

Impact of Diet Counselling among Women with Breast Cancer using Software

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Abstract

Cancer of the breast in women is a major health burden worldwide. Uncurable cancer can be prevented and controlled by healthful diet, lifestyle practices, good habits of hygiene, behaviour and awareness programme followed by diet counselling. Diet counselling plays an important role in motivating individual in the development of healthy habits and attitudes. Hence an attempt was taken to assess the knowledge on various risk factors contributing to breast cancer and to study the impact of diet counseling among selected women with breast cancer undergoing different treatment modalities. Using stratified random technique 190 women with breast cancer was selected and were grouped into two based on the treatment modality, Group A constituted 100 women with breast cancer undergoing surgery and radiation, and 90 under combination of chemo, radiation and surgery. Software was developed using dot net, to impart and assess the knowledge related to cancer. The software consists of knowledge test covering different aspects of breast cancer and diet. Questions with and without scores was designed to create awareness on breast cancer as well as to familiarize with the skill to operate the software product. The scores ranged from (1-3), (4-6), (7-9) labelled as poor, fair and good respectively for each question. Dietary knowledge of the subjects improved significantly after diet counselling. The mean score of the Group A subjects before evaluation was 25 which increased to 35 after education indicating significant gain in nutrition and food related knowledge. The gain in knowledge was significant at $P < 0.001$. The mean score of group B case subjects increased from 20 to 55 after intervention which shows that the diet counselling was found to be effective and the gain in knowledge was statistically significant at $P < 0.001$.

Keywords: Breast Cancer, Diet Counseling, Risk Factors, Warning Signs

1. Introduction

Cancer of the breast in women is a major health burden worldwide. It is the most common cause of cancer among women in both high-resource and low-resource settings, and is responsible for over one million of the estimated 10 million neoplasms diagnosed worldwide each year in both sexes. It is also the primary cause of cancer death among women globally, responsible for about 375,000 deaths in the year 2000 [1]. Cancers namely those of oral and lungs

in males, and cervix and breast in females account for over 50 per cent of all cancer deaths in India [2].

Uncurable cancer can be prevented and controlled by healthful diet, lifestyle practices, good habits of hygiene, behaviour and awareness programme followed by diet counselling. Diet counselling of cancer plays a beneficent role in cancer care [3], [4].

Dietary counselling is the best outcome of care, prevention and control of cancer and which offers a great opportunity to individuals to learn about the essentials

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of nutrition after health and to take steps to improve the quality of their diets, thus their well being [5]. The higher rates of breast cancer in India especially Southern region have created a higher cancer burden in women than men and hence these diseases are of major societal and familial consequence. A rational concept to put science into practice has to be formulated to counter this disease. In cancer, even with limited resources, an impact can be achieved if right priorities and strategies are established and implemented.

For breast cancer survivors, the focus of dietary and lifestyle intervention is generally to promote healthy weight management and a moderate rate of weight loss in the overweight or obese patient through modified intakes and increased physical activity [6]. Whether dietary counselling in other target groups across the cancer continuum can alter outcomes [7], and continued research efforts in this area are anticipated.

Cancer could be prevented if the knowledge of risk factors were successfully implemented to reduce risk factor prevalence. Hence an attempt was taken to assess the knowledge on various risk factors contributing to breast cancer and to study the impact of diet counseling among selected women with breast cancer undergoing different treatment modalities.

2. Materials and Methods

2.1 Selection of Case Subjects

Approval from the Institutional Human Ethics Committee from the PSG Institute of Medical Science and Research, Coimbatore was obtained in order to carry out the dietary counseling among stratified random selected 190 women with breast cancer. Selected case subjects were grouped into two based on the treatment modality, Group A constituted 100 women with breast cancer undergoing surgery and radiation, and 90 under combination of chemo, radiation and surgery.

Oral consent was obtained from the selected 190 case subjects who were willing to participate in the study. Regular contact and observation was maintained. Using pretested questionnaire socio-economic profile of case subjects was elicited.

2.2 Imparting Diet Counselling

Diet counselling was given to 190 women with breast cancer undergoing different treatment modalities, using booklets, pamphlets and posters for a period of 12 weeks duration during their schedule of visiting oncologist for the treatment purpose.

Using lecture method the details regarding breast cancer, signs and symptoms, need for early detection, method of self-examination, clinical breast examination, different treatment available for breast cancer, possible consequences due to treatment and the dietary recommendations to overcome were imparted to the subjects in groups every month, fortnightly during their schedule visit for treatment .

Individual counselling as well as group counselling was carried out using pamphlets and exhibits and individual queries were answered during counselling session for a period of 12 weeks on rotation basis to the subjects depending upon the treatment methods received at the hospital.

2.3 Impact of Diet Counselling

The impact of counselling among selected 190 women on the knowledge gained was assessed after 12 weeks using a check list and by designed software assigning scores. A software was developed using dot net, to impart and assess the knowledge related to cancer. The software consists of knowledge test covering different aspects of breast cancer and diet. Questions with and without scores was designed to create awareness on breast cancer as well as to familiarize with the skill to operate the software product. The scores ranged from (1-3), (4-6), (7-9) labelled as poor, fair and good respectively for each question.

3. Results and Discussion

Educating the women about the risk of breast cancer constitutes a first step towards early detection of breast cancer, so that women would be able to judge their risk and take relevant measures [8].

The intensity, frequency of nutrition counselling and also a substantial follow-up after completing radiotherapy were the reasons for success in maintaining body weight

Table 1. Awareness of breast cancer among Group A and B in relation to the demographic characteristics

Characteristics	Group A (N = 100)				Total	P' value	Group B (N = 90)				Total	P' value
	Aware of breast cancer (N=63)		Not aware of breast cancer (N=37)				Aware of breast cancer (N=44)		Not aware of breast cancer (N=46)			
	N	%	N	%			N	%	N	%		
Education												
Illiterate	12	45	14	55	26	0.000**	6	39	10	61	16	0.000**
Primary	17	53	15	47	32		13	46	15	54	28	
Secondary	21	74	7	26	28		16	61	11	39	27	
Higher secondary	10	89	1	11	11		7	55	8	58	15	
Graduates	3	100	-	0	3		4	100	-	-	4	
Socio-Economic Status												
EWS	3	41	5	59	8	0.000**	3	37	5	63	8	0.001**
LIG	33	54	29	46	62		25	51	24	49	49	
MIG	27	90	3	10	30		17	53	15	47	32	
HIG	-	-	-	-	-		1	100	-	-	1	
Age Group (years)												
40 – 44	20	58	14	42	34	0.14 ^{NS}	9	39	14	61	23	0.17 ^{NS}
45 – 49	9	55	9	55	18		8	42	11	58	19	
50 – 54	21	74	7	26	28		12	57	9	43	21	
55 – 59	11	62	6	38	17		9	56	7	44	16	
At 60	2	48	1	52	3		8	73	3	27	11	

** Significance at P < 0.001 level. NS – Not significant

among oncology radiation patients undergoing nutrition intervention programmes vs. the usual care group [9].

The impact of diet counselling among group A and group B are presented below.

3.1 Awareness about Cancer

On the basis of different socio-demographic characteristics of the groups A and B, the knowledge regarding the awareness of breast cancer as a disease is given in the Table 1.

Out of 190 case subjects in group A and group B, 63 per cent from group A and 51 per cent from group B were aware of cancer as a disease.

It is seen that in group A with all graduates and 89 per cent with higher secondary education and 45 per cent of illiterates were aware of cancer as a disease which was found to be statistically significant. Similarly 90 per cent of MIG were aware of cancer when compared to other two income groups and the chi square analysis revealed that it was statistically significant at P < 0.001. Similar observation was noted in Group B also. No significant association

between age and awareness of breast cancer was found. The study undertaken among women of an urban resettlement colony also showed a similar trend [10].

The knowledge of experimental groups on different aspects of breast cancer such as early warning signs, risk factors, early detection methods, preventive measures, nutrition knowledge and source of information obtained are given in Tables 2 to 4.

4.2 Knowledge on Early Warning Signs

The knowledge regarding the early warning signs of breast cancer among experimental groups is given in Table 2.

Out of 63 subjects in group A who were aware of breast cancer as a disease, 41 per cent of them mentioned at least one of the early signs and symptoms before diet counselling, whereas after counselling all the subjects became aware of these facts.

Only after counselling 84 and 83 per cent were aware of signs such as orange peel like appearance of skin and change in position of nipple which may contribute to incidence of breast cancer.

Table 2. Respondents knowledge on early warning signs of breast cancer

Early warning signs	Group A				Group B			
	Before diet counselling (N = 63)		After diet counselling (N = 100)		Before diet counselling (N = 44)		After diet counselling (N = 90)	
	N	%	N	%	N	%	N	%
A. Mentioned atleast any one sign or more	26	41.0	100	100	21	48.0	90	100.0
Breast lump	19	30.0	100	100	7	16.0	90	100.0
Painless lump	22	35.0	100	100	11	25.0	90	100.0
Pain in breast	-	-	73	73	-	-	84	93.0
Breast abscess	4	6.0	66	66	-	-	79	88.0
Nipple discharge	6	9.5	100	100	-	-	90	100.0
Orange peel like appearance	-	-	84	84	-	-	88	98.0
Change in size of breast	3	5.0	96	96	10	23.0	90	100.0
Change in position of nipple	-	-	83	83	-	-	86	95.5
Depigmentation of breast/nipple	1	1.6	56	56	2	4.5	74	82.0
Swelling in axilla (arm pit)	3	5.0	48	48	6	13.6	62	69.0
B. Not aware of any early sign	37	59.0	-	-	23	52.0	-	-

Among 48 per cent of group B case subjects who were aware of cancer as disease, 25 per cent could identify painless lump, 23 per cent knew change in normal size of breast, 16 per cent were aware of breast lump and 13.6 per cent were aware of swelling in axilla as early warning signs before counselling as few of them had experienced breast lump and had a history of surgical lump removal. Only after counselling an increasing awareness on signs such as nipple discharge (100 per cent), orange peel like appearance of skin (98 per cent), change in position of nipple (95.5 per cent), pain in breast (93 per cent) and breast abscess (88 per cent) were observed in the subjects which was not identified as symptoms of breast cancer earlier.

4.3 Knowledge on Risk Factors

In group A and group B only 17 and 16 per cent of subjects respectively could identify anyone of the risk factors of breast cancer before diet counselling (Table 3). Thirty six per cent of subjects in group A were able to identify one or two of the reproductive risk factors as against 27 per cent in group B before diet counselling. While after counselling cent percent subjects were able to identify nulli parity and practice of not breast feeding as risks.

Though the risk factors related to life style were known to 46.6 per cent and 18 per cent of group A and group B before counselling, all the subjects gained knowledge after counselling.

It is astonishing to note that only 4 to 14 per cent group A and B subjects were aware of consumption of meat alone as a dietary risk factor when compared to other factors. Cent per cent subjects in both the groups became aware of dietary risk factors after counselling.

Ninety four per cent of the subjects in group A before counselling were aware that breast cancer can be detected early. It is noticed that knowledge on physical exercise as a preventive measure for breast cancer before counselling was known only to 35 per cent and 25 per cent subjects. After counselling all the subjects in group A and B gained a thorough knowledge on foods to be included, antioxidant rich foods, importance of right selection of foods and vegetarian diets, whereas 93 per cent of subjects from group B did not gain knowledge on foods to be excluded. This may be attributed to combinations of the treatment undergone by the subjects and their low literacy level (Table 4).

Health care professionals were the most common source from whom 56 and 36 per cent of subjects in

Table 3. Respondents knowledge on risk factors

Risk factors of breast cancer	Group A				Group B			
	Before diet counselling (N = 63)		After diet counselling (N= 100)		Before diet counselling (N = 44)		After diet counselling (N = 90)	
	N	%	N	%	N	%	N	%
A. Mentioned atleast any one factor or more	11	17.0	100	100	7	16	90	100
Early menarche age	2	3.0	84	84	-	-	79	88
Irregularity of menstrual cycle	-	-	73	73	-	-	77	86
Late marriage	3	5.0	91	91	-	-	84	93
Use of contraceptives	1	1.6	89	89	-	-	81	90
Late age at first child birth	2	3.0	91	91	-	-	84	93
Hystectomy	-	-	76	76	-	-	65	72
Nulliparity	6	9.5	100	100	5	11	90	100
Not breast fed	9	14.0	100	100	7	16	90	100
Late menopause	-	-	86	94.5	-	-	79	88
Obesity	2	3.0	100	100	1	2	90	100
Raw tobacco	8	12.6	100	100	7	16	90	100
Passive smoking	7	11.0	100	100	-	-	90	100
Exposure to chemicals	4	6.0	100	100	-	-	90	100
Meat consumption	9	14.0	100	100	4	9	90	100
High fat diet	-	-	100	100	-	-	90	100
Use of reheated oil	-	-	100	100	-	-	90	100
Use of colours/preservatives in diet	-	-	100	100	-	-	90	100
B. Not aware of any risk factors	52	83.0	-	-	37	84	-	-

group A and group B respectively had heard about breast cancer before counselling followed by neighbours, friends and relatives (49 per cent) in group A subjects and through print materials by 29.5 per cent of group B subjects.

4.4 Total Scores obtained for the Knowledge Assessed

Based on the scores obtained by selected case subjects using check list and software evaluation, the total impact was computed using scores to find out the significant improvement of knowledge gained owing to diet counselling (Table 5).

Dietary knowledge of the subjects improved significantly after diet counselling. The mean score of the Group A subjects before evaluation was 25 which was increased to 35 after education indicating significant gain in nutrition and food related knowledge. The gain in knowledge was significant at $P < 0.001$.

The mean score of group B case subjects increased from 20 to 55 after intervention which shows that the diet counselling was found to be effective and the gain in knowledge was statistically significant at $P < 0.001$.

5. Conclusion

It is obvious that the lifestyle, dietary pattern and food eating habits can effectively be influenced by sound diet counselling method especially by the use of booklets, pamphlets and software aids among women with breast cancer.

6. References

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Table 4. Knowledge on early detection methods, preventive measures, nutrition and sources of information

Different aspects of breast cancer	Group A (N = 100)				Group B (N = 90)			
	Before counselling (N = 63)		After counselling (N = 100)		Before counselling (N = 44)		After counselling (N = 90)	
	N	%	N	%	N	%	N	%
Early detection methods								
A. Mentioned atleast one method	59	94	100	100	28	64	90	100
Mammography	6	9.5	100	100	2	4.5	90	100
Self breast examinations	3	5.0	100	100	1	2	90	10
Clinical examination by a doctor	59	94	100	100	28	64	90	100
B. Not aware of any early detection method	4	6	-	-	16	36	-	-
Preventive measures								
Regular check up by a doctor	63	100	100	100	44	100	90	100
Healthy diet	31	49.0	100	100	6	13.6	90	100
Physical exercise	22	35.0	100	100	11	25	84	93
Maintenance of optimum BMI	4	6.0	100	100	3	7	83	92
Others (Breast cleanliness)	9	14.0	100	100	6	14	76	84
Nutritional knowledge								
Foods included	6	9.5	87	87	4	9	90	100
Foods excluded	21	33.0	94	94	11	25	84	93
Antioxidant foods	-	-	89	89	2	4.5	90	100
Right selection of foods	4	6.0	78	78	7	16	90	100
Vegetarian diet	6	9.5	100	100	4	9	90	100
Source of information								
Television	3	5	-	-	2	4.5	14	15.5
Radio FM	11	17	-	-	4	9	76	84
Print material	20	32	100	100	13	29.5	90	100
Neighbours, friends and relatives	31	49	-	-	11	25	72	80
Health care professionals	35	56	100	100	16	36	90	100

Table 5. Scores obtained by Group A and B case subjects before and after diet counselling

Scores	Before		Mean score + S.D.	After		Mean score + S.D.	't' value	'P' value
	N	%		N	%			
Group A (N = 100)								
11 - 20	32	32	25.2 + 7.2	-	-	35.81 + 6.4	19.193	0.001**
21 - 30	40	40		18	18			
31 - 40	26	26		49	49			
41 - 50	2	2		33	33			
Group B (N = 90)								
11 - 20	24	26.7	20.4 + 6.4	-	-	55 + 7.2	34.17	0.001**
21 - 30	44	48.9		12	13.3			
31 - 40	18	20.0		52	57.8			
41 - 50	4	4.4		26	28.9			

** Significance at P < 0.001 level.

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