

# Breast cancer health promotion model for older Puerto Rican women: results of a pilot programme

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## SUMMARY

*This article focuses on the development of a health promotion model programme for elderly Puerto Rican women intended to minimize barriers for early detection of breast cancer and to increase women's compliance with recommended guidelines. The programme was designed based on the findings of a national sample to assess knowledge, beliefs and practices of breast cancer early detection in Puerto Rican elderly women and their perceptions of barriers associated with non-compliance. It involves the combination of educational and environmental support for actions and conditions conducive to health behaviour and consists of the following components: (i) a culture- and cohort-sensitive health education programme for elderly women on breast cancer screening and assertive strategies for client-physician relationship; (ii) training for primary-care providers on current guidelines and barriers affecting*

*compliance among older women in Puerto Rico; and (iii) coordination of necessary support services to facilitate access to clinical breast exams and mammograms. Programme implementation considers appropriate theories for health promotion and education in the older population. Evaluation measured progress in the plan implementation by assessing immediate products and long-term impact of the programme. Results of the pilot programme revealed a slight increase in knowledge and a significant decrease ( $p < 0.05$ ) in beliefs after the health education sessions. Interventions in breast cancer early detection practices showed significant changes ( $p < 0.05$ ) for mammogram and clinical breast examination. Different strategies must be combined to increase older women's compliance with breast cancer screening. Health system and access barriers to preventive care must be addressed.*

*Key words:* breast cancer screening; health promotion; older women; Puerto Rico

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## INTRODUCTION

Older women are at higher risk of developing breast cancer and dying from the disease than their younger counterparts. Women of 65 years of age and older have six times the risk of developing breast cancer than women under the age of 65, and seven times the risk of dying from this disease (Constanza, 1992; Haynes and Ory, 1992). Approximately 40–45% of invasive breast cancers occur in women of  $\geq 65$  years of age

(Kopans, 1992; Mor *et al.*, 1992); however, breast cancer screening rates decrease with increasing age (Constanza, 1992; Haynes and Ory, 1992).

Despite the fact that previous studies have indicated that a mammography is the best method for early detection of breast cancer and that there is a need for a periodic clinical breast examination (CBE), women  $\geq 50$  years of age have been slow in adopting these practices (Constanza,

1992; Haynes and Ory, 1992). Hispanic women's use of CBE and mammography are lower than that of their white and African-American counterparts (USDHHS, 1991). The 1987 National Health Interview Survey pointed out that among Hispanic elderly women, Puerto Ricans comprised the largest group that had never heard of a mammography (Haynes and Ory, 1992). In a study of older Hispanic women, 57% stated that no one had suggested a CBE within recent years and 82% said no one indicated that they should have a mammogram (Richardson, 1987). Physician recommendations and discussion with either a doctor or a nurse are important factors in seeking breast cancer screening (BCS) in Hispanic women (Zapka, 1981).

Several studies indicate that older women are not generally aware that they are vulnerable to a greater risk of breast cancer (Saint-Germain and Longman, 1993) or that mammograms are needed in the absence of symptoms (Rimer *et al.*, 1992). Also, older women seem to have more negative cancer-related knowledge and beliefs and fewer early-detection practices than younger women (Rimer *et al.*, 1992). Research has shown that early detection practices are associated with knowledge of breast cancer screening among older women. It is important to promote BCS screening among older women. The lack of information about breast cancer and the use of BCS is scarcer for minority groups in comparison with other groups (USDHHS, 1991; Saint-Germain and Longman, 1993). More attention ought to be placed on issues related to the women themselves, such as attitudes, knowledge and beliefs, as well as on issues related to factors pertinent to the health care system, including the information provided and exams ordered or performed by physicians, cost of exams and accessibility. All are relevant to the design of BCS programmes.

### Study purpose

This article presents the implementation and evaluation of a health promotion model programme for breast cancer screening in elderly Puerto Rican women based on research findings. The analysis of the data gathered from the qualitative and quantitative phases of a 4-year project was used to design a pilot health promotion programme that was culturally appropriate for women  $\geq 65$  years of age in Puerto Rico.

### Background

The 4-year project provided insight into personal (knowledge, skills, attitudes, demographics) and external barriers (health care system) that influence compliance with recommended breast cancer screening practices, which were addressed in the health promotion programme (Sánchez-Ayénde *et al.*, 1998). Focus groups were formed with professional and non-professional elderly women in metropolitan and non-metropolitan areas in order to explore knowledge, beliefs and practices about breast cancer and BCS (Sánchez-Ayénde *et al.*, 1997). Wording, beliefs, knowledge and attitudes expressed by the 60 women who participated in the seven groups were considered in the design of a questionnaire appropriate for elderly Puerto Rican women. The questionnaire was used for a survey, using a sample stratified by socioeconomic level and area of residence of 500 women of 65 years and above. The questionnaire had been validated previously for consistency and reliability (Suárez-Pérez *et al.*, 1998).

Findings revealed that the majority of the elderly women had knowledge of breast cancer and early detection tests, but less than half of the sample complied with BCS. Only 8% of them performed a monthly breast self-examination (BSE); 42.4% had had a mammogram during the last 24 months and 44.6% reported that a physician had conducted a CBE in the previous year.

The elderly women perceived personal barriers as important factors for non-compliance with recommended screening practices. They cited not having symptoms and the preference that a physician should conduct the breast exam as the most important factors for not performing BSE. Reasons most often cited for never having a mammogram were related to both personal and external barriers: not having symptoms, negligence or forgetfulness, and not having a physician's referral.

Beliefs scale was associated with CBE. A low level of beliefs doubled the odds of having a CBE in the last 12 months prior to the interview [estimated odds ratio (OR) = 2.17; 95% confidence interval (CI) = 1.35–3.48]. Beliefs (opinions not based on scientific knowledge) were the only internal barrier that was significantly associated with ever having had a mammogram. Those who upheld fewer beliefs were more likely to have ever had a mammogram. A score of four beliefs or less in the belief-scale increased the possibility

80% in comparison with women who scored five or more.

Age was statistically associated ( $p < 0.05$ ) with performing a BSE once or twice monthly, ever having a mammogram, and having had a mammogram in the last 2 years. A higher socioeconomic status was associated ( $p < 0.05$ ) with performing BSE and ever having had a mammogram. Education correlated positively ( $p < 0.05$ ) with ever having had a mammogram or having had a mammogram in the 2 years prior to the interview. The likelihood of having a CBE increased when: (i) the women owned a car and did not depend on others for transportation (estimated OR = 2.16; 95% CI = 1.04–4.54); (ii) had Medicare Part B (estimated OR = 1.76; 95% CI = 1.03–3.01); or (iii) had received information after menopause from a health care provider about breast cancer and early detection methods (estimated OR = 1.68; 95% CI = 1.02–2.77). Undergoing a CBE in the 12 months prior to the interview was highly related to a visit to a gynaecologist (estimated OR = 6.04; 95% CI = 3.53–10.39).

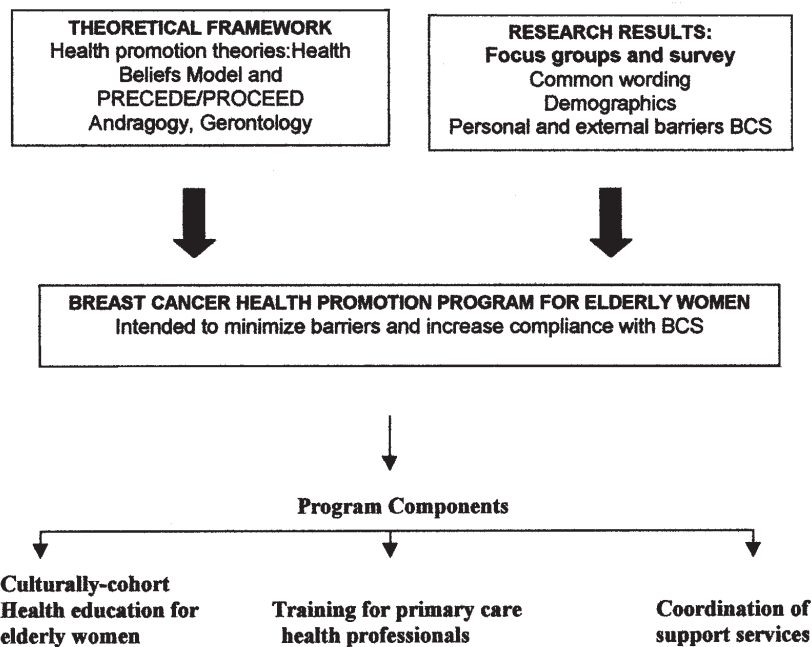
The external barriers were determining factors for ever having had a mammogram. Those that were significant ( $p < 0.05$ ) were: (i) not having Medicare Part B and/or a private health plan; (ii) not having received information about early detection practices; (iii) having a main source of information other than health provider; and (iv) not receiving a referral for a mammogram. Transportation was marginally significant ( $0.05 < p < 0.10$ ). Women who had health insurance that covered mammograms were more likely to have had this screening than those who did not. The odds ratio was 2.07 times more likely (95% CI = 1.34–3.20) for those with Medicare Part B and it tripled (estimated OR = 3.00; 95% CI = 1.96–4.60) for those who also had private health insurance. Referral from a physician was what most affected whether women had ever had a mammogram. Women who had received a referral in the last 5 years were 34.1 times (95% CI = 18.9–62.0) more likely to ever have had a mammogram than those who had not. Receiving information about early detection increased the likelihood of ever having had a mammography to almost four times as much (estimated OR = 3.73; 95% CI = 2.24–6.23). When a health care provider was the principal source of information on early detection practices after menopause, the odds of ever having had a mammogram almost tripled (estimated OR = 2.90; 95% CI = 1.94–3.20) when compared with those women who received the information from other sources.

Two external barriers were significant ( $p < 0.05$ ) for having had a mammogram in the last 2 years: receiving information about early detection practices and having had a referral for a mammogram in the last 5 years. Women who received information about early detection practices from a health care provider were twice as predisposed to have had this screening practice in the last 2 years (estimated OR = 2.06; 95% CI = 1.10–3.88) than those who had not. A referral for a mammogram was the most important determinant for having a mammography during this specific period of time. The odds increased 7.62 times (95% CI = 3.93–14.84) when a physician recommended the screening practice than when he/she didn't. The different factors that affect the practice of mammogram in the last 2 years were evaluated simultaneously in a logistic regression model. The significant ( $p < 0.0001$ ) predictors found were physician referral and visit to the gynaecologist. Referral for a mammogram increased the odds of having had a mammography in the last 2 years by 6.36 times (95% CI = 3.6–12.4) when adjusted by a visit to a gynaecologist.

## Health promotion programme

### Objectives

Research findings were used to design and implement a culturally sensitive pilot health promotion programme for early detection of breast cancer in women aged 65 years and above in Puerto Rico. An appropriate theoretical framework based on health promotion theories, gerontology and andragogy principles served as a foundation for the development of the programme. Research results, such as wording utilized by the women who participated in the focus groups and barriers for BCS identified by these women in the national survey, were considered in the design. The programme intended to minimize the barriers for breast cancer screening and increase the elderly women's compliance with the recommended guidelines. It consisted of the following components: (i) a cohort and culturally appropriate health education programme for women aged  $\geq 65$  years on breast cancer and early detection practices; (ii) training for primary care health professionals on BCS current guidelines for women aged  $\geq 65$  years and barriers that affect compliance; and (iii) the coordination of the minimum necessary support services to facilitate access to CBEs and mammography services (Oliver-Vázquez *et al.*, 1999) (Figure 1).



**Fig. 1:** Development of the health promotion model for early detection of breast cancer.

### *Theoretical framework*

The Precede-Proceed Model (Green and Kreuter, 1991) and the Health Beliefs Model (HBM) (Rosenstock, 1974) were used as a theoretical framework for designing the health promotion programme. The HBM attempts to explain health behaviours that can affect individual health. According to this model, health-promoting behaviour is more likely if an individual feels susceptible to a condition, perceives more benefits than barriers to the behaviour and has cues to perform the action. The Precede-Proceed model suggests that health education planning could be conceived as a diagnostic approach, starting with the ultimate quality of life goal and ending with the health promotion programme. According to the model, health behaviour is affected by a range of predisposing, enabling and reinforcing factors that should be considered for health promotion planning. Research findings were analysed in terms of the predisposing, enabling and reinforcing factors that can act as personal and external barriers to the compliance of elderly women with the recommended guidelines for BCS. Principles from andragogy theory, health promotion and gerontology were used in order to select the instructional methodology for the

health education sessions. The development of the instructional activities was based on the following principles: learning should stem from the participants' own life experiences and prior knowledge of the subject matter and utilize them as a resource for learning (Villarini, 1991). Physiological and psychosocial needs of the elderly person as well as his or her motivations, concerns and expectations should be considered by the facilitator for developing learning activities (Cross, 1981; Glass, 1991). The normal changes in aging require the use of a variety of teaching styles to complement the sensory, physical and intellectual limitations of elderly persons. The use of different learning channels (visual, auditory, tactile) during the instructional process increases the probability of knowledge comprehension (Oliver-Vázquez and Bidot, 1994). The strengths of each participant should be built upon and used to develop learning activities. The educational process must be participatory, dynamic and able to strengthen the cognitive self-esteem of the elderly person. Pair interaction, respect for others' ideas and a climate of confidence that allows participants to express themselves freely are essential for the participants to feel capable

of learning and for learning to occur (Villarini, 1991). The development of concepts and skills should occur on an individual basis, at the pace of each participant and in an environment that promotes reflection, self-evaluation and opportunities for review (Oliver-Vázquez and Bidot, 1994). For learning to occur, the elderly participant should immediately apply the subject matter to real situations (Villarini, 1991). The motivation and disposition of elderly persons to learn is relative to the recognition of the usefulness of the new knowledge for solving everyday problems, dealing with changes and transitions in the aging process, and for the satisfaction and simple enjoyment of a learning experience (Lumsden, 1985).

## METHODS

In order to apply the conceptual framework described previously, a pilot study was designed considering the research findings. A municipality that includes metropolitan and non-metropolitan areas was selected for implementation of the pilot programme. The programme's activities were coordinated with the government senior centres, the local centre for diagnosis and treatment (CDT) and the regional hospital. A summary of the project was presented to primary care health professionals at the selected site and published in local newspapers for the community's information.

### Study group

Participants in the pilot programme were selected from women receiving services at senior centres. These centres offer services to the low-income elderly population. Ninety-four elderly women receiving services at senior centres in a municipality of Puerto Rico were invited to participate in the educational programme. Thirty-two women who met the following criteria were selected for the pilot group: (i) not having performed at least one of the breast cancer early detection practices, according to the recommended guidelines; (ii) completion of the pre-test and post-test; (iii) attendance at two or more educational sessions; and (iv) possession of the mental and auditory capacity to participate in the programme as evidenced in an initial interview.

### Health education sessions

The main objectives of the health education sessions were the following:

- to increase elderly women's awareness of breast cancer and of the importance of breast cancer screening for early detection of the disease;
- to promote a change in the attitudes that might prevent elderly women from undergoing breast cancer screening;
- to teach skills related to BSE; and
- to motivate elderly women to communicate assertively with their physicians about breast cancer and BCS.

The health education programme was designed to be held in three sessions, each for a duration of 45–60 min, aimed at eradicating elderly women's misconceptions about breast cancer and BCS, informing them about risk factors, recommended screening intervals and community resources for BCS, and practising BSE skills and assertive techniques for the patient–physician communication to facilitate women asking physicians to follow recommended guidelines. The planning and development of the health education sessions were organized according to the learning strategy of exploration, conceptualization and application (ECA) (Villarini, 1991). This strategy is based on cognitive psychology theories about the conditions that propitiate learning in human beings and proposes an organized and systematic method of planning the educational activities.

The educational sessions began with the exploration of experiences and participants' prior knowledge based on questions relating to breast cancer knowledge, misconceptions, risk factors and early detection. This activity provides a diagnostic evaluation of the participant's prior knowledge that allows the facilitator to tailor the content to the target group. After the exploration, the new concepts were presented, clarifying and broadening the knowledge and skills of the participants on the subject matter. The application activities allowed the participants to demonstrate the acquired knowledge and to transfer this knowledge to the solution of new situations and problems. Methods appropriate to the subject matter and to the cohort group were selected to facilitate the women's active participation and involvement in their own learning. These were the following: taxonomy of questions to promote group discussion and corroborate understanding, BSE skill

direct instruction (BSE explanation, demonstration and individual assessment), and a role play of the patient–physician relationship to evaluate knowledge acquisition and to practise the assertiveness techniques that had been instructed. The strategy of peer teaching was also used for demonstrating the correct techniques for BSE. This strategy has been successful in initiating health behaviour change in elderly groups (Rimer *et al.*, 1992). An elderly female nurse was recruited and trained to teach skills for performing BSE. The sessions were complemented by the use of plastic models of elderly women’s breasts, and educational leaflets designed by the investigation team on how to perform BSE for elderly women, common misconceptions and community resources for BCS.

### Training for primary care health professionals

A 1-day training session for health professionals was provided for 19 primary care health professionals who work with the elderly population at the selected site. The purpose was to increase awareness about the issue of breast cancer in Puerto Rican elderly women. Topics addressed were the following: epidemiology of breast cancer, clinical and pathological aspects, recommended screening guidelines, standards for quality control of mammograms, procedures for follow-up and referrals, insurance coverage, community resources for BCS, and the personal and external barriers for elderly women to comply with BCS. A group of experts in breast cancer (a radiologist, an epidemiologist and a health educator) was contracted to lecture on the different topics.

### Coordination of support services

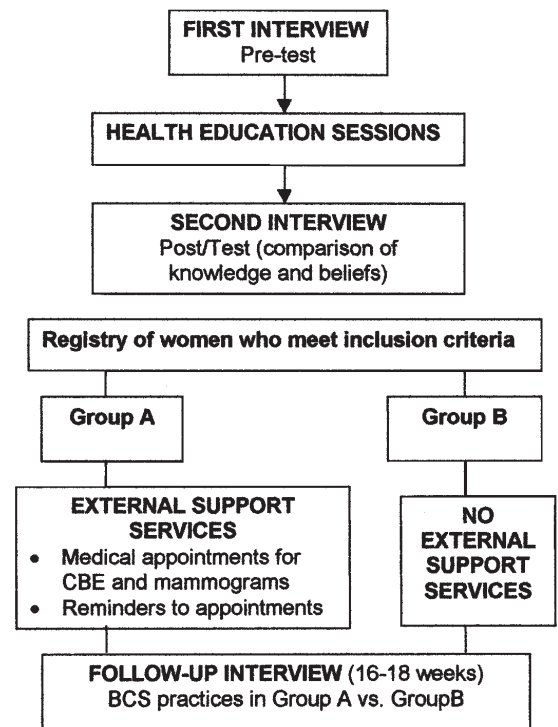
Minimum support services required that facilitation of elderly women’s access to BCEs and mammography services was coordinated in order to minimize external barriers to BCS. This was accomplished with the assistance of the staff of the senior centres, the CDTs and the regional hospital. The senior centres provided transportation to the medical facilities. Physicians at the CDTs examined the elderly women, conducted CBEs and provided referrals for mammograms. The regional hospital provided the mammogram services. Both the CDT and the hospital agreed to reserve specific appointment blocks for the elderly women to help optimize the coordination of transportation. Project staff provided

reminders and escorted women to medical appointments.

### Evaluation plan

The evaluation plan for the pilot health promotion programme was based on a systemic approach that assessed all the elements affecting the achievement of the proposed goals: external environment, available resources, and the operational dynamics in which the programme would operate (Stufflebean, 1983; Batista, 1994). A process/product evaluation analysed the effects of the health education sessions, the health professionals’ training and the coordination of support services as part of the transition process for changes in behaviour with respect to early detection practices. The impact evaluation determined the long-term effects of the programme in terms of complying with early detection practices (Figure 2).

Data was collected at four points: before, during and after the health education sessions, and 16–18 weeks after the end of the health education sessions. Short-term achievement



**Fig. 2:** Health promotion model evaluation procedures.

was determined by changes in knowledge, beliefs and BSE skills. Pre- and post-session tests about knowledge and beliefs about breast cancer, and an observation checklist for BSE were designed. In order to measure knowledge and beliefs about BCS, two previously validated scales were applied before and after the educational sessions (Suárez-Pérez *et al.*, 1998). The scores obtained by participants in the pre- and post-session tests were compared using a binomial test applied for matched samples (Rosner, 1995). A discordant subject was defined as a participant whose score prior to the educational sessions was different after the sessions.

Long-term effects of the health promotion programme were determined by a pseudo-experimental design geared to assess changes in early detection practices by the women and in assertiveness in their patient-physician relationship. The women were divided into two groups after the educational sessions. Both groups were similar in terms of knowledge and prevention practices prior to the educational sessions. One group (A) received external support services that included the following: coordination of medical appointments, reminders 2 days before the appointments, and transportation to CBE and mammograms. The other group (B) did not receive any type of external support, but were strongly encouraged during the sessions to seek BCS tests. Sixteen to 18 weeks after the health education sessions were completed, the participants in the two groups were interviewed about compliance with early detection practices after the educational sessions.

## RESULTS OF THE PILOT PROGRAMME

Eighty-one elderly women of low financial and educational level participated in the educational sessions. The comparative analysis (before-after) of data was limited to women who responded to both questionnaires, who had not performed at least one of the early breast cancer detection methods in the past 2 years, and who attended at least two educational sessions. Using these criteria, the study group included a total of 32 women. Groups A and B were comprised of 20 and 12 women, respectively.

Approximately 70% of the women attended each educational session in each group and 50% of the women participated in the three

**Table 1:** Process evaluation: changes in knowledge<sup>a</sup>

|                                      | Post-session test scores <sup>b</sup> |     |       |
|--------------------------------------|---------------------------------------|-----|-------|
|                                      | <12                                   | ≥12 | Total |
| Pre-session test scores <sup>b</sup> |                                       |     |       |
| <12                                  | 5                                     | 10  | 15    |
| ≥12                                  | 2                                     | 15  | 17    |
| Total                                | 7                                     | 25  | 32    |

OR<sub>matched</sub> = 5.0 (95% CI = 1.04, 33.0);  $p_{\text{binomial test}} = 0.0192$ .

<sup>a</sup>High values in the knowledge scale suggested greater knowledge.

<sup>b</sup>Classification of scores were based on the observed median, obtained by the scales of knowledge at the initial interview.

**Table 2:** Process evaluation: changes in beliefs<sup>a</sup>

|                                      | Post-session test scores <sup>b</sup> |    |       |
|--------------------------------------|---------------------------------------|----|-------|
|                                      | ≥4                                    | <4 | Total |
| Pre-session test scores <sup>b</sup> |                                       |    |       |
| ≥4                                   | 6                                     | 14 | 20    |
| <4                                   | 2                                     | 10 | 12    |
| Total                                | 8                                     | 24 | 32    |

OR<sub>matched</sub> = 7.0 (95% CI = 1.53, 44.55);  $p_{\text{binomial test}} = 0.0029$ .

<sup>a</sup>Low values in the beliefs scores suggested fewer beliefs.

<sup>b</sup>Classification of scores were based on the observed median, obtained by the scales of beliefs at the initial interview.

educational sessions. The average age of the women was  $78.1 \pm 7.4$  years. The women had an average of  $4.9 \pm 4.9$  years of schooling. Seventy-five per cent of the women involved received Medicare Part B, and 81.3% received Medicaid, which covers mammography services. Only four women performed the BSE before the health education sessions, one-third had undergone CBE and 37.5% indicated having had a mammogram in the past 24 months. Two-thirds of the women requested information relative to their health from their physician. There was no significant statistical difference between the groups in performing early breast cancer detection practices ( $p > 0.05$ ) prior to the health education sessions.

The process/product (short-term) evaluation revealed a significant increase in knowledge ( $p < 0.019$ ) and a highly significant decrease in beliefs ( $p = 0.002$ ) (Tables 1 and 2).

During the second session of the educational programme, the women were instructed in BSE techniques. Upon completion of the demonstration,

**Table 3:** Impact evaluation: proportion<sup>a</sup> of changes in breast cancer early detection practices 16–18 weeks after the educational sessions

| BCS practices                        | External support (group A) | No support (group B) | Total |
|--------------------------------------|----------------------------|----------------------|-------|
| BSE <sup>b</sup>                     | –                          | –                    | 4/22  |
| CBE                                  | 5/5                        | 2/10                 | 7/15  |
| Mammogram                            | 3/3                        | 0/12                 | 3/15  |
| Assertive communication <sup>b</sup> | –                          | –                    | 4/10  |

$$^a\text{Proportion} = \frac{\text{number of women that performed BCS practices 16–18 weeks after the sessions}}{\text{number of women that had not performed BCS practices prior to the sessions}}$$

<sup>b</sup>Practices not affected by external support.

each woman performed BSE. The performance was evaluated on a checklist to determine if the participant was performing the BSE correctly. Nearly two-thirds (63.3%) of the women performed the six steps correctly. The most difficult step for the women to remember was raising the breast with the hand to palpate the nipple area.

Impact (long-term) evaluation revealed changes in early detection practices comparing behaviours prior to and 16–18 weeks after completion of the health education sessions (Table 3). A slight increase in the practice of BSE (4/22) was evidenced, but it was not statistically significant ( $p > 0.10$ ). The group receiving external support had a greater compliance with CBE (5/5) than the group not receiving external support (2/10) ( $p < 0.05$ ). All of the women in the group receiving external support who had not had a mammogram prior to the educational sessions had the test performed as a result of the coordination of external support. This was not the case for their counterparts in group B: none of them had a mammogram after the sessions. An increase in assertiveness in asking physicians for information was observed after the sessions (4/10). This was not the case in asking for referral to have a mammogram.

## CONCLUSIONS

This is a pilot study with a small sample size and has limited statistical power. Nevertheless, the findings reveal important aspects to be considered in the design and intervention of health promotion programmes for the elderly population. Also,

these results can be used to help design studies and to motivate others to study this topic further.

The evaluation of educational sessions indicated that this intervention did not have the anticipated effect on CBE or mammogram compliance for the group without assistance or on BSE compliance for the control and experimental groups. This may be due to the fact that the knowledge and skills that were presented in the health education sessions needed follow-up sessions over a prolonged period of time to clarify and reinforce concepts and skills. It could also be argued that low-income elderly women's understanding of breast cancer and early detection practices as well as BSE skills are less important components for a successful screening programme or for promoting changes in health practices. Emphasis should be placed on revealing the external barriers to BCS for these women. Coordination and assistance with services to facilitate screening may be preferable strategies for future intervention efforts.

Health promotion programmes should identify and recognize personal factors that hinder the performance of recommended screening or that make early detection practices unacceptable. The programmes should also identify social and health system barriers such that screening services are more accessible and available. Programmes should not only foster knowledge of risk factors but the necessary skills for specific practices (i.e. BSE) and assertive communication with physicians. Health promotion programmes must be directed to increase awareness among health professionals about the specific needs of elderly women for the early detection of breast cancer. Our results indicate that an increment in knowledge and a reduction in misconceptions do not necessarily result in compliance with screening practices. These findings are consistent with other investigations (Kopans, 1992). Different strategies must be combined to warn elderly women of the risk factors associated with breast cancer at age 50 years and above, and in addition to instruct women about the recommended screening guidelines, particularly about the effectiveness of mammograms. The barriers to preventive care as a result of beliefs, attitudes and other personal characteristics, the health system infrastructure, the failure of physicians to perform preventive strategies, and the lack of access to available health care are other issues that must be addressed.

The use of mammograms for women who did not receive external support to clinical appointments



lagged behind the use of mammograms by women who were offered assistance with making appointments and transportation. The success of having women comply with CBS and mammograms given the coordination of services suggests that similar community-wide efforts could be effective for elderly women with similar social characteristics in other communities. Breast cancer screening programmes should not only include convincing information about the risks regarding breast cancer and the benefits of early detection, but should also consider provider recommendations and barrier-reducing efforts (coordination of transportation and appointments, appointment reminders, etc.). The combination of different interventions may be more effective in encouraging early detection compliance than individual strategies alone.

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