

# Effect of an educational film on the Health Belief Model and breast self-examination practice

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تأثير فلم تعليمي في نمط المعتقدات الصحية وممارسة الفحص الذاتي للثدي  
أمال قدرى عطية ودلال علي محمد عبد الرحمن ولىلى إبراهيم كامل

خلاصة: أجريت دراسة طويلة ذات أربع مراحل، للتعرف على تأثير فلم تعليمي في نمط المعتقدات الصحية وممارسة الفحص الذاتي للثدي، بين طالبات السنة الثانية بكلية التمريض بجامعة الإسكندرية. وتبين من النتائج أن معالم المعتقدات الصحية (إدراك التعرض لسرطان الثدي، ومزايا وموانع ممارسة الفحص الذاتي للثدي) قد تأثرت بالفلم بدرجات مختلفة. فلو حظ تأثير إيجابي بين ممارسة الفحص الذاتي للثدي وبين مشاهدة الفلم. وكشفت بيانات المتابعة لمدة سنة بعد مشاهدة الفلم عن ارتفاع معدل مواصلة الفحص الذاتي للثدي. وكان السبب الرئيسي الذي ذكر لممارسة الفحص الذاتي للثدي هو الاكتشاف المبكر لأي تغيرات غير طبيعية.

**ABSTRACT** A longitudinal study of four phases was conducted to identify the effect of an educational film on the Health Belief Model and breast self-examination practice of second-year nursing students in Alexandria University. Findings showed that the health belief parameters (perceived susceptibility to breast cancer, benefits of and barriers to practising breast self-examination) were influenced differently by the film. A positive influence was observed between breast self-examination practice and film viewing; one-year post-film follow-up data revealed a high continuation rate of breast self-examination. The main reason cited for BSE practice was early detection of abnormalities.

**Effet d'un film éducatif sur le modèle de croyances relatives à la santé et la pratique d'auto-examen des seins**

**RESUME** Une étude longitudinale en quatre phases a été réalisée pour déterminer l'effet d'un film éducatif sur le modèle de croyances relatives à la santé et la pratique d'auto-examen des seins chez les élèves infirmières de deuxième année à l'Université d'Alexandrie. Les résultats de cette étude ont montré que les paramètres des modèles de croyance relatives à la santé (vulnérabilité perçue au cancer du sein, avantages de l'auto-examen et obstacles à cette pratique) ont été influencés de différentes manières par le film. Une influence positive a été observée sur la pratique de l'auto-examen des seins chez ces élèves infirmières après avoir vu le film; des données de suivi recueillies un an après la projection du film ont révélé un taux élevé de poursuite de l'auto-examen des seins. La raison principale citée pour la pratique de l'auto-examen des seins était la détection précoce des anomalies.

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Received: 03/06/97; accepted: 25/09/97

## Introduction

Breast cancer is one of the world's leading causes of mortality in women 35 years of age or more [1]. In Egypt, it has been estimated that breast cancer represents about 40% of all diagnosed cancers with an annual increase that ranges between 1.5% and 2% [2]. These figures are both tragic and alarming from the humanitarian and economic points of view. Early diagnosis affords a better chance of survival and better prognosis [3]. Several methods are available for early diagnosis which give good results in early cancer stages. There exists a simple, inexpensive and easily implemented method for the detection of breast cancer, namely breast self-examination (BSE).

BSE has been defined as a preventive health behaviour, i.e. "an activity undertaken by a person, who believes [herself] to be healthy, for the purpose of preventing disease or detecting disease in an asymptomatic state" [4]. Although BSE is a simple, quick and cost-free procedure, it appears that many women either perform it erratically or not at all. Several reasons have been reported for women not practising BSE, besides initial ignorance of the procedure [5]. The reasons include alleged lack of time, lack of self-confidence in their own ability to perform the technique correctly, fear of the possible discovery of a lump and embarrassment associated with manipulation of the breast [6, 7].

A possible framework utilized to help understand why and under what conditions people take action to prevent, detect or comply with treatment is the Health Belief Model [5,8]. Health beliefs are defined as a set of perceptions an individual holds about his/her susceptibility to a disease, the seriousness of that disease to his/her life and the benefits of taking action to reduce the threat of the disease [6]. The elements of the

Health Belief Model related to breast cancer can thus be translated as the perception of: one's own susceptibility to breast cancer, the benefits of BSE to one's life, and possible barriers to the implementation of BSE. Although the benefits of BSE can be intellectually perceived by the informed woman, some factors which affect the practice of BSE need to be studied. These factors pertain either to teaching strategies regarding BSE or to the individual's health beliefs.

Visual images have been recognized to increase the effectiveness of learning strategies. Films can have a powerful impact in the classroom and stimulate discussion, since they approximate real life. They are equally useful for demonstrating skills, both cognitive and psychomotor [9-11]. Choosing the correct methods for BSE teaching is crucial and films have been shown to be effective in promoting learning and thus, it is hoped, the practice of BSE [7]. The purpose of the present study was to identify the effect of an educational film on the Health Belief Model and BSE practice.

## Subjects and methods

A longitudinal study was carried out in four phases on female students initially enrolled in the second year at the Faculty of Nursing, University of Alexandria.

The first phase was a background survey regarding BSE practice. This phase was carried out in the first semester of the second academic year. The initial sample consisted of 150 nursing students. The second phase aimed to investigate health beliefs about breast cancer and BSE practice. This phase was conducted during the mid-year vacation on 87 second-year students who voluntarily attended a film presentation about BSE. The third phase was carried out

two months after the presentation of the educational film to study the effect of the film on the students' behaviour. The sample in this phase consisted of the 87 students who had seen the film during the second phase. The fourth phase, the follow-up phase, was carried out one year later on 50 randomly selected student nurses enrolled in the third academic year, who had previously viewed the film, to assess the rate of continuation of BSE practice. Informed consent was obtained from all participants in the study.

Five tools were used for data collection in this study

- *Tool I.* A questionnaire was given to the students to assess their knowledge and practice of BSE. This was immediately followed by feedback information on the breast as a female organ and the value of BSE. The questionnaire was administered during the first phase of the study.
- *Tool II.* A structured questionnaire was developed by the researchers to identify the Health Belief Model, the practice pattern relative to BSE and knowledge of risk factors related to breast cancer. This questionnaire was administered during the second and third phase of the study, before and after seeing the film.
- *Tool III.* A 10-minute educational film (*Self-examination of the breast* [12]) was used as a visual reinforcer; it was preceded by an introduction and followed by a discussion conducted by the researchers. The content of the film included the importance of BSE, anatomy of the breast, methods of performing BSE and the schedule for BSE. The film was shown during the second phase.
- *Tool IV.* A summary handout relevant to the film content was developed [13, 14] by the researchers and distributed to each student immediately after film viewing to serve as a reference for the students.
- *Tool V.* A questionnaire was developed to identify the long-term impact of the educational film on the Health Belief Model and BSE practice. This was administered during the fourth phase of the study.

### Statistical analysis

The effect of the educational film on the Health Belief Model was examined using the chi-squared ( $\chi^2$ ) test of significance. The Z test was used to test the effect of film viewing on BSE practice and on items of BSE practice. The 5% and 1% levels of significance were used.

### Results

Regarding the knowledge and practice of BSE of the initial sample of second-year nursing students, 57 (38.0%) of the studied sample knew about BSE, while only 37 (24.7%) practised BSE.

Table 1 shows the risk factors related to the occurrence of breast cancer as men-

**Table 1 Students' knowledge in relation to risk factors of breast cancer**

Breast cancer risk factors as given by the students	Percentage* (n = 87)
Exposure to radiation	89.7
Oral contraception	70.1
Heredity	65.5
Childbearing	58.6
Old primipara	42.5
Overweight	42.5
Post-menopause	37.9
Married status	19.5
Breast-feeding	3.4
Early onset of menarche	2.3

\*Multiple answers were given

tioned by the students. The majority of the students (89.7%) reported exposure to radiation as a risk factor, 70.1% mentioned oral contraceptives and 65.5% said that heredity played a major role in the development of the disease. Child-bearing and old primipara were often mentioned as risk factors for breast cancer. It seems that students had

some distorted conception of the risk factors conducive to the possible development of breast cancer, since being overweight and marriage were mentioned by 42.5% and 19.5% of the sample respectively.

Table 2 shows the effect of the BSE educational film viewing on the students' health beliefs. As regards perceived suscep-

Table 2 Effect of the educational film about BSE on the students' health beliefs

Health beliefs parameter		Before film (n = 87)		After film (n = 87)		$\chi^2$
		No.	%	No.	%	
<i>Perceived susceptibility</i>						
My health is good at present so I do not even consider the possibility that I might get breast cancer.	A	19	21.8	15	17.2	0.585
	D	68	78.2	72	82.8	$P > 0.05$
Whenever I hear of a friend or relative getting breast cancer, it makes me realize that I could also get it. <sup>a</sup>	A	69	79.3	50	58.1	9.028*
	D	18	20.7	36	41.9	$P < 0.01$
The older I get, the more I think about the possibility of getting breast cancer some day. <sup>b</sup>	A	64	74.4	63	72.4	0.089
	D	22	25.6	24	27.6	$P > 0.05$
I would rate my chances of getting breast cancer as compared with other women as average or above average. <sup>b,c</sup>	A	53	61.6	57	67.1	0.549
	D	33	38.4	28	32.9	$P > 0.05$
<i>Perceived health benefits</i>						
If more women examined their breasts regularly, there would be fewer deaths from breast cancer.	A	79	90.8	83	95.4	1.432
	D	8	9.2	4	4.6	$P > 0.05$
If I examined my own breasts regularly, I might find a lump sooner than if I just went to the doctor for a check-up. <sup>c</sup>	A	85	97.7	81	94.2	1.376
	D	2	2.3	5	5.8	$P > 0.05$
Whether I find a lump in my breast myself, it does not really matter because by then it will be too late anyway. <sup>b</sup>	A	7	8.0	6	7.0	0.07
	D	80	92.0	80	93.0	$P > 0.05$
<i>Barriers to practice</i>						
Even though BSE is a good idea, I find having to examine my breasts an embarrassing thing to do. <sup>a,b</sup>	A	31	36.0	26	30.2	0.655
	D	55	64.0	60	69.8	$P > 0.05$
Examining my breasts often makes me worry unnecessarily about breast cancer. <sup>a,b</sup>	A	39	45.3	34	39.5	0.594
	D	47	54.7	52	60.5	$P > 0.05$
Even though BSE is a good idea, I would find it difficult to detect abnormalities.	A	66	75.9	47	54.0	9.1127*
	D	21	24.1	40	46.0	$P < 0.01$
Examining my breasts takes a lot of time.	A	16	18.4	18	20.9	0.176
	D	71	81.6	68	79.1	$P > 0.05$

<sup>a</sup>Total sample = 86 after film  
\* Significant at 1% level

<sup>b</sup>Total sample = 86 before film  
A = agree D = disagree

<sup>c</sup>Total sample = 85 after film  
BSE = breast self-examination

tibility to breast cancer, 78.2% of the students before the film did not consider that their present good health made them discount the possibility of their getting breast cancer; this percentage increased to 82.8% after the film. The difference, however, was not statistically significant ( $P > 0.05$ ). Before the film, 79.3% of the students agreed that hearing of a friend or relative getting breast cancer made them more aware of their own susceptibility. The percentage decreased to 58.1% after the film which was a statistically highly significant difference ( $\chi^2 = 9.028$ ,  $P < 0.01$ ). The film did not greatly affect the students' rating of their own chances of developing breast cancer; 61.6% before and 67.1% after viewing the film rated their chances as average or above average, a statistically nonsignificant difference.

With regard to the health benefits of BSE, 90.8% and 95.4% of the sample before and after viewing the film respectively agreed that BSE would lead to fewer deaths from breast cancer. Similarly, students' views on the importance of BSE practice in relation to prognosis were nearly the same before and after viewing the film (92.0% and 93.0% respectively). Both differences were statistically nonsignificant.

Before the film, 64.0% of the students did not consider BSE an embarrassing activity. The percentage increased to 69.8%

after watching the film but the difference was statistically nonsignificant. Before the film, 75.9% of the students felt they would be unable to perform BSE effectively but this percentage decreased to 54.0% after the film; the difference was statistically highly significant ( $\chi^2 = 9.1127$ ,  $P < 0.01$ ). Before the film 18.4% of the students thought BSE was as a time-consuming procedure; the film appeared to have a slight negative effect on this belief as 20.9% believed it so after watching the film.

The BSE educational film had a positive influence on the students' BSE practice (studied on 87 students). The percentage performing BSE increased from 57.5% to 77.0% after watching the film. The difference was statistically significant ( $Z = 2.745$ ).

Table 3 shows the effect of the BSE educational film on items of BSE practice among practicers. Of those students who performed the procedure, 78.0% did so in the correct position before viewing compared with 85.1% after viewing the film, a statistically nonsignificant difference. The correct time for performing BSE was followed by only 44.0% of the students before the film and increased to 68.7% after viewing. The correct method of palpation was practised by only 24.0% of the students before the film compared with 56.7% after. The latter two differences were statistically

**Table 3 Effect of viewing the film about BSE on items of BSE practice among practicers**

Item of BSE practice	Before film (n = 50)		After film (n = 67)		Z
	No.	%	No.	%	
Correct position	39	78.0	57	85.1	0.985
Correct time	22	44.0	46	68.7	2.67*
Correct palpation	12	24.0	38	56.7	3.538*

\*Statistically significant,  $P > 0.05$

significant ( $Z = 2.67$  and  $Z = 3.538$  respectively).

A one-year post-film follow-up study related to BSE practice was done on 50 students who had seen the film. It was interesting to note that 42 of the studied sample (84.0%) were still practising BSE one year after seeing the film. The majority of the 42 practising students (97.6%) cited early detection of breast cancer as the main reason for practising BSE. Fear of developing breast cancer was mentioned by 13 (31.0%) students. On the other hand, forgetting, lack of knowledge about the procedure and fear of detecting an abnormality were the reasons mentioned by 5 (62.5%), 3 (37.5%) and 3 (37.5%), respectively, of the eight students who did not practise the procedure.

Figure 1 presents the percentage distribution of BSE practice among the studied sample during the four phases of the study. It is clear that 24.6% of the initial sample (phase I) practised BSE and 57.4% of the students practised BSE before viewing of the film (phase II). This percentage increased to 77.0% after viewing the film (phase III), and the majority of the studied sample (84%) were still practising BSE one year later (phase IV).

## Discussion

To date, the etiology of breast cancer is uncertain and adequate primary prevention is not possible. Thus, early detection measures remain the first priority for national

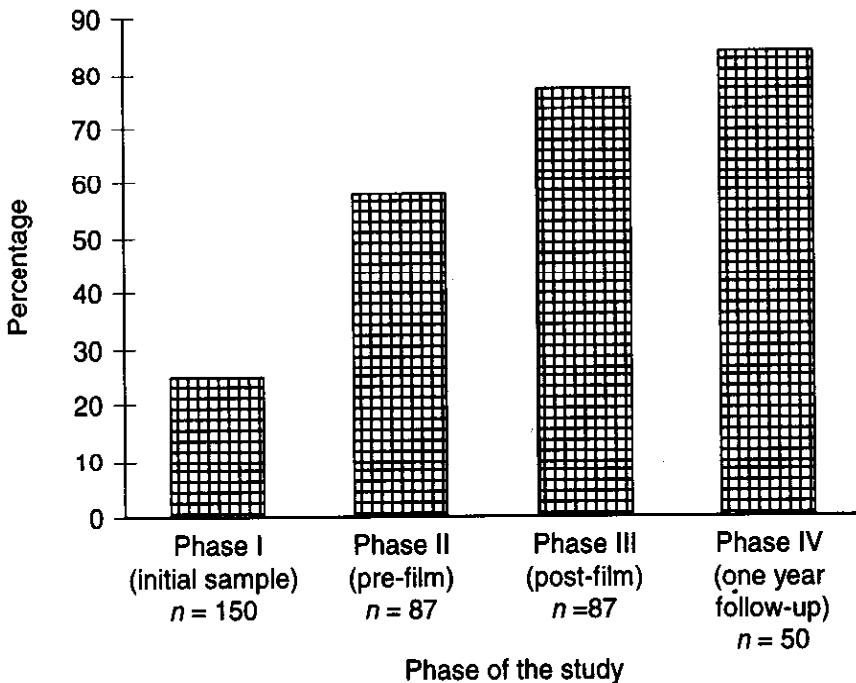


Figure 1 Percentage of the students practising BSE during the four phases of the study

health promotion programmes. These measures include BSE, which is a screening behaviour of relevance to women's health. It is a unique procedure in many ways: it is inexpensive, non-invasive, involves little time and physical energy, is simple and does not depend on professional help [15].

According to the results of this study, lack of knowledge and of practice of BSE were generally found among the studied sample. This is unsatisfactory since nurses, by virtue of their educational preparation and responsibilities as health care providers, should adopt such preventive screening procedures and act as role models for the public. The students' response regarding their knowledge about risk factors and occurrence of breast cancer was acceptable since many of the factors involved were recognized by the studied sample. This finding is important because other studies have found that knowledge of risk factors has a significant association with BSE performance and frequency [4].

The effect of viewing a BSE educational film on students' health beliefs was investigated. Three health belief parameters were assessed, namely perceived susceptibility, perceived health benefits and perceived barriers to practice.

Perceived susceptibility is "the state of readiness of an individual to develop a certain condition or disease" [16]—in this case, breast cancer. The findings reveal a slight influence of the film on the students' belief about their susceptibility to breast cancer in relation to their personal perception of their present health status. This relative influence is supported by other studies in which perceived susceptibility is found to be a significant variable influencing public awareness and participation in more preventive actions [4]. The film seemed to have an adverse influence on the students' outlook on the perceived risk of their possi-

bly suffering from breast cancer when they heard of a friend or relative with the disease. The information presented through the film may have caused students to believe that there is no direct way to decrease susceptibility. To a slight degree, the film seemed to help students to rate their chances of developing breast cancer more realistically. This was encouraging because it may lead to an increased frequency of BSE practice.

The second health belief parameter examined was the perceived health benefit, which is "the relative subjective effectiveness of BSE in reducing the threat of breast cancer" [17]. The results of this study demonstrated the slight influence of the film on the students' perception of BSE health benefits in relation to reducing women's mortality caused by the disease. This finding is encouraging as the perceived health benefits of BSE have been measured against practice in a variety of ways in other studies [8], all of which concluded that a positive significant correlation exists between these two predictors [18].

It is well established that early detection of abnormalities is associated with better prognosis of breast cancer. It has been reported that the five-year survival rate was reached by 85% of affected women with early detection, whereas later detection decreased the survival rate to 56% [19]. The fact that some of the students did not have the discriminating ability to correlate the seriousness of the disease with BSE practice may be explained by the fact that it is usually difficult for women to imagine the seriousness of breast cancer when they are asymptomatic and have little experience of the disease.

The last health belief parameter tested in this study was the perceived barrier to practising BSE, i.e. "the potential negative aspects of BSE" [20]. The findings show

that the embarrassment of practising BSE was somewhat reduced by the film. This indicates that perceived barriers may be positively modified if suitable learning strategies are chosen. However, this result differs from other studies [5] in which embarrassment was found to be a factor strong enough to deter practice. This embarrassment may be related to religious beliefs which emphasize that modesty is an expected trait in believers [7]. It was encouraging to note that the film appeared to improve significantly the students' self-confidence in BSE practice.

There was a significant positive relation between film viewing and the incidence and the correct pattern of BSE practice. Thus, it can be concluded that the educational film was probably effective in improving BSE performance. This is corroborated by the findings of a study where three methods of education were used, namely a booklet, a one-to-one session and a film presentation followed by discussion. The latter demonstrated the most significant increase in BSE practice over the others [5].

The follow-up data one year after film viewing were promising because the majority of students were still performing the procedure for the sake of early detection. However, the reasons cited for not practising were forgetting, lack of knowledge and fear of detecting abnormalities. This is sup-

ported by many other studies in which almost the same reasons were given for not practising [4-7].

It can be concluded that although the results are promising, students need to be assisted throughout their study years to develop the health behaviour needed in order to assume their own responsibility toward prevention.

## Recommendations

Based on the results of this study the following are recommended:

- All nursing students should attend a film on BSE during their academic studies, and the basic education curriculum should address the role of nurses in cancer control programmes.
- An educational programme needs to be designed and implemented with the aim of increasing nurses' competence in BSE, thus enabling them to teach the practice to women.
- Research should be conducted to identify reasons for not practising BSE in order to select suitable strategies to sustain regular practice over time.
- The mass media should be utilized and community organizations mobilized to disseminate correct and relevant information about BSE to women.

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