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Interventions To Increase Breast Cancer Screening Uptake Among Women in Nshungyezi Health Centre III, Isingiro District. A cross-sectional study.

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Abstract.

Background: Uganda has breast cancer age-standardized incidence and mortality rates. Therefore, this study aimed to assess the interventions to increase breast cancer screening uptake among women in Nshungyezi Health Centre III.

Methodology: The study used a cross-sectional descriptive design employing quantitative data collection by administering a questionnaire to collect data from 30 respondents using simple random sampling. Data was then analyzed and entered manually into the computer using Microsoft Excel 2016, which presented it in the form of tables, graphs, and pie-charts.

Results: 16(53.3%) of the participants did not get access to media, 20(66.7%) did not have any workplace interventions about breast cancer screening, and 15(50%) never found brochures or flyers about breast cancer screening. For health facility factors, nearly half 14(46.7%) of respondents never received health provider's recommendations, 17(56.6%) of respondents reported that the health providers were not giving them flexible appointment time, 15(50%) never received any reminders from healthcare providers, 16(53.4%) reported that the breast cancer screening costs were high, 18(60%) were never contacted by health providers and 18(60%) reported that health care providers were sometimes giving them feedback.

Conclusion: Significant individual interventions included adequate access to media, flexible workplace interventions and utilization of brochures and flyers about breasting while health facility interventions that can increase uptake of breast cancer screening.

Recommendations: The government should allocate more resources to support breast cancer screening programs, including community outreach, education, and awareness campaigns.

Keywords: Breast Cancer Screening, Women of reproductive age, Nshungyezi Health Centre III, Isingiro District

Background.

Globally, over 2.3 million new cases and 685,000 deaths from breast cancer occurred in 2020, and 65% of the deaths were due to late screening (Sözen & Emir, 2023). By 2040, the burden from breast cancer is predicted to increase to over 3 million new cases and 1 million deaths every year because of delayed diagnosis, population growth, and ageing alone (Arnold et al., 2022). In the United States of America, despite the availability of a vaccine for oncogenic types of human papillomavirus (HPV) and 2 cervical cancer screening tests, more than 11 000 diagnoses of cervical cancer occurred annually (Johnson et al., 2020). The Healthy People 2020 target for cervical cancer

screening among women aged 21-65 is 93%; however, no group of women in the United States has achieved this goal (Harper et al., 2021).

In Africa, the overall pooled crude incidence of breast cancer from population-based registries is 24.5 per 100000 person-years (Aissami, 2022). The incidence in North Africa was higher at 29.3 per 100000 than in Sub-Saharan Africa (SSA) at 22.4 per 100000 (Azubuike et al., 2018). In hospitals, the overall pooled crude incidence rate is estimated at 23.6 per 100000, whereby SSA and Northern Africa had relatively comparable rates at 24.0 per 100000 and 23.2 per 100000, respectively (Azubuike et al., 2018). In Ghana, nearly 70% of women diagnosed with breast cancer are in advanced stages of the disease due to low awareness, resulting in limited treatment success and more than 50% of deaths. Interestingly, there are limited epidemiological studies on breast cancer (Naku et al., 2016). In East Africa, 38% are diagnosed before 40 years (Popli et al., 2021). The overall prevalence of male BC is as high as 5%. Among these, only 2% of patients are diagnosed with carcinoma- in-situ. Invasive tumors are 7% stage I, 26% stage II, 50% stage III, and 17% stage IV, and 70% have clinical nodal involvement. Trend analysis shows decreasing age, an increasing population of unmarried BC patients, a relatively high proportion of uneducated BC patients, and a stable proportion of late-stage disease in the last decade (Olayide et al., 2021). Interventions for breast cancer screening in East Africa include: strengthening clinical breast exams (CBE), improving awareness and education, and exploring the feasibility of mammography (Magwesela et al., 2023). In Kenya, breast cancer is the most commonly diagnosed cancer with an estimated 16.1% new cases, and the incidence is predicted to increase by 35% by the year 2025 due to delayed screening (Kailemia, 2022).

Uganda has breast cancer age-standardized incidence and mortality rates of 21.3 per 100,000 population and 10.3 per 100,000 population, respectively, indicating that nearly one-half of Ugandan women who are diagnosed with breast cancer will die of their disease. These high mortality rates can be attributed to a late stage at diagnosis for women with breast cancer: up to 89% of women in Uganda present with stage III or stage IV disease, a time at which breast cancer is more difficult to treat and the outcomes are poor (Scheel et al., 2020). This study aimed to assess the interventions to increase breast cancer screening uptake among women in Nshungyezi Health Centre III.

Methodology.

Study design.

The study adopted a quantitative descriptive cross-sectional study design, which enabled the researcher to collect different characteristics of respondents at the same time. This design was chosen because it allowed the researcher to collect numerical data and analyze data within a short period of time.

Study setting.

The study was conducted at Nshungyezi Health Centre III, Isingiro district. The Health Centre was located in Nshungyezi village, Isingiro county, Isingiro district. The distance from Kampala to Isingiro district was 310km, and the distance from Kampala to the Health Centre III was 324km. The health Centre had a bed capacity of 12 beds. The facility offered services which included general medicine, paediatric care, maternal health, and laboratory services. The study area was chosen because of the increasing cases of breast cancer in the area, guaranteeing the researcher a large number of respondents.

Study population.

The study population was women attending OPD at Nshungyezi Health Centre III, Isingiro district.

Sample size determination.

The Burton formula (1965) was used, that is N= (QxR)/O, where

Q: is the total number of days taken to collect data.

R: Is the maximum number of respondents to be interviewed? O: Maximum amount of time on each respondent.

Q= 6, R= 5, O = 1 hour

there fore

N = $\frac{5 \, x \, 6}{}$

N= 30 respondents

Sampling procedure.
The study used a probability sampling procedure where each participant had an equal chance to participate in the study, and data were collected using a simple random sampling method. The researcher drew a sample frame, and 60 papers were made and written on a separate piece of homogeneous paper with Yes or No. The papers were folded, churned, and put in a box. One paper was picked at random, and only the paper containing Yes was noted; those with Yes papers were able to participate in the study.

Inclusion and exclusion criteria
The study included only women attending OPD at Nshungyezi Health Centre III, Isingiro district, who voluntarily consented. However, it excluded respondents who declined to consent and those who were very sick.

Study variables.
A variable is an attribute of an element or factor that, when measured in a study, increases or decreases in value.

Independent variables:
The independent variables were individual interventions and health facility interventions.

Dependent variable:
The dependent variable was breast cancer screening uptake.

Research instrument.
Data was collected using a semi-structured questionnaire. It was written in English and contained closed-ended questions related to the study objectives. However, illiterate respondents were considered, as the questions were verbally read to them as the researcher filled in their views. Prior to data collection, the tool was pretested among 10 women at Rugaaga Health Care HC II. Pretesting was done to ensure that the questionnaire was valid and reliable in collecting accurate data.

Data collection procedures.
Data collection only commenced after an introductory letter authorizing the researcher was presented to the administration of Nshungyezi Health Centre III, Isingiro district, who allowed the researcher to continue with the study. The literate sampled respondents, conversant with English, were administered the questionnaire to fill in independently, while illiterate respondents were verbally assisted by the researcher. Data was collected from 6 respondents per day, and this procedure took five (5) days to cover 30 respondents.

Data management.
The filled questionnaires were retrieved, counted, checked for completeness, and edited after every data collection day to ensure that they were all returned, coded, and kept in a safe place as a backup. Raw data was locked in the cupboard for security purposes.

Data analysis.
Data from the questionnaires was manually tallied using a pen and paper, coded, and analyzed using a computer package called Microsoft Excel to attain a code sheet. Analyzed data from the code sheet was then used to construct tables, figures, and statistical texts depicting respondents' responses in frequencies and percentages.

Quality Assurance: Validity and Reliability
The following were performed to uphold the validity and reliability of the study data;
The semi-structured questionnaire was pretested among 10 women at Rugaaga Health Care HC II to ensure its validity and reliability in collecting accurate data.
The researcher was trained on data collection procedures to ensure consistency and accuracy.
A pilot test was conducted to ensure that the questionnaire was clear, concise, and effective in collecting relevant data.
The filled questionnaires were checked for completeness and edited after every data collection day to ensure accuracy and consistency.
Raw data was locked in a cupboard for security purposes to prevent loss or tampering.

Ethical considerations.
All necessary clearances from the principal of St. Michael Training School, Lubaga, were presented to the administration of Nshungyezi Health Centre III, Isingiro district, showing the authenticity of the study. Consent was sought from the respondents before enrolling them to participate. Only questions that would not infringe on the rights and privacy of respondents were asked. They were assured of the confidentiality of their information and anonymity of their identity by using only serial numbers and not names on the questionnaire.

Results.

Demographic characteristics of respondents

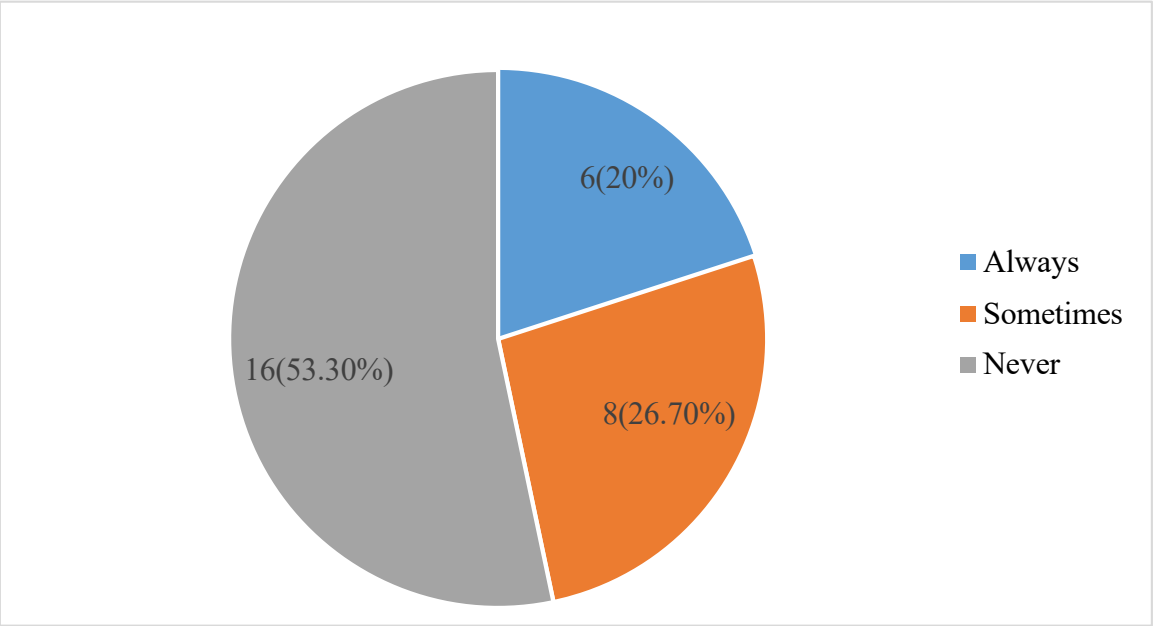
Table 1: Demographic characteristics of respondents n=30

Variable	Category	Frequency (f)	Percentage (%)
Age	18-30	9	30
	31-40	13	43.3
	41-50	6	20
	Above 50	2	6.7
Level of education	Non formal	10	33.3
	Primary	14	46.7
	Secondary	4	13.3
	Tertiary	2	6.7
Marital Status	Single	7	23.3
	Married	18	60
	Divorced	2	6.7
	Widowed	3	10
Place of residents	Rural	24	80
	Urban	6	20
Religion	Catholic	12	40
	Anglican	8	26.7
	Born again	6	20
	Muslim	4	13.3

Source: Primary Data 2025.

According to Table 1 above, 13(43.3%) of the respondents were between 31 and 40 years, whereas at least 2(6.7%) were above 50 years. About the level of education, less than half 14(46.7%) of the respondents had a primary level, while only 2(6.7%) had a tertiary level of education. Regarding marital status, the majority, 18(60%) of the respondents were married, while the minority, 2(6.7%) were divorced. Concerning place of residence, the majority, 24(80%), were rural residents while the minority, 6(20%), were urban residents. About religion, most 12(40%) were Catholics while the least 4(13.3%) were Muslims.

Figure 1: Access to media campaigns about breast cancer screening, n=30



Source: Primary Data 2025.

From figure 1, more than half, 16(53.3%) of respondents reported that they were not getting access to media campaigns about breast cancer screening, while only 6(20%) of respondents reported that they were getting access to media campaigns about breast cancer screening.

Table 2: Showing individual related interventions to increase breast cancer screening uptake among women, n=30.

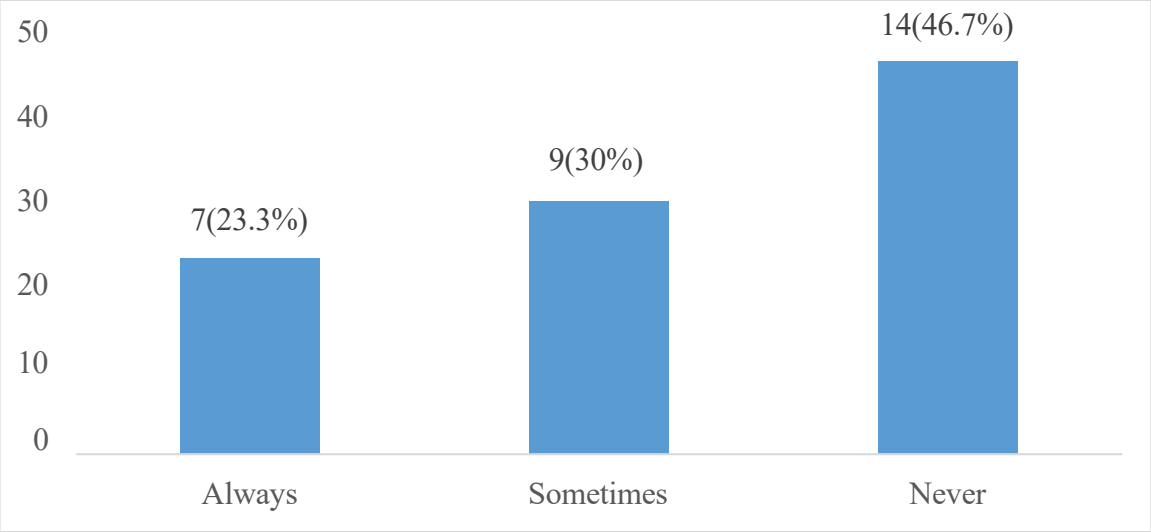
variable	Category	Frequency(f)	Percentage (%)
Whether respondents were getting community awareness about breast cancer cancer screening in your area	Always Sometimes Never	8 12 10	26.7 40.0 33.3
Whether respondents had any workplace interventions regarding breast cancer cancer screening	Yes No	10 20	33.3 66.7
The workplace interventions about breast cancer screening that respondents were having	 Employee education On-site screening services Paid time off for screening	**n=10** 3 5 2	 30.0 50.0 20.0
Respondents' frequency of finding brochures or flyers about breast cancer screening	Always Sometimes Never	7 8 15	23.3 26.7 50.0
Get involved in any peer support group regarding the uptake of breast cancer screening	Always Sometimes Never	4 8 18	13.3 26.7 60

Source: Primary Data 2025.

From table 2, 12(40%) of respondents reported that they were sometimes getting community awareness about breast cancer screening in their areas, while a minority of 8(26.7%) of respondents reported that they were always getting community awareness about breast cancer screening in their areas.

The majority, 20(66.7%) of respondents reported that they did not have any workplace interventions about breast cancer screening, while a minority, 10(33.3%) of respondents reported that they were having workplace interventions about breast cancer screening. Half 5(50%) of respondents reported that they were having on-site screening services as their workplace interventions about breast cancer screening, while a minority 2(20%) of respondents reported that they were having paid time off for screening as their workplace interventions about breast cancer screening. Half 15(50%) of respondents reported that they were never finding brochures or flyers about breast cancer screening, while a minority of 7(23.3%) of respondents reported that they were always finding brochures or flyers about breast cancer screening. The majority, 18(60%) of the respondents mentioned that they do not get involved in any peer support group regarding uptake of breast cancer screening, while the minority, 4(13.3%), mentioned that they always do.

Figure 2: Respondents' frequency of receiving health providers' recommendations regarding breast cancer screening, n=30



Source: Primary Data 2025.

Figure 2 shows that nearly half 14, 46.7%) of respondents reported that they never received health providers' recommendations regarding breast cancer screening, while a minority 7(23.3%) of respondents reported that they were always receiving health providers' recommendations regarding breast cancer screening.

Table 3: Showing whether the health providers were giving flexible appointment times and respondents' frequency of receiving reminders about breast cancer screening, n =30.

Variable	Category	Frequency(f)	Percentage (%)
Whether the health providers were giving flexible appointment times when Respondents sought breast cancer screening services	Always	5	16.7
	Sometimes	8	26.7
	Never	17	56.6
Respondents' frequency of receiving reminders from healthcare providers about breast cancer screening	Always	6	20.0
	Sometimes	9	30.0
	Never	15	50.0

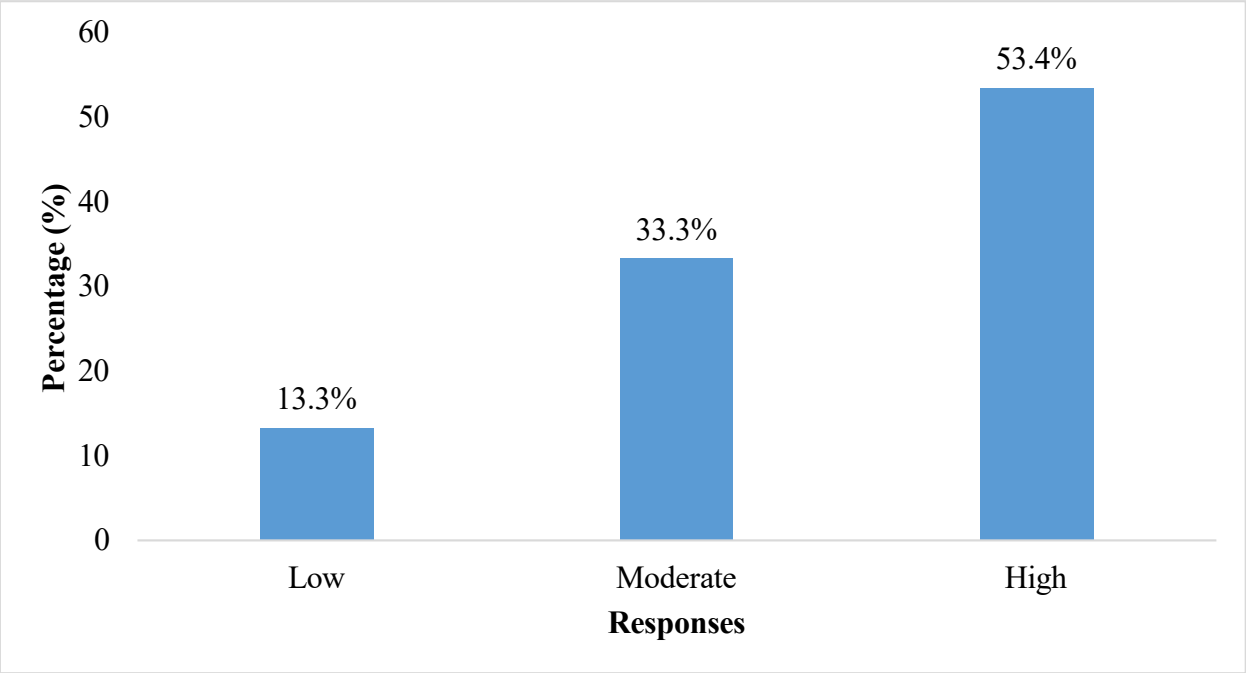
Source: Primary Data 2025.

From table 3, more than half 17, 56.6%) of respondents reported that the health providers were not giving them flexible appointment times when they sought breast cancer screening services, while only 5(16.7%) of

respondents reported that the health providers were giving them flexible appointment times when they sought breast cancer screening services.

Half 15(50%) of respondents reported that they never received any reminders from healthcare providers about breast cancer screening, while a minority 6(20%) of respondents reported that they always received reminders from healthcare providers about breast cancer screening.

Figure 3: Showing how respondents rated the breast cancer screening costs at the facility n=30



Source: Primary Data 2025.

From figure 3, more than half, 16(53.4%) of respondents reported that the breast cancer screening costs at the facility were high, while a minority, 4(13.3%) of respondents reported that the breast cancer screening costs at the facility were low.

Table 4: Showing whether respondents had ever received community outreach about breast cancer screening, their frequency of getting contacted by health providers, and whether health care providers were giving them feedback about breast cancer screening, n=30

Variable	Category	Frequency(f)	Percentage (%)
Whether respondents had ever received community outreach about breast cancer screening from the facility	Always	7	23.3
	Sometimes	14	46.7
	Never	9	30
Respondents' frequency of Getting contacted by health providers regarding breast cancer screening	Always	5	16.7
	Sometimes	7	23.3
	Never	18	60.0
Whether health care providers were giving respondents Feedback about breast cancer Screening	Always	9	30
	Sometimes	18	60
	Never	3	10
Mobile services in your A community that carries out breast cancer screening	Always	6	20
	Sometimes	3	10
	Never	21	70
Breast cancer screening services carried out when seeking other services	Always	3	10
	Sometimes	5	16.7
	Never	22	73.3

Source: Primary Data 2025.

Table 2 shows that 14(46.7%) of respondents reported that they sometimes received community outreach about breast cancer screening from the facility, while at least 7(23.3%) reported that they had always received

community outreach about breast cancer screening from the facility. More than half 18(60%) of respondents reported that they were never contacted by health providers regarding breast cancer screening, while only 5(16.7%) of respondents reported that they were always contacted by health providers regarding breast cancer screening. Most 18(60%) of respondents reported that health care providers sometimes give them feedback about breast cancer screening, while the least 3(10%) reported that they never do. The majority 21(70%) of the respondents stated that they never had mobile services in their community that carryout breast cancer screening, while the minority 3(10%) stated that they had. The majority, 22(73.3%) of the respondents mentioned that they never had breast cancer screening services carried out when seeking other services, while the least 3(10%) mentioned that they had.

Discussion.

Individual-related interventions to increase breast cancer screening uptake among women.

The study findings revealed that more than half 16(53.3%) of respondents reported that they were not getting access to media campaigns about breast cancer screening. This means that there was a significant gap in health promotion and education, which would contribute to low awareness and thus limited uptake of breast cancer screening services. This finding agrees with a study in Uganda by Atuhairwe et al. (2018), which revealed an empirical relationship between uptake of breast cancer prevention modalities and source of information, especially radio and television.

The study findings revealed that the majority, 12(40%) of respondents reported that they were sometimes getting community awareness about breast cancer screening in their areas. This may mean that some efforts were being made to raise awareness, but they were inconsistent or insufficient since only a small portion, 40% of respondents, reported getting awareness. This finding aligns with a study in South Africa by Tum et al. (2023), which revealed that improving women's awareness of breast cancer motivated women to take up screening.

The study findings revealed that the majority, 20(66.7%) of respondents reported that they did not have any workplace interventions for breast cancer screening. This finding reveals a devastating effect on the uptake of breast cancer screening, as most women of the working class are always busy, and yet their workplaces are missing opportunities to promote breast cancer screening. This finding agrees with a study in China by Ma et al. (2022), which revealed that exposure to the workplace intervention dramatically increased the uptake of mammography from 10.3% at baseline to 72.6% at 6-month follow-up.

The study findings revealed that half of the 15(50%) reported that they had never found brochures or flyers about breast cancer screening. This may mean that educational materials are not readily available or accessible to women, which would hinder their ability to make informed decisions about their breast health and thus limited uptake of breast cancer screening. This finding agrees with a study in Beirut, Lebanon, by Sacca et al. (2020), which revealed that both educational components (brochures, flyers) were adopted for individual women to improve breast cancer screening.

Health facility-related interventions to increase breast cancer screening uptake among women.

The study findings revealed that nearly half 14(46.7%) of respondents reported that they never received a health provider's recommendations regarding breast cancer screening. This means that there was a gap in healthcare provider-patient communication, which would contribute to low breast cancer screening uptake, as most women lacked evidence-based knowledge of breast cancer screening. This finding agrees with a study in Canada by Plourde et al. (2016), which revealed a positive association between patients' receipt of provider recommendations and uptake of breast cancer screening.

The study findings revealed that the majority, 19(63.3%) of respondents reported that the health providers were not giving them flexible appointment times when they sought breast cancer screening services. This means that there was inflexible scheduling of breast cancer screening services, which would discourage women from seeking screening services. This finding agrees with a study in Canada by Plourde et al. (2016), which revealed that facilities with flexible appointment times and reminders had higher mammography uptake.

The study findings revealed that half of the 15(50%) reported that they never received any reminders from healthcare providers about breast cancer screening. This means that most of the respondents were more likely to forget their screening schedules or adhere to the recommended guidelines, as they may not receive timely reminders or encouragement to undergo screening. This finding agrees with a study in the USA by Champion et al. (2022), which revealed that receiving a reminder for breast screening from healthcare providers about breast cancer screening increased the screening uptake among women.

The study findings revealed that more than half 16, 53.4%) of respondents reported that the breast cancer screening costs at the facility were high. This means that most respondents were more likely to be deterred from seeking breast cancer screening since most of the

respondents could not afford to pay for screening costs. This finding agrees with a study in Malaysia by Nik Farid et al. (2024), which revealed that hospital costs for breast cancer screening should be reduced to improve breast cancer screening uptake. The agreement of the studies may be due to similarities in the study settings, where both studies were done in resource-constrained areas.

The study findings revealed that 14(46.7%) of respondents reported that they sometimes received community outreach about breast cancer screening from the facility. This means that the health facility was making proactive awareness-raising efforts in promoting breast cancer screening, which would increase breast cancer screening uptake. This finding agrees with a study in Malaysia by Nik Farid et al. (2024), which revealed that being proactive in raising awareness about clinical breast examination among women in Malaysia increases uptake of mammography. The two studies agreed; however, the portion of respondents who received outreaches was low, indicating a need to expand or tailor outreach efforts to better serve the community.

The study findings revealed that the majority, 18(60%) of respondents reported that they were never contacted by health providers regarding breast cancer screening. This means that most of the respondents were more likely to forget their screening schedules or adhere to the recommended guidelines, as they may not receive timely reminders or encouragement to undergo screening. This finding agrees with a study in Namibia by Kangmennaang et al. (2019), which revealed that encouraging women to maintain contact with health professionals improved women's uptake of breast cancer screening.

The study findings revealed that the majority, 18(60%) of respondents reported that health care providers were sometimes giving them feedback about breast cancer screening. This lack of feedback may lead to uncertainty, anxiety, and decreased likelihood of future screening among women. This finding is in line with a study in Canada by Brouwers et al. (2021), which revealed that the provision of provider assessment and feedback were recommended intervention to increase screening for at least two of three cancer sites studied.

Limitations of the Study.

Some respondents feared participating in the study due to the belief that the study wanted to investigate their weaker areas.

Participants could not accurately report the interventions needed for uptake of breast cancer screening, affecting the accuracy of the information gathered.

Conclusion.

Significant individual interventions included adequate access to media, flexible workplace interventions, and utilization of brochures and flyers about breasting while health facility interventions that can increase uptake of breast cancer screening include getting. Recommendations from health providers, provision of flexible appointments, reduction in costs of screening, follow-up by healthcare providers, and feedback from healthcare providers.

Recommendations

The government should allocate more resources to support breast cancer screening programs, including community outreach, education, and awareness campaigns. The government should also develop and enforce policies that promote breast cancer screening, such as mandatory screening for women above a certain age.

The Ministry of Health should establish guidelines for breast cancer screening, including recommendations for screening frequency and target populations. The ministry should also provide training and education for healthcare providers on breast cancer screening, diagnosis, and treatment.

Student nurses should engage in community outreach and education programs to promote breast cancer screening and awareness. They should also be knowledgeable about the latest research and guidelines on breast cancer screening to provide evidence-based care.

Acknowledgement.

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List Abbreviations and Acronyms.

BC: Breast Cancer
HMIS: Health Management Information System
MOH: Ministry of Health
OPD: Outpatient Department
SSA: Sub-Saharan Africa
UK: United Kingdom
USA: United States of America

Source of funding.
The study was not funded.

Conflict of interest.
There is no conflict of interest.

Availability of data.
Data used in this study are available upon request from the corresponding author.

Authors contribution.
RNM designed the study, conducted data collection, cleaned and analyzed data, drafted the manuscript, and TSN supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

Author's biography.
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