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Knowledge, attitude and practice of mammography among women users of public health services

Conhecimento, atitude e prática da mamografia entre usuárias do serviço público de saúde

ABSTRACT

OBJECTIVE: To evaluate knowledge, attitude and practice related to mammography among women users of local health services, identifying barriers to its performance.

METHODS: A total of 663 women were interviewed at 13 local health centers in a city of Southeastern Brazil, in 2001. Interviewees were randomly selected at each center and they were representative from different socioeconomic conditions. The number of interviewees at each center was proportional to monthly mean appointments. For data analysis, answers were described as knowledge, attitude, practice and their respective adequacies and then they were correlated with control variables through the chi-square test.

RESULTS: Only 7.4% of the interviewees had adequate knowledge on mammography, while 97.1% of women had an adequate attitude. The same was seen for the practice of mammography that was adequate in 35.7% of the cases. The main barrier to mammography was lack of referral by physicians working at the health center (81.8%). There was an association between adequacy of attitude and five years or more of education and being married. There was also an association between adequacy of mammography practice and being employed and family income up to four minimum wages.

CONCLUSIONS: Women users of local health services had no adequate knowledge and practice related to mammography despite having an adequate attitude about this exam.

DESCRIPTORS: Mammography. Health Knowledge, Attitudes, Practice. Breast Neoplasms, prevention & control. Women's Health Services. Women's Health.

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RESUMO

OBJETIVO: Avaliar o conhecimento, a atitude e a prática do exame de mamografia entre as mulheres usuárias do serviço médico municipal, identificando as barreiras para seu acesso à realização do procedimento.

MÉTODOS: Foram entrevistadas 663 mulheres de 13 centros de saúde municipais de Campinas, SP, em 2001. As entrevistadas foram incluídas de forma aleatória, representando diferentes estratos sociais. O número de entrevistas em cada centro de saúde foi proporcional ao número médio mensal de mulheres atendidas. As respostas foram descritas quanto ao conhecimento, atitude e prática e suas respectivas adequações. A adequação foi correlacionada com variáveis de controle utilizando o teste qui-quadrado.

RESULTADOS: Apenas 7,4% das entrevistadas tinham conhecimento adequado sobre o exame de mamografia, embora a atitude frente a este procedimento tenha sido adequada em 97,1% das mulheres e a prática adequada em 35,7% das entrevistadas. A principal barreira para a realização da mamografia foi a não solicitação por parte dos médicos dos centros de saúde (81,8%). A adequação da atitude esteve relacionada à escolaridade igual ou superior a cinco anos e ser casada. A prática adequada da mamografia associou-se com o trabalho fora de casa e renda familiar igual ou superior a cinco salários mínimos.

CONCLUSÕES: O conhecimento e a prática da mamografia entre as usuárias do serviço médico municipal foi inadequada, apesar da atitude adequada em relação ao procedimento.

DESCRITORES: Mamografia. Conhecimentos, Atitudes e Prática em Saúde. Neoplasias Mamárias, prevenção & controle. Serviços de Saúde da Mulher. Saúde da Mulher.

INTRODUCTION

Breast cancer is the second most common neoplasia and the first leading cause of cancer death among Brazilian women. There were 48,930 new cases in Brazil in 2006, a standardized incidence rate of 52 per 100,000 women.^a

Primary randomized controlled trials (RCT) have showed the importance of mammography for early diagnosis of breast cancer in asymptomatic women. It has been the most efficient resource for decreasing disease mortality, especially in women aged 50 to 69 years,^{6,12,19,22} with reductions of 20% to 35%. However, breast cancer screening in community practices may be different from that in RCT.⁶

Mammography high cost prevents large-scale screening in many countries.³ Studies showed that low-income women have also more difficult access to mammography.^{1,8} Besides the economic issue, there are other

difficulties: fear of irradiation, obstacles of public services,^{15,17} and pain, discomfort, and anxiety about the screening.⁶

First difficulties to screening mammography should be identified and then community health care authorities should establish strategies to overcome them. It is essential to have comprehensive knowledge, attitude and practice of mammography in the target population, stressing the importance of implementing it as a routine and preventive measure for early diagnosis of breast cancer.

The objective of the present study was to evaluate knowledge, attitude and practice of women towards mammography and to identifying potential barriers to screening among women users of health centers.

^a Ministério da Saúde. Instituto Nacional de Câncer. Estimativa 2006: Incidência de câncer no Brasil. Rio de Janeiro; 2006 [accessed on 4/10/2007] Available from: <http://www.inca.gov.br/estimativa/2006/versaofinal.pdf>

METHODS

Descriptive, observational study of knowledge, attitude and practice (KAP)²⁴ carried out in 13 municipal health centers in Campinas, Southeastern Brazil. A total of 663 women attending medical visits at internal medicine, gynecology and nursing care units were interviewed between August 2000 and March 2001. Health centers were randomly selected from the 43 existing in the city and users were representative from different socioeconomic conditions. A questionnaire previously tested in other units was used to evaluate KAP on mammography and to identify barriers to screening.

Health centers were selected according to socioeconomic conditions (better-off and deprived areas) taking into account the number of public schools in the corresponding area and whether or not there was a water supply system. A random stratification process was used to select 13 health centers including a wide range of socioeconomic characteristics.

The sample size was based on the average number of women assisted in the first semester of 1998 and a stratified random sampling described by Scheaffer et al.²¹ The estimated sample size was 663 women, corresponding to a sample fraction of about 1.1%, proportional to care flow at each health center.

Women aged 40 and older enrolled in the health center for at least six months were included in the study. Those with a personal history of breast cancer or who had other medical insurance were excluded. Interviews were performed by previously trained nursing assistant staff from the same health centers while women waited for their appointment at internal medicine, gynecology or nursing care units. One in every five women meeting the inclusion criteria was asked to participate in the study. When a woman refused to be interviewed, the next one was asked, and so forth. Refusal rate to participate was very low.

Adequate knowledge on mammography was defined when interviewees provided correct statements about the availability and use of the exam and how it is practiced. Examples of questions and correct answers were as follows: "Have you heard anything about an exam called mammography?" "When have you first heard about mammography? During educational activities at the health center? On the radio or television? In conversations with friends or neighbors?" If women considered correct the following statement: "*It's a special X-ray to detect lumps in your breasts / It's a procedure to detect any problem in your breasts / It's an important procedure that should be carried out along with clinical and breast self-examination.*"

Women's attitude towards mammography was considered appropriate when they expressed a favorable opinion and consistently supported it. Some examples

of questions and correct answers were: "How necessary do you think a mammography is? Very necessary? Fairly necessary? Not necessary? Why?" "*I think this exam is very necessary because: It's the best one to detect breast conditions. / This exam can detect early breast cancer. Sometimes the diagnosis of breast cancer comes late.*"

The practice of mammography was considered adequate when women reported undergoing it following medical prescription or their own will and when the time interval between two mammography exams was not greater than two years. As for those subjects who had not had mammography, the main reason given for that was analyzed.

The questionnaires were reviewed for information quality and legitimacy, and corrections were made as needed. The data were through cleanliness and consistency tests and variable frequency analysis and entered into EpiInfo 6.1 program. Associations between sociodemographic characteristics (age, education, paid job, marital status, family income and length of time being assisted at the health center) and adequacy of KAP of mammography was evaluated according to the interviewees' answers using a two-sided chi-square test, with a 5% significance level.

Correct and consistent answers, regarding the value of mammography was considered adequate knowledge. An attitude was considered adequate when interviewees were positive on the value of mammography and supported their answer with statements that imparted consistency to their previous answer. Practice was considered adequate when interviewees correctly answered the questions regarding the method and desired frequency of mammography.

The study was approved by the institution's Research Ethics Committee and followed the principles of the Declaration of Helsinki.

RESULTS

Most interviewees were over 50 years of age (67.9%), had lower education (80.6%), no active participation in the labor market (70.1%) and low family income up to four minimum wages (67.1%). More than half of the interviewees reported four pregnancies or more (56.1%) and over 80% had attended the health center for more than two years (Table 1).

Users showed knowledge about mammography (93.5%) and their health centers were the main instrument to promote this knowledge (56.0%). Nevertheless, few interviewees (7.4%) had adequate knowledge about mammography. Similarly, they showed a positive attitude towards mammography and most had an adequate attitude (97.1%) (Table 2).

Table 1. Distribution of women users of local health services according to sociodemographic characteristics. Campinas, Southeastern Brazil, 2000–2001. (N=663)

Characteristic	N	%
Age (years)		
40–44	137	20.7
45–50	142	21.4
>50	384	57.9
Schooling (years)*		
None	116	17.7
1–4	412	62.9
5–8	97	14.8
9–11	15	2.3
≥12	15	2.3
Paid job		
Yes	198	29.9
No	465	70.1
Marital status		
Married	396	59.7
Single	42	6.3
Widow	123	18.6
Living with a partner	37	5.6
Divorced	65	9.8
Family income (minimum wages)**		
1	131	22.2
2–4	265	44.9
5–9	155	26.3
≥10	39	6.6
Number of pregnancies		
None	23	3.5
1	44	6.6
2	97	14.6
3	127	19.2
≥4	372	56.1
Time attending health centers (months)		
6–12	59	8.9
13–24	58	8.7
25–60	182	27.5
61–120	151	22.8
>120	213	32.1
Family history of breast cancer		
Yes	60	9.0
No	603	91.0

* Missing information on 8 women

** Missing information on 73 women

Half of the women seeking medical care at the health centers reported they had not been referred to mammography (50.7%). Among those who had had mammography exams, their main indication was age (Table 3).

Table 2. Knowledge, its sources and adequacy, and attitude of women users of health services regarding screening mammography. Campinas, Southeastern Brazil, 2000–2001.

Variable	N	%
Knowledge		
Yes	620	93.5
No	43	6.5
Source		
Health center	353	56.0
Radio/TV	105	16.9
Workplace	90	14.5
Neighbors/friends	16	2.6
Churches	36	5.8
Schools	2	0.3
Does not remember	7	1.1
Other	11	1.8
Adequacy of knowledge		
Adequate	49	7.4
Inadequate	614	92.6
Attitude**		
Adequate (very necessary, necessary)	602	97.1
Inadequate (not very necessary, unnecessary)	18	2.9

* More than one answer per women

** Missing information on 43 women who did not have knowledge on screening mammography

Of those who were supposed to have a mammography every 24 months, only 38% underwent the exam and the adequacy rate was low (35.7%). Among those who did not have the exam, no medical referral was the main barrier (81.8%) (Table 4).

There was not found an association between sociodemographic variables and adequacy of knowledge. There was an association between adequate attitude and higher education and the status of being married as well as an association between adequate practice and having a paid job and family income higher than five minimum wages (Table 5).

DISCUSSION

Low education and socioeconomic conditions are major factors for diagnosis delay, response to treatment and survival rates in several cancers, including breast cancer.^{1,2,13,16} In the present study most women studied had a low educational level and low socioeconomic condition which certainly contributed to the study findings. Most interviewees had inadequate knowledge (92.6%) and the health service was their main source of information (56%). In a recent study in Goiania,

Table 3. Distribution of women users of local health care centers according to mammography requested by the health center doctor, indication and other variables. Campinas, Southeastern Brazil, 2000–2001.

Variable	N	%
Doctor requested exam		
Yes	327	49.3
No	336	50.7
Indication for mammography		
Noticed a breast nodule	23	9.1
Noticed a breast nodule and was examined by doctor	1	0.4
Noticed a breast nodule and was not examined by doctor	8	3.2
Afraid of breast cancer	8	3.2
Asked the doctor about the exam after a neighbor		
had one and a nodule was found	3	1.2
Age	150	59.5
Doctor was uncertain about asking for the exam	6	2.4
Cases of breast cancer in the family	5	2.0
Papillary discharge	2	0.8
Pain	40	15.9
Does not know	5	2.0
Other	1	0.4

Midwestern Brazil, including 531 women, television was reported as the main source of information about breast cancer (26.5%).⁹

Although many of them had a favorable attitude towards mammography, in the present study only one-third of them (35.7%) have had it routinely and adequately performed.

In a recent similar study conducted in 1,012 Chinese women from Hong Kong, 58% had never heard of mammography screening. Lack of time and costs were the most frequently reported reasons for their reluctance to participate in clinical breast examinations or mammography screenings.⁴

For a successful fight against breast cancer it is necessary to promote a behavior change in both women and health professionals, especially those providing care to the poor and improve women's knowledge, attitude and practice regarding screening mammography.

Since the most famous study on mammography screening was published, mammography has been definitively incorporated into the early diagnosis of breast tumors.^{5,6,22,23}

Although mammography and clinical breast examination are widely used in breast cancer screening, their

Table 4. Distribution of women users of local health care centers according to characteristics regarding the practice of mammography. Campinas, Southeastern Brazil, 2000–2001.

Characteristic	N	%
Mammography performed		
Yes	252	38.0
No	411	62.0
Number of previous mammographies		
1–4	235	93.2
5–8	13	5.2
≥9	4	1.6
Time elapsed since the last mammography (in months)		
1–12	93	35.9
13–24	12	4.7
Does not remember	147	58.3
Time elapsed since the first mammography (in months)		
6–24	144	57.2
25–60	76	30.1
61–120	28	11.2
121–240	4	1.6
Time interval between mammographies (in months)		
6–24	237	94.3
25–36	12	4.4
≥37	3	1.6
Practice of mammography considered adequate		
Yes	237	35.7
No	426	64.2
Barriers to mammography		
Difficult access	57	13.9
Painful examination	1	0.2
Fear	15	3.6
Doctor did not request it	336	81.8
Lack of time	2	0.5

beneficial impact remains controversial. A systematic review of Cochrane Library reviewed the main RCTs on the practice of screening mammography developed in the past decades and the authors questioned some results of previous studies, mainly concerning randomization. They concluded there is not enough evidence to support that mammography screening reduces deaths rate of breast cancer.²⁰ However, despite some biases found in these trials, other studies concluded they are not sufficiently relevant to invalidate the efficacy of mammography screening found in RCTs.^{6,12}

But breast cancer screening in community health care may not be as effective as that suggested by RCTs, performed under ideal circumstances. There is a need to further explore the effects of current screening

Table 5. Assessment of adequacy of knowledge, attitude and practice of mammography according to sociodemographic variables of women users of local health care centers. Campinas, Southeastern Brazil, 2000–2001.

Variable	Adequate %	Inadequate %	X ²	p-value
Knowledge				
Age ≥50 years	55	58	0.07	NS
Education ≥5 years	22	19	0.18	NS
Paid job	41	29	2.49	NS
Married	61	60	0.05	NS
Income ≥5 minimum wages	33	29	0.14	NS
Time attending health center	94	91	0.23	NS
Total (N)	49	614		
Attitude				
Age ≥50 years	56	67	0.38	NS
Education ≥5 years	21	0	3.44	0.03
Paid job	31	33	0.04	NS
Married	61	33	4.34	0.03
Income ≥5 minimum wages	31	17	1.01	NS
Time attending health center	90	94	0.02	NS
Total* (N)	602	18		
Practice				
Age ≥50 years	59	57	1.09	NS
Education ≥5 years	20	19	0.02	NS
Paid job	37	25	4.58	0.03
Married	87	56	1.30	NS
Income ≥5 minimum wages	39	24	9.76	0.001
Time attending health center	98	87	0.41	NS
Total (N)	237	426		

* Missing information for 43 women who did not have knowledge on screening mammography

NS: not significant

practices in the general population.¹¹ A recent case-control study conducted in six health plans in the United States showed that screening history was not associated with reduced breast cancer mortality and suggested that mammography screening might be effective only among women who are at increased risk for breast cancer.⁷

A cost-effectiveness analysis in Switzerland compared a mammography screening program (MSP) with an opportunistic screening strategy (OS) based on clinical practice.¹⁸ This economic analysis showed incremental costs per life-year gained for MSP were about twice those found for OS and it was concluded that MSP enables a significant reduction of breast cancer mortality compared with OS.

Notwithstanding, investments are made to improving

mammography techniques (especially digital mammography) or other forms of screening (magnetic resonance imaging) based on the belief of its actual benefit to women.^{6,14}

In Brazil, the first official data on mammography utilization comes from a household survey by the *Instituto Nacional do Câncer* (INCA – Brazilian National Cancer Institute). It comprised 2,525 women aged 50 to 69 years between 2002 and 2003 in 15 capitals plus the Federal District. It showed that 54% of the women studied had a mammography in the prior two years, one third of them in public health services and the remaining in health insurance covered or private services.^a

The data of the present study should be analyzed from two different aspects. First, there is a need for an ongoing program for early detection of breast cancer. Women

^a Ministério da Saúde. Instituto Nacional de Câncer. Inquérito domiciliar sobre comportamento de risco e morbidade referida de doenças e agravos não transmissíveis. Rio de Janeiro; 2005 [accessed on: 5/20/2007]. Available from: http://dtr2004.saude.gov.br/nutricao/documentos/publicacao_inquerito22_06.pdf

cannot rely on seasonal campaigns only, many of them aiming more at political interests than people's well-being. From this viewpoint, it is essential to provide accurate information focusing on disease prevention, such as breast cancer prevention, to both the target population and health professionals working directly with them. There is a need of resources to identify breast tumors, provide better training on clinical breast examination and practical procedures and improve referral of suspected cases.

The results of the present study are in agreement with another Brazilian study that found a similar proportion of no mammography referrals in both public and private health services (84.3% and 46%, respectively). They also found that about 30% of women seen in public services did not undergo mammography because the health professionals considered it unnecessary.¹⁰ Apparently there is greater medical resistance than women's regarding mammography in asymptomatic patients.

The lack of programs for early detection of breast tumors – a responsibility of health authorities – ends up negatively affecting patients who have their chances of cure reduced, experience greater mutilation and cause

more suffering during treatment and to their family. In addition, there are further losses to the public sector with increased costs to treat cases that could have been early diagnosed. The implementation of an educational program targeting women's health and more specifically focusing on early diagnosis of breast cancer is the only action that could change the current situation.

Unfortunately, due to operational issues, this study could not be extended to all health centers in the city of Campinas, which would have allowed to gathering data that would either ratify or rectify the results obtained in the present study. It is suggested further investigation of health insured women. Combined to the data of the present study, both could provide better understanding of the barriers faced by women when trying to gain access to a procedure of greater complexity such as mammography.

In conclusion, users of local health services in Campinas had inadequate knowledge and practice concerning screening mammography, although they show an adequate attitude towards the exam. The main barrier to mammography is related to the public health system: patients did not undergo the exam because they were not referred by their doctors.

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