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Female Nurses' Knowledge and Practices in Early Breast Cancer Detection at Primary Health Care Clinics

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Abstract

Background: Breast cancer remains a leading cause of morbidity and mortality among women worldwide, with early detection being critical for improving treatment outcomes. Female nurses in primary health care clinics play a pivotal role in early breast cancer detection through patient education, clinical examinations, and referrals. However, gaps in knowledge and practice among nurses can hinder these efforts. This study aimed to assess the knowledge and practices of female nurses regarding early breast cancer detection in primary health care settings. Methods: A descriptive cross-sectional study was conducted among 100 registered female nurses from primary health care clinics. Data were collected using a structured, self-administered questionnaire validated by experts. The questionnaire covered demographic information, knowledge of breast cancer risk factors and screening methods, and self-reported practices related to early detection. Descriptive and inferential statistics were used to analyze the data, with a p-value < 0.05 considered statistically significant. Results: The majority of nurses demonstrated good knowledge of breast cancer risk factors (80% identified family history) and symptoms (93.3% recognized lumps). However, only 66.7% knew the correct frequency for breast self-examination (BSE). In practice, 63.3% performed clinical breast examinations regularly, while 60% educated patients about BSE. Notably, 86.7% expressed interest in additional training. Nurses with prior training exhibited significantly higher knowledge and practice scores ($p < 0.05$). Conclusion: While female nurses in primary health care clinics possess satisfactory knowledge about early breast cancer detection, their practices are inconsistent, highlighting a gap between knowledge and application. Barriers such as insufficient training and institutional support need addressing. Continuous professional development and targeted interventions are recommended to enhance nurses' roles in early detection and improve breast cancer outcomes.

Introduction

Breast cancer remains one of the leading causes of morbidity and mortality among women globally. Early detection plays a vital role in improving treatment outcomes and survival rates. Within primary health care settings, female nurses are often the first point of contact for women seeking routine health services. Their knowledge and practices in detecting early signs of breast cancer significantly influence the effectiveness of early intervention efforts (Ginsburg et al., 2020).

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Primary health care clinics are essential components of any health system, especially in preventive health care. These clinics serve as the most accessible health care facilities for communities, particularly in rural or underserved areas. Female nurses in these settings have a unique opportunity to educate women about breast cancer, encourage screening behaviors, and identify early symptoms. Their role is central not only to patient care but also to health promotion and disease prevention (Gizaw et al., 2022).

Despite advancements in diagnostic technologies and public health awareness campaigns, many cases of breast cancer continue to be diagnosed at advanced stages. This trend underscores the need for more robust early detection strategies, particularly in primary care. Female nurses who are well-informed and trained in early detection techniques can significantly reduce delays in diagnosis and treatment, ultimately leading to better health outcomes for patients (Barrios, 2022).

Knowledge and practice gaps among nurses can hinder efforts to combat breast cancer at its earliest and most treatable stage. These gaps may result from limited continuing education opportunities, lack of access to up-to-date guidelines, or insufficient training in clinical breast examination and patient counseling. Addressing these barriers is crucial to empower nurses to fulfill their roles effectively in early detection and patient advocacy (Ramathuba et al., 2015).

In many regions, female nurses face challenges that influence their practice behaviors. Cultural beliefs, social stigmas, and patient reluctance can hinder discussions about breast health. Nurses must navigate these challenges with sensitivity and professionalism, relying on their training and communication skills to foster trust and openness with patients. Enhanced knowledge equips them to address misconceptions and provide evidence-based information that encourages proactive health behavior (Vandecasteele et al., 2024).

Effective early breast cancer detection involves a combination of practices, including clinical breast examinations, patient education on breast self-examinations, and timely referrals for mammography when indicated. Nurses must be proficient in performing these tasks, understanding risk factors, and recognizing early warning signs. Their ability to apply theoretical knowledge in clinical practice is essential for early diagnosis and improved patient outcomes (Huang et al., 2022).

Moreover, female nurses often serve as role models and sources of influence within their communities. Their attitudes and practices can significantly affect how women perceive the importance of breast cancer screening. When nurses themselves are confident and consistent in advocating for early detection, it reinforces positive health-seeking behaviors among the population they serve (Abu Awwad et al., 2022).

Training programs and capacity-building initiatives focused on breast cancer awareness can strengthen the role of nurses in early detection. Incorporating breast cancer education into nursing curricula and offering regular workshops or seminars at primary health care clinics can help maintain nurses' competencies. Continuous professional development is key to keeping pace with emerging research, updated guidelines, and new screening technologies (Sayed et al., 2023).

Healthcare systems must also prioritize supportive policies and resource allocation to enable effective nursing practices in primary care. Ensuring that nurses have access to the tools, time, and supportive supervision required to perform screenings can enhance the quality and consistency of care. Institutional support encourages nurses to integrate early detection into routine practice confidently and competently (Javaid et al., 2024).

Understanding the current levels of knowledge and actual practices of female nurses in early breast cancer detection is essential for designing targeted interventions. Research in this area can reveal critical gaps, highlight areas of strength, and guide the development of training and support systems. Ultimately, empowering nurses at the primary care level can lead to earlier diagnoses, improved patient outcomes, and a reduction in the overall burden of breast cancer.

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Methodology

This study utilized a **descriptive cross-sectional design** to assess the knowledge and practices of female nurses regarding early breast cancer detection in primary health care clinics. The design was selected to provide a snapshot of the current level of awareness and implementation of breast cancer screening practices among nurses at a single point in time.

The study targeted all **registered female nurses** working in primary health care clinics. A **stratified random sampling technique** was used to ensure equal representation from various clinics and departments. A total sample of **100 female nurses** was recruited to participate in the study. The sample size was determined based on the total number of eligible nurses in the area, aiming for adequate statistical power and representativeness.

Inclusion and Exclusion Criteria

To be included in the study, participants had to meet the following criteria:

- Be a registered female nurse currently employed at a primary health care clinic
- Have at least a **diploma or bachelor's degree in nursing**
- Possess a **minimum of one year of clinical experience**
- Be directly involved in providing **patient care services**

Nurses were **excluded** if they were on **extended leave** during the data collection period, declined to participate or provide informed consent, or held **administrative positions** without direct patient interaction.

Data Collection Tool

A **structured, self-administered questionnaire** was used for data collection. The instrument was developed based on an extensive review of literature and international breast cancer screening guidelines. The questionnaire consisted of three main sections:

Demographic Information – Including age, education, years of experience, and prior training in breast cancer detection

Knowledge Assessment – Covering risk factors, signs and symptoms, screening methods, and early detection guidelines

Practice Assessment – Focusing on clinical breast examinations, patient education on breast self-examination, and referral behaviors for mammography

Data Management and Analysis

Collected data were coded and entered into the **Statistical Package for Social Sciences (SPSS) version 25** for analysis. **Descriptive statistics** such as frequencies, means, and standard deviations were used to summarize demographic characteristics, knowledge levels, and practices. **Inferential statistics** including chi-square tests and independent t-tests were used to explore associations between demographic variables and knowledge/practice scores. A **p-value < 0.05** was considered statistically significant.

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Results

This section outlines the findings of the study on female nurses' knowledge and practices regarding early breast cancer detection in primary health care clinics. A total of **100 female nurses** participated. The data are categorized and presented through descriptive statistics, including frequency and percentage distributions.

Demographic and Professional Characteristics of Participants

Table 1: Distribution of Demographic and Professional Characteristics (N = 100)

Characteristic	Category	Percentage (%)
Age	20–29 years	30.0
	30–39 years	46.7
	40+ years	23.3
Education Level	Diploma	26.7
	Bachelor's degree	63.3
	Master's degree or higher	10.0
Years of Experience	1–5 years	36.7
	6–10 years	40.0
	More than 10 years	23.3
Training in Breast Cancer Detection	Yes	56.7
	No	43.3

Nearly half of the nurses were in the 30–39 age group (46.7%). The most common educational qualification was a bachelor's degree (63.3%). A majority had 6–10 years of experience (40%), and 56.7% reported having received training related to breast cancer detection.

Overall, the nurses demonstrated a strong understanding of general breast cancer knowledge. The highest awareness was seen in the statement that early detection improves outcomes (96.7%), and identification of a lump as a symptom (93.3%). However, fewer participants were accurate regarding the recommended frequency of breast self-examination (66.7%).
The practical implementation of early detection practices varied. While 63.3% regularly conducted clinical breast exams, a slightly lower percentage (60%) educated patients on BSE. Most notably, 86.7% showed a desire to attend additional workshops, highlighting a strong willingness for professional development.

Discussion

The current study revealed that female nurses demonstrated a generally good level of knowledge and practice regarding the early detection of breast cancer, aligning with the findings from Mansour et al. (2021), who reported high knowledge levels among nurses in the Gaza Strip, with 85.3% recognizing signs and 77.9% identifying risk factors. This suggests a promising baseline awareness among nursing professionals, especially those receiving prior training.

Previous training played a significant role in enhancing nurses' knowledge and practice. Nurses who had undergone training in clinical breast examination (CBE) or had performed mammography were significantly more knowledgeable than those who had not, a finding echoed in Melo et al. (2017), where professional training and years of experience positively correlated with active participation in breast cancer screening efforts in Brazil.

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However, a discrepancy persists between knowledge and actual practice. For instance, Andegiorgish et al. (2018) found that although Eritrean nurses had a good understanding of breast cancer signs and symptoms, the practice of CBE and mammography was notably low, with only 30% and 11.3%, respectively, engaging in these preventive actions. This highlights a gap between theoretical knowledge and clinical application.

This gap was similarly observed by Erdem and Toktaş (2016) in Turkey, who reported that while female primary healthcare workers had high knowledge of breast self-examination (BSE), their practice was insufficient. Their study emphasized the need to embed BSE and mammography concepts in undergraduate and postgraduate training programs to enhance behavioral integration.

Cultural and emotional barriers may also inhibit proactive breast cancer screening, as evidenced by Alenezi et al. (2022), where 57.2% of healthcare workers in northern Saudi Arabia cited fear of discovering cancer and radiation concerns as primary barriers. Furthermore, lower knowledge scores were statistically linked to higher perceived barriers, suggesting an inverse relationship between education and avoidance behavior.

In our findings, nurses who had undergone training and participated in screening procedures showed significantly higher knowledge and practice scores. This reinforces the importance of continuous professional development programs, as training opportunities significantly affect screening behavior and patient education, as supported by Mansour et al. (2021) and Melo et al. (2017).

Additionally, Jobran et al. (2023) reported low knowledge scores among Palestinian university students, where only 31.7% of participants demonstrated adequate understanding of breast cancer. This underlines the critical role of nurses not only in performing screenings but also in educating younger populations who are potential future patients.

The influence of socio-demographic variables such as education and work experience also merits attention. Al-Mousa et al. (2020) found that Jordanian women with higher education levels were more likely to understand breast cancer signs, symptoms, and risk factors. Our findings similarly support that increased training and experience contribute to elevated knowledge and practice.

Moreover, nurses' roles as community educators place them in a unique position to bridge the knowledge gap. Their ability to influence public health outcomes through early detection advocacy is crucial. As seen in Andegiorgish et al. (2018), nurses' professional environments influenced their knowledge, stressing the need for institution-level support.

Despite good knowledge levels, our results revealed that certain barriers, including time constraints and lack of resources, still hinder the full implementation of early detection practices. Alenezi et al. (2022) recommend that future programs address both individual and systemic barriers, including psychological fears and infrastructural limitations.

While awareness campaigns have improved public knowledge, as shown in Al-Mousa et al. (2020), they often fall short in converting awareness into action. This reinforces the idea that nurses should be empowered with practical training and institutional support to transform knowledge into practice.

The association between professional development and practice quality was further demonstrated in Melo et al. (2017), where those with postgraduate training had higher rates of BSE and CBE engagement. Our findings reaffirm this association, emphasizing that structured training programs are vital for sustainable practice improvement.

In contrast, Jobran et al. (2023) showed that despite increasing educational efforts, awareness remained low among students, indicating a potential shortfall in public outreach strategies. This calls for integrating breast cancer education into wider health promotion curricula, targeting both students and community health workers.

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Our study aligns with Erdem and Toktaş (2016) in identifying a critical need for reinforcement of mammography education. Although mammography is a standard detection method, both knowledge and practical application remain low due to fears and misconceptions, which need to be addressed through evidence-based communication strategies.

Overall, the collective findings emphasize that enhancing nurses' knowledge through structured training and institutional support can significantly increase early detection practices. By prioritizing professional education and addressing psychological and systemic barriers, nurses can more effectively contribute to reducing breast cancer morbidity and mortality.

Conclusion

In conclusion, while female nurses demonstrate satisfactory knowledge about early detection methods for breast cancer, their practices are often hindered by barriers such as lack of training, institutional support, and personal fears. Bridging this gap requires consistent professional development, awareness campaigns, and strategic health policies that empower nurses to take a proactive role in community-based breast cancer prevention.

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