

## IMPROVING BREAST CANCER MANAGEMENT: A QUESTIONNAIRE-BASED STUDY ON PREVENTION AND DIAGNOSIS AMONG FAMILY DOCTORS AND SPECIALISTS IN NORTH-EASTERN ROMANIA

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IMPROVING BREAST CANCER MANAGEMENT: A QUESTIONNAIRE-BASED STUDY ON PREVENTION AND DIAGNOSIS AMONG FAMILY DOCTORS AND SPECIALISTS IN NORTH-EASTERN ROMANIA (Abstract): This study **aimed** to analyze the knowledge, clinical practices, and administrative aspects related to breast cancer care among family physicians and specialists in North-Eastern Romania. **Materials and methods:** A structured questionnaire was applied to a total of 200 healthcare professionals, including surgeons, oncologists, radiologists, gynecologists, and general practitioners. Key findings revealed significant deficiencies in screening awareness, interdisciplinary collaboration challenges, and limitations in patient education and reimbursement processes. **Results:** The study suggests the urgent need for a better integration between specialists and primary care providers, the development of enhanced educational programs, and improved access to screening and diagnostic services. **Conclusions:** Addressing these barriers may contribute to more effective breast cancer prevention, early detection, and management in Romania. **Keywords:** BREAST CANCER, QUESTIONNAIRES, PREVENTION.

### INTRODUCTION

Breast cancer remains one of the leading causes of cancer-related morbidity and mortality worldwide. In Europe, it is the most commonly diagnosed cancer in women, accounting for nearly 29% of all female

malignancies (1). Despite improvements in early detection and treatment, disparities in survival rates persist, with lower survival observed in Eastern European countries, including Romania (2).

The etiology of breast cancer is multi-

factorial, influenced by genetic, hormonal and environmental factors. The increasing prevalence of obesity, physical inactivity, late childbearing, and high-fat diets has contributed to a rising incidence rate (3). Additionally, healthcare disparities, low screening awareness and inadequate funding for national programs further contribute to Romania's high mortality rates (4).

According to the GLOBOCAN 2020 report, breast cancer remains the most frequently diagnosed malignancy worldwide with an increasing incidence trend (5). In Romania, breast cancer ranks among the top causes of oncological mortality, with early detection remaining a major challenge due to a lack of well-structured national screening programs and limited public awareness campaigns (6). Additional barriers in the Northeastern Romania healthcare system—such as inadequate reimbursement policies and poor coordination between specialists and primary care physicians—further delay timely diagnosis and treatment (7).

This study aims to evaluate the current state of breast cancer management in North-Eastern Romania by assessing the knowledge, practices and perceptions of family physicians and specialists while also seeking to identify gaps in early detection, patient education and healthcare infrastructure in order to formulate valuable recommendations for policy improvements.

## MATERIALS AND METHODS

A four-step approach was used in this study:

1. *Questionnaire development:* Structured, self-administered questionnaires designed following a literature review and expert input (8). The survey included questions on screening practices, patient management, interdisciplinary collaboration, and administrative challenges.

2. *Data collection:* The survey was distributed to 200 healthcare professionals across various medical specialties, including surgery, oncology, radiology, gynecology, and general practice.

3. *Data analysis:* Responses were systematically categorized and analyzed using descriptive statistics to identify trends in clinical practice, screening recommendations, and interdisciplinary collaboration.

All healthcare professionals provided informed consent regarding data confidentiality and privacy. The data were processed using *Microsoft Excel 2010*.

4. *Validation:* The results were reviewed by experts to ensure accuracy and relevance (9).

The questionnaire assessed various aspects of breast cancer screening, diagnosis, treatment, and follow-up, with a particular focus on healthcare system challenges and opportunities for improvement. The statistical analysis of our study provided a comprehensive understanding of the collected data. Using the descriptive statistics function, we computed key statistical measures, including the mean, mode, skewness, and kurtosis, to assess the distribution and shape of the data.

## RESULTS

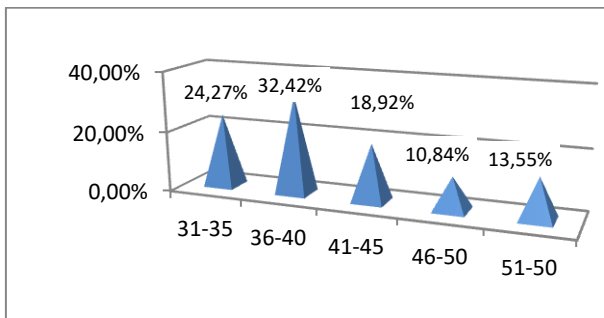
The study identified several key aspects of breast cancer management among healthcare professionals in North-Eastern Romania.

The demographic structure of the surveyed group highlighted that most participants were young adults (36-40 years old - 32.42%) and women (64.1%). The sample consisted of a diverse group of 100 doctors from various medical specialties, including general and plastic surgery, oncology, radiology, gynecology, and radiotherapy, along with 100 general practice doctors (tab. I, fig. 1)

**Improving breast cancer management: a questionnaire-based study on prevention and diagnosis among family doctors and specialists in North-Eastern Romania**

**TABLE I.**  
**Demographic and socioeconomic characteristics.**

Characteristics	Frequency %
<b>Age (years)</b>	
31-35	24.27
36-40	32.42
41-45	18.92
46-50	10.84
51-55	13.55
<b>Gender</b>	
Female	64.1
Male	35.9
<b>Specialties</b>	
General surgery	29.4
Plastic surgery	4.7
Medical oncology	27.6
Gynecology oncology	14
Medical radiology	16.6
Radiotherapy	7.7
Family medicine	100



**Fig .1.** Age histogram

**Clinical knowledge and practices among specialists**

Most specialists (61.5%) reported frequent encounters with suspected breast cancer cases. However, 76.9% of respondents considered cases in women under 30 to be rare. The most common reasons for referral were the presence of breast lumps (97.4%), abnormal nipple discharge (41%), and a family history of breast cancer (28.2%). In younger patients, breast lumps remained the predominant reason for referral (87.2%).

Regarding diagnostic methods, mam-

mography, breast ultrasound, and biopsy were recommended in over 92% of cases. For younger patients, ultrasound (92.3%) and MRI (74.4%) were preferred over mammography (43.6%). Fine needle aspiration biopsy (48.7%) and core needle biopsy (46.2%) were used with similar frequency.

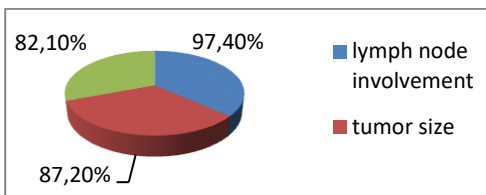
**Knowledge and education among family physicians**

Most family physicians rated their knowledge of breast cancer as ‘very well-informed’ (63.5%) or ‘moderately informed’

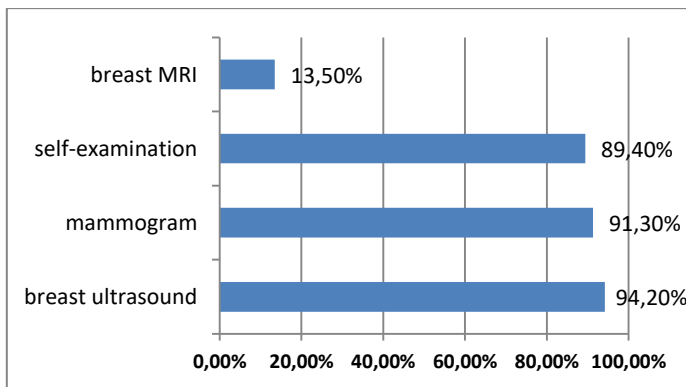
(35.6%). However, 57.7% had never attended courses or workshops on breast cancer prevention and diagnosis. Additionally, 53.8% of respondents believed that information on breast cancer was not sufficiently available for family physicians.

**Diagnosis and recommendations among specialists**

The diagnosis of breast cancer following biopsy was reported as frequent or very frequent by 59% of respondents. The most important criteria for monitoring patients included lymph node involvement (97.4%), tumor size (87.2%), and distant metastases (82.1%) (fig. 2).



**Fig. 2.** The most important criteria for monitoring patients



**Fig. 3.** Recommended types of screening

Treatment recommendations were primarily surgical (94.9%), followed by chemotherapy or radiotherapy (92.3%) and hormonal therapy (82.1%).

**Screening and diagnostic practices among family physicians**

The majority of respondents (46.2%) recommended initiating mammographic screening between 40 and 50 years, followed by 31.7% who supported screening between 30 and 40 years. Breast ultrasound (94.2%), mammography (91.3%), and self-examination (89.4%) were the most frequently recommended screening modalities. MRI was less frequently recommended (13.5%) (fig. 3).

For high-risk young patients, breast ultrasound (89.4%) and self-examination (81.7%) were preferred, with only 39.4% recommending mammography. Screening frequency for moderate-risk women was predominantly every three years (53.8%), followed by every two years (31.7%).

**Challenges in patient monitoring and reimbursement**

Among specialists, 76.9% were familiar with reimbursement procedures for breast

cancer care. The most common barriers were delays in processing (38.5%), unclear procedures (33.3%), and additional administrative challenges (35.9%). Issues in re-

## Improving breast cancer management: a questionnaire-based study on prevention and diagnosis among family doctors and specialists in North-Eastern Romania

imbursement were reported as rare by 60.5% of respondents.

Challenges in patient monitoring included

patient non-compliance (43.6%), limited access to imaging investigations (41%), and insufficient resources (38.5%). (fig. 4)

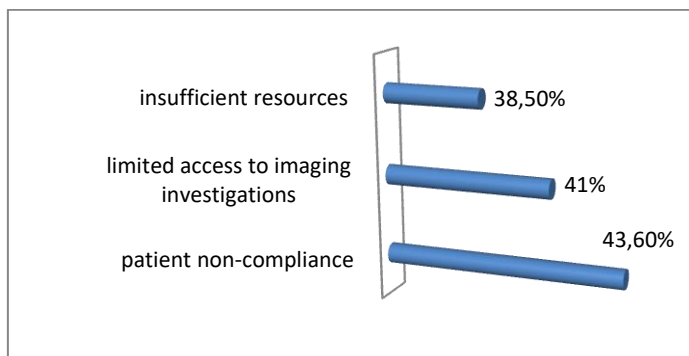


Fig. 4. Challenges in monitoring

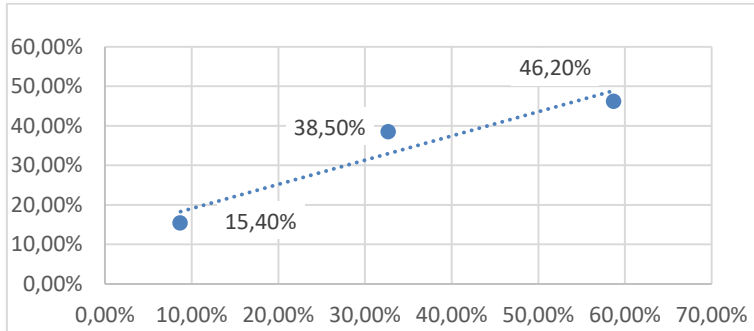
### Collaboration between specialists and family physicians

Collaboration with family physicians was rated as poor by 43.6% of specialists, while 28.2% considered it acceptable. Proposed improvements included interdisciplinary scientific meetings, training sessions, information bulletins, streamlined referral processes, and enhanced communication channels.

To assess the statistical significance of these differences, several tests were applied. The F-test confirmed significant variance differences between the two groups, justifying the use of a heteroscedastic t-test, which showed statistically significant differences in diagnostic preferences, reimbursement familiarity, and preventive measures. The Pearson correlation coefficient indicated a strong correlation (0.79) between gender and diagnostic recommendations, and a very high correlation (0.92) between mammo-graphy and ultrasound preferences. Conversely, a negative correlation (-0.50) was observed in certain diagnostic choices, indicating

contrasting preferences between groups. Cancer frequency perception showed a moderate correlation (0.30) with professional background, while responses within each group were highly consistent (0.99 correlation). Familiarity with reimbursement procedures exhibited a perfect correlation (1.00), demonstrating uniform agreement. A strong correlation (0.95) was found between general practitioners' and specialists' views on prevention, although some prevention strategies showed a negative correlation (-0.38). Professional resource preferences were highly correlated (0.99), with some choices negatively associated with alternative decision-making factors (-0.78). Correlation curves were plotted to visualize these relationships, reinforcing statistical findings.

The correlation coefficient (0.954109) confirms a very strong linear relationship between the two variables, meaning that the responses or recommendations of specialists are highly consistent across the dataset (fig. 5).



**Fig. 5.** Correlation between general practitioners' and specialists' views on prevention

## DISCUSSION

The results of the questionnaire highlight several critical aspects that influence the management of breast cancer in Romania. One of the main findings is that while there is generally good knowledge of current diagnostic and treatment protocols, there are significant challenges related to collaboration between specialists and family physicians (7, 10, 11, 12-14). This lack of coordination can delay early diagnosis and optimal treatment strategies, which are essential for improving patient outcomes. Establishing a national database for rapid access to imaging investigations, strengthening prevention and screening programs, and reducing the turnaround time for pathological results are key steps that could improve breast cancer management (15-18).

Furthermore, there is a clear need to enhance education and awareness not only among healthcare professionals but also among patients, particularly young women and family physicians (19-22). Improving screening and patient management should involve national information campaigns, better access to diagnostic tests, greater involvement of family physicians in performing breast ultrasounds, and the deployment of mobile medical units in rural

areas (23-27). Increasing funding for diagnostic tests, enhancing communication between healthcare providers, and implementing health education programs in schools are also necessary steps to ensure better early detection and treatment adherence.

A major concern identified in the study is the difficulty in reimbursing services and monitoring patients. The complexity of reimbursement procedures and bureaucratic delays further hinder access to timely diagnostics and treatment (16, 18, 28). Establishing a streamlined reimbursement system, along with integrating digital solutions for patient tracking, could alleviate some of these barriers.

Current research and increased awareness are essential to fully understand and respond to evolving trends in breast cancer incidence and patient characteristics. Globally, 90% of observed countries manage breast cancer diagnosis and treatment through multidisciplinary teams that adhere to national guidelines (11). Most European countries align their breast cancer care services with international standards, particularly those established by the European Society for Medical Oncology (12-14). However, Romania remains an exception, with significant gaps in service accessibil-

## **Improving breast cancer management: a questionnaire-based study on prevention and diagnosis among family doctors and specialists in North-Eastern Romania**

ity and financing. For example, genetic testing is not widely covered by public healthcare funds, despite its recognized importance in high-risk populations (29).

Survival rates vary significantly depending on the stage at diagnosis, with five-year survival rates ranging from 98% in early-stage diagnoses to only 24% in advanced-stage cases (19). In high-income countries, breast cancer mortality rates have been declining due to advancements in treatment and the widespread implementation of early screening programs. Unfortunately, Romania has one of the lowest participation rates in mammographic screening across the EU, with only 9% of eligible women being screened in 2020, compared to the EU average of 60% (20). A study conducted in Romania demonstrated that education plays a crucial role in influencing women's attitudes toward screening. However, national efforts to raise awareness and implement free breast cancer screening programs have been insufficient (21).

A critical issue remains the lack of studies examining the impact of social media campaigns on public awareness regarding screening importance and the benefits of early diagnosis. Research has shown that social media platforms such as Facebook, Twitter, and YouTube can significantly increase engagement and awareness regarding health-related topics (30). Utilizing targeted digital campaigns to educate younger women on self-examination and early detection strategies may help bridge existing knowledge gaps.

Another significant aspect of breast cancer care is psychological support. Emotional well-being plays a crucial role in patient satisfaction and treatment adherence. Patient advocacy groups and support

networks have been shown to provide essential resources for breast cancer survivors, improving their quality of life. In addition, fostering supportive communities and increasing access to mental health services for patients undergoing treatment could enhance overall care standards (31).

To further optimize breast cancer management, Romania must align with European best practices, particularly regarding screening policies. The European Commission's Initiative on Breast Cancer (ECIBC) recommends organized population-based screening programs with biennial mammographic screening for women aged 50 to 69 (26). Additionally, improving national healthcare coverage and implementing more effective strategies for early detection are necessary to enhance survival rates. A systematic review of screening implementation strategies across Europe suggests that access to services, financial incentives, and primary care integration significantly impact participation rates (27).

In conclusion, the study highlights the urgent need to improve interdisciplinary collaboration, streamline reimbursement systems, and enhance patient education. A multifaceted approach-including policy reforms, public awareness campaigns, and greater investments in screening infrastructure-is essential for improving breast cancer outcomes in Romania. Further studies should focus on assessing the long-term impact of targeted interventions on screening adherence and patient survival rates.

### **CONCLUSIONS**

This study highlights significant gaps in breast cancer prevention, screening, and treatment strategies in Romania. While specialists demonstrate substantial experience, general practitioners face challenges in

accessing ongoing education and navigating referral pathways (19). Improved interdisciplinary collaboration, combined with essential policy reforms, could significantly enhance patient outcomes and reduce mortality rates.

A comprehensive approach that includes increased public awareness, standardized screening initiatives, and systematic healthcare system improvements is crucial to bridging existing gaps and ensuring

efficient and timely breast cancer management in Romania (20).

Further research is required to assess the long-term impact of targeted interventions on breast cancer detection and treatment outcomes in Romania.

#### CONFLICTS OF INTEREST AND FUNDING

All the authors declare no funding received and no conflict of interest.

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**Improving breast cancer management: a questionnaire-based study on prevention and diagnosis among family doctors and specialists in North-Eastern Romania**

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