

# Patient knowledge and perception on mammographic examination

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**Abstract.** Introduction: Because of its ability to depict and characterize calcifications associated with breast cancer and because of its high sensitivity in the adipose breasts, mammography remains the standard examination for breast screening. To obtain a good mammographic image, the breast is compressed between the detector and the compression plate. The compression is often perceived as painful or unpleasant by the patients. Objectives: To evaluate the knowledge of the patients regarding the technique of the mammography, the personnel involved in the examination and the perception of the patients regarding the procedure. Material and Methods: A number of 100 consecutive female patients who accepted to take part to the study were enrolled. The patients were divided into two groups (patients who had a previous mammography and patients who were at their first mammography examination). For patients having their first mammogram the questionnaire consisted of 9 questions and for the patients that had a previous mammography the questionnaire consisted of 5 questions. Results: 83% of the patients were from the city area and the last graduated school was the high school for most of the patients. 70% of the patients having their first mammogram did not know how mammography will be performed and 50% of the patients had no information about the inconveniences of the procedure. The sources of information about mammography were, in most of the cases, other patients that underwent a breast examination. 60% of the patients felt anxiety due to the result. After the examination, only one patient from each group experienced the mammography as being extremely painful. Conclusions: The access to mammography is difficult for patients from the country-side area. If a screening program would be implemented, it should include mobile units, to also cover these areas. It is also mandatory a better information of the patients about the procedure, about the inconvenience during the image acquisition and about the personnel involved in the procedure, to reduce the anxiety of the patient and to increase the rate of attendance to the periodical examination

**Key Words:** mammography, mammography pain, breast cancer screening

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## Introduction

Because of its ability to depict and characterize calcifications associated with breast cancer and because of its high sensitivity in the adipose breasts, mammography remains the standard examination for breast screening and also the first line imaging method for symptomatic patients after the age of 30 (Siu 2016; Bevers et al 2018). In the screening programs, a mammography is performed every two years for women aged between 50 and 74 years (Niell et al 2017; Sitt et al 2018; Jordan et al 2017). With the screening programs, the mortality from breast cancer continuously decreased due to the reduction in the size of the newly diagnosed breast cancers (Carioli et al 2017; Jordan et al 2017).

Mammography is an examination that uses X-rays to obtain images of the breast tissue. It is the most sensitive and complex radiological examination because it has to visualize, with high contrast, soft tissues with small density differences (Heywang-Koebrunner et al 2014). To obtain a good image, the breast is compressed between the detector and the compression plate, in order to reduce the breast thickness, to disperse the glandular

tissue and to obtain a high-quality image with minimal irradiation. The compression is often perceived as painful or unpleasant by the patients and this is the main reason why women refuse mammography or want an alternative examination to rule out a breast cancer (Poulos et al 1997; Miller et al 2002; Myklebust et al 2009; Whelehan et al 2013).

The objectives of the study were to evaluate the knowledge of the patients regarding the technique of the mammography, the personnel involved in the examination and the perception of the patients regarding the procedure, before and after the examination.

## Materials and methods

The study was approved by the Ethics Committee of the University of Medicine and Pharmacy “Iuliu Hațieganu” and was conducted between 10th of March 2019 and 10th of April 2019 (4-week period) in the Radiology department of the University Emergency County Hospital Cluj-Napoca. A number of 100 consecutive female patients who accepted to take part to the study were enrolled. The patients were referred to our department for a mammography examination by the general practitioner. We included

in the study patients examined only with mammography and we excluded the patients referred for an ultrasound or patients that needed this type of investigation, because the ultrasound is performed by the radiologist. The patients were divided into two groups: the first group consisted of 50 patients who were at their first mammography examination and the second group consisted of 50 patients who had a previous mammography.

After proper information about the possibility to accept or decline the participation, the aim and the objectives of the study, the patients were given a questionnaire and a last year student at the specialization Superior Technicians of Radiology and Imaging was present to answer any questions patients might have. For patients having their first mammogram the questionnaire consisted on 9 questions: age, provenance area, studies, knowledge about how mammography will be technically performed, knowledge about the discomfort encountered during the examination, from where do they have the information about mammography (technique and discomfort), if they are anxious about the examination and why and, finally, the perception about the mammography performed.

For the patients that had a previous mammography the questionnaire consisted of 5 questions: age, provenance area, studies, personnel performing the mammography and perception about last mammography.

## Results

The study was conducted on a number of 100 female patients, with a mean age of 55 years.

From the patients enrolled in the study, 83% were from the city area while 17% were from the country-side.

The last graduated school was the high school for most of the patients (56%), followed by superior studies (31%) and primary school (13%).

In the first group, patients having their first mammography, 70% of the patients did not know how mammography will be technically performed (figure 1).

Regarding the inconvenience during mammography, 50% of the patients in this group had no information, 38% expected the procedure to be painful and 12% thought that the procedure will not be painful or discomforting (figure 2).

The sources of information about mammography were, in most of the cases, other patients that underwent a breast examination and only a small percentage had their information from the general practitioner (figure 3).

When asked about the presence and reasons of anxiety before the examination, 24% answered that have no emotions while 60% felt anxiety due to the result and consequences (diagnosis of breast cancer or not) and 16% due to the technique itself (figure 4).

In the second group, patients with previous mammograms, the questions were, apart from the questions regarding the age, provenance and studies, about the personnel involved and about the inconvenience/pain caused by the performance of mammography. Only 14% of the patients knew that the mammography is performed by the radiology technician; 42% thought that the examination is performed by the nurse and 44% thought that the radiologist is the one who performs the mammography (figure 5). The last question in both groups was about the perception of the examination. The patients in the first group completed the

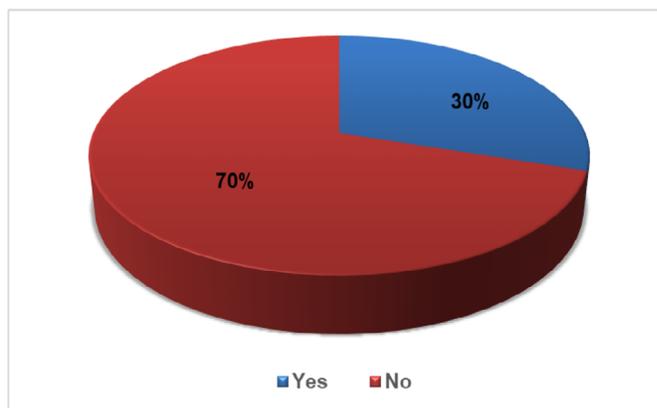


Figure 1. Prior knowledge of patients about how mammography will be performed

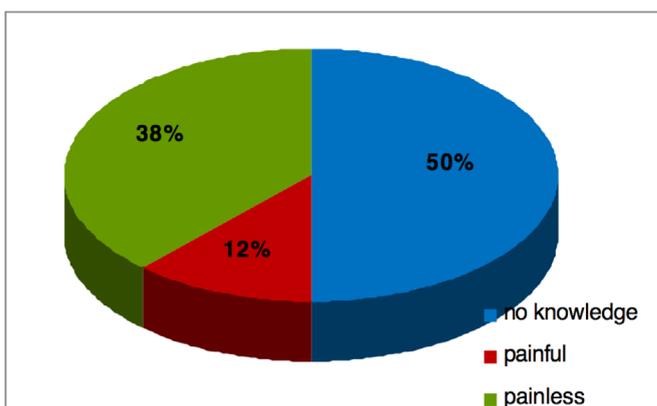


Figure 2. Distribution of the patients in terms of discomfort expectation

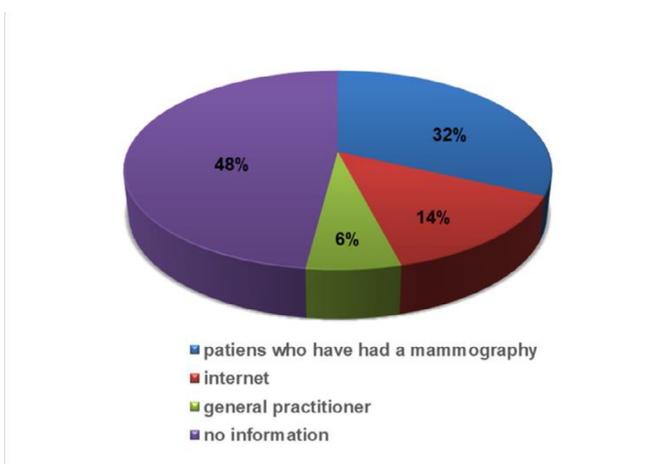


Figure 3. Sources of information about mammography

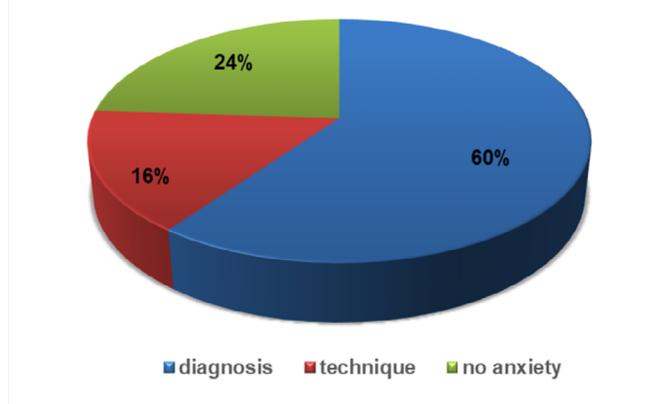


Figure 4. Patient's distribution in terms of mammography related anxiety

Table 1. Distribution of patients in the two groups, in terms of discomfort/pain during mammography

Perception on mammography	extremely painful	painful	unpleasant	not painful
Group 1	2%	36%	36%	26%
Group 2	2%	30%	28%	40%

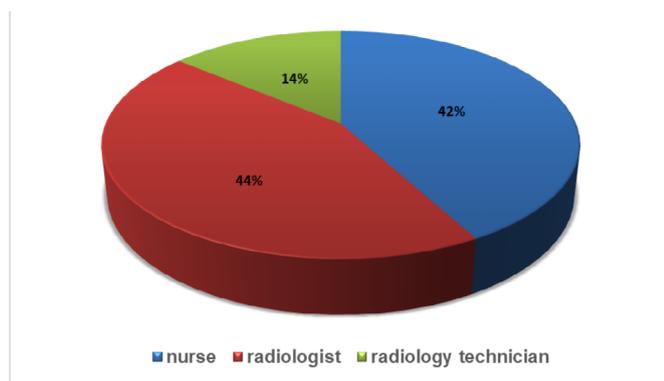


Figure 5. Patients distribution in terms of knowledge about the personnel involved in mammography

answer after mammography was performed while the patients in the second group were asked how they experienced the last mammography and they completed the answer before the examination. Only one patient in each group experienced the mammography as being extremely painful; in the second group (patients with prior mammography), the patients perceived the procedure less unpleasant when compared with the patients from the first group (patients at their first examination) (table 1).

## Discussion

Even if our study was conducted on a small number of patients, it offers an overall picture about patients' knowledge and perception on mammographic examination.

Most of the patients from our study had ages between 50 and 70 years (57%), fact that can be explained by the increased incidence of symptoms and breast cancer after the age of 50 (Sitt et al 2018).

Around 83% of the patients were referred from the city area and only 17% from the country-side. This is mostly due to the lack of information about the importance of screening mammography in the country-side but also, in cases of symptomatic patients to the reduced addressability and access to the mammography centers and departments. Implementing a screening program with mobile mammography units would increase the number of women screened in the country-side area (Greenwald et al 2017) while the dissemination of information regarding the incidence and the importance of diagnosing breast cancer in early stages would encourage women from this areas to address themselves to the general practitioner or to the specialist. The prevalence of the patients with superior studies and patients that graduated high school in our study suggests that this group of patients is probably more aware about the importance of breast examination and mammography.

Most of the patients, at their first presentation for mammography, did not have any information about the examination. Informed patients had the information either from other patients that had a mammography or from the internet and only a small percentage had the information from the general practitioner. Information is not always accurately presented on the internet and the patients do not always know to select the trustworthy sites. More

information, on hospital or on department site or the distribution of leaflets with the description of the technique would be useful in order to increase the women confidence in the procedure. Also, most of the patients having information about mammography, thought the mammography is painful. Asked about the perception of discomfort after the examination, more than a half (62%) answered that the procedure was not painful at all or that it was only unpleasant, similar with the results of Moshina et al (2019) The percentage was slightly smaller compared with the patients with previous mammography (68%), possibly due to the anxiety during the examination or to the recent experience. It would be interesting to study how many patients actually refuse the examination due to the fear of pain. These patients usually address themselves to private services where the performance of a mammography, in the absence of a clinician's indication is debatable and where they have, most of the times, an ultrasound examination.

However, in the majority of the cases, the anxiety experienced prior to mammography is due not to the procedure itself and to the possible pain during the examination but to the final result. In our department, the patients are referred by the general practitioner or by the specialist who do not inform the patients about how the procedure will be performed. Patients are then scheduled in a certain day but they are not given any leaflet or written information. They find out about how the procedure will be conducted only in the day of the examination. Mammograms are performed by the mammography technician, images are sent to the work station and stored in the PACS and the radiologist analyses the images and elaborates the written report usually in the same day. If the result is normal, the report is handed to the patient by the technicians or by the trainees and only in cases in which further examinations or explanations are required, the radiologist invites the patient and explains the results. This is probably why less than 50% of the patients that had previous mammograms believed the procedure is performed by the radiologist.

## Conclusions

The access to mammography is difficult for patients from the country-side area. If a screening program would be implemented, it should include mobile units, to also cover these areas. It is also mandatory a better information of the patients about the procedure, about the inconvenience during the image acquisition and about the personal involved in the procedure, to reduce the anxiety of the patient and to increase the rate of attendance to the periodical examination.

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