

KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS BREAST CANCER AMONG REPRODUCTIVE AGE FEMALE IN RURAL COMMUNITY IN BANGLADESH

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ABSTRACT

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Background: Breast cancer is the leading cause of cancer-related morbidity and mortality among women in Bangladesh. This life threatening condition is the second leading cause of death due to cancer in our country. The reason behind the high prevalence rate of the diseases are the poor knowledge, delay in diagnosis and initiation of treatment. Early detection, heavily influenced by public knowledge and screening practices, is critical for improving outcomes. Assessing the awareness level among reproductive-age women in rural community level is essential for designing effective interventions. **Objective:** To evaluate the knowledge, attitudes, and practices (KAP) regarding breast cancer among reproductive-age females attending in the Bhulta, Gawsia local market, Rupgonj, Bangladesh. **Materials and Method:** A descriptive type of cross sectional study was conducted at Rupgonj upazilla in Bangladesh at Bhulta, Gawsia local market from January 2024 to December 2024. Using purposive sampling technique, 280 reproductive-age women (18-49 years) attending in the local market of Gawsia in Rupgonj upazilla were enrolled. Data were collected through a pre-tested, semi-structured questionnaire assessing socio-demographics and KAP components. Statistical analysis was performed using SPSS version 23.0. **Results:** Among 280 participants (mean age 32.1±6.8 years), general awareness was high (98.6%), but detailed knowledge of non-lump symptoms (<42%) and certain risk factors (e.g., never breastfeeding, 23.2%) was poor. Despite positive attitudes toward screening (>82%), preventive practices were critically low: only 19.3% performed regular breast self-examination, and 8.2% had ever undergone a clinical breast examination. Higher education and positive family history of breast cancer were significantly associated ($p<0.01$) with better knowledge and practice. **Conclusion:** A significant attitude-practice gap exists regarding breast cancer among women in rural community in Bangladesh. Integrating structured education and hands-on screening promotion into this facility's routine services is essential to translate awareness into preventive action and improve early detection outcomes.

Keywords: Awareness, Breast cancer, Knowledge-attitudes-practices, Reproductive health, Rural health.

INTRODUCTION

Breast cancer (BC) is a preeminent global public health challenge, holding the distinction of the most commonly diagnosed cancer and a primary cause of cancer-related mortality among women worldwide¹. The burden is increasingly concentrated in low- and middle-income countries (LMICs), where approximately 70% of BC deaths occur, a disparity largely attributable to late-stage presentation and fragmented access to timely, quality treatment². Bangladesh is facing such concerning trajectory. Bangladesh exemplifies this concerning trajectory.

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Recent national estimates confirm BC as the leading malignancy among Bangladeshi women, with a rising age-standardized incidence rate that underscores an urgent and growing threat to women's health and the country's healthcare infrastructure^{3,4}.

The clinical outcome of BC is profoundly dependent on the stage at diagnosis. Early detection facilitates high survival rates through less radical and more cost-effective therapies⁵. While organized mammographic screening programs have driven mortality reductions in high-income settings, such resource-intensive modalities remain largely unimplementable in Bangladesh due to profound systemic constraints⁶. Consequently, the cornerstone of early detection strategy in this context rests on awareness and the practice of breast self-examination (BSE) and clinical breast examination (CBE)—low-cost, accessible methods whose efficacy is fundamentally contingent upon individual knowledge and proactive behavior⁷.

Assessments of Knowledge, Attitude, and Practice (KAP) provide vital epidemiological insights to quantify community awareness, identify pervasive myths, and evaluate the translation of knowledge into preventive action. Research within Bangladesh reveals a critical disconnect: even among urban, educated cohorts where knowledge may be moderate, the practice of regular BSE or uptake of CBE remains disappointingly low^{8,9}.

This gap is markedly wider among the rural and semi-urban majority, who face compounded barriers including limited health literacy, geographical and financial access issues, and deep-seated socio-cultural stigmas that often prioritize curative over preventive care^{10,11}.

To address systemic healthcare gaps, the Government of Bangladesh has embarked on a major health system strengthening initiative through the Strengthening of Secondary Healthcare Provision Project (SSHPP)¹². In Bangladesh incidence rate of breast cancer was about 22.5 per 100000 females. Breast cancer has been reported as the highest prevalence rate (19.3 per 100,000) among Bangladeshi women between 15 and 44 years of age¹³.

Despite the significant burden, there is a scarcity of research specifically focused on breast cancer in our country. Cultural taboo and social stigmas regarding breast cancer can prevent women from seeking timely diagnosis and treatment. In addition our sample includes lower socioeconomic and lower educated women, they are not aware about the knowledge and practices of BSE.

Nevertheless, this study aimed to investigate the knowledge of symptoms, risk factors and importance of early diagnosis of breast carcinoma among reproductive-age women as well as to examine the frequencies of practice of BSE and find out the barrier that are hindering the practice of BSE. Research is needed to identify the specific risk factors for breast cancer in Bangladeshi female population in the countryside. By conducting research in a developing country like ours can address the significant burden of breast cancer, empower women and improve health outcome

MATERIALS AND METHOD

This cross-sectional study, which was prospective in nature, was conducted from January 2024 to December 2024. Data were collected by face-to-face interview using a pre-tested, semi-structured questionnaire, which was translated into Bengali. The data collection tool comprised sections on socio-demographics and detailed items to assess knowledge (risk factors, signs), attitudes (perceived importance, barriers), and practices (self-examination, clinical screening) related to breast cancer.

The study population comprised reproductive-age females (18-49 years) attending the Bhulta local market in RupjonjUpazila in Narayangonj District. Participants were included if they were female, aged between 18 and 49 years, were attending the BhultaGawsia market for any reason, provided voluntary written informed consent, and were capable of understanding and responding to the interview questions. Individuals were excluded if they had a previous personal history of breast cancer, were critically ill or psychologically unfit to participate, or declined to provide consent for the study.

A purposive sampling technique was employed to recruit participants over the study period. The final sample size was 280, calculated using a standard formula (Cochran's formula) for a single population proportion with a 95% confidence level, 5% margin of error, and an assumed proportion of good knowledge set at 50%.

Completed questionnaires were checked for consistency and entered into a computer database. Statistical analysis was performed using SPSS software, version 23.0. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarize the data. Inferential statistics, including Chi-square tests, were applied to determine associations between socio-demographic variables and KAP levels, with a *p*-value of <0.05 considered statistically significant.

RESULTS

The study included 280 reproductive-age women, with a mean age of 32.1 years (SD $\pm$ 6.8). The majority were aged 30-39 (45.7%), married (88.2%), and had completed at least secondary education (58.9%). A significant proportion (61.8%) resided in rural areas nearest to Rupgonjupazilla, and most (72.1%) reported a monthly family income below 30,000 Bangladeshi Taka. Assessment of general awareness revealed that almost all participants (98.6%) had heard of breast cancer. Social media (64.3%) and friends and family (52.9%) were the two most common sources of information. However, deeper knowledge of risk factors showed considerable gaps. While a family history of breast cancer (78.6%) and nulliparity (61.1%) were moderately recognized, understanding of other significant factors was poor: only 38.2% identified late menopause as a risk, and merely 23.2% recognized never breastfeeding as a contributing factor. Regarding early warning signs, a lump in the breast was almost universally known (95.0%). Awareness of other critical signs like nipple retraction (41.8%), changes in breast skin texture (35.7%), and spontaneous nipple discharge (28.9%) was significantly lower. A positive attitude toward breast cancer prevention was observed. A high percentage agreed that breast cancer can be detected early (86.1%) and that regular screening is important (82.5%). Notably, 88.2% of participants believed they could perform Breast Self-Examination (BSE). Despite these favorable attitudes, preventive practices were alarmingly inadequate. Only 19.3% reported ever performing BSE regularly (monthly), and among those who had, the technique was often incorrect. Furthermore, a mere 8.2% had ever undergone a Clinical Breast Examination (CBE) by a healthcare provider. Analysis of factors associated with good knowledge and practice revealed significant relationships. Higher educational attainment (diploma or above) and residence nearest to Narayangonj district were strongly associated with a higher level of comprehensive knowledge. Similarly, the practice of regular BSE was significantly more common among women with higher education, those from urban areas, and those got information from health care workers. Age, marital status, and family income did not show a statistically significant association with knowledge or practice levels in this cohort. Statistical tests confirmed these associations, underscoring the influence of education and access to professional health information on breast cancer awareness and screening behavior.

Table 1: Socio-demographic characteristics of the participants (N=280)

Characteristic	Category	Frequency (n)	Percentage (%)
Age (Years)	18-29	92	32.9
	30-39	128	45.7
	40-49	60	21.4
Marital status	Married	247	88.2
	Unmarried/Other	33	11.8
Educational level	Primary or less	75	26.8
	Secondary	95	33.9
	Higher Secondary	65	23.2
	Diploma/Degree or above	45	16.1
Place of residence	Rural	173	61.8
	Urban	107	38.2
Monthly family income	< 30,000 BDT	202	72.1
	≥ 30,000 BDT	78	27.9

N=number of participants

Table 2: Awareness and sources of information about breast cancer

Aspect	Response	Frequency (n)	Percentage (%)
Ever heard of breast cancer	Yes	276	98.6
	No	4	1.4
Primary source of information	Social media	180	64.3
	Family/friends	148	52.9
	Health care workers	85	30.4
	Television	79	28.2
	Newspaper/Magazine	52	18.6

Participants could select more than one source; hence, percentages do not sum to 100.

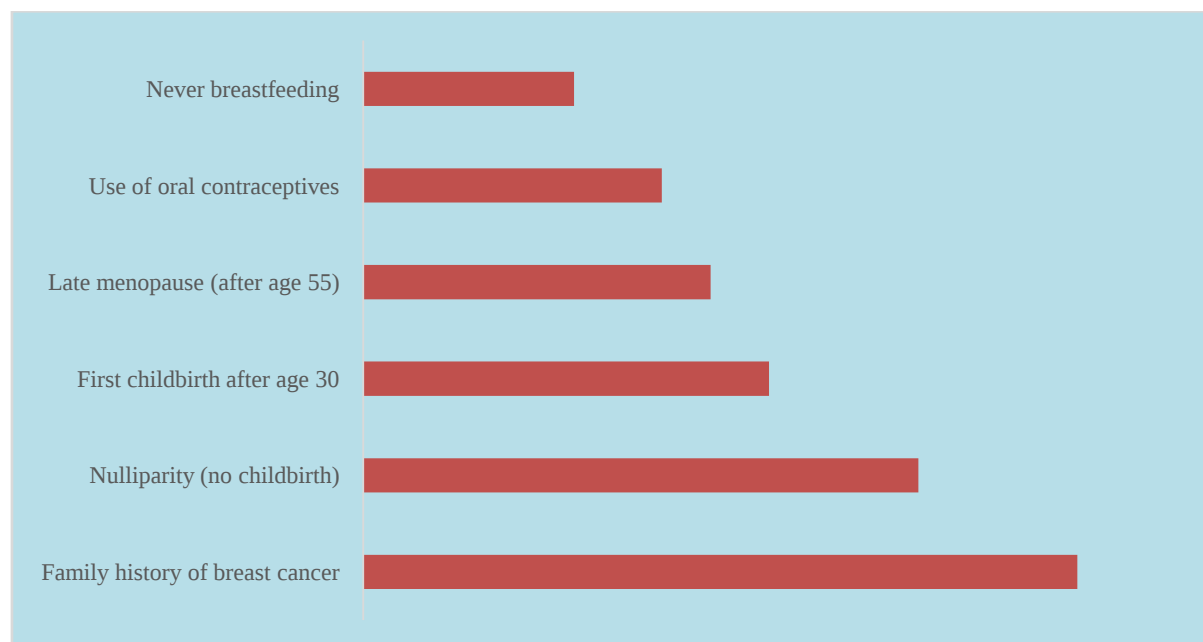


Figure 1: Knowledge of breast cancer risk factors (N=280)

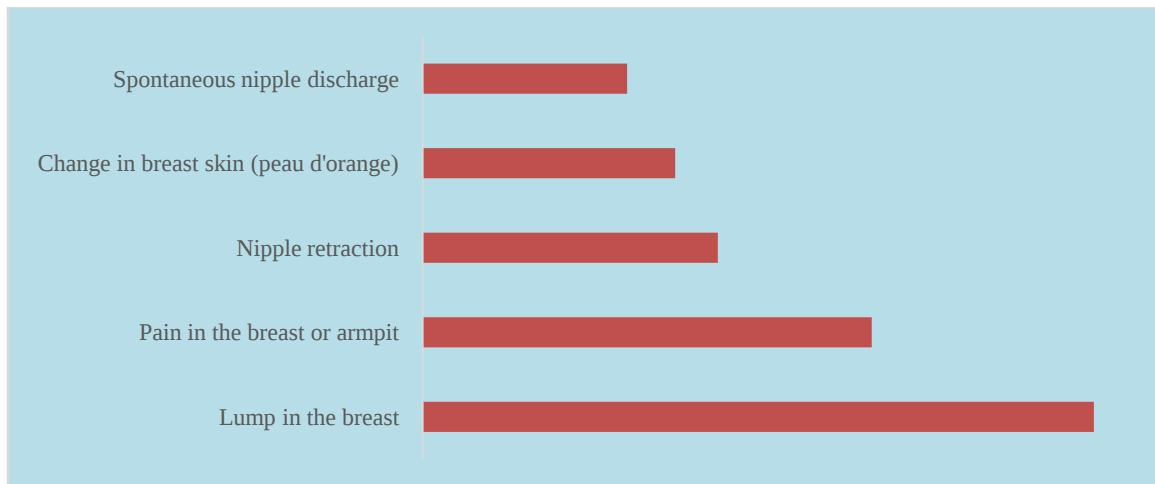


Figure 2: Knowledge of early warning signs of breast cancer (N=280)

Table 3: Attitudes and practices related to breast cancer screening

Variable	Category/Response	Frequency (n)	Percentage (%)
Attitude: Can BC be detected early?	Yes	241	86.1
	No/Don't Know	39	13.9
Attitude: Is regular screening important?	Yes	231	82.5
	No/Don't Know	49	17.5
Attitude: Can you perform BSE?	Yes	247	88.2
	No	33	11.8
Practice: BSE regularity	Never performed	178	63.6
	Irregularly/Occasionally	48	17.1
	Regularly (Monthly)	54	19.3
Practice: Ever had a CBE	Yes	23	8.2
	No	257	91.8

Table 4: Factors associated with good knowledge and regular BSE practice

Factor	Category	Good knowledge (%)	p-value	Regular BSE practice (%)	p-value
Educational level	Primary or less	24	<0.001	8	0.004
	Secondary	45.3		15.8	
	Higher secondary	66.2		24.6	
	Degree or above	82.2		33.3	
Residence	Rural	38.7	0.002	13.9	0.008
	Urban	61.7		28	
Primary source	Healthcare workers	58.1	0.013	27	0.023
	Other sources	39.4		14.4	

Association determined using the Chi-square test. Good Knowledge was defined as a composite score above the median.

DISCUSSION

This study provides a critical assessment of breast cancer-related KAP among a key demographic—reproductive-age women in rural community in Bangladesh. The findings reveal a complex landscape characterized by high awareness of the disease but significant

deficits in detailed knowledge, alongside a stark disconnect between positive attitudes and inadequate preventive practices. This pattern is consistent with another KAP study from other LMIC setting in Nigeria done by Fatiregun et al, where although general awareness was present but lacking in actionable health literacy or behavior change was observed¹⁴. The high rate of having "heard of" breast cancer (98.6%) is encouraging and likely reflects the success of mass media campaigns and the integration of basic health messaging into community platforms. This is similar to study done by Nasrin et al. in which 87.7% of the participants had heard of breast cancer⁴.

However, the depth of understanding was superficial. Knowledge of non-lump symptoms—such as nipple retraction, skin changes, and spontaneous discharge—was low, like findings from similar rural and semi-urban populations in LMICs in studies done by Alrosan et al. in Jordan¹⁵ and Prusty et al in India¹⁶. Since other signs may appear earlier, only relying on presentation of palpable lump before reporting to physician is a matter of much concern.

The understanding of modifiable and non-modifiable risk factors was inconsistent, with recognition of factors like never breastfeeding and late menopause being particularly poor. This indicates that public health messages may be emphasizing the fact of the disease over its specific risk profile and early presentation. The most striking finding of this study is the profound attitude-practice gap. While over 80% of women valued early detection and over 88% believed in their ability to perform BSE, the actual practice was alarmingly deficient. The regular BSE rate (19.3%) and Clinical Breast Examination (CBE) uptake (8.2%) are far below the levels needed for a meaningful population-level impact on early detection and are similar to BSE values of 14.7% reported by tertiary center study in Bangladesh by Alam et al¹⁷. This gap can be attributed to multiple, barriers previously noted in the region, including fear, embarrassment, lack of confidence in technique, the misconception that screening is only for symptomatic individuals, and the prioritization of curative over preventive care within strained household economies^{11,18}.

Mehmood et al. in their research revealed that only 10.2% believed that screening was essential to breast cancer for early diagnosis, however in this survey 17.5% did not know about screening programme. In this study more than half of the respondents 63.6% did not perform BSE, whereas more than two third (69.9%) did not practice self breast examination in a study in Saudi Arabia.²¹

The significant associations between higher education, urban residence, and both better knowledge and practice highlight persistent socio-demographic inequities in health access and literacy. Those with less education and in rural areas—are facing both higher barriers to information and lower engagement in preventive behavior. The finding that healthcare workers as an information source was linked to better outcomes is significant¹⁹. It suggests that the health care providers has an important responsibility to raise awareness and disseminating message about role of early detection in treatment outcome regarding breast cancer. Currently, this potential appears underutilized for structured cancer prevention counseling.

The implications of this study are clear and action-oriented. There is need to spread targeted, structured education within female population in rural community. Educational modules must detail all warning signs and risk factors using culturally appropriate visual aids. Protocol driven counseling and demonstration sessions on BSE technique for all eligible women should be conducted in the out patient departments (OPDs) in primary, secondary, tertiary healthcare levels as well as doctors' private chambers similar to the counseling given for maternal care¹³. The healthcare providers should be trained properly so that they may be able to conduct consistent, non-stigmatizing breast health education and conduct proficient CBE²⁰.

LIMITATIONS

The study findings are limited by their use of purposive sampling at a specific population, which affects generalizability of the result. The cross-sectional design cannot infer causality, and self-reported practices may be influenced by social desirability bias, potentially overestimating actual knowledge and behavior.

CONCLUSION

This study identifies a significant gap between positive attitudes and poor preventive practices regarding breast cancer among women at countryside. It underscores an urgent need to integrate structured, culturally appropriate education and hands-on screening promotion into the routine services of these facilities. Leveraging the rural setting platform for targeted interventions is crucial to translating awareness into life-saving action and improving early detection rates in rural Bangladesh.

RECOMMENDATION

Integrate structured breast health education and hands-on BSE demonstration into routine for all OPD services in both different level of public and private setting health care delivery system of Bangladesh. Implement mandatory training for healthcare providers on counseling and clinical breast examination. Launch targeted community awareness campaigns focusing on non-lump symptoms and risk factors to bridge the knowledge-practice gap.

CONFLICT OF INTEREST

There is no conflict of interest.

REFERENCES

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin.* 2021;71(3):209-249. doi: 10.3322/caac.21660.
2. Wilkinson L, Gathani T. Understanding breast cancer as a global health concern. *Br J Radiol.* 2022;95(1130):20211033. doi: 10.1259/bjr.20211033.
3. Bizuayehu HM, Ahmed KY, KibretGD, Dadi AF, Belachew SA, Bagade T et al. Global Disparities of Cancer and Its Projected Burden in 2050. *JAMA Netw Open.* 2024;7(11):e2443198. doi:10.1001/jamanetworkopen.2024.43198
4. Nasrin F, IslamMR, Mamun MEA. A Cross-sectional Study on Breast Cancer among the Bangladeshi Female Population. *Bangladesh Pharma J.* 2022;25(1):54-66. doi: <https://doi.org/10.3329/bpj.v25i1.57841>
5. Dahabreh IJ, Wieland LS, Adam GP, et al. Core Needle and Open Surgical Biopsy for Diagnosis of Breast Lesions: An Update to the 2009 Report [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2014 Sep. (Comparative Effectiveness Reviews, No. 139.) Appendix B, Excluded Studies. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK246888/>
6. Ginsburg O, Yip CH, Brooks A, Cabanes A, Caleffi M, Dunstan Yataco JA, et al. Breast cancer early detection: A phased approach to implementation. *Cancer.* 2020;126 Suppl 10(Suppl 10):2379-2393. doi: 10.1002/cncr.32887.
7. Flemban AF, Kabrah SM, Alfaii SS, Alsubhi AS, Alzahrani AS, Alhazmi KA, et al. Breast Cancer Knowledge and Screening Practice among Women in Makkah, Saudi Arabia. *J Contemp Med Sci.* 2022;8(5):311-6. doi: <https://doi.org/10.22317/jcms.v8i5.1286>

8. Campbell J K, Erickson JM. Interactive health literacy and self-management of lung cancer symptoms. *Cancer Nursing*. 2020;47:397-407. Available from: <https://api.semanticscholar.org/CorpusID:258567043>
9. Nde FP, Assob JC, Kwenti TE, Njunda AL, Tainenbe TR. Knowledge, attitude and practice of breast self-examination among female undergraduate students in the University of Buea. *BMC Res Notes*. 2015;8:43. doi: 10.1186/s13104-015-1004-4.
10. Rana K, Ghimire P, Chimoriya R, Chimoriya R. Trends in the Prevalence of Overweight and Obesity and Associated Socioeconomic and Household Environmental Factors among Women in Nepal: Findings from the Nepal Demographic and Health Surveys. *Obesities*. 2021; 1(2):113-135. <https://doi.org/10.3390/Obesities1020011>
11. Sprague BL, Ahern TP, Herschorn SD, Sowden M, Weaver DL, Wood ME. Identifying key barriers to effective breast cancer control in rural settings. *Prev Med*. 2021;152(Pt 2):106741. doi: 10.1016/j.ypmed.2021.106741.
12. Akhtar K, Nahar S, Akhtar K. Impact of Low-Level Knowledge on Breast Cancer in Bangladeshi Patients during Medical Help Seeking. *J Medicine*. 2023;24(1):23-27. doi: <https://doi.org/10.3329/jom.v24i1.64900>
13. Begum SA, Mahmud T, Rahman T, Zannat J, Khatun F, Nahar K, et al. Knowledge, Attitude and Practice of Bangladeshi Women towards Breast Cancer: A Cross Sectional Study. *Mymensingh Med J*. 2019;28(1):96-104.
14. Fatiregun OA, Kuyinu Y, Alabi A, Sowunmi A, Ndidi O, Abiodun PO, Olatunji-Agunbiade T, Ademola O, Atulomah NO, Olajumoke A. Health literacy and breast cancer preventive practices among market women in Oshodi Local Government Area of Lagos State, Nigeria. *Ecancermedicalscience*. 2024;18:1785. doi: 10.3332/ecancer.2024.1785.
15. Alrosan AZ, Alwidyan T, Heilat GB, Rataan AO, Madae'en S, Alrosan K, et al. Knowledge and awareness of breast cancer signs and symptoms among Jordanian women. *Future Sci OA*. 2025;11(1):2510871. doi: 10.1080/20565623.2025.2510871.
16. Prusty RK, Begum S, Patil A, Naik DD, Pimple S, Mishra G. Knowledge of symptoms and risk factors of breast cancer among women: a community based study in a low socio-economic area of Mumbai, India. *BMC Womens Health*. 2020;20(1):106. doi: 10.1186/s12905-020-00967-x.
17. Alam NE, Islam MS, Ullah H, Molla MT, Shifat SK, Akter S, et al. Evaluation of knowledge, awareness and attitudes towards breast cancer risk factors and early detection among females in Bangladesh: A hospital based cross-sectional study. *PLoS One*. 2021;16(9):e0257271. doi: 10.1371/journal.pone.0257271.
18. Aliu AE, Kerrison RS, Marcu A. A Systematic Review of Barriers to Breast Cancer Screening, and of Interventions Designed to Increase Participation, Among Women of Black African and Black Caribbean Descent in the UK. *Psychooncology*. 2025;34(2):e70093. doi: 10.1002/pon.70093.
19. Sayed S, Ngugi AK, Nwosu N, Mutebi MC, Ochieng P, Mwenda AS, et al. Training health workers in clinical breast examination for early detection of breast cancer in low- and middle-income countries. *Cochrane Database Syst Rev*. 2023;4(4):CD012515. doi: 10.1002/14651858.CD012515.pub2.
20. Pittalis C, Chalulu K, Banda JC, Chisala P, Alghaffari J, Mwandira R, et al. Empowering early detection: a pioneering breast health training course for healthcare workers in Malawi. *BMJ Glob Health*. 2025;10(9):e018589. doi: 10.1136/bmjgh-2024-018589.
21. Mehmood M, Zafar M, Albuquerque AA, Alshammari LM, Ilyas SMO, Moinuddiin KG. Knowledge, Attitude and Preventive Practice towards Breast Cancer among Women Visiting Public Health Facility, Saudi Arabia. *J Pharmaceut Res Int*. 2021;33(49A): 228-236. doi: [10.9734/jpri/2021/v33i49A33325](https://doi.org/10.9734/jpri/2021/v33i49A33325)