The Level of Women's Knowledge About Breast Cancer, Risk Factors, and Required Exams

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Abstract
Despite awareness, screening campaigns, and advances in breast imaging for early detection, breast cancer remains the leading cause of cancer death among women in Albania. According to the National Registry of Cancer, about 700 new cases of breast cancer are diagnosed per year. Early diagnosis of breast cancer plays a crucial role in reducing mortality and morbidity associated with it, and early detection through screening is essential and offers the best opportunity for effective management and prevention. This study aimed to assess women's knowledge about breast cancer, their screening practices, perceived barriers, and access to healthcare services in the Elbasan district. Methodology. It is a simple cross-sectional study. The study included women from the Elbasan district. The study was conducted between December 2024 and February 2025. Proportional stratified random sampling was employed to determine the study sample size from each area. The data collected were analyzed using SPSS version 21.Results. Overall, 14.3% of respondents reported experiencing breast-related issues. The mean knowledge score was 5 out of 6, with an overall correct response rate of 86.4%. However, only 57.3% identified heredity as a risk factor for breast cancer. Women from urban areas and those with a family history of breast cancer demonstrated significantly higher knowledge scores (p<0.001). The family history of breast cancer (mother, aunt, sister/cousin, grandmother) was reported by 14.3% of participants. Notably, 67.8% of women had never visited a healthcare center for breast-related concerns. Regarding breast imaging, 31.6% of participants had undergone three or more imaging examinations, while 68.3% (n=272) had never undergone any radiological screening.Conclusion. The study revealed satisfactory levels of knowledge about breast cancer but low practices of breast visits and imaging examinations. There is a need to implement intervention programs, especially in rural areas, to increase awareness of periodic visits and examinations for breast cancer screening.
Keywords: knowledge, breast cancer, examination, risk factors, women.
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1. Introduction

Breast cancer is a significant issue globally. It is the most diagnosed cancer in women, with an estimated 2.1 million new cases being diagnosed each year, and it represents 24.2% of all cancer diagnoses among women (Frances *et al*. 2020), with 685,000 deaths associated with it (WHO, 2021). It is the most prevalent cancer among women worldwide, affecting both developed and developing countries (N. M. Ayoub *et al*. 2021).

It is becoming an increasingly urgent problem in low-resource regions (Anderson *et al*. 2006), for example, in Southern Europe (which includes Albania), where the incidence is 80.3 and the mortality is 13.3% (Frances *et al*. 2020)

The incidence is increasing in the developing world due to increased life expectancy, urbanization, and adaptation of western lifestyles, and the only way to control this disease is early detection (Sanjay Kumar Sah *et al*. 2020).

In Albania, breast cancer is the second most common cancer in the entire population, with 936 women diagnosed for the first time in 2020 alone (UK aid &TFL& BIRN , 2021).

The incidence rate in 2020 increased to 66.2 new cases per 100,000 inhabitants compared to 2018, which had an incidence rate of 11.7 new cases per 100,000 inhabitants. Compared to the Region, Albania is considered the country with the lowest incidence rate and the lowest mortality rate per 100,000 inhabitants (WHO, 2020).

The increased incidence is influenced not only by risk factors for breast cancer such as hereditary factors, differences in demographic (e.g., education), reproductive (e.g., age at first child and number of children), anthropometric (e.g., adiposity) and lifestyle factors (e.g., tobacco smoking and alcohol use) (A. Gupta, *et al*, 2015), but it is also affected by the quality of the healthcare system.

A consolidated health system plays a crucial role in the early detection of breast cancer (Ginsburg *et al*, 2020), leading to a reduction in morbidity and mortality rates associated with the disease (Bayan Al-Ghadeer *et al*, 2021).

The most important strategies for achieving early detection of breast cancer are mammography and physical examination of the breasts by a physician or qualified health workers (Birhane *et al.* 2017).

Early detection through breast cancer screening is crucial and offers the best chance for effective management

and prevention. The deficiency of breast cancer screening facilities is a national health problem that hinders the achievement of universal health coverage for women's health (Kinteh *et al*, 2023).

In many countries, screening programs are mandatory for women over 50 years of age. This is due to the higher incidence of breast cancer in older women, consideration of the cost-benefit ratio, and past fears about radiation risks in younger women (Shabani *et al*, 2019) (13).

In Albania, an awareness campaign, called Pink October, has been running for years with the aim of its early detection (ISHP, 2020).

This study aimed to identify the level of knowledge of women about risk factors and signs of breast cancer and to assess comprehensively and practically breast cancer screening over 40 years of age in the prefecture of Elbasan.

2. Methodology

This was a cross-sectional study conducted among women from the Elbasan region. The study aimed to assess women's knowledge of breast cancer risk factors and their practices regarding breast cancer screening using imaging methods.

The study was conducted between December 2024 and February 2025. This study was conducted with the approval of the Ethics Committee of the University of Elbasan "Aleksandër Xhuvani" (Prot. No. 736).

The survey was distributed via the WhatsApp platform, using participants' phone numbers. Confidentiality and anonymity were ensured, and the online format allowed for private responses. The questionnaire used neutral language, and stratified proportional random sampling was used to select the study sample from each area.

Using the simplified Yamane sampling formula (Israel, Glenn D, 1992), we calculated a sample size of 398 participants, with a 95% confidence interval and a 5% margin of error based on the population size

All women aged 40 to 65 years. Women under and above this age were excluded from the study.

The survey underwent validation by two epidemiologists and one public health specialist to ensure its reliability and validity. The survey consisted of three sections. The first section included questions related to participants' demographics, including age, education level, employment, and marital status. In the second section, participants were queried about their personal experience with breast cancer, as well as whether they had a family member or friend who had been diagnosed with the disease.

Statistical analyses were done using IBM SPSS Statistics for Windows software version 21. Descriptive statistics of frequency tables, cross-tabulation, and percentages were constructed using the software. The relationships between knowledge of breast cancer and participants' age, marital status, and educational level were examined using the chi-squared test ($\chi2$).

2.1 Limitations

While the Yamane formula offers a practical method for estimating sample size under the assumption of simple random sampling, it does not account for population heterogeneity. This can limit the representativeness of the sample, especially when the population includes distinct subgroups or varying characteristics. Additionally, the study's focus on a specific age group restricts the generalizability of the findings. Future research could benefit from including a broader age range. Moreover, the reliance on self-reported data introduces the potential for reporting bias, as participants may underreport or overreport certain information. Finally, the use of a structured questionnaire limits the depth of responses, as it does not allow for follow-up questions or elaboration, potentially omitting important nuances in participants' perspectives.

3. Results.

The study included 398 women aged 40-65, an age group that is eligible for mammography according to the national breast cancer protocol, which currently recommends women over 40 to undergo mammography (Laçi *et al*, 2023).

3.1 General characteristics of respondents

Among the participants, 32.9% were from rural areas, while 67.1% were from urban areas. The average age of the interviewees was 48,03±2,21. The majority (42.9%) were between 40 and 45 years old, while 12,1% were 56 -60 years old. Of all participants, 92% were married, 2,3% were single, 4,3% divorced, and 1,5% were widows. Regarding the number of children, they have an average of 1.93 children ±0.23, where 68.3% had two children, 10.6% had three children, and the same number of women had four children. There were 15 women with five children, and the remaining women were single, with only one woman having five children.

Table 1. Distribution of participants by demographic characteristics

Variables	Categories	Frequency (no)	Percentage (%)
Age	40-45 years	171	43.0
	46-50 years	92	23.1
	51-55 years	87	21.9
	56-60 years	48	12.1
Residence	rural	131	32.9
	urban	267	67.1
Marital status	single	9	2.3
	divorced	17	4.3
	married	366	92.0
	widower	6	1.5

3.2 Level of knowledge

The level of knowledge about predisposing factors for breast cancer was satisfactory. The mean knowledge score was 5 out of 6, with an overall correct response rate of 86.4%. However, only 57.3% identified heredity as a risk factor for breast cancer.

Table 2. Level of knowledge about risk factors by residence

	Menarche	Family history of breast cancer	Age of menopause	Number of births	Breastfeeding	Age at birth of first child	p-value
rural	*4(1%)*	*81(20,4%)*	*36(9,1%)*	*9(2,3%)*	*1(0,3%)*	-	*0,001*
urban	50 (12,6%)	147(36,9%)	49(12,3%)	6(1,5%)	15(3,8%)	-	

A chi-squared test was performed to assess the association between knowledge of breast cancer risk factors and family history of the disease. The results showed a statistically significant association between the variables ($\chi^2 = 30.18$, df = 4, p < 0.001).

Women from urban areas and those with a family history of breast cancer demonstrated significantly higher knowledge scores (p<0.001).

The main source of information is health personnel, 41.7% (no=166), followed by television and friends with the same value, 22.4% (no=89). Media sources, including television, newspapers, and magazines, served as an information source for 23.2% of respondents.

But by analyzing the relationship between place of residence (city/village) and sources of information on breast cancer reported by women, a statistically significant relationship between the variables resulted, $\chi^2(6, N = 398) = 27.96$, $p < .001$. Women in urban areas were more likely to be informed through media channels, while those in rural areas relied more heavily on personal networks such as friends and family members.

Table 3. Relationship between information source and residence

	rural		**urban**	
	Frequency (no)	Percentage (%)	Frequency (no)	Percentage (%)
Newspaper	0	0	2	0.5
Staff	61	15,3	105	26,4
Magazine	1	0.3	0	0
Friends	41	10,3	48	12
Relatives	0	0	20	5
Television	24	6	65	16,3
Other	4	1	27	7

3.3 Health situations related to breast problems

Overall, 14.3% of respondents reported experiencing breast-related issues, while at the time of the study, only 6.2% had breast problems, one of the pathologies (breast pain, lump, itching, redness, discharge, change in shape). 31.7% reported that they had had a breast examination, but 67.8% of women had never visited a healthcare center for breast-related concerns, and 44% reported never receiving breast health information during medical visits.

Table 4. The relationship between past breast problems and visits to identify pathologies.

		Did you have any visits to identify breast problems?	
		no	yes
Breast-related problems	no symptoms	254 (63,8%)	87 (21,9%)
	breast pain	10 (2,5%)	17 (4,3%)
	breast lump	2 (0,5%)	17 (4,3%)
	itching of the breast	2 (0,5%)	-
	change in breast shape	1(0,3%)	-
	breast discharge	-	4 (1%)
	breast redness	3 (0,8%)	1(0,3%)

From the data in this graph, it appears that in cases of chest pain, chest tightness, vaginal discharge and to some extent in cases of breast redness, women were referred to health personnel for a visit, while in cases of itching or changes in the breasts, no visits are reported. This makes us think that the level of education regarding signs is not sufficient.

Table 5. Distribution of participants by demographics, breast cancer history, and imaging practices

Variables	Categories	Frequency (no)	Percentage (%)	p-value
Family history of breast cancer	no	341	85.7	0,001
	yes	57	14.3	
Currently have breast-related problems	no symptoms	370	93	
	breast pain	12	3	
	breast lump	6	1.5	
	itching of the breast	1	0.3	
	change in breast shape	1	0.3	
	breast discharge	3	0.8	
	breast redness	1	0.3	
	missing	4	1	
Have you ever been diagnosed with breast cancer?	no	270	87.8	
	yes	126	11.7	
	missing	2	0.5	
Have you had a mammogram?	no	333	83.7	
	yes	61	15.3	0,004
	missing	4	1	
Have you had a breast ultrasound examination?	no	291	73.1	
	yes	106	26.6	0.004
	missing	1	0.3	

P-value = 0.001, indicating that there is a statistically significant association between family history of breast cancer and either the current diagnosis or symptoms.
P-value = 0.004, indicating that there is a statistically significant association between current breast problems and imaging examinations.

Table 6. Distribution of cases with breast symptoms and medical visits by residence

			Are you currently suffering from breast-related problems?		
			no symptoms	other symptoms	main symptoms
rural	Have you had any visits to identify breast problems?	no	103 (25,9%)	-	3 (0,8%)
		yes	22 (5,5%)	1 (0,3%)	2 (0,5%)
urban	Have you had any visits to identify breast problems?	no	163 (40,9%)	3 (0,8%)	-
		yes	85 (21,3%)	11 (2,8%)	5 (1,3%)

This cross-tabulation shows us that women in the city are more aware of the need to have breast exams, and this is shown by the fact that about 85 women (21.3%), even though they have no symptoms, have had breast exams. Despite the relative advantages of visits and breast cancer screening tools, their use is still relatively underrepresented (Gonzales *et al*, 2018), in a nation with free healthcare, as Albania.

From our data, about 44% of women have received information about the breast, and more than half have not, and because they are women who are predisposed to being affected, they have a greater chance.

Clinical breast examination, carried out in a clinic by a qualified doctor or healthcare practitioner, is a crucial tool for areas where residents have limited access to expensive technical services (Daisy Veitch *et al*, 2019).

Table 7. Relationship between residence, medical visits for breast problems, and mammography screening

		Have you had any visits to identify breast problems?		
Have you had a mammogram?		*no*	*yes*	*p-value*
no	rural	105 (26,3%)	12 (3%)	
	urban	162 (40,7%)	57 (14,3%)	0,000
yes	rural	1 (0,3%)	13 (3,3%)	
	urban	4 (1%)	44 (11,1%)	

In rural areas, 3.3% of individuals who had had a medical check-up had also had a mammogram, compared to only 0.3% of those who had not check-up (p-value = 0.000). In urban areas, 11.1% of those who had had a visit had a mammogram (p-value = 0.000).

Table 8. Distribution of the number of mammography examinations by residence and declaration of mammography

			How many times have you had a mammogram?					p-value
			ever	1 time	2 times	3 times	more	
rural	Have you had a mammogram?	no	118 (29,6%)	-	-	-		
		yes	-	8 (2%)	1 (0,3%)	4 (1%)		0.000
urban	Have you had a mammogram?	no	217 (54,5%)	-		-	-	-
		yes	2 (0,5%)	24 (6%)	13 (3,3%)	6 (1,5%)	3 (0,8%)	

The results showed a statistically significant association between whether women had ever had a mammogram and the frequency of their mammograms ($\chi^2(5) = 297.65$, p < .001), in correlation with breast examinations. This suggests that individuals who had never had a mammogram are concentrated almost exclusively in the group that did not, while those who had done it 1 or more times represent the group that undertook regular examinations. 15.3% of the respondents had had breast examinations and continued with mammography examinations.

Table 9. Distribution of imaging examinations by age group

		40-45	*46-50*	*51-55*	*56-60*	*p-value*
Have you had a mammogram?	no	147 (36,9%)	76(19,1%)	71(17,8%)	43 (10,1%)	0.001
	yes	24 (6%)	16 (4%)	16 (4%)	5 (1,3%)	
Have you had any breast ultrasound examinations?	no	124 (31,1%)	67 (16,8%)	59 (14,8%)	42 (10,6%)	
	yes	47 (11,8%)	25 (6,3%)	28 (7%)	6 (1,5%)	

Chi-square value (χ^2) $\approx$ 25.44

4. Discussion

This study aimed to assess the level of knowledge regarding breast cancer and also the screening measures, as well as to explore some of the sociodemographic barriers that influence women's decisions to undergo breast cancer

screening in the Elbasan region. The participants demonstrated a good level of understanding, including symptoms and risk factors.

Women with a family history of breast cancer were found to possess higher levels of knowledge compared to those without such a history (Rolina K. Al-Wassia, *et al*, 2017). In this study, approximately 57.3% of women identified this as a risk factor, indicating a high level of knowledge, consistent with the findings of Melaku Mekonnen Agidew *et al*, (2025), where the hereditary factor was also given significant importance.

The mean knowledge score was 5 out of 6, with an overall correct response rate of 86.4%. The age at which women gave birth to their first child was not recognized as a risk factor by the participants.

The primary source of information was healthcare personnel, accounting for 41.7% (n=166), followed by television and friends, both at 22.4% (n=89). Media sources, including TV, newspapers, and magazines, were reported as a source of information by 23.2% of respondents. The role of mass media is considered beneficial in raising awareness about breast cancer, a finding supported by studies such as those of Charlotte E. Rees & Peter A Bath (2000), and Mohamadou Halmata *et al*, (2021).

Access to healthcare services, including clinical consultation and at the same time imaging-based screening, remains low, which inhibits early detection and timely intervention. This finding is consistent with similar studies reported in literature (Al-Azri M *et al*, 2020).

Thus, only 31.7% of the interviewed women had undergone routine medical visits to detect breast problems. Medical services were structural barriers that hinder screening and treatment (Sidra Saeed *et al*, 2021), as it results in our study in tables 7 and 8.

This study aimed to assess the relationship between residence, breast health check-up, and mammography. Results showed that women who had breast health check-ups were more likely to have had mammography, both in rural and urban areas. In rural areas, 3.3% of individuals who had had a breast health check-up had also had mammography, compared to only 0.3% of those who had not (p-value = 0.000). In urban areas, 11.1% of those who had had a mammogram, compared to only 1% of those who had not check-up (p-value = 0.000). Even in the study of (Seyedkanani, E et al., 2024), a marked difference is noted, as in our study, between the fact that women had routine visits to identify breast problems and additional imaging examinations. These results highlight the important role of preventive and diagnostic visits in promoting mammography, suggesting the need for more focused educational and health interventions, especially in rural areas.

Most women, especially in rural areas, have never had a medical visit to identify breast problems.

Our study shows a low performance rate for breast cancer screening with either mammography or ultrasound. Similar results were reported in a previous study conducted among 358 Omani women, which showed that less than a quarter of women had not been screened for cancer (Al-Azri M *et al*, 2020), apo dhe ne studimin e (Conte, L et al., 2023), which evidences that participation in free screening also correlates with educational level and geographic area. In another study conducted with women living in Al Sharqia, about 89% of women reported not having a clinical breast exam in the past year, and 92% reported never having a mammography (Charbel El Bcheraoui *et al*, 2015), or another comparative study of (Conte, L et al., 2025), where Chinese women demonstrate lower engagement in clinical checkups, compared to their Italian counterparts.

The age group most predisposed to having imaging examinations was 40-45 years old, and the age group that had the most examinations was 56-60 years old.

Therefore, this research can encourage health care practitioners to advise women to use routine medical visits and, at the same time, undergo imaging examinations to identify the problem in time and to reduce the prevalence of breast cancer.

5. Conclusions

This study revealed statistically significant differences in women's knowledge levels about breast cancer, including awareness of its signs, predisposing factors, and practices related to examination and screening. Overall, knowledge about predisposing factors was found to be satisfactory. However, women residing in urban areas and those with a family history of breast cancer demonstrated significantly higher knowledge scores.

Health personnel were identified as the primary source of information on breast cancer. However, patterns of information access varied by location: women in urban areas were more likely to be informed through media channels, while those in rural areas relied more heavily on personal networks such as friends and family members.

In terms of health status, 14.3% of respondents reported having experienced breast-related issues at some point, although only 6.2% were experiencing such problems at the time of the study.

Notably, the study found a very low level of engagement with breast care services; 67.8% of women had never visited a healthcare facility for breast-related concerns.

Residence also played a significant role in access to mammography services, with urban women having better access. Moreover, there was a statistically significant association between having had a clinical breast examination and the likelihood of having undergone a mammogram or breast ultrasound.

Future research directions may focus on evaluating the impact of health education on improving knowledge

and practices related to breast cancer. Additionally, the role of healthcare professionals and technology in promoting early screening can be explored. Assessing cultural factors and personal perceptions also represents an important area for further investigation.

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