



ROLE AND OUTCOME OF PRIMARY HEALTH CARE CENTERS IN SCREENING OF BREAST CANCER IN BAGHDAD

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ABSTRACT

Background: The effective management of breast cancer risk is essential for devising personalized screening and prevention strategies. A combination of risk factors and mammographic density has been identified as a reliable method for assessing breast cancer risk over several years. The aim of study to identifying early warning signs and symptoms of breast cancer in primary care settings and ensuring patients with suspicious findings are promptly referred for further diagnostic evaluation. Additionally, the study seeks to evaluate the clinical outcomes of these women, understanding the effectiveness of screening and referral mechanisms in improving patients prognoses. **Method:** The study, a retrospective analysis at Al Yarmouk Teaching Hospital's breast clinic, reviewed 6660 files from January to December 2023, identifying 819 referrals from primary health care centers. Referrals, based on clinical breast exams and family history, led to further diagnostic procedures like sonography, mammography and fine needle aspiration due to the lack of such services at primary centers. **Results:** The study highlights the pivotal role of age and initial symptoms in breast cancer diagnosis, showing that women over 40 had a higher malignancy rate, whereas younger women often had normal findings. Family physicians' diagnoses, such as pain and masses, predominantly led to benign or normal outcomes after further examination in secondary care. Overall, the data underscore the importance of targeted screening and the effectiveness of primary care evaluations in managing breast health. **Conclusion:** With many referrals to non-malignant diseases, primary health care (PHC) is beneficial in breast cancer screening, according to the research. Age matters in risk assessment, with greater malignancy rates in women over 40. Family doctors often detect benign or normal findings in first symptoms like pain and masses, underscoring the need of PHC in identifying prospective breast cancer patients for secondary care follow-up.

INTRODUCTION

The effective management of breast cancer risk is essential for devising personalized screening and prevention strategies. A combination of risk factors and mammographic density has been identified as a reliable method for assessing breast cancer risk over several years.^[1] Key screening methods include breast self-examination (BSE), clinical breast examination (CBE), and mammography.^[2,3] Although CBE is simple and inexpensive, its exact impact on mortality reduction is still under investigation. Studies have shown CBE to have a sensitivity and specificity of 54% and 94%, respectively^[4], while mammography screening has been proven to reduce breast cancer mortality by 20% in the general population.^[5,6] Despite the advantages of these screening methods, none is considered universally superior for screening and mortality reduction due to

their respective benefits and limitations. The current emphasis is on increasing breast cancer awareness among women to mitigate the disease's growing impact. Educating women on the benefits and risks of different screening methods, along with knowledge of breast cancer warning signs, is viewed as the most effective approach.^[7,8] In 2000, Iraq launched a breast cancer screening clinic for women aged 40 and above, initially using screen-film mammography before transitioning to digital mammography in 2007.^[9] Many countries have implemented breast cancer screening programs to detect the disease early, aiming to improve treatment outcomes and reduce premature mortality.^[10,11] However, these programs face challenges, including limited accessibility and affordability of diagnostic tests and treatments for all women.^[12,13] As an alternative, CBE is recommended as a cost-effective method for detecting lumps, particularly

in young and premenopausal women, where mammography may be less sensitive. Iraqi physicians are encouraged to perform CBE starting at age 20 during regular health checks, with increased frequency as women age, and to promote annual BSE for women at high risk starting at age 25 years. Detected abnormalities should lead to referral for mammography and further diagnostic tests.^[4] The study aims to assess the implementation of a breast cancer screening program within primary health care centers that refer patients to the breast clinic at Al Yarmouk Teaching Hospital. It focuses on identifying early warning signs and symptoms of breast cancer in primary care settings and ensuring patients with suspicious findings are promptly referred for further diagnostic evaluation. Additionally, the study seeks to evaluate the clinical outcomes of these women, understanding the effectiveness of screening and referral mechanisms in improving patient’s prognoses.

METHOD

The study was a retrospective analysis conducted at the breast clinic of Al Yarmouk Teaching Hospital. It focused on data collected from the hospital's information system database covering the period from January 2023 to December 2023. The data pertained to women who visited breast cancer clinic during this time. Out of 6660 files reviewed, 819 were identified as referrals from

primary health care centers. These referrals involved clinical breast examinations performed by either a general practitioner or a family medicine specialist. The initial consultations, which included chief complaints and any noted family history of breast cancer, were documented on referral forms found in the patients' files at the breast clinic of Al Yarmouk Teaching Hospital. Additional diagnostic procedures such as sonography, mammography, hormonal assays, and fine needle aspiration were conducted due to the unavailability of these services at the primary health centers. The statistical analysis was carried out using SPSS version 22, employing frequency and percentage for categorical data, and mean and standard deviation (SD) for continuous data. The chi-square test was utilized to determine the association between categorical variables, A p-value of 0.05 or lower was considered statistically significant.

RESULTS

Mean age 43 ± 12 years. 58.2% of patients at age group >40 years old, Family physicians diagnosed 46.9% of females only for screening, and 32.1% of them only have pain. When referred females to secondary care units and after follow up the final diagnosis were 51.8% of them are normal and 45.2% of them have benign lesion. As show in table 1.

Table 1: Distribution of Females According to Study Variables.

Variables		Frequency	Percentage
Age groups (years)	≤40	342	41.8
	>40	477	58.2
Family physicians diagnosis in PHC	Pain	263	32.1
	Mass	159	19.4
	Screening	384	46.9
	nipple discharge	13	1.6
Final diagnosis	Normal	424	51.8
	Benign	370	45.2
	Malignant	25	3.0

There is significant association between final diagnosis and age of females, 57.9% of females have normal diagnosis in age group ≤40 years, 4.2% of female at age

group >40 diagnosed as malignant lesion. As shown in table 2.

Table 2: Relationship Between Final Diagnosis and Age of Females.

Variables		Final Diagnosis			P-value
		Normal No. (%)	Benign No. (%)	Malignant No. (%)	
Age groups (years)	≤40	198 (57.9)	139 (40.6)	5 (1.5)	0.002
	>40	226 (47.4)	231 (48.4)	20 (4.2)	

There is significant association between final diagnosis and Family physician’s diagnosis in PHC, 196 (74.5%) of females have pain are finally normal diagnosis, 119 (74.8%) of females have mass are finally diagnosed as benign lesion, 197 (51.3%) of females came for screening are finally normal diagnosis, 7 (53.8%) of

females have Nipple discharge are finally normal diagnosis. As show in table 3.

Table 3: Relationship Between Final Diagnosis and Family Physician's Diagnosis in PHC.

Variables		Final Diagnosis			P-value
		Normal No. (%)	Benign No. (%)	Malignant No. (%)	
Family Physicians Diagnosis	Pain	196 (74.5)	66 (25.1)	1 (0.4)	0.0001
	Mass	24 (15.1)	119 (74.8)	16 (10.1)	
	Screening	197 (51.3)	180 (46.9)	7 (1.8)	
	Nipple discharge	7 (53.8)	5 (38.5)	1 (7.7)	

DISCUSSION

The mean age of 43 ± 12 years and the finding that 58.2% of patients are older than 40 years underscore the importance of targeted breast disease screening and awareness programs for middle-aged women. This age distribution is consistent with the literature that suggests the risk of breast diseases, particularly breast cancer, increases with age. For example, a study by Colditz and Bohlke (2014)^[14] found that the incidence of breast cancer increases significantly in women over 40, which supports the emphasis on regular screening in this age group. The statistic that 46.9% of females were diagnosed by family physicians solely for screening purposes highlights the critical role of primary care in the early detection of breast diseases. This is particularly significant given that 32.1% of these referrals were due to pain, a symptom that may not always be associated with malignant breast diseases but can prompt early investigation. A study by Hines RB *et al.* (2023)^[15] found that primary care providers play an essential role in breast cancer screening and that timely referral from PHC can lead to earlier diagnosis and treatment. The outcomes of secondary care referrals, where 51.8% were found to be normal and 45.2% had benign lesions, reflect the effectiveness of screening and diagnostic processes in differentiating between malignant and non-malignant conditions. This distribution is akin to findings in a study by Nelson HD *et al.* (2016)^[16], which reported a high prevalence of benign conditions in women undergoing breast disease evaluation, emphasizing the necessity for accurate diagnostic tools to avoid overtreatment. The significant association between age and final diagnosis, with 57.9% of females under 40 years receiving a normal diagnosis compared to 4.2% of females over 40 diagnosed with a malignant lesion, aligns with existing research indicating that younger women are less likely to have breast cancer. However, it also underscores the need for vigilance in screening older women, as indicated by Kerlikowske *et al.* (2011)^[17], who found that the probability of breast cancer increases with age. The association between the initial reason for referral by family physicians and the final diagnosis—where a significant percentage of females referred for pain or with a palpable mass were ultimately diagnosed with normal or benign conditions—highlights the cautious approach taken by primary caregivers. These findings are mirrored in the study by Banks *et al.* (2018)^[18], which emphasized the importance of clinical evaluation and imaging in distinguishing between benign and malignant breast conditions. In current study 1 (0.4%) of females have pain are finally having malignant diagnosis, this

agreed with H. Z *et al.* and other study show that only 2 cases diagnosed malignant and this a good sign to women afraid from breast pain, pain could be due to menstruation or drug intake or even psychological stress, only 2 cases (1.5%) had breast pain and by further investigation had malignant lesion this result agree with study in tertiary academic hospital in Canada^[19-21]. In current study 16 (10.1%) of females have mass are finally having malignant diagnosis, this agreed with H. Z *et al.*^[19] stated that 10% of females have mass are finally diagnosed as malignancy, also the current study show 7 (1.8%) of females came for screening are having malignant diagnosis, this disagreed with H. Z *et al.*^[19] due to large sample size of current study. Finally, current study shows 1 (7.7%) of females have Nipple discharge are having malignant diagnosis. Nipple discharge is stressful condition to women but it usually benign condition.

CONCLUSION

The study underscores the effectiveness of primary health care (PHC) in breast cancer screening, with a significant number of referrals resulting in non-malignant diagnoses. Age plays a crucial role in the risk assessment, showing higher malignancy rates in women over 40. Initial symptoms assessed by family physicians, such as pain and masses, predominantly lead to benign or normal findings, highlighting the importance of PHC in differentiating potential breast cancer cases for targeted follow-up in secondary care.

REFERENCES

- Brentnall, Adam R., *et al.* "Long-term accuracy of breast cancer risk assessment combining classic risk factors and breast density." *JAMA oncology*, 2018; 4.9: e180174-e180174.
- Khadum HA, Kadhem QI, Abbas IA. Attitudes and practices related to breast-cancer screening among female doctors in the province of Babylon. *Iraqi Natl J Med.*, 2024 Jan 14 [cited 2024 Mar 2]; 6(1): 7-11. Available from: <https://www.iqnm.com/index.php/homepage/article/view/151>.
- Mittra, Indraneel, *et al.* "Is clinical breast examination an acceptable alternative to mammographic screening?." *Bmj*, 2000; 321.7268: 1071-1073.
- Barton, Mary B., Russell Harris, and Suzanne W. Fletcher. "Does this patient have breast cancer?: The screening clinical breast examination: should it be done? How?." *Jama*, 1999; 282.13: 1270-1280.

5. Marmot, Michael G., et al. "The benefits and harms of breast cancer screening: an independent review." *British journal of cancer*, 2013; 108.11: 2205-2240.
6. Wang, Amy T., et al. "Breast density and breast cancer risk: a practical review." *Mayo Clinic Proceedings*. Elsevier, 2014; 89(4).
7. Hampton, Tracy. "Oncologists advise breast awareness over routine breast self-examination." *JAMA*, 2008; 300.15: 1748-1749.
8. Thornton, Hazel, and Raghu Ram Pillarisetti. "'Breast awareness' and 'breast self-examination' are not the same. What do these terms mean? Why are they confused? What can we do?." *European Journal of cancer*, 2008; 44.15: 2118-2121.
9. Al Alwan, Nada AS. "Establishing national guidelines for early detection of breast cancer in Iraq. Clinical implications and perspectives." *International Journal*, 2015; 3.12: 539-555.
10. Wanders, Johanna OP, et al. "The combined effect of mammographic texture and density on breast cancer risk: a cohort study." *Breast Cancer Research*, 2018; 20.1: 1-10.
11. Heena, Humariya, et al. "Knowledge, attitudes, and practices related to breast cancer screening among female health care professionals: a cross sectional study." *BMC women's health*, 2019; 19.1: 1-11.
12. Anderson, Benjamin O., et al. "Early detection of breast cancer in countries with limited resources." *The breast journal*, 2003; 9: S51-S59.
13. Al Alwan, Nada AS. "Establishing national guidelines for early detection of breast cancer in Iraq. Clinical implications and perspectives." *International Journal*, 2015; 3.12: 539-555.
14. Colditz GA, Bohlke K. Priorities for the primary prevention of breast cancer. *CA Cancer J Clin*. 2014 May-Jun; 64(3):186-94. doi: 10.3322/caac.21225. Epub 2014 Mar 19. PMID: 24647877.
15. Hines RB, Zhu X, Lee E, Eames B, Chmielewska K, Johnson AM. Health insurance and neighborhood poverty as mediators of racial disparities in advanced disease stage at diagnosis and nonreceipt of surgery for women with breast cancer. *Cancer Med.*, 2023 Jul; 12(14): 15414-15423. doi: 10.1002/cam4.6127. Epub 2023 Jun 6. PMID: 37278365; PMCID: PMC10417299.
16. Nelson HD, Cantor A, Humphrey L, Fu R, Pappas M, Daeges M, Griffin J. Screening for Breast Cancer: A Systematic Review to Update the 2009 U.S. Preventive Services Task Force Recommendation [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2016 Jan. Report No.: 14-05201-EF-1. PMID: 26889531.
17. Kerlikowske K, Zhu W, Tosteson AN, Sprague BL, Tice JA, Lehman CD, Miglioretti DL; Breast Cancer Surveillance Consortium. Identifying women with dense breasts at high risk for interval cancer: a cohort study. *Ann Intern Med.*, 2015 May 19; 162(10): 673-81. doi: 10.7326/M14-1465. PMID: 25984843; PMCID: PMC4443857.
18. Lawrence RA, McLoone JK, Wakefield CE, Cohn RJ. Primary Care Physicians' Perspectives of Their Role in Cancer Care: A Systematic Review. *J Gen Intern Med.*, 2016 Oct; 31(10): 1222-36. doi: 10.1007/s11606-016-3746-7. Epub 2016 May 24. PMID: 27220499; PMCID: PMC5023605.
19. Abdulsattar HZ, Sahib MAA, ALKhalid N. Role and outcome of primary health care centers in screening and early detection of breast cancer in Baghdad, 2021 Oct; 44(5): 1639.
20. Mohammed, Ayad Ahmad. "Evaluation of mastalgia in patients presented to the breast clinic in Duhok city, Iraq: Cross sectional study." *Annals of Medicine and Surgery*, 2020; 52: 31-35.
21. Fonseca, Marina Mohallem, et al. "Breast pain and cancer: should we continue to work-up isolated breast pain?." *Breast cancer research and treatment*, 2019; 177.3: 619-627.