Type of evaluation	Knowledge of protein						Change in percentage	Statistical significance $\chi^2$ -value (at 1 DF)
		Malnutrition and fever		Don't know about deficiency		No knowledge at all			
		No.	%	No.	%	No.	%		
Illiterate (n = 107)	Pre	1	0.9	2	1.9	104	97.2	83.2	148.06***, P<0.001
	Post	90	84.1	13	12.1	4	3.8		
Primary (n = 26)	Pre	2	7.7	1	3.8	23	88.5	69.2	22.77***, P< 0.001
	Post	20	76.9	6	23.1	-	-		
Middle (n = 7)	Pre	1	14.3	-	-	6	85.7	85.7	-, P < 0.0023
	Post	7	100.0	-	-	-	-		
High School (n = 10)	Pre	5	50.0	2	20.0	3	30.0	50.0	-, P < 0.0163
	Post	10	100.0	-	-	-	-		
Total (n = 150)	Pre	9	6.0	5	3.3	136	90.7	78.7	184.12***
	Post	127	84.7	19	12.6	4	2.7		

\*\*\* indicates significance of value at P=0.001

deficiency caused malnutrition and fever. According to literacy status, majority of the illiterate subjects (97.2%); followed by primary (88.5%); middle (85.7%) and High School and above (30.0%) were fully unaware of the benefits of protein at pre-evaluation period. On imparting nutrition education to these subjects, majority of the overall subjects (84.7%) obtained knowledge regarding benefits ( $\chi^2 = 184.12$ ,  $P < 0.001$ \*\*\*) of the protein. It is very interesting that increase in knowledge regarding protein and consequences of its deficiency (%) were found increasing in reverse order (except middle education) of the literary status. The percentage changes obtained were 83.2; 69.2; 85.7 and 50.0 for illiterate ( $\chi^2 = 148.06$ ,  $P < 0.001$ \*\*\*); Primary ( $\chi^2 = 22.77$ ,  $P < 0.001$ \*\*\*); Middle ( $P = 0.0023$ ) and High School and above ( $P = 0.00163$ ), respectively. These findings suggested significant contribution of nutrition education in all the education

groups to varied extent. In an earlier study of Varanasi district, Kavita (2005) reported that 36.67% pregnant mothers had no knowledge of the benefits of protein. According to residential status of the pregnant mothers, the contribution of no knowledgeable rural mothers was 51.33% against 22.00% urban mothers. The factor responsible for this shortcoming was education of the pregnant mothers (Kavita, 2005).

Moreover, pre-knowledge about vitamins and its consequences were known to almost all the subjects in the category of middle and above level of education, whereas it was only 13.1% to illiterate and 38.5% to primary school (Table 2). The changes of 76.6% and 61.5% in mothers of illiterate ( $\chi^2 = 122.73$ ,  $P < 0.001$ \*\*\*) and primary ( $\chi^2 = 20.31$ ,  $P < 0.001$ \*\*\*) education were significant. Though the change in primary education category was lesser than illiterate due to higher

**Table 2: Knowledge of vitamin and consequences of its deficiency according to literacy status of the subjects**

Literacy status	Type of evaluation	Knowledge of vitamin						Change in percentage	Statistical significance $\chi^2$ -value (at 1 DF)
		General weakness with dry and chapped skin		Don't know about deficiency		No knowledge at all			
		No.	%	No.	%	No.	%		
Illiterate (n = 107)	Pre	14	13.1	6	5.6	87	81.3	76.6	122.73***
	Post	96	89.7	9	8.4	2	1.9		
Primary (n = 26)	Pre	10	38.5	4	15.4	12	46.1	61.5	20.31***
	Post	26	100.0	-	-	-	-		
Middle (n = 7)	Pre	5	71.4	-	-	2	28.6	28.6	NS
	Post	7	100.0	-	-	-	-		
High School (n = 10)	Pre	9	90.0	1	10.0	-	-	10.0	NS
	Post	10	100.0	-	-	-	-		
Total (n = 150)	Pre	38	25.4	11	7.3	101	67.3	67.3	137.80***
	Post	139	92.7	9	6.0	2	1.3		

NS = Non significant; \*\*\* indicates significance of value at P=0.001

percentage of pre-knowledgeable mothers. Further all the mothers in primary and above education categories became knowledgeable showing significant impact of literacy.

So far as knowledge about increased diet during pregnancy is concerned (Table 3), it was found lowest in illiterate mothers (33.6%) and highest in mothers of high school and above education category (90.0%). Kavita (2005) documented increased diet by two third (67.67%) mothers. Most probably this difference is due to time lag of 14 years. During post evaluation period, the knowledge of the subjects increased significantly to more than 95% in each category of the education. Almost similar level of knowledge in all the education categories at post evaluation period definitely indicates acceptance of nutrition education irrespective of their literacy level ( $P < 0.001$ ).

Moreover 65.4% illiterate mothers (Table 4)

reiterated supplementation of foods with milk, green leafy vegetables and seasonal fruits as compared to 69.2% mothers of Primary; 80.0% High School and above and 85.7% of Middle education category. The change in knowledge status during post evaluation period (17.8%) was significant in illiterate mothers ( $\chi^2 = 7.93$ ,  $P < 0.01^{**}$ ) only. Insignificant changes in other educational categories indicated high level of pre-knowledge regarding type of diet taken during pregnancy.

Table 5 illustrates mean and standard deviation of the scores obtained by the subjects at pre and post phases of the nutrition programme. It was observed that there were significant amelioration in knowledge and practice aspects of all the contents of nutrition education e.g., the knowledge scores of the subjects regarding knowledge of the nutrients ( $t = 29.62$ ,  $P < 0.001^{***}$ ); cooking practices ( $t = 13.36$ ,  $P < 0.001^{***}$ ) and nutrition in pregnancy and lactation ( $t = 14.83$ ,  $P < 0.001^{***}$ ) reached to  $12.59 \pm 1.54$

**Table 3 : Knowledge about increased diet during pregnancy according to literacy status of the subjects**

Literacy status	Type of evaluation	Increase diet						Change in percentage	Statistical significance $\chi^2$ -value (at 1 DF)
		Should be taken		Not necessary		Don't know			
		No.	%	No.	%	No.	%		
Illiterate (n = 107)	Pre	36	33.6	67	62.6	4	3.8	64.5	96.14 <sup>***</sup>
	Post	105	98.1	2	1.9	-	-		
Primary (n = 26)	Pre	11	42.3	14	53.8	1	3.8	53.9	15.26 <sup>***</sup>
	Post	25	96.2	1	3.8	-	-		
Middle (n = 7)	Pre	1	14.3	5	71.4	1	14.3	85.7	- P=0.002
	Post	7	100.0	1	-	-	-		
High School (n = 10)	Pre	9	90.0	1	10.0	-	-	10.0	- NS
	Post	10	100.0	-	-	-	-		
Total (n = 150)	Pre	57	38.0	87	58.0	6	4.0	60.0	121.34 <sup>***</sup>
	Post	147	98.0	3	2.0	1	-		

NS = Non significant; \*\*\* indicates significance of value at  $P=0.001$

**Table 4 : Knowledge about type of diet during pregnancy according literacy status of the subjects**

Literacy status	Type of evaluation	Type of diet				Change in percentage	Statistical significance $\chi^2$ -value (at 1 DF)
		Normal food intake		Foods supplemented with milk GLV and seasonal fruits			
		No.	%	No.	%		
Illiterate (n = 107)	Pre	37	34.6	70	65.4	17.8	7.93 <sup>**</sup>
	Post	18	16.8	89	83.2		
Primary (n = 26)	Pre	8	30.8	18	69.2	23.1	3.10 NS
	Post	2	7.7	24	92.3		
Middle (n = 7)	Pre	1	14.3	6	85.7	14.3	- NS
	Post	-	-	7	100.0		
High School (n = 10)	Pre	2	20.0	8	80.0	-	0.313 NS
	Post	2	20.0	8	80.0		
Total (n = 150)	Pre	48	32.0	102	68.0	17.3	11.65 <sup>***</sup>
	Post	22	14.7	128	85.3		

NS = Non significant; \*\* and \*\*\* indicate significance of values at  $P=0.01$  and  $0.001$ , respectively

**Table 5 : Mean  $\pm$  SD scores obtained by the subjects regarding nutrition education at pre and post evaluation periods**

Content of nutrition education	Evaluation Period/Score		Statistical significance 't'-value
	Pre Mean $\pm$ SD	Post Mean $\pm$ SD	
Nutrients			
- Knowledge	5.29 $\pm$ 2.60	12.59 $\pm$ 1.54	29.62, $P < 0.001$ ***
Cooking practices			
- Knowledge	3.18 $\pm$ 0.75	4.00 $\pm$ 0.05	13.36, $P < 0.001$ ***
- Practice	8.15 $\pm$ 1.72	10.26 $\pm$ 1.33	11.91, $P < 0.001$ ***
Nutrition in pregnancy and lactation			
- Knowledge	4.65 $\pm$ 1.87	7.27 $\pm$ 1.09	14.83, $P < 0.001$ ***

\*\*\* indicates significance of value at  $P=0.001$

scores;  $4.00 \pm 0.05$  scores and  $7.27 \pm 1.09$  scores, respectively at post evaluation phase from  $5.29 \pm 2.60$  scores;  $3.18 \pm 0.75$  scores and  $4.65 \pm 1.87$  scores, at pre evaluation phase of the nutrition education. Similarly practice aspect of cooking practices also increased significantly after nutrition education programme. These findings suggested significant impact of nutrition education imparted to the pregnant and lactating mothers of Varanasi district.

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