Evaluation of breast self-examination teaching materials in a primary care setting

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SUMMARY. A study was designed to determine the effectiveness of breast self-examination teaching materials in a primary care setting. The Women's National Cancer Control Campaign tape/slide programme and leaflets were displayed in a health centre, both independently and in combination. Women leaving the health centre were interviewed about breast cancer and the information on breast self-examination contained in the educational material.

Both the leaflet and tape/slide programme, independently, increased knowledge about breast cancer and self-examination, but only to a small extent. They were more effective in combination, mainly in increasing knowledge of breast self-examination, rather than knowledge of breast cancer or breast abnormalities.

Introduction

AT present breast cancer is not a preventable disease. Until the causes are better understood, a reduction in premature mortality can only be achieved by advances in treatment or through secondary preventive measures. Secondary prevention involves the early detection of breast cancer either through ensuring that diagnosis occurs without any delay, or through screening of the population to detect cancer at an early stage.[1]

Screening for breast cancer can be achieved either by screening asymptomatic women (the medical model) or by teaching women to examine their own breasts (the self-help model).[2] There is some evidence for the long-term benefits of screening by X-ray mammography and clinical examination. The most recent follow-up in the Health Insurance Plan of Greater New York study after 14 years showed significantly fewer deaths from breast cancer in the screened group than in the control group.[3]

The UK trial of Early Detection of Breast Cancer will provide further data on the benefits or otherwise of screening asymptomatic women.[4] This trial is also evaluating breast self-examination. Evidence for the beneficial effect of breast self-examination on mortality is emerging. Two recent studies have shown that breast cancer patients who reported having practised breast self-examination were more likely to have fewer axillary lymph node metastases and smaller tumours than those who did not.[5,6] One of the breast self-examination centres in the UK trial has reported a reduction in the incidence of advanced disease and lymph node involvement at mastectomy, and an increase in the proportion of patients presenting with tumours less than 2 cm in diameter, following an education programme in breast self-examination.[7] A recently reported American study found that death due to breast cancer was less likely in breast cancer patients who had performed breast self-examination than in those who had not.[8]

Even though evidence for the benefits of breast self-examination is only now beginning to emerge, it has been promoted and practised for some time. It is promoted by the medical profession, the Health Education Council, cancer organizations, the press and the media. It is already practised to some extent by many women.[9] Educational materials concerning breast self-examination are available — leaflets are produced by a number of organizations, including the Health Education Council, the Women's National Cancer Control Campaign and Tenovous. The Women's National Cancer Control Campaign has produced both a film and a tape/slide programme to complement its leaflet. The Tenovous leaflet complements one in a series of six video recordings about cancer.

How effective are these impersonal methods of teaching women about breast cancer and self-examination? General practice has been acknowledged to have great potential for health promotion and disease prevention.[10] This paper describes a study designed to measure the effectiveness of breast self-examination teaching materials in a primary care setting.

Method

Sample

Lordshill Health Centre in Southampton was selected for the study. The Lordshill area includes both private and council housing estates as well as sheltered housing for the elderly. It would be expected that the majority of the working residents would fall into social classes 3N, 3M and 4.

All women over 16 years of age who attended the health centre for any reason during the study period were potential subjects — 3900 women over 16 years of age were registered with the health centre at the time of the study.

Materials

The materials chosen for this evaluation were the leaflet and tape/slide programme *Your life in your hands,* produced by the Women's National Cancer Control Campaign. They were chosen because they are complementary and contain similar information.

Design

Four different experimental conditions were evaluated in the health centre waiting room:

1. No leaflets or tape/slide programme available (control).
2. Leaflets only displayed on tables.
3. Tape/slide programme only, showed continuously (duration approximately nine minutes).
4. Leaflets displayed and tape/slide programme showed continuously.

The evaluation of the four experimental conditions, arranged in a 2 x 2 factorial design, was conducted on four weekdays (Monday to Thursday) for four weeks. In order to reduce bias to a minimum, a latin square experimental procedure was employed, such that each experimental condition was evaluated on each of the four weekdays.

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Questionnaire

A questionnaire was designed for the study and a pilot study was carried out at Shirley Health Centre in Southampton, after which a number of modifications were made. All the women interviewed were asked questions relating to information about breast cancer and self-examination contained in the leaflet and/or tape/slide programme; their practice of breast self-examination; and the action they would take on the discovery of a breast symptom. Women exposed to experimental conditions 2–4 were also asked about the time spent, if any, looking at the leaflet and/or tape/slide programme.

At the end of the questionnaire, the woman's age was recorded, together with the occupation of the head of her household.

Procedure

Women were interviewed as they left the health centre. It was evident from a pilot study that one interviewer would be unable to interview every potential woman subject. To avoid selection bias, the first woman leaving the surgery after the previous interview was the next subject. A standard introduction was used with each subject. A number of other measures were employed to increase the validity of the study — every woman was asked if she had answered the questionnaire on a previous occasion; the women were interviewed in a separate room; and a standard length of time was allotted for the answering of factual questions.

During the period of the study, a daily count was made of the number of leaflets taken, together with an estimate, based on appointment lists, of the number of women who attended the health centre.

Analysis

In order to compare the levels of knowledge about breast cancer and self-examination of the women exposed to the four experimental conditions, a weighted score was calculated for each subject. The score was calculated from the five questions on the questionnaire which related to knowledge of breast cancer or self-examination. The questions on knowledge of breast cancer, recommended frequency of self-examination, time of month to perform breast self-examination and the part of the hand to use were weighted (two points for each part of the question). These questions were considered to be worth more than each part of the question concerning abnormalities to look/feel for (one point for each part of the question). The maximum weighted score was 25 points.

Results

According to the appointment lists, 495 women attended the health centre during the study period. Two hundred and three women were interviewed and a further 10 refused to be interviewed; no women were interviewed more than once. Seven of the women who were interviewed had an appointment to see their doctor about a breast problem.

Table 1. The number of women exposed to experimental conditions 1 – 4 and the mean scores (points) for knowledge of breast cancer and self-examination by experimental condition.

	Leaflet not seen		Leaflet seen		Total	
	n	Mean score ± SD	*n*	Mean score ± SD	*n*	Mean score
Tape/slide programme not seen	37	7.7±3.3	69	8.6±3.6	106	8.2
Tape/slide programme seen	42	8.5±4.0	55	10.4±3.9	97	9.5
Total	79	8.1	124	9.5	203	8.9

SD = standard deviation. *n* = number of women.

Table 2. Mean scores (points) for individual questions on breast cancer, abnormalities and self-examination by experimental condition.

Experimental condition	Number of women	Mean score for knowledge of:		
		Breast cancer	Breast abnormalities	Practice of breast self-examination
1. No leaflet, no tape/slide programme	37	4.6	1.5	1.6
2. Leaflet only	69	5.2	1.5	1.8
3. Tape/slide programme only	42	5.0	1.5	2.1
4. Leaflet and tape/slide programme	55	5.1	1.8	3.5
Total	203	5.0	1.6	2.3
(maximum score possible)		(8.0)	(11.0)	(6.0)

The women interviewed ranged in age from 15 years to 83 years, with the majority (66%) aged 20–39 years. A third of the women were in social class 3M and a fifth in social classes 4 and 5. The remainder were spread between social classes 1/2 and 3N or were unclassified. The number of women exposed to each experimental condition is shown in Table 1. Altogether 124 women were exposed to the leaflet and 97 to the tape/slide programme. The maximum weighted score of 25 points was not reached by any of the women. The overall mean score for all 203 women was 8.9 points (Table 1). The mean score was calculated for each of the four experimental groups. Table 1 shows that the leaflet and tape/slide programme act independently with an increase of 1.4 points (95% confidence limits 0.4 to 2.4) and 1.3 points (95% confidence limits 0.3 to 2.3), respectively. When both the leaflet and tape/slide programme were available together — experimental condition 4 — the effect on knowledge was additive with a gain of 2.7 points on the mean score over experimental condition 1. There was no evidence of any interaction between the leaflet and tape/slide programme.

The mean score was highest (9.3 points) for women aged 29–59 years, as compared to a score of 7.0 points or less in all other age groups. Women in social classes 1 and 2 had a mean score of 10.4 points as compared to a mean of 8.6 points for women in social classes 3, 4 and 5 or unclassified. Women who said they practised breast self-examination either regularly or irregularly had higher mean scores (10.0 and 9.5 points, respectively) than women who did not practise breast self-examination at all (7.4 points).

The mean scores by experimental condition were calculated separately for the question on breast cancer knowledge, and the question on knowledge of breast abnormalities, and the three questions combined on knowledge of the practice of breast self-examination. Table 2 shows that a relationship between the experimental condition and the mean score was most apparent for the set of questions relating to knowledge of the practice of breast self-examination. There was a mean score of 3.5 points for the leaflet and tape/slide programme combined compared with 1.8 points and 2.1 points for the leaflet alone and tape/slide programme alone, respectively.

Table 3. Mean scores (points) for knowledge of breast cancer and self-examination by time spent watching tape/slide programme.

Time spent watching tape/slide programme (minutes)	Number of women	Mean score (maximum 25.0)
0–5	38	9.0
6–10	13	10.3
>11	19	12.4
Not sure	5	11.0
Unknown/not applicable	128	8.1

The overall mean score for the question about breast abnormalities was low (1.6 points, maximum 11 points). Almost three-quarters (73%) of the subjects mentioned lumps or nodules, but no other breast changes were mentioned by more than a fifth of the women.

There was a relationship between time spent watching the tape/slide programme and the mean score (Table 3). The mean score of the women who had spent more than 10 minutes watching the programme was 3.4 points more than those who had watched for no more than five minutes.

Of the 124 women who had been exposed to the leaflet, 56 (45%) had seen it. Of these, 18 women had picked one up and most of them (14 women) were taking it home with them. Three-quarters of the women (73%) who were exposed to the tape/slide programme said that they had watched it. Of these, just over half (52%) had watched for no more than five minutes. The proportion of women taking a leaflet increased from 10% in the group exposed to the leaflet only to 20% in the group exposed to both the leaflet and the tape/slide programme.

Discussion

This study was conducted in a primary care setting and therefore the results are limited to the effect of breast self-examination teaching materials on the knowledge of women attending health centres.

The results show that both a leaflet and a tape/slide programme can act independently to increase knowledge about breast cancer and self-examination to a small extent. It is recommended that they be used in combination. This combination was most effective in increasing knowledge of the practice of breast self-examination, rather than knowledge of breast cancer or breast abnormalities. Health education about breast cancer needs to place more emphasis on the range of breast changes women should look for when practising breast self-examination.

It is surprising that only 45% of the women exposed to the leaflet had seen it, and disappointing that two-thirds of these did not even pick the leaflet up. This suggests that leaflets would be better distributed directly, for example by a receptionist or doctor. However, the tape/slide programme did double the number of women picking up the leaflet. The tape/slide programme stimulated more interest than the leaflet, with the majority of women who were exposed to it watching it. The programme lasted for nine minutes and most women were in the waiting room for up to 10 minutes. However, although the mean score for knowledge of breast cancer and self-examination increased with the length of time spent watching, the majority of women who watched the programme did so for no more than five minutes. This suggests that a tape/slide programme of shorter duration would be more suitable for a primary care setting.

If women's knowledge of breast self-examination and breast cancer can be increased by a simple health education display in a primary care setting, this may lead to an increase in the practice of breast self-examination, a greater awareness of the significance of breast abnormalities and a reduction in delays in the presentation of breast abnormalities to general practitioners. Breast cancer may then be diagnosed at an earlier stage, thus reducing the high mortality rate from this disease.

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A fish a day . . .

The low death rate from coronary heart disease among the Greenland Eskimos has been ascribed to their high fish consumption. An investigation was made into the relation between fish consumption and coronary heart disease in a group of men in the town of Zutphen, The Netherlands. Information about the fish consumption of 852 middle-aged men without coronary heart disease was collected in 1960 by a careful dietary history obtained from the participants and their wives. During 20 years of follow-up 78 men died from coronary heart disease. An inverse dose-response relation was observed between fish consumption in 1960 and death from coronary heart disease during 20 years of follow-up. This relation persisted after multiple logistic-regression analyses. Mortality from coronary heart disease was more than 50% lower among those who consumed at least 30 g of fish per day than among those who did not eat fish.

The authors conclude that the consumption of as little as one or two fish dishes per week may be of preventive value in relation to coronary heart disease.

Source: Kromhout D, Bosschieter EB, Coulander CL. The inverse relation between fish consumption and 20-year mortality from coronary heart disease. *N Engl J Med* 1985; **312:** 1205-1209.