Breast Cancer Prevention Knowledge, Attitude and Practice

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Abstract
Introduction: Breast cancer is the second most common cancer worldwide, affecting 1: 8 women in the West. In Portugal, there are 4500 new cases / year, dying daily 4 women with this condition. Primary prevention, with the change of potentially modifiable risk factors and secondary prevention through screening in particular required with mammography, are one of the prime targets in the reduction of mortality associated with breast cancer.
Aims: To assess the degree of knowledge of women about breast cancer and its screening techniques; To determine the incidence of potentially modifiable risk factors.
Methods: observational and cross-sectional study. Quiz application on "Breast Cancer Prevention - knowledge, attitude and practice " to a convenience sample of 96 women, between 18-76 years, belonging to three health units in the urban area of Coimbra. Statistical analysis was performed using SPSS 20. It was performed a descriptive study and regression analysis bivariate and multivariate logistic. Accepted the 0.05 significance level.
Results/Discussion: Risk factors were correctly identified between 7.3 % and 82.3 % of cases. Family history (82.3 %) and smoking (51%) were the main risk factors highlighted. Age was considered only in 29.2 % of women. The alarm signals have been identified correctly between 38.5 % and 99 %. 13% of women report not perform self - breast exam , 38.6 % for not knowing how to do and 21.1 % for fear of what they can find . 98 % of respondents perform mammography regularly. 77% of women state that the information provided by the doctor is sufficient. The main source of information was cited computer/ internet (58.3 %).
Conclusions: There was a high rate of adherence CM screening programs as opposed to the realization of self-breast examination. The family physician has a key role in reducing risk factors by promoting healthy lifestyles.
Keywords: Breast Cancer; Prevention; Screening; Risk Factors; Mammography; Breast ultrasound; Breast Self-exam.

I. Introduction

Breast cancer is currently the second most common cancer worldwide, affecting 1:8 women in the western world, and the leading cause of cancer death in females. [2,3]

In Portugal, according to the Liga Portuguesa Contra o Cancro [Portuguese League Against Cancer], there are about 4.500 new cases of BC/year, ie., 11 new cases/day, with 4 women dying on a daily basis with this pathology.[6]

The total incidence of BC has been increasing due to lifestyle changes that predispose an increased risk, the increase of life expectancy and improved survival to other diseases. However, BC mortality has been decreasing in developed countries over the past two decades, believing to be the result of early detection by screening mammography and the development of new treatments. [3,7]

In women, the risk of developing BC over the life is 12.5%. With the exception of females, age is the most significant risk factor in 50% of cases occurring after the age 60. Other factors, such as the presence of the BRCA1 and BRCA2 genes, family or personal history of BC, bigger breast tissue density, atypical mammary hyperplasia, prolonged exposure to oestrogens including long periods of menstrual history (menarche before age 12 and menopause after 55 years of age), nulliparity, first full-term pregnancy after the age of 30, short feeding periods or no feeding periods, hormone replacement therapy and the use of oral contraceptives are also risk factors. However, there are other factors related to the lifestyle adopted, in particular obesity, high fat diet, excessive alcohol and tobacco consumption and lack of physical exercise, possibly because they interfere with the metabolism of oestrogens. .[1]

The earliest sign of BC is often a change detected on mammography. Larger tumours can manifest themselves by painless masses. Other malignant neoplasm signs are persistent breast changes, such as thickening, retraction, dysmorphia, irritation, itching, peeling skin and nipple abnormalities, such as shrinkage, eczema, ulceration or spontaneous discharge. [10]

The battle against mortality by BC begins with prevention and early diagnosis. With regard to primary prevention, a special interest lies on potentially modifiable risk factors such as obesity, use of hormonal therapies, physical inactivity, smoking and daily consumption of alcoholic beverages. [9,10]

Mammography is the best BC screening examination and allows the diagnose of nonpalpable lesions and clinically undetectable, thus improving the prognosis, especially after 45 years of age, for a rigorous and regular monitoring (every two years). [1,6] The breast ultrasound is not used in screening procedures, but it can also contribute to the detection of some neoplasms in young women, and thus a very important examination to be carried out. This is particularly useful as a complement to mammography in detecting tumours in dense breast without mammographic translation, enhancing sensitivity and specificity, allowing a better characterization of the detected lesions in the mammography. [11]

Objectives: To evaluate the degree of awareness of women regarding BC and screening techniques, by applying a questionnaire; To determine the incidence of potentially modifiable risk factors.

II.   Materials And Methods

Target population and sample

Observational and cross-sectional study, in which the target population are women aged between 18 and 76 years old, who attend Health Units in the urban area of Coimbra. Exclusion criteria: women with a history of BC or inability to understand concepts and expression of opinion.

The sample consisted of 96 participants, questioned according to a non-probabilistic sample of convenience, attending USF Mondego, the CS [Health Centre, herein after HC] of São Martinho do Bispo / Personalized Health Care Unit Dr. Manuel Cunha and HC of Norton de Matos.

Data collection

Data collection was based on the distribution of questionnaires (ANEX 1) to women who were in the waiting room of the Health Unit, by the researcher*.

The ethical principles of the study were met: anonymity, confidentiality and informed consent.

The questionnaire was prepared by the researcher * and reviewed by another researcher**. It consists of 5 parts and 27 short-answer and closed answer questions, multiple choice and short answer.

A pre-test was conducted by applying samples to 10 women, chosen randomly. After the pre-test, few and minor changes have been made, and so the final questionnaire was applied.

Statistical Methods

The statistical analysis was performed using the Statistic Package for the Social Sciences (SPSS) version 20.0.

Primarily, a descriptive analysis of the variables under study was carried out, through the respective absolute and reactive frequencies.

4 logistic regression models were constructed:
- **Model 1:** Awareness of at least two BC risk factors;
- **Model 2:** Awareness of at least four BC warning signs;
- **Model 3:** Conduction of breast self-examination;
- **Model 4:** Conduction of BC screening (mammography).

To evaluate the possible link between the created dependent variables and the independent variables (age, marital status, educational level, place of residence, family history of BC, smoking, alcohol, varied and balanced diet), bivariate and multivariate analyses were carried out.

Thereafter, multivariate logistic regression analysis were carried out to identify the variables with statistically significant value, those that contributed significantly and independently to the results of the study with the aim of obtaining a predictive model.

The significance level adopted for the acceptance of statistically significant differences was of 0.05.

III.   Results/Discussion

Although often discussed, the theme "Breast Cancer Prevention" has been little explored and there are few hard data, at national level, regarding the application of questionnaires and surveys to assess the extent to which women are truly informed and alerted to this great problem. This study was prepared taking into account three key points: awareness, attitude and praxis, in which the two later points were encompassed by its inevitable correlation.

This study had the participation of 96 female respondents, aged between 18 and 76 years old, and the majority married (55.2%), with higher education (33.3%) and living in urban areas (81.3 %). Regarding BC´s risk factors, 35.4% of respondents had a family history of BC, 15.6% are smokers, 20.8% have drinking habits,

13.5% doesn´t have a varied and balanced diet and 61.5 % does not exercise. With regard to reproductive factors, 29.2% had early menarche (before age 12), 19.2% had first full-term pregnancy after age 30, 81.3% never had children, 80.2% uses/used oral contraceptive, 17.1% entered menopause after the age of 55 and 8.3% of the 35 women already in menopause, undergo hormone replacement therapy.

With regard to the awareness of the risk factors in BC, 82.3% of respondents correctly identified family history, 51% tobacco, 33.3% alcohol, 29.2% age, 27.1% oral contraceptives, 18.8% obesity, 18.8% sedentary lifestyle, 16.7% sex and 7.3% diet. According to Silva Mendes, it is now known that only 5 to 10% of breast cancers are hereditary, which is not in agreement with the answers. In addition, sex and age, although being the two major risk factors, came in fourth and fifth place respectively. Age is by far the most important risk factor, with 50% of cases of BC occurring after the age of 60. Mammary trauma, placed in third (44.8%), stress, in seventh (19.8%), tight bra, in tenth (18.8%), drug use, twelfth (13.5%), followed by the use of deodorant (8.3%) were erroneously indicated as risk factors. Breastfeeding, the use of any drugs, pregnancy, clothing and physical exercise were last identified. Sexual intercourse was not selected.

A 2002 study carried out in the UK found that there might be a connection between the breast trauma and the appearance of BC. However, the study covered only a small group of women in a very restricted area, and several studies have dismissed this hypothesis. In 1999, a study conducted in the UK also concluded that there is no influence of stress on the emergence of breast masses. In 2004, another study, on a large scale, entitled "Nurses' Health Study" also reached this conclusion. Regarding the use of tight bra, a recent study published in the journal "*Cancer Epidemiology, Biomarkers & Prevention*" in 2014, confirmed that there is no increased risk of BC. Currently, there is no scientific evidence to prove that the use of drugs is a risk factor. An epidemiological study published in 2002, held in Washington, found no link between the risk of BC and the use of deodorants or antiperspirants.

With regard to knowledge about the warning signs of BC, the following have been identified correctly: the appearance of a "lump" or "coarseness" in the breast or armpit (99%); the change of shape or position of one of the nipples (59.4%); any deformation or wrinkling (57.3%); nipple discharge (57.3%); any dimpling or redness (52.1%); pain or discomfort that you feel only on one of the breasts (52.1%); and, finally, the increase in volume of any breast (38.5%). A large percentage of respondents correctly mentioned the warning signs, which leads to the conclusion that they have some understanding about this subject.

About the attitude to adopt in the event of any change in the breast, 99% of respondents answered correctly "go to the doctor." In the absence of changes in the breast, 94.8% considers to be necessary to resort to the doctor annually. About the age for BC screening (mammography), more than half (54.2%) correctly indicated the interval "45 to 69 years of age" and, for the time interval between the completion of the mammographies, 49% answered "every two years" correctly. These responses are consistent with what is established in the BC Screening Program, which is aimed at women aged between 45 and 69 years of age, enrolled in Primary Health Care Units (CSP). The BC Screening takes place within the standards stipulated in the European guidelines for BC. However, there are studies that devalue mammography, stating that despite the benefits, there are some disadvantages and limitations, including false negatives, false positives, increased mortality and exposure to radiation.[21]

Moreover, 68.8% of the respondents said that a BC with early diagnosis and treated properly has more than 90% probability of "cure". It is now known that early diagnosis enables the detection of smaller lesions and at early stages, before the metastatic stage of the disease, allowing higher rates of remission.

When asked about the information received by the physician regarding BC, 80.2% said it was clear and sufficient; while the remaining (19.8%) reported being clear but insufficient or confusing. This point is important insofar as the doctor should be the main vehicle of information about BC and the screening promoter. This may be an aspect to be explored in future studies in order to ascertain the origin of these results, and it is also important to alert family doctors for this reality. The doctor should take special care in the way information is transmitted to users, communicating complex scientific knowledge with clear and objective language, always bearing in mind the level of education of each patient.

When asked about the understanding they have on the subject, 53.1% replied that they understand a substantial part of the information, while 41.7% said they understand a small part of it. This means that women are aware of the information gaps that they have, and this may provide an incentive for seeking information.

In this study, 80.2% of respondents said they carried out the breast self-examination. Only 14.1% carries out the self-examination with the recommended frequency and period - every month, a week after menstruation, when the breasts are more flaccid and painless. For women who do not menstruate, a day of the month should be chosen for the exam, within the thirty days interval. On the other hand, a considerable proportion of women (60.3%) stated that they carry it out only when they remember. This fact should be explored in future studies, for it may be related to a lack of interest, forgetfulness or lack of time for their accomplishment.

From the 13% of cases that refer not to practice breast self-examination, 36.8% justifies it with the "I don´t know how to do it" reason, 21.1% "I'm afraid of what I can find," and 42.1% answered "other reasons".

Also in a study carried out in 2009, it was found that 15.3% of women stated they didn´t carry out the self-examination with "fear of finding a tumour" and 6.8% "didn´t know the method." These women should be identified so they can be sensitized to the practice of self-examination, get proper training on the examination, but also try to abolish fears, by ensuring that this procedure is advantageous for allowing an early detection of a possible injury.

As the main source of information 58.3% reported being the computer/internet, 37.5% books, 31.2% other people with the disease, 27.1% television, 27.1% family and friends, 17.7% magazines and newspapers, and, finally, 8.3% say they do not use any medium. Given these results, we note that most women use the computer/internet to search for information on BC, which can be both a positive and a negative aspect. Although this is a means of easy and increasing access, the available data are somewhat divergent, not usually based on scientific evidence and it may bring negative consequences for the health of users. The information provided by people who have had the disease is a key point, because they are a source of sharing their knowledge and experience, providing useful information and advice for BC prevention. The books and magazines/newspapers are safer sources because they are based on scientific studies and facts. It is understandable that television was placed in fourth place, due to public awareness campaigns on the BC issue that have been developed. Finally, 8.3% of respondents reported not using any means of information, which may reveal a lack of interest on the subject, which may reflect a lack of knowledge. Again, it is important to emphasize the role that the doctor plays as a transmitter of knowledge and health promoter.

As for the attitude when receiving the information, 89.6% said they wanted to know all the information, either good or bad, 8.3% want more information only if they are good news, and 2.1% just wants to receive the information, not wanting to know more ie a high percentage was receptive and interested in acquiring knowledge, which may represent an added value to the adherence to the BC screening and control practices.

For a better analysis of the data, we created four variables which were logistic regression models.

- **Model 1:** Awareness of at least two risk factors for BC;
- **Model 2:** Awareness of at least four warning signs for BC;
- **Model 3:** Conduction of breast self-examination;
- **Model 4:** Conduction of screening examination for BC (mammography).

In models 1 and 3, since only one of the used variables ("alcohol" and "always the same treatment?", respectively) presented a statistically significant value, it was not possible to perform the logistic regression test. This may be due to the limited sample size. One would expect that some variables, namely the level of education, family history, risk factors and the degree of knowledge about BC, could be associated with increased practice of self-examination. However, further studies reached similar results, negating any relation, unlike others that refer, for example, that the existence of a family history is clearly associated with an increased practice.

Of the respondents, 62.5% knew at least four BC warning signs. Through a bivariate analysis, it was found that the variables "practice of breast self-examination " and "first full-term pregnancy after age 30" showed statistical significance and were included in a logistic regression analysis. A statistically significant model was built (2), allowing the distinction between women who are aware and those who are not aware of at least four warning signs. This link is understandable, since women who perform self-examination more often and correctly can recognize, more easily, small changes in the breast from one month to the next. Some studies suggest that the realization of self-examination allows women to actively participate in the management of their health, and in case of any change, they seek the doctor, which is reflected in an increased awareness, knowledge and adherence to screening techniques. Regarding the connection with the variable "first full-term pregnancy after age 30," this may be related to the fact that the woman is more aware about this risk factor and therefore is more concerned and attentive to the emergence of any changes.

Model 4 was not implemented because, from the surveyed group inserted in the age range for BC screening, only one responded negatively when asked about the practice of mammography. Thus, this model was not viable and showed no criteria for logistic regression analysis.

In the course of this work some limitations were verified with possible influence on the results, namely:
• Population convenience sampling, rather than random, having been practiced in only three Health Units;
• Cross-sectional study not allowing the establishment of a cause-effect relationship between the variables and BC;
• Non inclusion of important potential variables, such as height and weight of respondents, for subsequent calculation of BMI, as well as the nursing period;

• Most surveyed women came from the urban area of Coimbra, and so the results may not reflect the awareness, skills and practice of people living in rural areas.

There are also biases of perception, memory and intention in completing the questionnaire. On the other hand, the reading and completion of the questionnaires by the researcher (female)*, in some cases, it is a possible bias element.

However, despite the limitations, the proposed objectives have been met.

IV.   Conclusion

There is a global shortage regarding the awareness about BC, in particular the risk factors, the warning signs and screening examinations.

There is a high adhesion rate to the BC screening programs, except for the practice of breast self-examination.

The family doctor has a fundamental role in the prevention and early diagnosis and promoting healthy lifestyles, promoting physical exercise, a careful diet, smoking and alcohol cessation, helping to reduce the risk.

Bibliography

[1]. Mendes S. Diagnóstico precoce e cancro da mama. J Notícias. 2015. www.trofasaude.com.
[2]. GLOBOCAN Cancer Fact Sheets: Breast cancer. http://globocan.iarc.fr/old/FactSheets/cancers/breast-new.asp. Accessed March 19, 2015.
[3]. Boyle P, Lewin B. World Cancer Report 2008. 2008.
[4]. Batiston AP, Tamaki EM, Souza LA De, Santos MLDM Dos. Conhecimento e prática sobre os fatores de risco para o câncer de mama entre mulheres de 40 a 69 anos Knowledge of and practices regarding risk factors for breast cancer in women aged between 40 and 69 years. Rev Bras Saúde Matern Infant. 2011;11(2):163-171.
[5]. 16-year mortality from breast cancer in the UK Trial of Early Detection of Breast Cancer. 1999:1909-1914. http://www.ncbi.nlm.nih.gov/pubmed/10371568.
[6]. Liga Portuguesa Contra o cancro. http://www.ligacontracancro.pt/gca/?id=42. Accessed March 19, 2015.
[7]. Townsend, C.M., Beauchamp, R.D., Evers E al. Sabiston: Tratado de Cirurgia – A Base Biológica Da Prática Cirúrgica Moderna. 18ª edição. (Elsevier, ed.).; 2010.
[8]. McPherson K, Steel CM, Dixon JM. ABC of breast diseases. Breast cancer--epidemiology, risk factors and genetics. BMJ Br Med J. 1994;309(October):1003-1006. doi:10.1136/bmj.321.7261.624.
[9]. I R, M L. The role of obesity, physical activity and dietary factors on the risk for breast cancer: mexican experience. Salud Pública. 2009;51.
[10]. Acs. Cancer Facts & Figures 2010. Health Policy (New York). 2010:1-68.
[11]. Alto Comissariado da Saúde. Recomendações nacionais para diagnóstico e tratamento do cancro da mama 09. Epidemiology. 2009:1-118.
[12]. Leal Sclowitz M, Baptista Menezes AM, Petrucci Gigante D, Tessaro S. Condutas na prevenção secundária do câncer de mama e fatores associados. Rev Saude Publica. 2005;39(3):340-349. doi:10.1590/S0034-89102005000300003.
[13]. Seah M, Tan SM. Am I breast cancer smart? Assessing breast cancer knowledge among healthcare professionals. Singapore Med J. 2007;48(2):158-162.
[14]. Editora P, ed. Dicionário Da Língua Portuguesa.; 2014.
[15]. Protheroe D, Turvey K, Horgan K, Benson E, Bowers D, House A. Stressful life events and difficulties and onset of breast cancer: case-control study. BMJ. 1999:1027-1030. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC28252/.
[16]. Schernhammer ES, SE H, B R, et al. Job stress and breast cancer risk: the nurses' health study. AM J Epidemiol. 2004:1079-1086.
[17]. Perry N, Broeders M, Wolf C de, Törnberg S, Holland R, Karsa L von. European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis. Forth Edit.; 2006.
[18]. Marinho L, Costa-Gurgel M, Cecatti J, Osis M. Conhecimento, atitude e prática do auto-exame das mamas em centros de saúde. Rev Saúde Pública. 2003:576-582.
[19]. Nunes JMM. Comunicação Em Contexto Clínico.; 2010.
[20]. Carrapiço E, Ramos V. A comunicação na consulta: uma proposta prática para o seu aperfeiçoamento contínuo. Rev Port Med Geral Fam. 2012:212-222. http://www.apmgf.pt/ficheiros/rpmgf/v28n3a01/v28n3a10.pdf.
[21]. Hefti R. The Mammogram Myth: The Independent Investigation Of Mammography The Medical Profession Doesn't Want You To Know About. (Ebook, ed.).; 2013.
[22]. Batiston AP. Detecção Precoce Do Câncer de Mama: Conhecimento E Prática de Mulheres E Profissionais Da Estratégia de Saude Da Família Em Dourados/MS.; 2009.
[23]. FREITAS AC. Doentes com cancro devem ser guiados em pesquisas na Internet. Público. 2012. http://www.publico.pt/portugal/jornal/doentes-com-cancro-devem-ser-guiados-em-pesquisas-na-internet-24720922.
[24]. Cubas MR, Felchner PCZ. Análise das fontes de informação sobre os autoexames da mama disponíveis na Internet. http://www.scielo.br/pdf/csc/v17n4/v17n4a18.pdf.
[25]. Martins DIS. Uma etnografia sobre mulheres com cancro da mama: um estudo de caso no Instituto Português de Oncologia de Coimbra. Antropol Port J. 2011. http://www.uc.pt/en/cia/publica/AP_artigos/AP28.03_dianaisabel.
[26]. L F, B K-B, R P, H N. Prospective analysis of the long-term effect of teaching breast self-examination and breast awareness. Eur J Cancer Care. 2008;17(5):477-482. http://www.ncbi.nlm.nih.gov/pubmed/18616506.

Table
2.2 Model 2: Awareness of at least four BC warning signs;
Bivariate analysis

Independent variables		Frequency (n)	p-value
Age	10-24	8	0,035
	25-39	26	
	40-54	40	
	55-69	18	
	70-84	4	
	50-99	32	
Marital status	Married	53	0,633
	Other (single, divorced, widowed)	43	
Schooling	No + Basic Education	29	0,404
	High school	24	
	Higher Education + Graduate Schoo	43	
Residence	Rural	18	0,685
	Urban	78	
Family history of breast cancer	Yes	34	0,741
	No	62	
Smoking	Yes	15	0,168
	No	81	
Alcohol	Yes	20	0,069
	No	76	
Varied diet and balanced	Yes	83	0,545
	No	13	
Physical exercise	Yes	37	0,213
	No	59	
Menarche	Up to 12 years	28	0,246
	From 12 years (inclusive)	68	
Nulliparity	Yes	18	0,893
	No	78	
First term pregnancy after age 30	Before age 30	15	0,012
	After 30 years	63	
Oral contraceptive	Yes	77	0,128
	No	19	
Menopause	Up to 55 (inclusive)	29	0,640
	After 55 years	6	
THS (Of 35 women already in menopause)	Yes	8	0,661
	No	27	
"If you notice any changes in the breast, should"	Go to the doctor	95	…
	Other	1	
"If you do not change, you only need to go to the doctor"	Once a year	91	…
	Other	5	
"What ages to mammography?"	45 to 69 years	52	0,712
	Other	44	
"From how often mammograms should be done?"	Of two years	47	0,732
	Other	49	
"Treatment always the same?"	True	10	0,494
	False	86	
Healing probability	90%	66	0,605
	Other (25%+50%+Never)	30	
Information given by the doctor	Clear and sufficient	77	0,947
	Clear but insufficient or confusing	19	
What do you understand about it	I understand little or nothing	41	0,122
	I understand most or all	55	
"Usually do self-breast exam?"	Yes	84	0,040
	No	12	
"Usually you do mammograms?"	Yes	45	…
	No	1	
Attitude to be informed	Just get the medical information, not looking to know more or want more information only if they are good news	10	1,000
	I want to know all the information, whether good or bad	86	