



IMPACT OF NUTRITION AND HEALTH EDUCATION ON AWARENESS AND PRACTICES AMONGST RURAL PREGNANT WOMEN

Priyadarshani, P.D. & Asha, A.

Department of Food and Nutrition, College of Home Science, Vasantnao Naik Marathawada Krishi Vidhyapeeth
Parbhani 413 502, Maharashtra, India.

*Corresponding authors email: desh mukhpriyadarshini19@gmail.com

ABSTRACT

Impact of nutrition education on awareness and practices amongst rural pregnant women regarding diet, personal hygiene and breast feeding was studied. Total 90 pregnant women from three villages of Parbhani Tahashil, Maharashtra, India, were divided into experimental (n=60) and control group (n=30). Nutrition and health education was imparted for a period of four months (weekly 1 session of 2 hr) by means of lectures, chart, leaflet, folder, demonstrations and nutrition game. Data regarding awareness and practices among subjects before and after nutrition education was collected by using pretested survey schedule by personal interview method. After intervention significantly high percent of subjects from experimental group gained knowledge that greens are rich sources of nutrients and followed the practice of using lid for cooking of vegetables to avoid loss of nutrients. Significantly higher percent (66.67) of subjects followed the correct practice of disposal of waste water and 90 percent subjects became aware of incidence of mosquitoes due to stagnated water surroundings. Furthermore intervention resulted in significant improvement in the knowledge, awareness and practices of pregnant women regarding breast feeding and weaning. Implementation of nutrition education proved effective means to improve awareness and practices of rural pregnant women regarding diet, personal hygiene, breast feeding and weaning.

KEY WORDS: Nutrition education, Personal hygiene, Awareness, Pregnant women, Breast feeding.

INTRODUCTION

Nutrition and health education is a multidisciplinary process that involves the transfer of information, motivation and the modification of knowledge, awareness and practices where needed. Effective nutrition and health education delivered through various methods, especially to rural pregnant women can be a successful strategy to improve the awareness and practices of pregnant women in order to have good nutritional status of mother and future generations. Nutrition and health education plays an important and special role in the pregnancy for maintenance of sound maternal health. Therefore, nutrition education is an integral part of all nutrition intervention programmes. Diet, personal hygiene and sanitation needs to be taken special care for better outcome of pregnancy and to prevent anaemia. Maternal anaemia is a burning public health problem and has been related to poor foetal outcome. In India anaemia is directly or indirectly responsible for 40 percent of maternal deaths (Kalaivani, 2009). Unfortunately, nutritional status and health of women particularly in rural area is still neglected area due to lack of knowledge and awareness. Therefore there is an urgent need to educate rural pregnant women to improve knowledge, awareness and practices regarding diet and personal hygiene to have better outcome of pregnancy. Breast milk is a dream product to feed and immunize every human born on earth. No manufactured food can match with the content of breast milk. Thus it is a best gift a mother can give her baby. Only breast milk offers complete nutrition, early protection against illness and safe

healthy food at once (Jain *et al.*, 2013). Irrespective of the fact that breast feeding in India is almost universal, psychosocial and cultural barriers still exists to early breast feeding. Hence study was conducted to assess the impact of nutrition and health education on awareness and practices followed by rural pregnant women regarding diet, personal hygiene, breast feeding and weaning.

MATERIALS & METHODS

The present study was carried out in the three villages of Parbhani Tahsil, Maharashtra, India. A total sample of 90 rural pregnant women with the gestational age of three to five month was randomly selected. The willingness of subjects to participate in the study was asked. A written consent was obtained and accordingly they were divided into experimental (n=60) and control group (n=30). The data was collected by using pretested survey schedule and educational material like chart, leaflet, folder, nutrition game was developed. Recipe book (with special emphasis on iron content) and scripts of lectures were also prepared. Nutrition and health education was imparted for a period of four months (weekly 1 session of 2 hrs) by means of lectures, demonstrations and nutrition game. Data regarding awareness and practices among subjects before and after nutrition education was collected by using pretested survey schedule by personal interview method. The information regarding awareness and practices regarding diet, personal hygiene, sanitation, breast feeding and weaning was collected before and after intervention by personally interviewing the subjects. Nutritional

awareness with special emphasis on anaemia was also tested through the pre tested survey schedule by interviewing the subjects.

Statistical Analysis

Data obtained regarding practices and awareness of respondents regarding diet, personal hygiene, breast feeding and weaning before and after intervention was expressed in percentage. Statistical difference in the

selected variables was determined by use of 'z' test (Gupta, 1992).

RESULTS & DISCUSSION

Dietary practices and awareness of pregnant women before and after nutrition education

The data regarding dietary practices and awareness of selected pregnant women after imparting nutrition education is presented in Table 1.

TABLE 1: Dietary practices and awareness of pregnant women before and after nutrition education

Particulars	Experimental group (n=60)			Control group (n=30)			
	BI (%) subjects	AI (%) subjects	'Z' value	BI (%) subjects	AI (%) subjects	'Z' value	
Foods habits	Vegetarian	68.33	68.33	0 ^{Ns}	70.00	70.00	NS
	Non-vegetarian	11.67	15.00	1.41 ^{Ns}	30.00	30.00	NS
	Eggetarian	20.00	16.67	1.04 ^{Ns}	-	-	-
Include sprouts in diet	Yes	30.00	66.67	3.92**	26.67	30.00	0.46 ^{Ns}
	No	70.00	33.33	3.69**	73.33	70.00	0.18 ^{Ns}
Greens are rich sources of	Energy	35.00	3.33	7.08**	36.67	43.33	0.65 ^{Ns}
	Essential nutrients	11.67	88.33	6.70**	10.00	13.33	1.14 ^{Ns}
	Don't know	53.33	8.33	6.52**	53.33	43.33	0.80 ^{Ns}
GLVs are taken-	own farm/backyard	25.00	25.00	NS	20.00	20.00	NS
	Weekly bazaar	36.67	18.33	3.52**	43.33	43.33	NS
	Both	38.33	56.67	2.09*	36.67	36.67	NS
Cook GLV	With lid	40.00	85.00	2.35*	43.33	46.67	0.29 ^{Ns}
	Without lid	45.00	11.67	2.90**	20.00	16.67	0.72 ^{Ns}
	Not specific	15.00	3.33	6.13**	36.67	36.67	NS
Drain excess water while cooking	Yes	26.67	-	7.89**	23.33	23.33	NS
	No	73.33	100	1.67 ^{Ns}	76.67	76.67	NS
Eating GLVs as raw salad saves-	Fuel	-	-	NS	-	-	-
	Loss of nutrients	-	85.00	7.79**	-	-	-
	Don't know	100	15.00	6.54**	100	100	NS
Like GLVs -	Very much	38.33	46.67	1.08 ^{Ns}	26.67	26.67	NS
	Not so much	50.00	53.33	0.35 ^{Ns}	63.33	63.33	NS
	No	11.67	-	8.11**	10.00	10.00	NS
GLVs can be cooked only in a limited way -	Yes	36.67	-	7.58**	46.67	46.67	NS
	No	63.33	100	2.41*	53.33	53.33	NS
Eating GLVs during pregnancy is good -	Yes	100	100	NS	100	100	NS
	No	-	-	-	-	-	-
Inclusion of raw salad in diet -	Yes	31.67	71.67	3.98**	26.67	33.33	0.87 ^{Ns}
	No	68.33	28.33	4.22**	73.33	66.67	0.37 ^{Ns}
Eating fruits during pregnancy is beneficial for-	Digestion	-	-	-	-	-	-
	Important nutrients	10.00	100	6.97**	-	-	-
	Don't know	90.00	-	7.78**	100	100	NS
Drink tea immediately after breakfast-	Yes	35.00	-	7.85 ^{Ns}	30.00	30.00	NS
	No	65.00	100	2.28*	70.00	70.00	NS
Drink milk -	Daily	21.67	33.33	2.31*	23.33	23.33	NS
	Sometimes	78.33	66.67	0.88 ^{Ns}	76.67	76.67	NS
	Never	-	-	-	-	-	-

* Significant at 5% level ** Significant at 1% level NS-Non Significant
BI-Before intervention AI-After intervention

There was almost no change in the percentage of subjects who were vegetarian from both experimental and control groups. This indicates the rigidity of people to change from vegetarianism to non-vegetarian. However, from the

experimental group 1.67% subjects shifted from non-vegetarian to eggetarian. There was significant increase in the percentage (30 to 66.67%) of subjects from experimental group who included sprouts in their diet as

they were taught that the sprouts are good sources of vitamin and they help in enhancing the absorption of iron. Garg and Kashyap, (2006) also reported significant increase in quality and quantity of the diets consumed by pregnant women from low economic status, after receiving nutrition education.

After nutrition education to experimental group 88.33% respondents came to know that greens are sources of essential nutrients. The percent respondents knowing this fact before imparting nutrition education was 11.67. Increase in the percentage of respondents with improved awareness regarding green leafy vegetables as a source of nutrients was statistically significant. Even after receiving nutrition education 8.33 % respondents still did not know specifically that the greens are rich sources of essential nutrients though they included greens in their diet and felt that greens are important for health. Slight improvement in the awareness of control group subjects about green leafy vegetables may be due to information received from anganwadi workers or doctors.

Before imparting nutrition education only 25% respondents in experimental group got green leafy vegetables from their own farm or backyard. In the beginning there were 38.33 subjects who received green leafy vegetables both from their own farm / backyard and weekly bazaar which was increased to 56.67% after intervention. Data showed that encouraging subjects for plantation of green leafy vegetables in kitchen garden gave positive effect which resulted in significant increase in the percentage of subjects who got green leafy vegetables from their own farm /backyard.

Percentage of respondents from experimental group who practiced cooking green leafy vegetables with lid was increased to 85.00% which was 40% before disseminating nutrition education. The significant increase in the percent subjects is indicative of the increased awareness among them regarding loss of nutrients. On the other hand in control group there was no significant change in the practice of cooking green leafy vegetables. None of the pregnant women was draining excess water while cooking green leafy vegetables in the experimental group after receiving nutrition education. This may be due to the impact of nutrition education given to experimental group subjects. They were taught that the important nutrients will be lost if excess water is drained and if food is cooked without lid.

The importance of eating green leafy vegetables as raw salad was not known to all the respondents from both the groups before nutrition education. After imparting four months nutrition education 85 % respondents in experimental group knew that the losses of nutrients can be avoided if greens are eaten without cooking. This was the beneficial impact of nutrition education on experimental group.

Before delivering nutrition education there were 11.67 % and 10 % respondents from experimental and control group respectively who did not like green leafy vegetables which was decreased to zero percent in experimental group and was as, it was in control group. There was increase in the percentage of respondents who liked green

leafy vegetables very much from 38.33 to 46.67 whereas, there was no change in control group subjects about greens likings of greens.

In the control group 46.67 percent respondents did not know other methods of cooking green leafy vegetables and they thought that green leafy vegetables can be cooked only in a limited way where as 100 % respondents from experimental group came to know that green leafy vegetables can be used in multiple ways for different preparations. This may be the impact of cooking demonstrations and discussions on how green leafy vegetables can be included in the diet through various methods. Liu *et al.* (2009) also reported significant greater improvement in overall dietary behavior as well as nutrition and health knowledge of experimental group pregnant women than those in the control group.

Personal hygiene and sanitation followed by pregnant women before and after health education

Data regarding personal hygiene and sanitation followed by selected pregnant women before and after nutrition education is presented in Table 2. Data regarding disposal of the waste water showed that there was somewhat similar trend in both the groups before imparting nutrition education. Before nutrition education 31.67, 21.67 and 46.67% subjects from the experimental group dispose waste water in open pit, on the street and by proper drainage respectively. The waste water was disposed in open pit by 26.67% subjects, 20% subjects disposed waste water on the street, whereas there were 53.33% subjects who disposed waste water by proper drainage in control group. After nutrition education 66.67 % subjects in the experimental group did disposal of waste by proper drainage which was 46.67% at pre nutrition education stage. There was reduction in the practice of disposing water in open pit and on the street in experimental group by about 10% where as there was no change in control group subjects regarding this practice.

Before imparting nutrition education, 31.67% subjects in the experimental group and 26.67% subjects in control group thought that stagnated water surrounding lead to shabbiness. There were 100% subjects in experimental and control group who knew that there is incidence of mosquitoes when in the surrounding water is stagnated. After nutrition education there was significant reduction in percentage of subjects in experimental group who thought that stagnated water surroundings lead to shabbiness and there is relationship between stagnated water surroundings and mosquitoes. There was no change in the knowledge of control group subjects regarding this fact.

At the beginning of intervention there were 35 and 30 percent subjects who used container with handle to take water from pot in the experimental and control group respectively. After nutrition education there was significant increase in the subjects who used container with handle to take water from pot and significant reduction in the subjects who followed wrong practice of taking water from pots. There was no change in the percentage of control group subjects who took water from pot with the container without handle.

TABLE 2: Personal hygiene and sanitation followed by pregnant women before and after health education

Particulars	Experimental group (n=60)			Control group (n=30)		
	BI (%) subjects	AI (%) subjects	'Z' value	BI (%) subjects	AI (%) subjects	'Z' value
How do you dispose the waste water – Open pit	31.67	21.67	2.05*	26.67	26.67	0 ^{Ns}
On the street	21.67	11.67	3.23**	20.00	20.00	0 ^{Ns}
Proper drainage	46.67	66.67	1.92 ^{Ns}	53.33	53.33	0 ^{Ns}
Stagnated water surroundings lead to-						
Shabbiness	31.67	-	7.87**	26.67	26.67	NS
Mosquitoes	26.67	90.00	5.26**	23.33	23.33	NS
Both	100	100	0 ^{Ns}	100	100 ^{Ns}	NS
Do you take water from pot using container						
with handle	35.00	86.67	4.31**	30.00	30.00	NS
without handle	36.67	-	7.85**	43.33	43.33	NS
Tilting	28.33	13.33	3.71**	26.67	26.67	NS
Whether anaemia is caused due to - TB						
Malaria	-	75.00	7.7**	-	-	-
Don't know	100	25.00	5.66*	100	100	NS
Nails should be cut regularly-						
Cleanliness	88.33	100	0.68 ^{Ns}	93.33	93.33	NS
Preventing infection	-	-	-	-	-	-
Good looks	11.67	-	8.11**	6.67	6.67	NS

* Significant at 5% level ** Significant at 1% level NS-Non Significant
BI-Before intervention AI-After intervention

The 100 percent respondents from both the groups were unaware of the fact that anaemia can be caused due to malaria before nutrition education. After four months nutrition education a significant improvement in the awareness of experimental group subjects was seen. There was no change in the awareness of control group subjects. Already 88.33 and 93.33 % subjects in the experimental and control group respectively knew that nails should be cut regularly for cleanliness. There were only 11.67% subjects from experimental group and 6.67 % subjects from control group who felt that nails should be cut regularly for good look. After delivering health education significant improvement in knowledge of experimental group was seen and 100% subjects knew the correct reason of preventing infections by regularly cutting of nails. The percentage of subjects from control group was as it was who felt that nails should be cut regularly for good look. Subapriya and Chandrasekhar (2011) reported similar findings that knowledge, attitude and practices of pregnant women improved significantly after nutrition and health education through various methods. Liu *et al.* (2009) also reported significant improvement in the health knowledge and health behaviour of pregnant women after receiving health education intervention.

Awareness and practices regarding breast feeding and weaning followed by rural pregnant women before and after nutrition and health education

Table 3 depicts information about awareness and practices regarding breast feeding and weaning followed by rural pregnant women before and after nutrition education. Pre nutrition education data indicated that 65 and 70 % pregnant women in experimental group and control group respectively thought that baby is low birth weight (LBW) when the birth weight of baby is < 2000 g. whereas, 23.33 % subjects from experimental group and 20% subjects

from control group felt that baby is LBW if weight of baby is < 2500 g. After nutrition education there was significant increase in the percentage of women from experimental group who expressed concept of low birth weight is as weight less than 2500 g. There was no improvement in the control group subjects regarding the concept of low birth weight baby.

The data regarding knowledge of duration of breast feeding showed that at the beginning of study only 15 and 13.33% subjects from experimental and control group respectively knew that breast milk should be given to baby within 6 hr and continued at least for 6 months. Garg *et al.* (2010) and Jain *et al.* (2013) also reported that significantly lower percent of mothers practiced exclusive breast feeding and higher percent of the rural women were unaware of the importance of breast feeding. Remaining 85 % subjects from experimental group and 86.67 % subjects from control group did not know the correct time of initiating and continuing breast milk to baby. After nutrition education there was significant increase in the knowledge of experimental group subjects with a high percentage of (88.33%) subjects knowing that breast feeding should be initiated within 6 hour and continued for at least 6 months. A non significant shift of 10% was observed in subjects from control group who have knowledge regarding initiation and continuation of breast feeding.

There were 63.33 and 80.00% subjects from experimental and control group respectively who felt that honey should be given to newborn besides breast milk before nutrition education intervention. After disseminating nutrition education responses of pregnant women in the experimental group were significantly improved and 100 % subjects from experimental group expressed that nothing should be given to newborn besides breast milk as

they were explained about the importance of breast feeding during lectures. Whereas, there was no change in the responses of control group subjects after study period regarding other feeds to newborn.

Before imparting nutrition education maximum subjects from experimental group (63.33 %) and control group (70.00 %) did not have any idea about whether the baby should or should not be breast fed even during mother's illness. In the experimental group 21.67 % and in the

control group 16.67 % subjects felt that baby should not be breast fed during mother's illness at the beginning of intervention. At the end of nutrition education programme a significant change was observed in experimental group subjects' responses and 100 % subjects expressed that baby should be breast fed even if mother is ill. There was no significant change in the responses expressed by control group subjects.

TABLE 3: Awareness and practices regarding breast feeding and weaning followed by pregnant women before and after nutrition and health education.

Particulars	Experimental group (n=60)			Control group (n=30)		
	BI (%) subjects	AI (%) subjects	'Z' value	BI (%) subjects	AI (%) subjects	'Z' value
A baby is called low weight if its weight is-						
<2000 g	65.00	5.00	7.18**	70.00	73.33	0.181 ^{Ns}
<2500 g	23.33	86.67	5.50**	20.00	20.00	NS
<3000 g	11.67	8.33	1.92 ^{Ns}	10.00	6.67	1.61 ^{Ns}
Breast feeding should be initiated within 6 hrs and continued for 6 months-						
Yes	15.00	88.33	6.38**	13.33	23.33	2.09*
No	-	-	NS	-	-	-
Don't know	85.00	11.67	6.66**	86.67	76.67	0.47 ^{Ns}
Besides breast milk, liquid given to new born						
Honey	63.33	-	7.86**	80.00	80.00	NS
Cow milk	36.67	-	7.85**	-	-	-
None	-	100	7.78**	20.00	20.00	NS
Baby should be breast fed even during mothers illness-						
Yes	15.00	100	6.54**	13.33	13.33	NS
No	21.67	-	7.95**	16.67	16.67	NS
Don't know	63.33	-	7.80**	70.00	70.00	NS
Does breast feeding protect child from illness-						
Yes	60.00	100	2.67**	53.33	53.33	NS
No	-	-	-	-	-	-
Don't know	40.00	-	7.84**	46.67	46.67	NS
Appropriate weaning food for child is						
Top milk	100	-	7.84**	100	100	NS
Full milk	-	-	-	-	-	-
Semi solid	-	100	7.78**	0	0	NS
Which vaccination is given soon after birth-						
BCG	26.67	-	4.67**	20.00	20.00	NS -
Polio	20.00	73.33	7.94**	-	-	-
Measles	-	-	-	-	-	NS
Don't know	53.33	-	3.50**	80.00	80.00	-
		26.67				
It is necessary to complete all doses of polio vaccination						
Yes	100	100	NS -	100	100	NS -
No	-	-	-	-	-	-
Don't know	-	-	-	-	-	-
Can breast feeding be continued if child has diarrhoea						
Yes	31.67	100	5.07**	23.33	26.67	0.52 ^{Ns}
No	28.33	-	7.88**	33.33	33.33	NS
Don't know	40.00	-	7.84	43.33	40.00	0.31 ^{Ns}

* Significant at 5% level ** Significant at 1% level NS-Non Significant
BI-Before intervention AI-After intervention

There were 60 % rural pregnant women in the experimental group who knew that breast feeding protects

child from illness and remaining 40 % subjects did not know that whether breast feeding is beneficial or not to

protect child from illness. There was similar trend in the responses expressed by control group where in 53.33 % subjects felt that breast feeding protects child from illness and remaining 46.67 % respondents from control group expressed that they had no idea regarding that the child can be protected from illness with the help of breast feeding. After implementation of intervention programme there was significant change in the knowledge of experimental group subjects with 100% positive responses. However there was no significant change in control group subjects.

Knowledge of respondents regarding weaning practice showed that before implementation of nutrition education 100 % respondents from both the groups thought that top milk is appropriate weaning food for child. After imparting nutrition education experimental group subjects significantly changed their response and they expressed that appropriate weaning food for child is semisolid rather than top milk only. Whereas, there was no change in the knowledge of control group respondents regarding appropriate weaning practices.

The knowledge of rural pregnant women about vaccination of child inferred that 26.67% rural pregnant women from experimental group knew that BCG vaccination is given soon after birth to baby where as 20 % respondents thought that polio vaccination is given soon after birth and remaining 53.33% respondents did not know that which vaccination is given soon after birth. From control group, initially only 20% respondents knew that BCG vaccination is given soon after birth where as remaining 80 % respondents did not have any idea about vaccination of child soon after birth. After imparting nutrition education a significant reduction in the incorrect response of experimental group subjects was seen with significant increase in the correct response. Percentage of respondents from experimental group who knew that BCG vaccination is given soon after birth was increased to 73.33. There were 100 % respondents from both the groups who knew that it is necessary to complete all doses of polio vaccination.

The percentage of respondents from experimental group and control group was 31.67 and 23.33 respectively during pre nutrition education who knew that breast feeding can be continued if child has diarrhoea. Before imparting nutrition education, respondents from experimental group and control group who thought that breast feeding cannot be continued if child has diarrhoea was 28.33 and 33.33 respectively. Remaining 40 % respondents from experimental group and 43.33 % respondents from control group did not know that breast feeding can be continued if child suffering with diarrhoea. After implementation of nutrition education 100 % respondents from the experimental group came to know that breast feeding can be continued if child has diarrhoea. There was no significant change in the percentage of respondents from

control group regarding this aspect. Similar findings were observed by Garg and Kashyap, (2006) and Vedavalli *et al.* (2012) who reported the significant improvements in the knowledge, awareness and practices (KAP) of pregnant women after nutrition education.

CONCLUSION

The study shows that nutrition and health education intervention enable the rural pregnant women to take away some of the unhealthy traditional practices and improve the practices of diet and personal hygiene. Knowledge, awareness and practices of pregnant women regarding breast feeding and weaning can be improved significantly with the help of nutrition education. Education of pregnant women regarding nutrition and health may contribute to the health of child.

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