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Effect of Behavioral Change Communication Using Health Belief Model on Knowledge and Practice of Breast Self-Examination Among Rural Women

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ABSTRACT

Breast self-examination (BSE) is a simple screening method for breast cancer which can be done at home, still not practices widely due to several reasons. To know the effect of a behavioral change communication using health belief model on knowledge and practice of breast self-examination among rural women. In this interventional study, women aged above 18 years attending the out-patient department of rural health training centre for conditions other than breast related conditions were included. Simple random sampling was used. Semi structured pre-tested questionnaire was used to collect the demographic data, knowledge and practice of breast self-examination. Behavioral change communication using health belief model was provided. Post-test questionnaire was used to assess the knowledge immediately after the behavioral change communication session. Practice of breast self-examination among the same women was assessed 3 months from the day of behavioral change communication by visiting their house. Age range of the study participants was 19-60 years. Prior to the behavioral change communication only 2% knew that breast must be examined regularly and no one had ever practiced it. There was a statistically significant difference between pre and post behavioral change communication knowledge score as well as pre and post behavioral change communication practice score. It is beneficial to give information about BSE using behavioral change communication models to improve the knowledge regarding breast self-examination and inculcate the practice of BSE.

INTRODUCTION

Screening is detection of diseases with the help of rapid tests among apparently healthy individuals. Screening plays a major role in cancer detection and prevention of mortality. Breast cancer is one of the most prevalent cancers among females^[1]. It accounts for 23% of all cancers in females globally and 19-34% of all cancer cases among women in India^[2]. Early detection is the key to treat breast cancer. Breast self-examination (BSE), clinical examination and mammography are the screening methods used to detect breast cancer among apparently healthy women. BSE is the best, economical, non-invasive screening method which can be performed by the woman herself in the comforts of her house. Yet, not many women perform this. There are several factors for not practicing breast self-examination. Lack of information regarding the technique, unawareness regarding one's susceptibility, ignorance about the severity of the disease, inexperience about the benefit of using a simple technique in prevention of a great disease, physical and psychological barriers like awkwardness, laziness and lack of confidence. Health Belief Model (HBM) is one of the behavioral change models.

The Foundation of HBM are the Following Two Components:

- The desire to avoid illness, or conversely get well if already ill.
- The belief that a specific health action will prevent, or cure, illness.

Ultimately, an individual's course of action often depends on the person's perceptions of the benefits and barriers related to health behaviour. There are six constructs of the HBM which are the beneficiaries' perceived susceptibility, perceived severity, perceived benefit, perceived barrier, cues to action and self-efficacy. Perceived susceptibility refers to one's perception of the chances of contracting a health condition. Perceived severity is a person's perception of the seriousness of the consequences of contracting a disease. Perceived benefit is one's belief in the efficacy of the advised action to reduce risk or seriousness of impact. Perceived barrier is one's opinion of tangible and psychological costs of the advised action. Cues to action are the strategies to activate "readiness." Self-efficacy is the confidence one gets about their own ability to act.

Objectives:

- To study the knowledge and practice of breast self-examination among women in rural area.
- To assess the change in the knowledge regarding breast self-examination among the same women immediately after the behavioural change communication using health belief model.
- To assess the change in the practice of breast self-examination among the same women, 3 months after the behavioral change communication using health belief model.

MATERIALS AND METHODS

An interventional study was conducted at the rural health training centre of a medical institute in North Karnataka. Ethical clearance was taken from the Institutional Ethics Committee of the institute. Women aged above 18 years attending the out-patient department of the centre for conditions other than breast related conditions were included. Written informed consent was obtained before starting the study. Women who were previously diagnosed with or are suffering from Breast Cancer or any breast condition, pregnant or lactating were excluded. Simple random sampling was used. Daily two eligible women were selected from among the women attending the OPD. Every morning before the OPD started, two chits out of 1-100 numbered chits were picked. If the person attending OPD at that chit number was not eligible for the study, then the consecutive eligible candidate was enrolled. Semi structured pre-tested questionnaire was used to collect the demographic data, knowledge and practice of breast self-examination. Behavioral change communication using health belief model was provided with the help of videos and charts by the researcher. Post-test questionnaire was used to assess the knowledge immediately after the behavioural change communication session. Practice of breast self-examination among the same women was assessed 3 months from the day of behavioural change communication by visiting their house.

RESULTS AND DISCUSSIONS

Median age of the study participants was 31 years with a range 19-60 years. A majority of 38% of the study participants had completed primary schooling and 55% were home-makers. As many as 93% of study participants were married. A smaller number of 27% had family history of cancer and 20% had lost some relative to any cancer. (Table 1).

Table I: Distribution of Study Participants According to Demographics, Family History of Cancer and Cancer Deaths (n=100)

Variable	Number (%)
Age	Median-31 years Range-19-60 years
Education	
Illiterate	18 (18)
Primary schooling	38 (38)
High schooling	31 (31)
Graduation	12 (12)
Post graduation	1 (1)
Occupation	
Home-maker	55 (55)
Agriculture	24 (24)
Others	21 (21)
Marital status	
Married	93 (93)
Unmarried	3 (3)
Widow	3 (3)
Divorced	1 (1)
Family history of any cancer	
Yes	27 (27)
No	
Family history of any cancer death	
Not applicable	73 (73)
Yes	20 (20)
No	7 (7)

Though all the study participants knew that cancer can affect breasts, only 2% knew that breasts should be examined by self regularly. This 2% of study

Table II: Distribution of Study Participants According to the Knowledge Regarding Breast Self-Examination Before and After Giving the Behavioural Change Communication Using Health Belief Model (n=100)

Knowledge	Before the behavioral change communication Number (%)	Immediately after the behavioural change communication Number (%)
Do you know the breasts should be examined regularly?		
Know	2 (2)	100 (100)
Do not know	98 (98)	0 (0)
What is the frequency of performing breast self-examination?		
Do not know	98 (98)	0(0)
Once a month	0 (0)	97 (97)
Once in 2 months	2 (2)	3 (3)
Once in 6 months	0 (0)	0 (0)
Once a year	0 (0)	0 (0)
Once a lifetime	0 (0)	0 (0)
What is the time of month when BSE to be performed?		
Do not know	99 (99)	1 (1)
During menstruation	1 (1)	1 (1)
Between 7 th to 10 th day of menstrual cycle	0 (0)	96 (96)
After 10 th day of menstrual cycle	0 (0)	2 (2)
Anytime	0 (0)	0 (0)
Do you know that the breast self-examination should be done in front of the mirror?		
Know	1 (1)	100 (100)
Do not know	99 (99)	0 (0)
Do you know the steps of breast self-examination?		
Do not know	98 (98)	0 (0)
Knows at least 1 step	0 (0)	0 (0)
Knows at least 2 steps	0 (0)	3 (3)
Knows at least 3 steps	0 (0)	16 (16)
Knows at least 4 steps	0 (0)	32 (32)
Knows all 5 steps	0 (0)	49 (49)
Do you know the abnormalities during breast self-examination?		
Do not know	99 (99)	0 (0)
Know any 1 abnormality	0 (0)	0 (0)
Knows at least 2 abnormalities	1 (1)	8 (8)
Knows at least 3 abnormalities	0 (0)	28 (28)
Knows at least 4 abnormalities	0 (0)	28 (28)
Knows at least 5 abnormalities	0 (0)	36 (36)

Table III: Distribution of Study Participants According to the Practice Regarding Breast Self-Examination Before and After 3 Months of Giving the Behavioural Change Communication Using Health Belief Model (n=100)

Practice	Before the behavioural change communication (n=100) Number (%)	3 months after the behavioural change communication (n=95) Number (%)
Did you examine your breasts regularly?		
Yes	0 (0)	89 (93.7)
No	100 (100)	6 (6.3)
How often did you perform breast self-examination?		
Never	100 (100)	6 (6.3)
Once a month	0 (0)	71 (74.7)
Once in 2 months	0 (0)	12 (12.7)
Once in 3 months	0 (0)	6 (6.3)
What time of month did you perform BSE?		
Never	100	6 (6.3)
During periods	0 (0)	2 (2.1)
Between 7th to 10th day of menstrual cycle	0 (0)	59 (62.2)
After 10th day of menstrual cycle	0 (0)	18 (18.9)
Anytime	0 (0)	10 (10.5)
Did you perform the breast self-examination in front of the mirror?		
Yes	0 (0)	77 (81.1)
No	0 (0)	12 (12.6)
Never performed	100 (100)	6 (6.3)
Do you know the steps of breast self-examination?		
Do not know	100 (100)	6 (6.3)
Knows at least 1 step	0 (0)	9 (9.5)
Knows at least 2 steps	0 (0)	9 (9.5)
Knows at least 3 steps	0 (0)	29 (30.5)
Knows at least 4 steps	0 (0)	29 (30.5)
Knows all 5 steps	0 (0)	13 (13.7)
Do you know the abnormalities during breast self-examination?		
Do not know	100 (100)	6 (6.3)
Know any 1 abnormality	0 (0)	9 (9.5)
Knows at least 2 abnormalities	0 (0)	20 (21.1)
Knows at least 3 abnormalities	0 (0)	29 (30.5)
Knows at least 4 abnormalities	0 (0)	19 (20)
Knows at least 5 abnormalities	0 (0)	12 (12.6)

Table IV: Difference in the Pre and Post Behavioural Change Communication Knowledge and Practice Scores

Knowledge score (Out of 5)	Pre-Behavioural Change Communication n=100 (%)	Immediate Post-Behavioural Change Communication (n=100)
0	99 (99)	0 (0)
1	0 (0)	1 (1)
2	1 (1)	0 (0)
3	0 (0)	1 (1)
4	0 (0)	12 (12)
5	0 (0)	86 (86)
Mean score	0.02±0.2	4.82 ± 0.54
t score, dF, p value	t=84.427, dF=99, p<0.001	
Practice score (Out of 5)	Pre-Behavioural Change Communication n=100 (%)	3 months Post-Behavioural Change Communication n=100 (%)
0	100 (100)	15 (15)
1	0 (0)	5 (5)
2	0 (0)	2 (2)
3	0 (0)	19 (19)
4	0 (0)	24 (24)
5	0 (0)	35 (35)
Mean score	0	3.37±1.76
t score, dF, p value	t=19.13, dF=99, p<0.001	

Table V: Association Between Knowledge Scores and Practice Scores Using Paired T Test

Parameters	Mean score±SD	t score Df p-value
Knowledge score immediately after behavioural change communication	4.80±0.64	t=6.49 dF=88 p<0.001
Practice score after 3 months of behavioural change communication	3.80±1.38	

participants also thought that BSE should be done once in 2 months and were able to list at least 3 steps of BSE. Only 1% of the study participants thought breast self-examination should be done during menstruation., also knew it should be done in front of the mirror and could list only 2 abnormalities. (Table 2). After the behavioural change communication, 100% knew breast self-examination should be done regularly and knew it should be performed in front of a mirror. As many as 97% could tell that it should be done every month and 96% knew that the right time to perform BSE is between 7th-10th day of a menstrual cycle. As many as 49% and 36% of the study participants could list all the 5 steps of BSE and all the 5 abnormalities to be looked for during BSE respectively. (Table 2). Behavioural change communication was repeatedly given at the same visit till all women could repeat how often BSE should be done, timing of the month when it is to be done, steps to be performed and the abnormalities to look for during BSE. Before the behavioural change communication was given using health belief model, none of the study participants had practised breast self-examination. (Table 3). After three months of behavioural change communication, 5 were lost to follow up. Out of the 95 study participants who were followed up after 3 months, 89 (93.7%) had performed breast self-examination. A majority of 71 (74.7%) had performed the breast self-examination every month and 59 (62.2%) had correctly examined oneself between 7th-10th day of the menstrual cycle. A large majority of 77 (81.1%) study participants had performed the BSE in front of a mirror. As many as 29 (30.5%), 29 (30.5%), 13 (13.7%) had performed 3, 4 and

5 steps of BSE respectively. Only 12 (12.6%) of study participants could list the abnormalities they had looked for and a majority of 29 (30.5%) could list at least 3 abnormalities they had looked for. (Table 3).

Score was Calculated by Giving 1 Point Each to the Following Parameters:

- Performing BSE every month.
- Performing BSE every month between 7th-10th day of menstrual cycle.
- Performing BSE in front of mirror.
- Listing any 3 steps of BSE.
- Listing any 3 abnormalities to look for during BSE.

That constitutes a maximum of 5 points. Using paired t test, it was noted that there was a statistically significant difference between pre and post behavioural change communication knowledge score as well as pre and post behavioural change communication practice score. (Table 4). Using paired t test, it was noted that the knowledge and practice scores were significantly associated. (Table 5). Reasons quoted by participants who did not regularly practice BSE were lack of privacy and time (8%), not necessary as they will not suffer from breast cancer (2%), did not remember the procedure or the appropriate time of performing (2%) and irregular periods (1%). During the practice of BSE, 7 (7.36%) study participants had found abnormalities and had consulted the surgeons for further follow up.

Study participants had poor knowledge regarding breast self-examination at the beginning of the study. Knowledge improved significantly after the behavioural change communication using health belief model.

Majority of the study participants also practiced the breast self-examination appropriately for the next 3 months. A community-based, cross-sectional study carried out among women in rural area of Trichy showed that only 26% of the women were aware of BSE, only 18% of the females had ever checked their breast and 5% practiced it regularly^[3]. The awareness was higher than our study in which only 2% knew about BSE and none had practiced it. The difference was probably because of regional differences and educational factors. A study conducted in a village of North India showed that post educational knowledge was good and average among 45% and 15% of study participants respectively^[4]. In the present study a knowledge score of 5, which translates to presence good knowledge was seen among 86% of the study participants post behavioural change communication. The difference here probably is due to the quality of educational material, communication skills of the experts giving health education and comprehension of the study participants. In another study conducted in Seremban, Negeri Sembilan among girls of secondary school a statistically significant improvement was observed pre and post knowledge ($p < 0.001$)^[5]. Similar finding was observed in the current study as well. An interventional study was conducted among female university students of Zagazig University, Egypt, in which it was observed that only 1.1% knew what to look for during BSE. But post intervention, it improved to 81.7% which was statistically significant^[6]. This finding was similar to the findings of the current study, in which 1% knew only two abnormalities to look for during BSE prior to the intervention and it improved to 92% knowing >three abnormalities to look for during BSE post intervention. Statistically significant positive correlations among students' knowledge and practice scores were shown in the same study which was a similar finding of the present study wherein significant association was observed between knowledge and practice scores^[7]. The current study shows that health education should be given to women attending health centres as it has been observed to increase the knowledge regarding BSE and improve compliance to the practice of BSE. Use of health belief model must be encouraged because this is an organised model addressing the barriers to the practice of BSE. In future, follow up studies of longer duration must be conducted to look for the retention of knowledge gained, translating into the practice of BSE. Studies incorporating other models like motivational model can be conducted to compare the outcomes.

Strengths and Limitations: Participants were randomly selected from the OPD. High quality materials were used to deliver behavioural communication by the

experts. Study participants were meticulously educated till they internalized the process well and were encouraged to clear all their doubts. Follow up was done by house visits. After 3 months when the follow up was done, participants were made to demonstrate breast self-examination. However, the regularity of the practice was self-reported and we have believed it without using any means to confirm the same. This study does not assess the long-term retention of knowledge and practice.

CONCLUSION

Significant improvement was seen in the knowledge as well as practice of breast self-examination after the behavioural change communication was given to women coming to health care centre for the treatment of any illness. Hence, it is beneficial to give information about BSE in an organized behavioural change communication model to change the beneficiaries' perceived susceptibility, perceived severity, perceived benefit, perceived barrier and give cues to action and improve self-efficacy.

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