# KNOWLEDGE AND ACTIONS FOR BREAST CANCER PREVENTION: ADVANCING AWARENESS AND PROMOTING EFFECTIVE PREVENTIVE PRACTICES

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**KEYWORDS**
Breast cancer, awareness, prevention, early diagnosis, public health.

**ABSTRACT**

Introduction:
Breast cancer is among the most prevalent diseases affecting women globally, including in Albania. It represents a significant public health issue and remains a leading cause of mortality among women. The burden of breast cancer highlights the critical need for early detection and preventive strategies to mitigate its impact.

Objective:
This study aims to evaluate the level of awareness, knowledge, and behavioral responses regarding early indicators of breast cancer among Albanian women, focusing on the role of educational and preventive initiatives.

Methods:
A cross-sectional quantitative study design was employed using a standardized questionnaire. The survey was developed based on previous national and international research and disseminated online to a randomly selected sample of women across Albanian cities. A sufficiently large sample size was included to ensure broad demographic representation.

Results:
The findings indicated that 57% of participants believe that breast self-examinations should commence after the age of 20, despite recommendations advocating for earlier initiation. Approximately 52.8% reported receiving information about breast self-examination through awareness campaigns and healthcare professionals. Socioeconomic and educational factors were identified as significant determinants influencing women's engagement with preventive measures and early diagnosis practices. Despite ongoing public awareness campaigns, knowledge gaps persist, and regular self-examination practices remain suboptimal among many participants.

Conclusions:
The study highlights the urgent need to enhance health education through targeted awareness campaigns and to improve access to preventive services for women in Albania. Promoting awareness of early symptoms and the benefits of early detection is essential to reducing breast cancer mortality rates and improving women's overall health outcomes.

# INTRODUCTION

Breast cancer is a significant global health issue due to its high incidence and mortality rates among women. According to GLOBOCAN 2018, there were 2.3 million new cases of breast cancer globally, accounting for 11.7% of all cancer diagnoses, with a mortality rate of 6.9% (1). While more prevalent in high-income countries, with an incidence rate of 571 per 100,000 women, it also represents a considerable burden in low-income countries, where the incidence is 95 per 100,000 [1].

In high-income countries, advances in early detection and treatment, along with the implementation of screening programs like biennial mammography for women aged 50–69, have reduced breast cancer mortality by 9–15%, as observed in countries like Spain [2] . However, disparities in awareness and access to preventive measures remain major challenges, particularly in resource-limited settings, leading to late-stage diagnoses.

In Albania, breast cancer poses a growing public health concern. Data from the national cancer registry report approximately 700 new cases annually, with an incidence rate of 50 per 100,000 women as of 2019. The risk is highest among women aged 50–69 years [3]. Despite improvements in diagnostic services and the consolidation of cancer registry data, significant gaps persist in public awareness and early detection practices, leaving many women without access to adequate preventive strategies.

The incidence of breast cancer is more common in high-income countries (571/100,000) than in low-income regions (95/10,000), reflecting the connection with globalization.

Breast cancer remains a global public health dilemma and is currently the most common tumor worldwide. Awareness of breast cancer, public attention, and advances in breast imaging have positively influenced the recognition and screening of breast cancer. Breast cancer is a life-threatening disease in females and the leading cause of mortality among women. Over the past two decades, studies related to breast cancer have led to remarkable progress in our understanding of breast cancer, resulting in further treatments.

Breast cancer mortality is declining in most high-income countries. The role of mammography screening in these declines is highly debated. Screening affects cancer mortality by reducing the incidence of advanced cancers with poor prognosis, while therapies and patient management impact cancer mortality by reducing cancer fatality.

Despite decades of laboratory, epidemiological and clinical research, the incidence of breast cancer continues to rise. Breast cancer remains the leading cause of the burden of cancer-related diseases for women, affecting one in 20 globally and up to one in eight in higher-income countries. Reducing the incidence of breast cancer is likely to require a population-based approach to reduce exposure to modifiable risk factors and a precision preventive approach for identifying women at increased risk and assigning them to specific interventions, such as medication to reduce risk. There is already the capacity to assess a woman's risk of breast cancer using risk assessment models, and these assessments are likely to continue improving over time, especially with the inclusion of newer risk factors, such as polygenic risk and mammographic density[4].

This study aims to assess the level of awareness, knowledge, and preventive practices among Albanian women regarding breast cancer. By addressing these factors, the findings can inform targeted interventions to reduce breast cancer mortality and improve health outcomes for women in Albania.

## Risk Level in Albania

In Albania, the incidence of breast cancer remains lower than the average for European Union countries, but higher than that in Eastern Mediterranean countries. During the period 2015–2019, around 700 new cases were diagnosed each year, while the number of hospitalizations for this disease increased from 328 to 463 per 100,000 inhabitants. Currently, around 8,000 women in the country are living with a history of previous diagnosis of this disease[5]. In terms of regions, the counties of Fier and Korça report the highest incidence rates with 63.8 and 57.9 cases per 100,000 women respectively, compared to the national average of 49. In Tirana, the incidence is slightly above average, while a third of new cases are registered in this county each year. Breast cancer accounts for 17% of cancer cases in women and 6.3% of all cancer deaths. However, for the period 2015–2019, the standardized mortality rate decreased by 14.7%, reflecting improvements in treatment and early diagnosis services1.

## Breast Awareness and Self-Examination

Promoting breast self-examination and raising awareness about this process is vital for women. By knowing the structure and possible changes of the breasts, women can quickly identify any unusual signs. However, self-examination has shown low efficacy in early diagnosis and can lead to unnecessary anxiety. The World Health Organization (WHO) recommends that this process be combined with medical check-ups and education to increase its effectiveness[6].

### National Screening Program

In 2020, Albania adopted the National Breast Cancer Screening Program, which includes breast palpation, mammography and other diagnostic procedures. This program aims to identify cases early, providing efficient treatment according to the best clinical protocols. Services are available in regional hospitals and specialized centers such as QSUT “Mother Teresa”. In addition to diagnostic services, primary care centers play an important role in informing and counseling women, encouraging higher participation in screening processes[7], [8].

# METHODOLOGY

This study explores the relationships between key factors, such as knowledge of breast self-examination, a personal or family history of breast cancer, barriers to healthcare, and warning signs, as predictive variables influencing breast cancer-related behaviors. These behaviors include undergoing clinical breast examinations, consultations, screenings, or failing to perform such activities, and identifying breast-related issues.

A quantitative research design was employed. The study utilized a structured questionnaire developed based on prior national and international research. The questionnaire, hosted on Google Forms, was distributed online from June 2023 to June 2024 to women across Albania. It included an informed consent section to ensure ethical compliance. Data collected were stored securely in Excel and analyzed using correlation models, including Pearson’s correlation test and Chi-square test, to assess relationships between variables.

The research was guided by four questions:

1. Does limited knowledge about breast cancer affect the decision to undergo screening?
2. How does a personal or family history of breast cancer influence participation in consultations or screenings?
3. Do barriers hinder clinical breast cancer examinations?

4. How do warning signs affect self-examinations and the identification of breast-related issues?

The primary hypothesis asserts that low knowledge about breast cancer, a personal or family history, the presence of barriers, and warning signs significantly impact participation in clinical breast examinations, consultations, and screenings, as well as breast-related problem detection.

Based on the aforementioned research problem and its objective, this study aims to test the main hypothesis and these sub-hypotheses:

**Main Hypothesis:** A low level of knowledge about breast cancer, having a previous history of breast cancer or family history, the presence of barriers, and the presence of warning signs influence the response to undergo breast cancer examinations, the realization of consultations and screenings, the performance of clinical breast examinations, and self-examination and clinical breast examination. (Or the identification of an issue related to the breast?)

The purpose of the study is to explore the relationships between the variables related to knowledge about breast cancer self-examination, previous history of breast cancer or family history, the presence of barriers, and the presence of warning signs as independent variables or predictive factors that are believed to influence the response to undergo a clinical breast examination, consultations, and screenings for breast cancer, the non-performance of clinical breast examinations, and self-examination and clinical breast examination. (Or the identification of an issue related to the breast.)

**Sub - hypotheses:**

1. The level of knowledge regarding breast cancer control affects the response to undergo a clinical breast examination.

2. A previous history of breast cancer or family history influences consultations and screenings for breast cancer.

3. The presence of barriers affects the non - performance of clinical breast examinations.

4. The presence of warning sings influences the identification of an issue related to the breast.

**Independent Variables and Dependent Variables**

The selected variables in the study as independent variables include:

- Knowledge about breast cancer
- Personal or family history of breast cancer
- Barriers to healthcare access
- Presence of warning signs

The selected variables in the study as dependent variables include:

- Participation in clinical breast examinations
- Attendance at consultations or screenings
- Failure to perform clinical breast cancer examinations
- Identification of breast-related issues

**Ethical Considerations**

Ethical approval was obtained prior to distributing the questionnaire. The questionnaire included a consent form detailing the study's purpose, assuring confidentiality, and informing participants

of their right to withdraw at any stage. Collected data were securely stored, accessible only to the researchers involved in the study.

# RESULTS

## Demographic information

The demographic profile of the study participants (N=565) reveals a diverse range of characteristics. A significant proportion of participants falls within the younger age groups, with 43.7% of respondents aged 21-30 years, and 25.1% under 20 years old. Fewer participants are represented in the older age brackets, with 13.6% between 31 and 40 years old, 13.5% between 41 and 50 years old, and smaller percentages in the 51-60 years old (2.8%) and over 61 years old (1.2%) categories.
In terms of civil status, the majority of participants are single (59.6%, 337 participants), while 37.5% are married. A small proportion 2.8%, are divorced.
Regarding educational attainment, the largest group of participants holds a Bachelor's degree (65.0%), followed by 20.5% who have completed a Master's degree. A smaller proportion of participants have a secondary education (9.9%), and 2.7% have completed only 9 years of schooling. A minority of participants possess advanced degrees, with 1.8% holding a Doctorate and 0.2% having a specialization. Most participants reside in urban areas, comprising 78.8% of the sample, while 21.2% live in rural areas. When examining reproductive history, a majority of participants (65.0%) have not had children. Among those who have given birth, 15.8% have one child, 14.9% have two children, 2.8% have three children, and 1.6% has four or more children.
This demographic distribution highlights a predominance of younger, highly educated individuals with urban residency, which may influence the findings and responses in relation to the study's objectives (Table 1)

Table 1 Demographic information of the population in the study

| Characteristic | Description | No. (N=565) | % |
|---|---|---|---|
| Age | Under 20 years old | 142 | 25,1% |
| | 21-30 years old | 247 | 43,7% |
| | 31-40 years old | 77 | 13,6% |
| | 41-50 years old | 76 | 13,5% |
| | 51-60 years old | 16 | 2,8% |
| | Over 61 years old | 7 | 1,2% |
| | | | |
| Civil status | Married | 212 | 37,5% |
| | Single | 337 | 59,6% |
| | Divorced | 16 | 2,8% |
| | | | |
| Educational | 9 - years old | 15 | 2,7% |

| | | | |
|---|---|---|---|
| level | Secondary | 56 | 9,9% |
| | Bachelor | 367 | 65,0% |
| | Masters | 116 | 20,5% |
| | Doctorate | 10 | 1,8% |
| | Specialization | 1 | 0,2% |
| | | | |
| Residence | Urban | 445 | 78,8% |
| | Rural | 120 | 21,2% |
| | | | |
| Number of births | None | 367 | 65,0% |
| | A birth | 89 | 15,8% |
| | Two births | 84 | 14,9% |
| | Three births | 16 | 2,8% |
| | Four or more births | 9 | 1,6% |

**Awareness and practices**

The data on participants' awareness and practices related to breast cancer detection reveals several key findings. A significant majority of participants (85.5%) have heard of breast self-examination, while 14.5% have not. Furthermore, a large portion of participants (74.5%) have learned how to perform a breast self-examination, compared to 25.5% who have not received any education on the procedure. In contrast, when it comes to mammography, only 20.4% of participants have ever undergone a mammogram, while the overwhelming majority (79.6%) have not. These findings highlight the importance of awareness campaigns and educational efforts in increasing the likelihood of individuals not only being informed about breast self-examination but also acquiring the necessary skills to perform it. Additionally, the relatively low participation in mammography points to a potential area for intervention and increased education.

Table 2 Awareness and practices responds

| | Yes | No |
|---|---|---|
| Have you heard of breast self-examination? | 85,5% | 14,5% |
| Have you learned how to do a breast self-examination? | 74,5% | 25,5% |
| Have you ever had a mammogram? | 20,4% | 79,6% |
| Total | 565 | |
| Perdormed a Pearson Correlation Test | | |
| Hearing about self-control is correlated with level of learning how to performing it (r=0,6006, p<0,5) *A Pearson correlation test was conducted to examine the relationship between participants' awareness of breast self-examination and their level of learning how to perform it. The results indicate a moderate positive correlation (r=0.6006, p<0.05), suggesting that those who have heard of breast self-examination are more likely to have learned how to perform it.* | | |

## Risk Factors and Screening Behaviors

The analysis of risk factors and medical history related to breast cancer among the participants reveals several noteworthy findings. A small proportion of participants (17.0%) report having a family history of breast cancer, while the majority (83.0%) do not. Similarly, 18.3% of participants have a history of breast cancer in a first-degree relative, while 81.7% do not. In terms of other risk factors, only 5.1% of participants have used oral contraceptive pills for more than five years, while the vast majority (94.9%) has not. A similarly low percentage of participants (6.0%) are past menopause, with 94.0% still in their reproductive years. Of those who are past menopause, only 3.4% have undergone hormonal therapy after menopause, while 96.6% have not. Regarding childhood or adolescent medical history, 4.4% of participants had chest radiation (radiation therapy), while 95.6% did not. In terms of breast health, 6.9% of participants report having had a breast problem in the past, while 93.1% have not. A larger proportion of participants (33.7%) have had a breast ultrasound, while 66.3% have not (Table 3)

Table 3 Risk Factors and Screening Behaviors of the responders

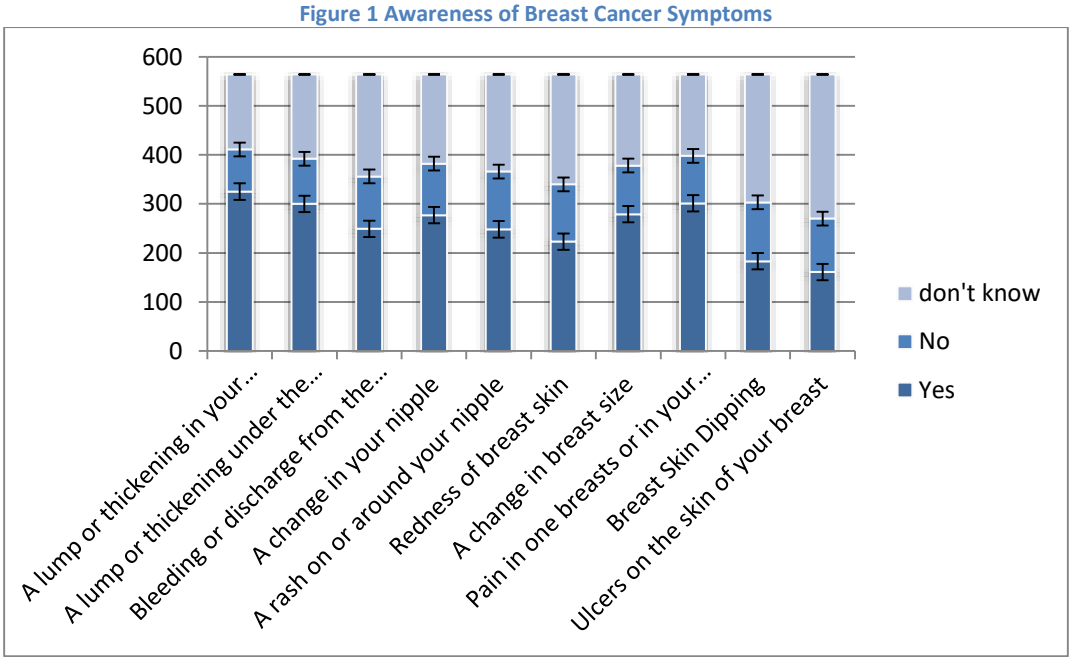
| | Yes | No |
|---|---|---|
| Do you have a family history of breast cancer? | 17,0% | 83,0% |
| Do you have a history of breast cancer in a first-degree relative? | 18,3% | 81,7% |
| Have you used oral contraceptive pills (for more than five years)? | 5,1% | 94,9% |
| Are you past menopause? | 6,0% | 94,0% |
| If Yes, have you followed hormonal therapy after menopause? | 3,4% | 96,6% |
| Did you have chest radiation as a child or teenager (radiation therapy)? | 4,4% | 95,6% |
| Have you had a breast problem before? | 6,9% | 93,1% |
| Have you had a breast ultrasound? | 33,7% | 66,3% |
| Total | 564 | |
| Performed a **Chi-Square test of independence** | | |
| There is a statistically significant association betëeen having a family history of breast cancer and performing a breast ultrasound ($\chi^2$): 41.51; df=1; p<0,5) | | |
| There is a statistically significant association between having had a breast problem and performing a breast ultrasound, This indicates that women who have had a breast problem are significantly more likely to undergo a breast ultrasound. (($\chi^2$): 125.40; df=1; p<0,5) | | |
| There is a statistically significant association between receiving radiation therapy during childhood/adolescence and performing a breast ultrasound ($\chi^2$): 157.07; df=1; p<0,5) | | |

## Awareness of Breast Cancer Symptoms

The table presents the responses regarding participants' knowledge of the warning signs of breast cancer. The results indicate varying levels of awareness about common symptoms. A significant

proportion of participants identified a 'lump or thickening in the breast' as a warning sign, with 325 (57.6%) respondents acknowledging this symptom. Similarly, 300 (53.2%) participants recognized a 'lump or thickening under the armpit' as a potential sign of breast cancer. Fewer participants were aware of other symptoms. 'Bleeding or discharge from the breast' was recognized by 249 (44.1%) respondents, while 277 (49.2%) identified 'a change in the nipple' as a warning sign. 'A rash on or around the nipple' was noted by 248 (44.0%) participants, and 223 (39.5%) recognized ' redness of breast skin'. Other symptoms, such as a'change in breast size' (279, 49.5%) and 'pain in one breast or in the armpit' (301, 53.3%), were also acknowledged by a significant number of participants. However, less awareness was noted regarding 'breast skin dipping' (183, 32.4%) and 'ulcers on the skin of the breast' (161, 28.5%) (Figure 1).

Figure 1 Awareness of Breast Cancer Symptoms




In the section on warning signs of breast cancer, the collected data revealed that a significant number of participants in the study are aware that the appearance of a sign in the breast may be a warning of breast-related issues or a warning sign of breast cancer.
Respondents show a higher awareness of classic warning signs like lumps, pain, and changes in breast size or nipple, while there is notably lower awareness regarding skin-related symptoms like redness, dimpling, and ulcers.

## CONCLUSION AND DISCUSSIONS

This study aimed to assess awareness and practices related to breast cancer prevention among women. The findings highlight the crucial role of education and awareness in influencing health behaviors. Similar studies have demonstrated that higher education levels correlate with greater awareness of breast cancer and its prevention[9].
The results of this study reinforce the idea that social networks and access to information contribute significantly to breast cancer awareness, as women with higher educational backgrounds were more likely to be informed about the disease.The findings underscore the

impact of informational campaigns on encouraging early detection behaviors, particularly breast self-examination. Previous research has shown that women who receive proper education about breast cancer prevention are more likely to engage in self-examinations[10]. This study supports these conclusions, as participants who were aware of breast self-examination were more likely to adopt preventive practices. Furthermore, a strong correlation was found between having experienced breast issues and seeking diagnostic tests such as ultrasound, consistent with other studies that found women with previous breast concerns are more likely to pursue further medical evaluations[11].

Although participants demonstrated awareness of classic warning signs like lumps and changes in breast size, there was a notable gap in knowledge regarding other symptoms, such as skin changes, which was also highlighted in similar research[12]. This suggests the need for more comprehensive educational campaigns that address all potential signs of breast cancer, not just the more visible or well-known ones.

Additionally, the study revealed a discrepancy in the recommended age to start breast self-examination. While public health guidelines suggest starting self-examinations before the age of 20, many participants believed it should begin later. Similar findings have been reported in other studies, which suggest that women often start self-examination later than recommended[13]. This highlights the importance of revisiting public health messages and guidelines to encourage earlier self-monitoring and preventive actions.

**Recommendations**

Based on the findings, the following recommendations are made to enhance breast cancer prevention and early detection:

**Promote Early Self-Examination:** It is essential to encourage breast self-examination starting at age 20. Research supports the idea that early self-examination can lead to better outcomes, particularly if combined with regular screenings[14]. Educational campaigns should emphasize the importance of beginning self-monitoring at a younger age.

**Expand Awareness Campaigns:** Public health organizations should intensify awareness campaigns that not only focus on classic warning signs but also include less-known symptoms such as skin changes and nipple discharge. Studies have shown that comprehensive awareness campaigns lead to improved detection rates[15]. Utilizing diverse media platforms, such as social media, television, and print, will help extend the reach of these initiatives.

**Increase Access to Screening:** Organizing free screening days, especially for underserved communities, can help ensure that women have access to the necessary diagnostic services. Similar initiatives have successfully improved early detection rates [16]. Additionally, regular mammograms and ultrasounds should be promoted for women over 40 or those with a family history of breast cancer.

**Address Barriers to Screening:** Identifying and addressing barriers that prevent women from participating in breast cancer screening, especially among ethnically diverse populations, is crucial. Previous studies have highlighted the importance of tailored interventions that cater to the specific needs of these groups to increase screening adherence[17].

**Strengthen Health Education:** Ongoing health education initiatives should be supported to raise awareness about breast cancer prevention and screening programs. Other studies have demonstrated that when women are well-informed, they are more likely to engage in preventive

actions and seek medical care [18]. Ensuring widespread dissemination of information will improve overall compliance with screening recommendations.

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**Ethical Approval:** Prior to data collection, approval was obtained from the Faculty of Medical Sciences at Albanian University.

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