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Assessing personal and health system barriers to breast cancer early diagnosis practices for women over 20 years old in Cluj-Napoca, Romania

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Abstract

Background and aims. Breast cancer diagnosis is established late in Romania. This led to 3918 potentially avoidable deaths by breast cancer in 2020. Statistics show that women seldom perform monthly breast self-examinations or mammographies. This research aims to identify personal and health system barriers to breast cancer screening, with the purpose of enabling participation in future breast screening programs.

Methods. A quantitative cross-sectional, online survey of a convenience sample of 184 women aged 20-65 years old from Cluj-Napoca, Romania was used to evaluate the practice of breast self-exam and mammographies and personal and health system barriers against them.

Results. The sample's mean age was 34.73 years (SD=11.31, range 20-65). Women in the sample had a high level of education, most holding a Master's degree (36.4%). The majority declared practicing breast self-examinations from time to time (57.2%) and only (35.5%) did it monthly as per existing guidelines. Personal barriers to breast examination were lack of knowledge (16.3%) and mistrust in self examination (10.3%). Women with higher education engaged in the examination of the breast at least once (X2= (0.047, N = 184), p = 0.003, (CI 95%: 5.515–6.773). Concerning health system barriers, access to information from public health authorities on the availability of mammographies was rated very poor (21.7%). The cost was not a significant barrier to mammographies for 72.8% of the women in the sample.

Conclusions. Our study contributes to the limited data on preventive practices for breast cancer in Romania, the EU country that ranks last for breast control among females and where 13% of the 9000+ cases diagnosed annually are stage IV cancers. Based on the reported factors of a successful breast cancer screening program by our sample, we suggest valuable insights to be taken into consideration when organizing a future breast screening program. Both personal and system barriers to breast self-exam and mammographies must be considered in organizing breast cancer screenings. The focus should be on educational initiatives to improve women's knowledge about the process of self-screening and on improving access to information on the availability of free screening and mammograms as part of a well-promoted screening program designed with a simple enrolment process.

Keywords: cancer, breast self-examinations, affordability, mammography

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Background and aims

In 2020 female breast cancer (BC) was the most common malignancy globally, with 2.3 million new cases [1]. Romania experienced a higher mortality rate compared to EU countries because of the lack of a coordinated screening program, an important tool in BC early detection [2,3]. Moreover, in Romania, over 9000 women are diagnosed with BC annually, 13% in stage IV, with limited treatment choices. Low rates of screening might contribute to this situation [4]. For instance, Romania ranks last among European countries for breast control in women, with a low frequency of monthly self-examinations [5]. Personal barriers such as embarrassment and low education contribute to low BSE rates, while health system barriers like insurance coverage and healthcare accessibility hinder MMG [6].

The current study aims to assess the barriers to practicing BC screening in women (BSE and MMG) living in Cluj-Napoca by exploring personal and health system barriers. The objectives of the study are to identify personal barriers that influence BSE practice and health system barriers affecting the MMG uptake rate. Ultimately, the purpose of the study is to explore women's views regarding factors that prevent them from practicing BSE and MMG and its facilitators. It is important to bridge this gap and propose feasible solutions adapted to the local, Romanian socio-cultural context, as this will increase the chances of women' participation in BC screening programs and the adoption of early detection measures. In turn, this might contribute to early detection of BC and reduced mortality [7].

Methods

Study design, setting, and population.

A quantitative cross-sectional, online survey conducted in April 2022 included a convenience sample of 184 women aged 20-65 years old, living in Cluj-Napoca, speaking Romanian, and signing the informed consent. The study followed the ethical rules and regulations for human subject research [8], including the Helsinki Declaration for Human and Animal Studies [9]. All responders offered their informed consent, the survey was anonymous, and no personal identification data was collected.

Data collection

Two cancer associations from Cluj-Napoca- encouraging cancer screening, and Radio Noro - providing support to patients with rare diseases, have shared the survey link via their social media and the questionnaire was also posted on their website. Furthermore, the survey link was proposed on social media groups addressed to women.

Data collection tool

A six-part questionnaire was developed in Qualtrics [10] and consisted of (a) a socio-demographic section (age, level of education, marital status, religion, working status, and income); (b) a section on BSE and MMG practice (starting age, practice, and frequency of performing). BSE behaviors were assessed using pictures with BSE's step description [11]; (c) a part on personal barriers for BSE was also included. The first question focused on factors deterring BSE for non-practicing women, rating their agreement on statements from the Health Belief Model Questionnaire for Promoting BSE-perceived barriers [12,13], while the second question was for women engaging in BSE, focusing on factors enabling BSE [14]. (d) The fourth section explored personal barriers to MMG, including fear of diagnosis, shame of male physician examination, and challenges discussing the topic [15]. A 5-point Likert scale evaluated women's agreement with six items from the modified Champion Health Belief Model Scale [16]. (e) The next part investigated system barriers to MMG in terms of availability and affordability of health services and the factors preventing women from engaging in it, using data from the 2016 EPF Health Access Survey, referring specifically to MMG [17]. Additionally, the survey also aimed to gauge women's opinions on successful breast screening programs [18].

Data analysis

The study used IBM SPSS Statistics version 21 for data analysis, presenting descriptive statistics on socio-demographic variables like age - using means and standard deviations and screening behavior like BSE and MMG - as frequencies and percentages. Kendall's tau-b correlation and Chi-square test were also used.

Results

General Sample Description

The mean age of the respondents was 34.73±11.31 SD (range 20-65). Participants mostly had a high level of education (36.3%), self-identified as Christian-Orthodox (69.0%), were married (43.5%), and were employed (68.5%). Participants' monthly family income ranged between 700-40.000 RON, with a mean of 7535.43±5266.35 SD.

Practice of BSE and MMG

Regarding the practice of BSE and MMG, 34.7% of women stated that their last BSE was days ago, whereas 36.2% stated that their last MMG was last year, and the last BSE days ago (34.7%). Not all women who heard about BSE (94.0%) have ever done it (75.0%) (Table I and II). The study found that while more respondents performed the first two steps of BSE (inspection with a right hand and each circle three times), fewer positive responses were registered for the last steps (straight line technique, up and down vertical band design), suggesting that not all the women did a complete and correct BSE.

Table I. The practice of BSE among women living in Cluj-Napoca (N=184).

	N (%)			N (%)
Have you ever heard about BSE?			**Last time when did BSE**	
Yes	173(94.0)		Days ago	48(34.7)
No	11(6.0)		Weeks ago	42(30.4)
			Months ago	38(27.5)
			Years ago	10(7.2)
Have you ever done a BSE?				
Yes	138(75.0)		**Frequency of performing BSE**	
No	46(25.0)		Once in a week	20(14.4)
			Monthly	49(35.5)
Time of practice*			Every 3 months	23(16.6)
The same day of the month	4(2.8)		Every 6 months	23(16.6)
Few days before menses	5(3.6)		Once a year	14(10.1)
Within 5 days after menstruation	14(10.1)		Occasionally- from 3 to 3 years	8(5.7)
When comes to my mind	79(57.2)		Once in 6 years	1(0.7)
Any time during the month	36(26.0)			
Age of starting to do BSE				
Mean	SD	Range		
25.59	8.10	20-51		

Notes: * question applied to those who ever did BSE (N=138).

Table II. The practice of MMG among women living in Cluj-Napoca (N=58).

	N (%)			N (%)
Have you ever heard about MMG?			**Have you done MMG in the last 2 years?**	
Yes	57(98.3)		Yes	23(39.7)
No	1(1.7)		No	32(55.2)
			Missing	3(5.2)
Have you ever done an MMG?			**Last time when did MMG***	
Yes	41(70.7)		A month ago	3(5.2)
No	17(29.3)		A year ago	21(36.2)
			A long time ago	14(24.1)
			I can't say exactly	3(5.2)
Age of starting to do MMG				
Mean	SD	Range		
40.98	7.36	20-51		

Notes: * question applied to those who ever did MMG (N=41).

Personal barriers to BSE include lack of knowledge (16.3%), mistrust in own examination (10.3%), and fear of finding a lump (7.6%). However, most women engage in BSE as routine screening every month (22.0%), either for early detection of BC (20.9%), or due to symptoms like pain or discomfort (15.4%). Moreover, a significant association was found between BSE practice and education level- X^2 (0.047, N = 184), p = 0.003, (CI 95%: 5.515–6.773). Thus, women with a high level of education conducted a BSE at least once in their lifetime, but they failed to do it systematically or correctly, and failed to complete the four steps.

Personal and system barriers to MMG

Personal barriers to obtaining an MMG include the lack of knowledge about the process (10.3%) (Table III). System barriers, on the other hand, include poor access to information about the availability of MMG from public health authorities (21.7%), while internet websites (25.5%) and social media (16.8%) are rated as very good sources of information. Also, the majority of respondents (93.5%) expressed their concerns about wasting their physician's time. Interestingly, costs were not considered barriers, as most women can afford a BC screening (35.9%) and never postpone it due to costs (72.8%). However, 38.0% disagreed with the fact that healthcare system sufficiently

covers their breast screening services, and 51.6% strongly agreed that a free screening program increases likelihood of their participation. Additionally, there was a statistically significant positive correlation between income level and the financial affordability of an MMG (τb = .171, p = .007, (CI 95%: 5.515–6.773)), suggesting that women with higher monthly family incomes are more likely to afford an MMG (Table IV). Furthermore, affordability was positively correlated with an increased likelihood of conducting an MMG if it was part of a free screening program (τb = 144, p = .041,(CI 95%: 1.524-1.871)).

Participating in BC screening program

Health campaigns may help women practice BSE and MMG, as reported by 36.3 % of respondents, followed by hands-on workshops, and live simulations of tutorials on performing BSE (20.9%). National coverage (71.0%) and a simple enrolment process (69.7%) are crucial for successful BC screening programs, with (64.1%) supporting public promotion (Table V).

Table III. Personal Barriers to MMG according to agreement level (%).

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
I'm not sure how to go about obtaining an MMG	34.2	22.3	15.8	12	10.3
Having a mammogram is a very painful procedure	21.7	21.2	31.5	14.7	5.4
Having an MMG exposes me to unnecessary radiation	29.9	36.4	20.7	7.4	0.5
I have more pressing concerns than being screened for BC	46.7	33.2	10.3	2.7	1.6
I am too young to require regular BC screening	33.7	33.2	10.3	13	4.3
I am terrified that a male doctor will do BC screening	46.7	30.4	10.3	4.3	2.7

Note: MMG = mammography; BC=breast cancer.

Table IV. Correlations between monthly family income and variables associated with health systems barriers against BC screening.

	1.	2.	3.	4.	5.	6.
1. Monthly family income (RON)	-	171** 156	-077 158	087 158	123 158	-419* 28
2. Financial affordability	171** 158	-	-416** 158	-182* 158	144* 158	-552** 28
3. Postponing MMG because of costs	-077 158	-416** 158	-	092 158	-077 158	440* 28
4. The healthcare system sufficently covers the screening costs	087 158	-182* 156	092 158	-	091 158	151 28
5. A free MMG will increase the chance of participation in BC screening	123 158	144* 158	077 158	091 158	-	-188 28
6. Financial difficulties due to MMG	-419** 28	-552** 28	440* 282	151 28	-188 28	-

*correlation is significant at the 0.05 level; **correlation is significant at the 0.01 level.

Table V. Conditions for a successful screening (N=145).

	N(%)
Separate consultation	44(30.3)
Intense promotion by doctors	56(38.6)
Simple process of participation	101(69.7)
National coverage	103(71.0)
No age limit	45(31.0)
No restrictions to number of participants	73(50.3)
Intense promotion to general public	93(64.1)
Large number of medical centers involved	90(62.1)
Long time development	74(51.0)
Clear steps to go through	66(45.5)
Other	1(0.7)

Discussion

This study aimed to assess the barriers to practicing BC screening behaviors including BSE and MMG in women living in Cluj-Napoca, by exploring personal and health system barriers. Our study contributes to the limited data on preventive practices for BC in Romania, the EU country that ranks last for breast control among females and where 13% of the 9000+ cases diagnosed annually are stage IV cancers. Our results show that only 35% of surveyed women practice breast self-exams as per existing guidelines, whereas 38% are not sure how to proceed about obtaining a free mammogram.

A positive finding of our study is that 94% of women in the survey heard about BSE. However, only 75% have ever performed some type of BSE. This finding is supported by a study on the practice of BSE among female university students, as merely 31.4% of students routinely performed BSE, despite the fact that nearly all (96.5%) of them have heard of it and were aware of when to do it [19].

Our research showed a statistically significant association between BSE and the level of education of women performing the examination. The analysis found that women with a high level of education had performed BSE at least once in their lifetime, although not correctly and completely. A gap between knowledge and practice mirrors previous research, indicating the need to provide health education using engaging imaging on performing BSE [11], to overcome the three identified barriers: lack of knowledge (16.3%), lack of trust in self examination (10.3%), and fear of finding a lump (7.6%), similarly with the suggestions of other reviews on BSE barriers [20,21].

MMG screening programs reduce age-standardized BC mortality rates and positively impact disability-adjusted life years (DALYs) [22], although screening interest remains low in Romania [4,16]. There was a strong positive correlation between income level and financial affordability to conduct a MMG if needed. Thus, as the monthly family income increases, women's chances of financially affording an MMG increase. Likewise, in another study MMG adoption was positively correlated with yearly household income [23]. Conversely, in a French study MMG was less common among women who faced economic shortcomings [24]. Regarding MMG practice, costs were not considered barriers, as most women in our sample could always afford an MMG (35.9%) and 72.8% never postponed it because of costs. On the other hand, costs were the most cited obstacle to compliance in previous studies, especially among low-income women [25]. Concerning system barriers to MMG, access to information on the availability of MMG was rated as very good for internet websites (25.5%) and social media (16.8%). This goes in line with the findings of a UK study that revealed the necessity of delivering BC screening information on social networks and media (TV, radio, newspapers, workshops) for improving screening uptake rate [26]. Yet, previous research on Romanian BC websites showed inadequate quality ratings of the available information [27]. Women's interest in websites and the social media as information sources for BC screening suggest the need for improved quality of information on BC screening in the online environment.

Conversely, women identified health campaigns (36.3%), followed by workshops and live simulations (20.9%) as potential facilitators for BSE and MMG practice. These results match those observed in earlier studies. For example, breast screening increased as a result of women-focused health promotion initiatives [28] and BC awareness campaigns [29]. In our respondents' views, the most important prerequisites for an effective breast screening program were national coverage (71.0%) and a simple process of enrolment (69.7%), as well as intense promotion (64.1%). BC screening programs have been shown to decrease BC mortality and are cost effective. A Swiss study showed that implementing a nationwide BC screening program could significantly reduce BC mortality by 44% for females [30].

Future perspectives

This study had a general approach to women's barriers, regardless of their professions, marital status, or religion. Future research should focus on specific professional categories like female health workers or students and incorporate larger, representative samples with a balanced distribution of participants' characteristics in terms of residence (urban vs rural, educational level, and income). In addition, a natural progression of this work would be to add the doctors' perspectives on identifying providers' and health systems' barriers to BC screening, as well as on identifying ways for overcoming women's barriers to both BSE and MMG.

Limitations

This study explored women's barriers to BSE and MMG, addressing personal and system barriers, providing valuable insights for the Romanian socio-cultural context, as prior research on this topic applied to this population and setting was not yet conducted to our knowledge. In the light of these strengths, we mention several limitations. First, the cross-sectional nature of our study implies potential recall bias on the behalf of participants regarding their engagement in BSE practices (one of the questions asks participants to report on this in the behavior in the last 3 to 6 years, for example). Second, because this survey was distributed to a convenience sample of women who are living or working in Cluj-Napoca, a city with a high standard of living, our results may not be generalizable to women living in rural conditions, or with a lower education and income.

Conclusions

Based on our findings, educational initiatives targeted at reducing barriers to compliance with BSE and MMG screening guidelines are needed, with a focus on the critical significance of early identification of BC. It is also necessary to ensure the affordability and accessibility of MMG screening.

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