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**Original Article** 

### Evaluation of an educational handbook as a knowledge-acquisition strategy for mastectomized women<sup>1</sup>

Mariza Silva de Oliveira<sup>2</sup>
Míria Conceição Lavinas Santos<sup>3</sup>
Paulo César de Almeida<sup>4</sup>
Marislei Sanches Panobianco<sup>5</sup>
Ana Fátima Carvalho Fernandes<sup>6</sup>

This descriptive, cross-sectional and quantitative study presents an analysis of knowledge acquired by mastectomized women concerning breast cancer after reading an educational handbook. The sample was composed of 125 women. Data were collected in a specialized cancer facility in three phases: preparatory, operational I and operational II. As to the knowledge acquired, the posttest showed an 11% increase in the number of correct answers compared to the pretest. The most frequent correct answer regarded a question asking the name of the surgery (97.60%) while the question concerning breast reconstruction obtained the lowest number of correct answers (58.40%). Answers to all the questions significantly improved in the posttest, with the exception of a question addressing breast reconstruction (p=0.754). The assessment of knowledge showed positive results after reading, suggesting that cognition is essential to understanding and adhering to guidance, thus the handbook is a favorable resource to be used in the rehabilitation of mastectomized women.

Descriptors: Breast Neoplasms; Evaluation of Research Programs and Tools; Knowledge.

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<sup>&</sup>lt;sup>2</sup> PhD, Coordinator, Faculdade de Ensino e Cultura do Ceará, Brazil.

<sup>&</sup>lt;sup>3</sup> RN, PhD, Instituto Nacional de Câncer, Brazil.

<sup>&</sup>lt;sup>4</sup> PhD, Professor, Universidade Federal do Ceará, Brazil.

<sup>&</sup>lt;sup>5</sup> PhD, Professor, Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, WHO Collaborating Centre for Nursing Research Development, Brazil.

<sup>&</sup>lt;sup>6</sup> PhD, Associate Professor, Departamento de Enfermagem, Universidade Federal do Ceará, Brazil.

# Avaliação de manual educativo como estratégia de conhecimento para mulheres mastectomizadas

Trata-se de estudo descritivo, transversal e quantitativo, cujo objetivo foi analisar o conhecimento de mastectomizadas sobre os aspectos que envolvem o câncer de mama, pela leitura de um manual educativo. A amostra correspondeu a 125 mulheres. A coleta foi realizada em uma instituição especializada em oncologia, em três fases: preparatória, operacional I e operacional II. Quanto ao conhecimento adquirido, o pósteste evidenciou aumento de 11% nos acertos, quando comparado ao pré-teste. Das questões, a mais acertada refere-se ao nome da cirurgia (97,60%) e a que obteve menos acertos relaciona-se à reconstrução mamária (58,40%). Em todas as respostas do pré-teste observou-se melhora estatisticamente significante, exceto naquela que diz respeito à reconstrução mamária (p=0,754). A avaliação do conhecimento apresentou resultados positivos após a leitura, evidenciando que a cognição é fundamental para a compreensão das orientações e consequente adesão, tornando-se recurso favorável à reabilitação de mulheres mastectomizadas.

Descritores: Neoplasias da Mama; Avaliação de Programas e Instrumentos de Pesquisa; Conhecimento.

# Evaluación de manual de educación como una estrategia para el conocimiento de las mujeres con mastectomía

Estudio descriptivo, transversal y cuantitativo, con objetivo de analizar el conocimiento de mujeres con mastectomía acerca de cuestiones relacionadas al cáncer de mama, mediante la lectura de manual educativo. La muestra correspondió a 125 mujeres. La colección de datos se realizó en una institución especializada en oncología, con las fases: preparación, funcionamiento I y II. El conocimiento adquirido, el post-test mostró un aumento del 11% en visitas cuando se compara con la pre-prueba. La cuestión con mayor éxito fue sobre el nombre de la cirugía (97,60%) y la de menor, fue la reconstrucción de la mama (58,40%). En todos los asuntos que habían mejorado las respuestas estadísticamente significativas en el post-test, excepto en la reconstrucción de la mama (p=0,754). La evaluación de conocimientos señaló resultados positivos después de la lectura, sugiriendo que el conocimiento es fundamental para comprensión y adhesión a las orientaciones, convirtiendo en un recurso favorable para la rehabilitación de mujeres con mastectomía.

Descriptores: Neoplasias de la Mama; Evaluación de Programas e Instrumentos de Investigación; Conocimiento.

#### Introduction

The promotion of breast health among women can be translated into actions that encourage protection in relation to certain environmental factors and lifestyles, which could be individually or collectively directed to the search for a reduced incidence of breast cancer. Such actions would permit, as recommended in one of the principles of health promotion, a greater participation by women in the control of this process, understanding and sharing reasons, causes and consequences of breast cancer as a strategy to actually improve health in the face of the disease<sup>(1-2)</sup>.

Given this context, it is worth noting that studies have shown that breast surgery together with coadjutant treatments are invasive procedures that cause unfavorable physical and emotional problems in the lives of women affected<sup>(3)</sup>. To cope with aspects inherent to a mastectomy, women need support that enables more effective care, minimizing the risk of complications resulting from the surgical process. It is believed that this deficit of knowledge is present in women before they experience the situation of having breast cancer. As observed in practice, they arrive at the healthcare service with incipient knowledge concerning the disease and in some cases, have never implemented practices or care that would enable them to detect the disease earlier<sup>(4)</sup>.

Currently, however, the emphasis is on replacing traditional care practices, which are focused on diseases, with an early detection and health promotion program. Among some practices that are replacing others, health education implemented with the use of printed materials can be essential.

Health education is a tool to empower citizens that emphasizes the patient as a potentially creative and sensitive being in which the education-care process occurs in a horizontal, dialogical, reciprocal and truly human relationship<sup>(5)</sup>.

Nursing professionals currently focus on the quality of care provided to patients and handbooks are a useful strategy to facilitate guidance provided to patients and family members concerning the treatment, recovery, and self-care process. The use of educational material and tools facilitates and standardizes instructions that need to be learned to implement care. At the same time, such tools help individuals to better understand the healthdisease continuum and follow the path to recovery<sup>(6)</sup>. Given the high incidence of breast cancer and the delayed search for health services by female patients, this population needs to be sensitized to the importance of implementing health promotion and breast cancer prevention actions. Hence, this study's objective was to analyze the knowledge acquired by mastectomized women concerning aspects involving breast cancer after reading an educational handbook.

#### Method

This is a descriptive and cross-sectional study with a quantitative approach. The cross-sectional design was chosen because it includes all the individuals from a population at the time data is collected. Additionally, it is economical because it enables the investigation of many variables at the same time, the comparison among subgroups, and allows the evaluation of health programs and definition of further studies<sup>(7-8)</sup>.

The study was conducted from April to August 2009 in a philanthropic hospital facility that provides highly complex services at an ambulatory and hospital level in the city of Fortaleza, CE, Brazil. This facility was a referral center for the diagnosis and treatment of cancer patients and provided care to patients included in the Brazilian Unique Health System (SUS), those with health insurance plans and private clients in the state of Ceará.

The study's population included (N=497) women with breast cancer who underwent breast surgery in 2008 at this facility. Based on this information, the study's sample was computed with a level of significance fixed at 5% ( $t_{\rm 5\%}$ =1.96), and an absolute sample error of 5%, totaling 112 individuals. We added an extra 10% of participants to take into account potential losses and biases during the data collection process. Hence, the final sample was composed of 125 women.

The sample selection (N=125) was systematic according to the demand of the studied facility (postoperative/hospitalized patients) and previously established inclusion criteria.

The inclusion criteria were: being older than 18 years of age; residing in the city where the study was conducted to enable later contact, if necessary, with the participants; not having any condition impeding reading and comprehending the text; having attending more than five years of schooling as recommended in the previous study that validated the handbook<sup>(9)</sup>.

The studied educational handbook refers to a compendium of instructions concerning breast cancer and aspects related to its surgery and the treatment and rehabilitation of mastectomized women, validated by this study's primary author in 2008<sup>(9)</sup>. Those not meeting the inclusion criteria were not included in the study.

Data were collected through semi-structured interviews implemented at three different points in time: the preparatory, operational I, and operational II phases. In the preparatory phase, we became familiar with the study setting, and selected the sample and the units where data would be collected.

The second phase, operational I, corresponded to the application of the pretest. The questionnaire was applied before the educational handbook was handed to the participants. Then a second meeting was scheduled according to the patients' convenience and the time required to read the handbook. The pretest questionnaire was composed of three parts: the first addressed sociodemographic data, the second addressed clinical-epidemiological data to verify aspects related to the

pathology, and the third part assessed knowledge. This last part had multiple-choice questions, based on the subjects addressed in the educational handbook<sup>(9)</sup> such as: breast cancer prevention, treatment, pre- and postoperative care, rehabilitation, rights and legislation. It is worth noting that all the questions were based on information provided in the handbook, providing questions of easy, medium, and high levels of difficulty.

The third phase, operation II, is the posttest after reading the educational handbook. The posttest questionnaire only assessed knowledge, that is, it was equivalent to the third part of the pretest questionnaire and the scale that assessed the questionnaire. We decided to present the same questions to verify acquisition of knowledge through the number of correct answers. The time elapsed between the operational phases I and II was 15 days on average.

The data were processed in the Statistical Package for Social Sciences (SPSS) version 15.0 through descriptive analysis of the variables presented in graphics and tables, and bivariate analysis through the McNemar test.

Aiming to analyze the occurrence of knowledge acquisition after reading the handbook, the four possible answers to each of the questions (a, b, c and d) were transformed into two options (correct or incorrect). Because this is a qualitative nominal and dichotomous variable and we wanted to compare the dependent variables (pretest and posttest), the McNemar non-parametric test was used.

Inferential analyses were considered statistically significant when p < 0.05.

This study was submitted to and approved by the Ethics Research Committee at the Ceará Cancer Hospital (Protocol No. 005/2009). In accordance with Resolution 196/96, the participants voluntarily provided written consent after being informed of the study's objectives, their right to withdraw from the study at any time, and confidentiality was ensured.

#### Results

The ages of the participants (N=125) ranged from 24 to 84 years old; the range 46-60 years old was the most frequent (44%), with an average of 51.66 years old and SD= $\pm$ 12.23. With regard to schooling, 44.8% had either complete or incomplete primary school, 33.6% had completed secondary school, and 21.6% had higher education. In relation to family income, 44.8% earned up to one time the minimum age, and 23.4% from three to seven times the minimum wage, with a total average of 2.57 times the minimum wage (SD= $\pm$ 2.82).

The knowledge acquired by mastectomized women concerning the aspects involving breast cancer was assessed through the application of a questionnaire with questions related to the subject, before and after reading the educational handbook. It should be noted that after reading the instrument, the percentage of correct answers increased approximately 11%. Therefore, we considered the participants to have acquired knowledge by reading and understanding of information.

Figure 1 presents the percentage of correct and incorrect answers obtained by women before and after reading the educational handbook.

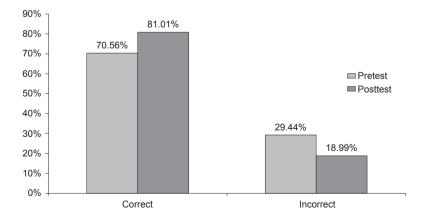


Figure 1 – Distribution of knowledge acquisition according to the comparison of correct and incorrect answers obtained before and after reading the booklet

Figure 2 presents the distribution of correct answers according to the level of difficulty of the questions and test phase. The women significantly increased their knowledge during the posttest, even when questions are divided by the degree of complexity (easy, medium and difficult). The results show improvement at all levels, including in relation to difficult questions.

It is worth noting that the criteria used to establish the levels of difficulty, presented in the pre- and posttest questions were the complexity and specificity of the addressed subject in relation to the aspects involving breast cancer.

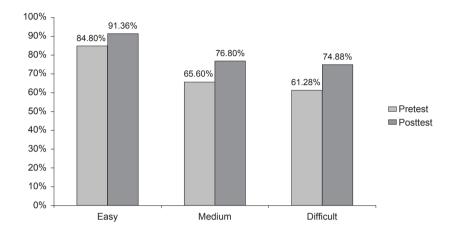


Figure 2 – Distribution of the number of correct answers according to degree of difficulty in the pre- and posttest questions.

Table 1 presents the statistical analysis concerning knowledge acquisition through the questionnaires applied in the pretest and posttest phases. The data were compared between the two phases through a non-parametric test, the McNemar  $\chi^2$  test. The number of correct and incorrect answers was compared in the questionnaires applied before and after reading the educational handbook. Table 1 shows that all the items in the questionnaires present statistically significant differences (p<0.05), that is, the participants performed better in the posttest, with the exception of question 11, which refers to breast reconstruction (p=0.754); the McNemar  $\chi^2$  test did not present statistically significant difference.

Table 1 – Evaluation of the participants' knowledge according to the pre- and posttest questionnaire using the McNemar  $\chi^2$  test. Fortaleza, CE, Brazil, 2009

Questions from the pre- and posttest questionnaires	P*
Care to prevent cancer	0.030
Breast self-exam	0.0001
How to proceed when a nodule is noticed	0.0001
Mammography	0.0001
Surgery's name	0.0001

(continue...)

Table 1 - (continuation)

Questions from the pre- and posttest questionnaires	P*
Care for the operation-side arm	0.0001
Drain's usefulness	0.0001
How to care for the drain	0.0001
Mastectomy complications	0.006
Treatment	0.0001
Breast reconstruction	$0.754^{\dagger}$
Lymphedema	0.0001
Breast implant	0.003
Rehabilitation	0.0001
Special rights	0.001

<sup>\*</sup> McNemar χ² test

Figure 3 shows the percentage of questions correctly answered in the posttest. We note that the percentage of correct answers was above 50% on all the questions, though, question 11, addressing breast reconstruction, obtained the lowest number of correct answers. In contrast, Question 5, which addresses knowledge concerning the name of the surgery to remove the breast, obtained the highest number of correct answers.

<sup>&</sup>lt;sup>†</sup> Does not apply because p<0.05 is considered

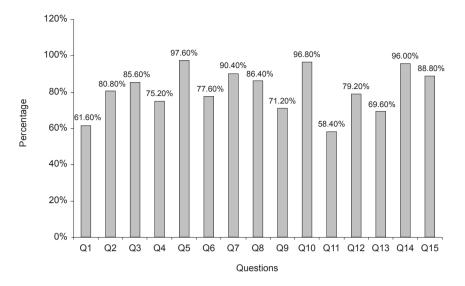


Figure 3 – Distribution of the percentage of correct answers obtained in the posttest questionnaire

#### **Discussion**

The results obtained in this study concerning age are similar to those reported in previous studies<sup>(10)</sup>, confirming that the age range with the highest incidence of the disease is from 40 to 69 years old. One important finding is regarding the young participants. Forty out the 125 studied women were younger than 45 years old. This is cause of concern among experts because women up to the age of 40 with early breast cancer present the worst prognosis<sup>(11)</sup>.

Differences were especially observed in clinical stage I, in which survival free of the disease was significantly lower in the younger group. Even though the reasons younger patients present a worse prognosis are still uncertain, some studies suggest that the poor prognosis could be attributed to a late diagnosis in this group of patients<sup>(12)</sup>. The detection of early tumors among women younger than 40 years old through mammography may be hindered due to high breast density<sup>(11-12)</sup>.

In terms of schooling, we note that this variable should be considered by researchers and those working with groups in the field of breast health because such information can guide the way communication is implemented. Such information was extremely important in this study because for women to properly understand the information provided in the handbook, they were required to know how to read. Thus, the importance of the level of education is evident, both for women's knowledge and for the self-exam practice<sup>(13)</sup>.

In relation to question 5, despite its scientific name, most women understood the term 'mastectomy'. Such knowledge may be explained by the fact that from the time of their diagnosis, women listen to the professionals who are providing care use the term frequently. The same does not occur with 'breast reconstruction'. Additionally, it is the right of patients to learn about all information concerning their surgery and/or treatment and the importance of adherence to their therapies. Their inclusion in the decision-making process concerning the type of procedure to be adopted should be emphasized and is essential for achieving success in the surgical process and rehabilitation. Studies have shown that education and age are related to knowledge concerning the frequency with which breast self-exams should be performed, and with early diagnosis, mammographies, and having clinical exam(13-14). Hence, younger women and those with higher levels of education were better informed. As the women's years of schooling decreased, a greater probability of not receiving a Clinical Breast Exam (CBE) was observed(15).

In relation to family income, there is still significant discrepancy in the data. The first quartile corresponded to up to one times the minimum wage and the third quartile corresponded to three to seven times the minimum wage. Such results influence access to and process of treatment due to the effect of socioeconomic characteristics on the performance of primary care related to breast health. These results corroborate the literature that shows that the lower the social class and

educational level, or the lower the income level, the lower the proportion of women who have their breasts examined<sup>(15)</sup>. The positive results observed among women in terms of knowledge acquisition after reading the educational handbook may be related to the quality of the material. This kind of material is, in general, incomprehensible, written with very technical language, long paragraphs and confusing terms.

Such features may reduce one's interest in reading and/or hinder comprehension. Hence, inappropriate material not only compromises understanding but also interferes in the educational process<sup>(16-17)</sup>, in contrast with what was observed with the studied handbook. Effective material with easy-to-understand information contributes to improving the knowledge of patients and to patient satisfaction, in addition to encouraging actions that influence patterns of health, facilitate decision-making, and also collaborate to reduce the use of services and expenditures on healthcare<sup>(18)</sup>.

Technical terms should be avoided to improve the quality of the educational material. Language should be clear, simple and objective. Hence, complex phrases or ones that are too long, or which have complicated syntax, should be avoided, as well as any irrelevant information. Vocabulary appropriate to the patient's level of understanding should be used to favor of clarity and objectivity. Content should clearly convey information and/or instructions designed to improve understanding on the part of the target public and avoid misinterpretation<sup>(19)</sup>.

In this context, health educational material should be written at a level compatible with six years of schooling to reach and benefit a larger public since even individuals with a higher reading level would understand health information better and consequently adopt healthier behavior<sup>(20)</sup>.

Studies report women in the mastectomy postoperative period are interested in obtaining knowledge concerning the disease and in becoming responsible for self-care, though little information and professional support has been observed in this respect<sup>(20-21)</sup>. Such a fact is still the case and a recent study investigating what information women affected by breast cancer wished to acquire during the pre- and postoperative, verified that all the doubts they had regarded treatment, surgery and hospitalization<sup>(21)</sup>.

The benefit of educational methods concerning the acquisition of knowledge, breastfeeding and how to care

for newborns, through the use of educational games was observed. The study's results show a significant improvement of knowledge after participating in the game<sup>(22)</sup>, corroborating the assumption that educational tools are determinant in health promotion.

More specifically, in the case of breast cancer, one should consider the acquisition of knowledge when women are asked about the existence of information concerning prevention or early detection. As previously verified, 80% of the studied women report the existence of such information and 55.5% related it to breast cancer<sup>(23)</sup>.

As verified in this investigation, studies have shown that knowledge *per se* concerning established guidelines is not enough; knowledge needs to be translated into routine practice. There is no teaching without learning and the latter does not occur except through transformation, through the facilitating action of the one who teaches, or through a quest for knowledge, which should always start in the learner<sup>(17,23)</sup>.

This study's results allowed us to observe the importance of meeting the learning needs of adult individuals, using teaching strategies that, as much as possible, make use of the learners' experiences, emphasizing their active participation and involvement. Simply transmitting information is certainly not effective in enabling individuals to acquire knowledge. Information needs to be valued, adapted to the time and language used in the context. Information can be transformed into knowledge, enabling behavioral change and consequently, change of attitude<sup>(24)</sup>.

Another difficulty faced involves the strategy of action to control risk factors, that is, health education and time required by health workers to teach and convince patients they need to change habits to reduce risk factors and prevent disease<sup>(24)</sup>.

The new Brazilian women's health care policy greatly contributed to the process of transformation concerning the health paradigm for women. Women began to be seen in their totality, as autonomous and participative individuals in the decision-making process concerning the development of public policies. As women are included in the process, there is insurance their real needs will be heeded, improving quality of care<sup>(25)</sup>. Hence, it is important to note that both women and nursing professionals are subjects who participate in a care relationship and, as organic beings, are in constant transformation, imbued with thoughts and actions that are rebuilt and modified over the course of their existential trajectory.

### Conclusion

An educational handbook was used as a therapeutic support instrument. It was grounded in scientific terms, contained concepts inherent to breast cancer and proposed activities to recover, develop, or reinforce physical, mental and social abilities of women with a view to promote health and social reinsertion, improving the survival of women in general. Hence, we view that the supply of information concerning breast health in printed material is an essential resource to enable women to acquire self-knowledge related to the complexity of breast cancer. Such a resource can be extremely important in actions to promote the breast health of healthy women and to prevent complications resulting from surgeries such as mastectomy for women to return to routine activities.

However, due to the complexity of factors involved in the process and the limitations imposed by the methodology used, one cannot be certain that women will change their behavior. Accordingly, we suggest that health promotion interventions associate the use of educational handbooks with another activity, such as training. We believe that the handbook *per se* is not sufficient to promote the acquisition of skills and, consequently, the adoption of healthy practices.

Finally, this study shows that the printed material provided to the mastectomized women with objective information concerning the aspects involved in breast cancer was an effective resource for the goal of improving their level of knowledge on the subject; the percentage of correct answers increased to approximately 11% after the participants read the material.

The study also contributed to giving visibility to nurses in relation to the delivery of integral and humanized healthcare in the field of breast health, inspiring the desire to dare and create, based on the assumption that written information represents simplified, low cost educational technologies that are accessible to most of the female population.

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