Original Research Article

Effectiveness of intervention on breast cancer among select students of Annamalai University, Tamil Nadu

V. Swarnapriya, N. Srinivasan*, A. J. W. Felix, L. Arjun, A. R. Boornema

Department of Community Medicine, Rajah Muthiah Medical College, Annamalai University, Tamil Nadu, India

*Correspondence:
Dr. N. Srinivasan,
E-mail: vasancdm@gmail.com

ABSTRACT

Background: Breast cancer is a public health problem worldwide and in India as well. Early diagnosis of this problem needs knowledge of the women. Further, belief on this disease also has been reported playing a role in taking steps in the early diagnosis and treatment.
Methods: A total of 165 participants of this study include first year students pursuing various courses such as Agriculture, Medicine and Dentistry. The knowledge was assessed in terms of risk factors, symptoms, methods of diagnosis and self-breast examination. Belief on breast cancer was also assessed. After pre assessment, intervention with video and power point presentation was carried out. Then assessments were made at immediate and 24 hours after interventions.
Results: Significant improvements in the knowledge and belief were observed from pre intervention to immediately after intervention. Knowledge gained was sustained at 24 hours after intervention. Significant improvements in belief were observed between immediate and 24 hour assessments.
Conclusions: The intervention was found to be effective. As regards the belief on breast cancer, it was observed that temporal dimension of belief was revealed by the improvements between the assessments.

Keywords: Breast cancer, Knowledge, Belief, Intervention, Temporal dimension of belief

INTRODUCTION

Among the different cancers affecting women worldwide, almost an one fourth of them are found to be of breast cancer and the number of new cases of this nature was estimated at 1.67 million.[1] The magnitude of cervical cancer was surpassed by breast cancer among Indian women and considered as the commonest one with increasing occurrence along with age.[2] Apart from hereditary, known risk factors of breast cancer includes reproductive, lifestyle or environmental factors.[3] Frequency of occurrence of breast cancer was found to be in the range of 7.2 to 33.4 per one lakh population and it constitutes around 50 percent of all mortality related to cancer.[4] It is reported that 25 to 32% of all cancers among women are from the cities in India such as Mumbai, Delhi, Ahmedabad and Chennai.[5] In terms of mortality, breast cancer occupies 5th position as a cause of death with 6.4%.[6] Examining the causes for low survival rate of breast cancer patients indicate absence of diagnosis at an early stage, improper diagnosis and inadequate treatment as the causes. The diagnosis at early stage of this problem could be made possible by the visit of the patients to health care facility at an earliest possible time.[7] Awareness of the patients, screening and diagnosis made by higher health facilities at early stage brings great improvements in the breast cancer management outcome.[8] In order to increase quality of life and survival of the breast cancer patients, the World Health Organisation has advocated raising awareness among

women and reporting of any breast abnormalities.[9] Though breast cancer is found to be common among women, lack of awareness about breast self-examination made them seeking medical care at a very late stage.[5] Information, education and communication activities on breast cancer, need for early detection and methods of diagnosis are to be carried out to sensitise the women and the community at large since the disease has been shrouded with issues like taboo.[10]

In this context, this cross sectional study was undertaken among the female students of Annamalai University. The levels of knowledge and belief on breast cancer are discussed in this study.

Objective

The study was carried out to find out the level of knowledge and belief of female students on breast cancer.

METHODS

This cross sectional study was carried out among the female students residing in two hostels of Annamalai University. A total of 165 participants of this study include first year students pursuing various courses such as Agriculture, Medicine and Dentistry. They were included in the study based on convenience sampling. Necessary permission was obtained from the authorities. Informed consents from the participants were obtained. The study was conducted between November 2017 and February 2018.

Data collection

Data collection was carried out using a pre-tested, structured questionnaire. This questionnaire consists of 4 sections. The knowledge was assessed in terms of risk factors (14 questions), symptoms (12 questions), methods of diagnosis (5 questions) and self-breast examination (6 questions). Belief on breast cancer was assessed with 9 questions. All the answers were coded 1 for correct answers and marked 0 for wrong responses. The range of score for knowledge is 0 to 37 and 0 to 9 for belief.

Scoring and interpretation

Knowledge on breast cancer was classified as good if the score is above 70% (26-37), satisfactory with a score of 50 - 69% (19-25) and poor with a score of less than 50% (<19). Belief on breast cancer was classified as good if the score is above 70% (7-9), satisfactory with a score of 50 - 69% (5-6) and poor with a score of less than 50% (<5).

Data analysis

The data were analysed using SPSS software for windows (Statistical Package for Social Sciences) version

20. Frequency distributions of knowledge on breast cancer in terms of risk factors, symptoms, methods of diagnosis, self-breast examination, over all knowledge and belief on breast cancer were obtained. General linear model repeated measures with contrast were performed to find out the variations among the three measurements made at baseline, immediately after intervention and 24 hours after intervention. P value less than 0.05 was considered as statistically significant.

RESULTS

An interventional study was carried out among 165 students to evaluate the effectiveness of health education on breast cancer. The intervention has covered the risk factors of breast cancer, self–breast examination, symptoms of breast cancer, methods of diagnosis and belief about breast cancer. Majority of the participants (61.8) were agriculture students followed by medical (26.7%) and dentistry (11.5%). All of them were within the age of 17 and 21. Their mean age was 18.58 with a standard deviation of 1.19.

Table 1: Level of knowledge of the participants at pre, immediate post and 24 hours after intervention.

Variable	Pre intervention	Immediate post intervention	24 hours after intervention
	N (%)	N (%)	N (%)
Inadequate knowledge	39 (18.2)	1 (0.6)	4 (2.4)
Moderate knowledge	89 (53.9)	34 (20.6)	21 (12.7)
Adequate knowledge	46 (27.9)	130 (78.8)	140 (84.8)
Total	165 (100)	165 (100)	165 (100)

Comparison, between pre intervention and immediate post intervention, shows changes in the level of knowledge by the shift in the percentage of respondents from the poor and moderate levels to good knowledge. A majority from 18.2% at poor level and 53.9% were moved to good level. However, 20.6% of the respondents remain at moderate level of knowledge. Further, shift in the level of knowledge was evident also at 24 hours after intervention. A reduction from 20.6% to 12.7% at moderate level and an increase in the good level from 78.8% to 84.8 were observed (Table 1). Hence, it is concluded that the intervention was effective.

Changes in the unfavourable belief from pre intervention level at 23.6% to 15.2% at immediate post intervention and change in the moderate level from 33.6% to 24.8%. were observed. The effect of these changes was seen in the increased movement of the respondents from 38.8% to 60% at favourable belief (Table 2). Examining variations among the assessments in terms of the

components of knowledge on breast cancer, significant differences were found in all the components from pre intervention to immediate post and 24 hours after

intervention. This indicates that the intervention was effective (Table 3).

Table 2: Level of belief of the participants at pre, immediate post and 24 hours after intervention.

Variable	Pre intervention	Immediate post intervention	24 hours after intervention
	N (%)	N (%)	N (%)
Unfavourable belief	39 (23.6)	25 (15.2)	13 (7.9)
Moderately favourable belief	62 (33.6)	41 (24.8)	36 (21.8)
Favourable belief	64 (38.8)	99 (60)	116 (70.3)
Total	165 (100)	165(100)	165 (100)

Table 3: Effectiveness of intervention on the different aspects of knowledge on breast cancer ANOVA repeated measures (n=165).

Knowledge	Assessment	Mean	Std. dev	ANOVA repeated	
				F	Sig
Risk factors	Pre intervention	8.158	2.09		
	Immediately after intervention	10.92	2.13	102.484	<0.001
	24 hours after intervention	11.0	1.8		
Symptoms	Pre intervention	7.006	2.99		
	Immediately after intervention	9.50	2.08	52.473	<0.001
	24 hours after intervention	9.31	2.27		
Self-breast examination	Pre intervention	2.533	1.28		
	Immediately after intervention	4.345	1.02	157.529	<0.001
	24 hours after intervention	4.527	1.11		
Methods of diagnosis	Pre intervention	3.115	1.40		
	Immediately after intervention	4.358	0.92	69.661	<0.001
	24 hours after intervention	4.339	0.75		

Table 3A: Repeated contrasts for variations among the assessments (n=165).

Knowledge	Assessment	Repeated Contrasts	
		F	Sig
Risk factors	Pre vs. immediate post	122.752	<0.001
	Immediate post vs. 24 hours	0.159	0.691
Symptoms	Pre vs. immediate post	81.221	<0.001
	Immediate post vs 24 hours	0.656	0.419
Self-breast examination	Pre vs. immediate post	21.979	<0.001
	Immediate post vs. 24 hours	2.256	0.135
Methods of diagnosis	Pre vs. immediate post	76.741	<0.001
	Immediate post vs. 24 hours	0.042	0.838

In order to get more details on the significance level, repeated contrast tests were applied. For all the components, immediately after the intervention, significant increases have been observed. However, no significant variations were found between the immediate and 24 hours after interventions. (Table 3A).

Testing for variations among the three assessments made in the overall level of knowledge and belief, analysis of variance with repeated measures were performed. The results indicated significant differences in the knowledge and belief with the intervention (Table 4).

The results of repeated tests have indicated significant differences in the overall knowledge between pre and immediate post intervention. However, no significant differences were observed between immediate post and 24 hours after intervention assessments indicating sustainment of knowledge gained. This showed that the intervention was effective. As regards the belief, apart from significant differences between pre and immediate post intervention points, further significant difference were also observed between immediate post and 24 hours after assessments. This has demonstrated the effectiveness of the intervention made (Table 4A).

Table 4: Effectiveness of intervention on knowledge and Belief on breast cancer ANOVA repeated measures (n=165).

Variable	Assessment	Mean	Std. dev	ANOVA repeated	
				F	Sig
Knowledge	Pre intervention	20.81	5.15		
	Immediately after intervention	29.12	3.95	199.945	<0.001
	24 hours after intervention	29.17	3.86		
Belief	Pre intervention	5.74	1.74		
	Immediately after intervention	6.56	1.72	32.667	<0.001
	24 hours after intervention	7.18	1.76		

Table 4A: Knowledge and belief-repeated contrasts for variations among the assessments (n=165).

Variable	Assessment	Repeated contrasts	
		F	Sig
Knowledge	Pre vs. immediate post	256.092	<0.001
	Immediate post vs. 24 hours	0.018	0.892
Belief	Pre vs. immediate post	21.348	<0.001
	Immediate post vs. 24 hours	12.879	<0.001

DISCUSSION

This study was carried out to assess the level of knowledge and belief on breast cancer among female university students of Annamalai University and also to assess the effectiveness of intervention on breast cancer.

It was found that the majority of the study participants (53.9%) were having moderate level knowledge about breast cancer. This finding is similar to the results of another study conducted in central India.[11] In the present study, after intervention, a majority of participants moved to good level from 27.9% to78.8% immediately after intervention and further increase to84.8% after 24 hours of intervention. Similar results were reported by Yadav et al.[12] As regards the belief on breast cancer, the same effect was seen as the movement of respondents to favourable belief from 38.8% before intervention to 60% immediately after intervention and 70% post 24 hours. This result was similar to that was obtained in another study where it was observed that after awareness programme, there was significant increase in level of knowledge about breast cancer amongst college teachers in different states in India at 6 months and this was sustained for 1 year.[13] The knowledge of self-breast examination of the participants in the study was found at a mean score of 2.533 with a standard deviation of 1.28 out of maximum score 6 whereas 22% of women attending a medical college hospital in Hyderabad had knowledge on self-breast examination.[14]

With regard to the components of knowledge, including risk factors, self-breast examination, symptoms and methods of diagnosis, the present study found a mean score of 8.158 for risk factors (score range 0-14) at base level got increased to 10.92 at immediate post intervention. Further, an increase was observed at 24

hours after intervention to a mean score of 11. The knowledge on symptoms (score range 0-12) with a mean score at 7.006 got increased to 9.50 at immediate post intervention. The knowledge on self-breast examination (Score range 0-5) with a mean score 2.533 moved to 4.345 at immediate post intervention and still more (mean 4.527) increase was observed at 24 hours after intervention. As regards the methods of diagnosis (Score range 0-6), an increase from a mean score of 3.115 at base level to 4.358 at immediate post intervention. Similar results were reported by Yadav et al, Herman et al, Gupta et al and Moustafa et al.[12,15-17] However, Nabi et al in their a study on women who attended medical college hospital in north India found that the majority (60%) of the participants had poor knowledge about various risk factors and symptoms.[18] Another study among adult women over the age of 18 in Bahawalpur, Pakistan reported that there was severe lack of awareness regarding BC risk factors.[19]

Breast self-examination is inexpensive and can be performed by women on themselves. Studies have shown that most early breast cancers are self-discovered by women who performed breast self-examination on a regular basis.[20] In the present study, the respondents had an average knowledge (2.5 out of 5) of breast self-examination which increased significantly post intervention. A hospital based study at Deccan College of Medical sciences, Hyderabad reported only 20% had knowledge of breast self-examination.[21]

Regarding belief on breast cancer in the present study, nearly half of the students had false beliefs on breast cancer and there was significant difference in belief immediately and post 24 hours of intervention. Similar study on belief of breast cancer was done among female students in Jordan University where a majority of

students (70.8%) didn't have false beliefs about breast cancer that it was a punishment from God. The authors have reported that it was in contrast to the findings of studies from developing countries.[22] The present study has also found that the respondents had poor (23.6%) and moderate belief (33.6%).

CONCLUSION

In conclusion, the present study has showed significant differences with knowledge and belief on breast cancer immediately after health education intervention. However no significant difference in knowledge was found at 24 hours after intervention. This shows the sustainment of knowledge gained and the effectiveness of the intervention. Significant improvement observed at 24 hours after intervention level from immediate post intervention, as the temporal dimension of belief which takes some time to get changed.

Limitations

The limitation of the study is that the participants were chosen by convenient sampling and therefore, does not reflect the knowledge of all female students.

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