

**DETERMINANTS OF SELF-BREAST EXAMINATION PRACTICE
AMONG WOMEN ATTENDING FAMILY PLANNING CLINIC AT CHUKA
LEVEL 5 HOSPITAL, KENYA**

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(Midwifery) of Chuka University**

CHUKA UNIVERSITY

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DECLARATION AND RECOMMENDATION

Declaration

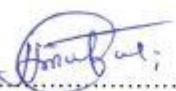
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Recommendation

This thesis has been examined, passed and submitted with our approval as University supervisors.

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DEDICATION

I dedicate this study lovingly to my family for their support, patience and encouragement during the entire period of the study at Chuka University. Thank you for your continued support, prayers and well wishes towards the successful completion of the entire course. May the good lord bless all of you in abundance.

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ABSTRACT

Breast cancer remains a significant global public health issue. In 2022, globally, there were approximately 20 million new cases of cancer and 9.7 million cancer-related deaths, with female breast cancer ranking second in incidence. Breast cancer is a growing public health issue in sub-Saharan Africa. In Kenya, it is the most common cancer among women, accounting for about a quarter of all female cancer cases. However, due to limited access to screening, low awareness, and frequent misdiagnosis, many cases are detected at advanced stages. Self-breast examination (SBE) is a simple, cost-effective method to promote early detection, yet its uptake remains low in many Kenyan regions. This analytical cross-sectional study aimed to identify factors influencing SBE practice among women attending the family planning clinic at Chuka Level 5 Hospital. A total of 129 women were selected using systematic random sampling, while healthcare providers were selected through convenience sampling. Data was collected using a researcher-administered questionnaire for the women and interview guides for key informants. A pre-test was conducted at Embu Level 5 Hospital to ensure validity and reliability of the tools. Quantitative data was analyzed using SPSS v29. Descriptive statistics were used to describe the characteristic of study participants. Chi-square tests, and regression analysis were used to determine the predictors of SBE ($p < 0.05$). Qualitative data from healthcare providers was analyzed thematically. Ethical approval was obtained from Chuka University ethical review committee and research permit was obtained NACOSTI. Study participants signed an informed consent and confidentiality was maintained throughout the study. The mean age of the women was 26.03 years, majority lived in rural areas (54.3%, $n = 69$) and identified as Catholics ((47.2%, $n= 60$). Over half had tertiary education (55.9%, $n=71$), and majority were in formal employment (27.6%, $n=35$). Among six healthcare providers (HCPs), the average age was 41.17 years and most were nurses (50%, $n=3$). They had an average of 12.5 years of experience and majority held diploma or degree qualifications (33.3%, $n=2$). SBE was practiced by 66.1% ($n=84$) of the women, though only 52.4% did so monthly, and less than half (47.6%) performed it at the recommended time after menstruation. Some of the barriers to regular practice included lack of knowledge, forgetfulness, and fear of detecting a lump. Participants with tertiary education were 0.247 less likely to perform SBE as compared to those with primary education (AOR= 0.247, 95% CI 0.101 – 0.608, $p = 0.002$). In addition, farmers were significantly 4.48 times more likely to perform SBE as compared to those in formal employment ((AOR = 4.48, 95% CI 1.31 – 15.29, $p=0.017$). While most participants (92.9%) had heard of SBE, only 67.7% had received practical instruction. Majority of the participants, (38.6%) had good knowledge level. Participants with primary education were significantly about 6 times more likely to have poor knowledge level; AOR = 5.635, 95% CI; 0.945 – 33.584, $p = 0.038$. On cultural factors, most participants rejected religious or cultural discouragement of SBE. Women who agreed that their family encourages them to practice SBE were significantly 0.4 times less likely not to perform SBE compared to those who disagreed (AOR – 0.345, 95% CI; 0.148 – 0.806, $p – 0.014$). Identified themes include low prevalence of SBE practice, knowledge gaps, barriers to SBE, low trust in SBE and educational efforts from the HCPs. More than half of the women practice SBE. However, more health messages should be shared to those in formal employment and the highly educated to encourage the practice of SBE within the region. The county government should continue to implement community outreach programs in the county.

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LIST OF ABBREVIATION AND ACRONYMS

CBE	Clinical Breast Examination
HBM	Health Belief Model
IARC	International Agency for Research on Cancer
LMIC	Low and middle income countries
MCH	Maternal and Child Health
MOH	Ministry of Health
NACOSTI	National Commission for Science, Technology and Innovation
NCDs	Non-communicable diseases
SBE	Self-Breast Examination
SDG	Sustainable Development Goals
SES	Socio-Economic Status
SNPH	School of Nursing and Public Health
SSA	Sub-Saharan Africa
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Breast cancer remains a significant global public health issue. In 2022, there were approximately 20 million new cases of cancer and 9.7 million cancer-related deaths, with female breast cancer ranking second in incidence, contributing 2.3 million cases (11.6%) and accounting for 6.9% of global cancer deaths (Bray et al., 2024). Similarly, breast cancer is a growing concern in Sub-Saharan Africa due to the increasing prevalence of the disease (Igbokwe, 2024). It is the leading cause of cancer-related morbidity and the second leading cause of cancer deaths among women in the region (Azubuike et al., 2018). In Kenya, breast cancer is the most commonly diagnosed cancer among women, accounting for nearly 25% of all cancer cases in women (Ferlay et al., 2024). The World Health Organization (WHO) aims to reduce breast cancer mortality by 40% by 2040, especially among women under 70 years (WHO, 2024). Breast cancer screening, particularly self-breast examination (SBE) and clinical breast examination (CBE), is essential for early detection (WHO, 2024). Despite this, uptake remains low in many parts of the world.

Literature shows that awareness of SBE does not necessarily translate into regular practice. Jadhav et al., (2024) found that although most women in India had heard of SBE, only a minority practices it regularly. Similarly, Apatić et al., (2023) reported poor regular practice of SBE among Croatian women, indicating a global pattern where knowledge fails to translate into behavior change. Contributing factors identified include limited emphasis on preventive health education, cultural beliefs minimizing perceived risk, and low motivation to engage in self-care unless symptomatic. Gamal et al., (2025) reinforced this trend in a university based population, noting that even among educated groups, substantial proportions were either unaware of the correct SBE technique or inconsistent in practicing it. These findings suggest that global awareness campaigns alone are insufficient unless they are coupled with behavior change strategies and structured health education programs.

Across Africa, the situation is comparably concerning, with most countries reporting low levels of both knowledge and practice of SBE. Masawa et al., (2024) found that

less than half of Tanzanian university students practiced SBE correctly, citing embarrassment, forgetfulness, and lack of skill as barriers. Similarly, Wondie et al., (2022) and Wolde et al., (2023) in Ethiopia revealed that while awareness of SBE had improved through public health initiatives, consistent monthly practice remained low, often below 45%. Common predictors of low uptake included inadequate health education, misconceptions about breast cancer, and absence of healthcare worker encouragement. In Nigeria, Maitanmi et al., (2023) and Ogunmodede et al., (2024) observed that even among educated women and adolescents, regular SBE was low. These was attributed to the absence of continuous awareness campaigns and the belief that breast cancer is only a disease of older women (Maitanmi et al., 2023; Ogunmodede et al., 2024). Similarly, Hlormenu et al (2024) identified cultural taboos, fear of finding cancer, and limited school-based education as significant barriers to SBE uptake in Sub-Saharan Africa.

In low- and middle-income countries (LMICs), such as those in South Asia and Africa, implementation is hampered by limited resources and competing health priorities (Mishra et al., 2021). However, late-stage presentation is prevalent due to limited screening services, low awareness, and misdiagnosis by health practitioners (Daniel et al., 2023). In Kenya, studies have mirrors these regional trends of low uptake of SBE. Mugambi et al., (2024) reported low SBE practice among women attending Meru Teaching and Referral Hospital, with fewer than half of the participants engaging in monthly SBE. A study in Kenya in Nyeri involving 1813 participants found that although 77% of women knew about SBE, only 13% practiced it monthly (Mwenda et al., 2021). Another study in Kisumu reported that only 39% had accurate knowledge and practice of SBE (Oguta et al., 2022). Furthermore, persistent cultural beliefs and stigma, coupled with the absence of large-scale, sustainable, and culturally sensitive interventions, continue to limit SBE uptake (Anangwe, 2023; Bhatia et al., 2024; Odhiambo et al., 2023). This underlines the critical need to evaluate the determinants and prevalence of SBE, especially in rural counties such as Tharaka Nithi, where health disparities may be more pronounced.

1.2 Statement of the Problem

Breast cancer remains a significant public health concern worldwide, ranking as the most common cancer among women. According to the World Health Organization (WHO), breast cancer accounted for approximately 2.3 million new cases and 685,000 deaths globally in 2020, making it the leading cause of cancer-related mortality among women. Early detection through self-breast examination (SBE), clinical breast exams, and mammography screening plays a crucial role in reducing mortality rates. However, despite increased awareness and screening campaigns, uptake remains suboptimal, particularly in low- and middle-income countries (LMICs). The poor uptake of SBE is associated with late stage diagnosis of breast cancer and consequently high mortality.

In Sub-Saharan Africa (SSA), breast cancer incidence is rising rapidly, with over 129,000 new cases and 78,000 deaths reported in 2020. The region faces unique challenges, including late-stage diagnosis, inadequate healthcare infrastructure, and sociocultural barriers that hinder early detection efforts. Studies indicate that only 18–25% of women in SSA practice regular SBE, with variations based on education, socioeconomic status, and healthcare access. In Kenya, breast cancer is the leading cause of cancer-related deaths among women, accounting for 16.1% of all cancer cases and 12.5% of cancer-related deaths. The Kenya National Cancer Control Strategy highlights the need for improved early detection and screening strategies. However, SBE uptake remains low due to factors such as limited awareness, cultural misconceptions, and healthcare accessibility barriers.

Despite national efforts to promote early detection, there is limited data on the prevalence and determinants of SBE at the county level. Apparently, in Tharaka Nithi County, where this study was conducted, no documented data exists on SBE prevalence or the factors influencing its practice. Given the county's rural context and health disparities, the study aimed to fill this knowledge gap by evaluating the prevalence, knowledge levels, and sociocultural factors influencing SBE among women attending the family planning clinic at Chuka Level 5 Hospital. The findings will support targeted, culturally relevant interventions, inform national cancer control strategies, and contribute to broader efforts aimed at reducing breast cancer morbidity and mortality in Kenya and similar low-resource settings

1.3 Objectives of the Study

1.3.1 Broad Objective

To evaluate the determinants of self-breast examination practice among women attending family planning clinic at Chuka level 5 hospital, Kenya.

1.3.2 Specific Objective

- i. To determine the proportion of women practicing SBE among women attending family planning clinic at Chuka level 5 hospital.
- ii. To determine the level of knowledge of SBE among women attending family planning clinic at Chuka level 5 hospital.
- iii. To determine the sociodemographic factors influencing SBE practices among women attending family planning clinic at Chuka Level 5 Hospital.
- iv. To determine the cultural factors influencing SBE practices among women attending family planning clinic at Chuka Level 5 Hospital.
- v. To determine the relationship between knowledge level and practice of SBE among women attending family planning clinic at Chuka Level 5 Hospital.

1.4 Research Questions and Hypotheses

1.4.1 Research Questions

- i. What is the number of women practicing SBE among women attending family planning clinic at Chuka level 5 hospital?
- ii. What is the level knowledge of self-breast examination among women attending family planning clinic at Chuka level 5 hospital?

1.4.2 Research Hypotheses

- H₀₁ There is no statistically significant relationship between sociodemographic characteristics of women attending family planning clinic at Chuka Level 5 Hospital and their practice of SBE.
- H₀₂ There is no statically significant relationship between cultural factors of women attending family planning clinic at Chuka Level 5 Hospital and their practice of SBE.

H₀₃ There is no statistically significant relationship between knowledge level of SBE of women attending family planning clinic at Chuka Level 5 Hospital and practice of SBE.

1.5 Significance of the Study

Breast cancer remains a leading cause of cancer-related morbidity and mortality among women globally. The World Health Organization (WHO) has prioritized reducing premature mortality from non-communicable diseases (NCDs), including cancer, by one-third by 2030 under Sustainable Development Goal 3.4 (SDG 3.4). This study aligns with both global and national health goals, including Kenya's National Cancer Control Strategy (2023-2027), which emphasizes early detection, health promotion, and equitable access to cancer screening services.

The findings from this study have critical implications for health policy and practice. By identifying determinants and barriers to Self-Breast Examination (SBE) practice among women, the study will provide an evidence base for policymakers and healthcare administrators to design and implement targeted interventions that promote breast cancer awareness and screening. Insight for this research can inform the integration of structured SBE education into existing national reproductive and family planning programs, in line with Kenya's Ministry of Health priorities on NCD prevention. Furthermore, the study can support the development of community-based health promotion strategies and capacity-building programs for healthcare workers to deliver culturally appropriate breast health education. This evidence will also contribute to Kenya's reporting on SDG 3.4 indicators and inform updates to the National Cancer Screening Guidelines.

The study adds to the growing body of knowledge on breast cancer prevention in low and middle-income countries (LMICs), particularly within Sub-Saharan Africa. Despite the global recognition of SBE as a simple, cost-effective and accessible early detection method, its uptake remains low, with only 18–25% of women in Sub-Saharan Africa reporting regular practice. In Kenya, although 77% of women are aware of SBE, only 13% practice it monthly and just 39% demonstrate correct knowledge and technique. By exploring the factors influencing these low rates, the study aims to fill an existing

knowledge gap regarding the behavioral, cultural, and health system determinants of SBE among Kenyan women. The results will contribute to the academic literature on preventive health behavior, particularly in resource-limited contexts, offering localized evidence that can inform both national and regional breast cancer control efforts.

Beyond its immediate policy and knowledge contributions, the study will serve as a foundation for future research on breast cancer prevention and health promotion. It will highlight context specific barriers such as cultural beliefs, myths and limited health education, that influence women's screening behaviors, thereby identifying areas for targeted research interventions. The findings may inspire subsequent studies evaluating the effectiveness of educational interventions, the role of healthcare providers in promoting SBE, and the impact of tailored communication strategies on women's health behaviors. Moreover, the study will contribute empirical data that can be used for meta-analyses and comparative studies across LMICs, strengthening global understanding of community-based breast cancer screening strategies.

Ultimately, the significance of this study lies in its potential to enhance breast cancer early detection efforts, in form evidence-based policy and program development and improve women's health outcomes. By addressing the determinants of SBE practice, it contributes directly to national and global objectives of reducing breast cancer-related morbidity and mortality. The outcomes will empower healthcare providers, policymakers and research providers with data-driven insights to develop sustainable interventions that advance women's health and align with Kenya's and WHO's long term cancer control goals.

1.6 Scope of the Study

This study focused on evaluating the determinants of self-breast examination (SBE) practices among women attending the family planning clinic at Chuka Level 5 Hospital in Tharaka Nithi County, Kenya. It targeted women aged 18 years and above accessing reproductive health services at the facility. The study assessed the prevalence, knowledge levels, and sociocultural factors influencing SBE, using an analytical cross-sectional design. Data was collected through structured questionnaires over a one-month period.

1.7 Assumptions of the Study

The researcher assumed that the study participants was honest with their responses. In addition, the researcher also assumed that that the intervening variables remained constant throughout the study.

1.8 Operational Definition of Terms

Determinant –	something which may hinder/promote breast-self examination
Self-breast Examination –	a simple, cost-effective method that involves a woman examining her own breasts monthly to detect any unusual changes or abnormalities, such as lumps, swelling, or skin changes.
Self-breast Examination Practice –	having ever performed a SBE at least once a month
Cultural factors –	beliefs, values, traditions, and social norms within a community that influence women's attitudes, perceptions and practices regarding breast health and self-breast examination.
Knowledge Level –	a woman's knowledge on self-breast examination.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of SBE

Breast cancer is the most commonly diagnosed cancer among women worldwide and represents a significant public health concern. In 2022, approximately 2.3 million new cases were reported globally, leading to an estimated 670,000 deaths (WHO 2024). The incidence and mortality rates of breast cancer vary across different regions. High-income countries, such as those in Northern America and Northern Europe, report higher incidence rates, attributed to factors like lifestyle and reproductive behaviors (Bray et al., 2024). However, these regions often have lower mortality rates due to effective early detection and treatment programs. Conversely, low- and middle-income countries, particularly in regions like Melanesia and Western Africa, experience lower incidence but higher mortality rates, reflecting limited access to healthcare services (Bray et al., 2024). Projections indicate a concerning trend: by 2050, annual global breast cancer cases are expected to reach 3.2 million, with 1.1 million related deaths (International Agency for Research on Cancer (IARC) 2025). This anticipated increase will disproportionately affect countries with a low Human Development Index (HDI), emphasizing the need for targeted interventions in these regions (IARC, 2025).

In Africa, breast cancer poses a unique challenge. Nearly half (47%) of breast cancer cases are diagnosed in individuals younger than 50 years, a stark contrast to regions like Northern America and Europe, where this age group accounts for about 18-19% of cases (Daly et al., 2021; IARC 2025). Furthermore, the mortality-to-incidence ratio is higher in African countries, indicating that a breast cancer diagnosis is more likely to result in death compared to higher-HDI regions (IARC, 2025). Kenya mirrors the broader African trends, with breast cancer being the second most common cancer among women after cervical cancer (MOH, 2021). The country has recognized the urgency of addressing this issue and has developed the "Kenya Breast Cancer Action Plan 2021-2025." This strategic plan aims to enhance breast cancer prevention, early detection, diagnosis, treatment, and palliative care services across the nation (MOH, 2021).

According to WHO (2024), there are several risk factors associated with the development of breast cancer. Female gender is the strongest risk factor, although males can also develop breast cancer. The risk of developing breast cancer increases with age, particularly after 50 years. Mutations in genes such as BRCA1 and BRCA2 significantly elevate the risk. Lifestyle factors such as alcohol consumption, obesity, and lack of physical activity have been linked to higher risk of breast cancer. Early menstruation, late menopause, and having children later in life or not at all can increase risk (WHO, 2024). Breast cancer may be asymptomatic (Abd et al., 2023). However, some of the common signs and symptoms include but not limited to presence of a breast lump as the most common physical symptom. Others include breast discomfort, long term changes of the nipple and breast retraction (Abd et al., 2023).

Self-breast examination (SBE) is a simple, cost-effective method that women can use to detect early changes in their breast tissue, potentially identifying abnormalities such as lumps, swelling, or skin changes that may indicate breast cancer. It involves visually inspecting and palpating the breasts monthly to notice any unusual changes (American Cancer Society, 2023). SBE is promoted as a way to increase breast awareness, especially in resource-limited settings where access to mammography and clinical breast exams is limited (WHO, 2021).

Regular practice of SBE may lead to early detection of breast cancer, particularly in low- and middle-income countries (LMICs), where women are often diagnosed at advanced stages due to limited access to diagnostic and treatment services (Johnson, 2019). The recommended time for SBE is a few days after menstruation ends when breasts are least likely to be swollen or tender. For postmenopausal women, a consistent monthly date is advised. The steps include visual inspection in front of a mirror and palpation in both lying and standing positions (National Cancer Institute, 2021). SBE remains a valuable empowerment tool for women, particularly in settings where other forms of screening are unavailable, however, its uptake remains low across African countries (Seifu and Mekonen, 2021).

2.2 Proportion of Women Practicing Self-Breast Examination

Self-breast examination (SBE) is a crucial practice for early breast cancer detection. Globally, the practice of self-breast examination varies significantly across regions and populations. In Indonesia, Azhar et al., (2023) conducted a systematic review and meta-analysis, revealing that the pooled prevalence of SBE practice among women was 51.2%. This indicates that slightly over half of the women in Indonesia engage in SBE, highlighting moderate adoption of the practice. Similarly, in Malaysia, Paruchuri et al., (2021) found that 48.6% of female university students practiced SBE, suggesting that younger, educated populations may have a moderate level of engagement with SBE. In Jordan, Ahmad et al. (2022) and Saudi Arabia, Hamid et al., (2024) reported that less than half of women practiced SBE, further underscoring the variability in SBE adoption across different cultural and geographical contexts. These findings suggest that while SBE is recognized as an important practice, its adoption remains inconsistent globally.

In Africa, the prevalence of SBE practice is generally lower compared to global averages. Seifu and Mekonen (2021) conducted a systematic review and meta-analysis across African countries, reporting a pooled prevalence of SBE practice at 37.5%. This indicates that less than half of African women engage in SBE, reflecting significant gaps in the adoption of this preventive health behavior. In Ethiopia, multiple studies highlight varying levels of SBE practice. Kassie et al., (2021) found that 32.4% of female university students practiced SBE, while Habtegiorgis et al., (2022) reported a slightly higher prevalence of 39.1% among Ethiopian women. Additionally, Urga et al., (2021) found that 41.2% of women attending family planning services in Southwest Ethiopia practiced SBE while. In Northwest Ethiopia, Asmare et al., (2021) reported that just less than half of the women practiced SBE. These studies collectively suggest that SBE practice in Ethiopia, and by extension in Africa, remains suboptimal, with significant room for improvement. In Tanzania, Marandu et al., (2024) explored SBE practices among Catholic nuns and found that 35.6% engaged in the practice. This study highlights that even among populations with access to health education, such as religious groups, SBE practice remains relatively low. In Ghana, although the women had high knowledge of breast screening, the practice was low (Afaya et al., 2022). These findings underscore the need for targeted interventions to improve SBE adoption across diverse populations in Africa.

In Kenya, the prevalence of SBE practice is similarly low, reflecting trends observed across Africa. Maureen et al., (2024) conducted a study among women of reproductive age in Turbo sub-county and found that only 28.7% practiced SBE. This low prevalence highlights significant gaps in the adoption of SBE among Kenyan women. Wassie et al., (2024) analyzed data from the Kenya Demographic and Health Survey and reported that 34.5% of reproductive-age women practiced SBE. This suggests that while awareness of SBE may exist, the translation of this awareness into practice remains limited. Joseph (2024) explored SBE practices among Catholic nuns in Nairobi and found a prevalence of 31.2%, which is consistent with findings from other African countries. These findings collectively indicate that Kenya faces significant challenges in promoting SBE as a routine health practice among women.

The prevalence of self-breast examination practice varies widely across different regions and populations. Globally, the practice ranges from 45.8% to 51.2%, indicating moderate adoption. In Africa, the prevalence is significantly lower, with pooled estimates of 37.5%, and country-specific studies reporting rates between 28.7% and 41.2%. In Kenya, the prevalence of SBE practice is particularly low, ranging from 28.7% to 34.5%, highlighting the need for targeted interventions to improve adoption. These findings give emphasis to the importance of addressing barriers to SBE practice and promoting its integration into routine health behaviors among women worldwide, particularly in low-resource settings like Africa and Kenya.

2.3 Level of Knowledge of self-breast Examination among Women

Breast cancer remains one of the most common malignancies affecting women worldwide, and early detection through screening methods such as self-breast examination (SBE) plays a critical role in reducing mortality. Knowledge of SBE among women varies widely across countries and socio-demographic groups, influenced by education, cultural beliefs and access to healthcare information. Although awareness of breast cancer is generally high, studies consistently show that women's knowledge of SBE its purpose, correct procedure, timing and frequency remains inadequate. This section reviews recent global, African and Kenyan studies on women's knowledge of SBE and identifies existing gaps.

Globally, women demonstrate differing levels of knowledge and practice regarding SBE. In Indonesia, a systematic review and meta-analysis by Azhar et al., (2023) found that while awareness of SBE was relatively high, many women lacked understanding of its correct procedure and timing, reflecting superficial knowledge of the practice (Azhar et al., 2023). Similarly, a cross-sectional study among female university students in Kedah, Malaysia, revealed inconsistencies in women's understanding of breast cancer risks and screening benefits (Paruchuri et al., 2021). In Jordan, Ahmad et al., (2022) reported that women had moderate awareness of SBE but did not fully grasp its significance in early breast cancer detection. Comparable findings were reported in Pakistan, where Khan et al., (2022) highlighted that although many women had heard about SBE, misconceptions about its importance and procedure were prevalent.

In south Asia, the level of SBE knowledge tends to be lower in rural than in urban settings. A study Jothula and Sreeharshika (2020), in Chittoor District, India, confirmed similar findings demonstrating that although women were aware of breast cancer, their knowledge and practice of SBE were poor. Likewise, Susithra and Shah (2024) reported that fewer than half of Indian women knew that SBE should be performed monthly, while Choudhary et al., (2024) found low knowledge of the timing and frequency of SBE in Northern India. These findings indicate a global pattern where awareness of breast cancer does not necessarily translate into correct knowledge or practice of SBE.

Understanding how and when to perform SBE is essential for its effectiveness. The Ministry of Health (MOH, 2018) and global guidelines recommend that women begin SBE at age 20 and perform it monthly, preferably a few days after menstruation when the breasts are less tender. However, several studies show poor understanding of these recommendations. In Indonesia, Azhar et al., (2023) reported that although women acknowledged the importance of SBE, many were unaware of its proper technique. Similarly, in India, Kumar and Yenuganti (2021) found that most women could not identify the correct procedure for SBE and knowledge was below average. Susithra and Shah (2024) also observed that while Indian women valued SBE, their procedural knowledge was insufficient.

Knowledge of breast cancer signs and symptoms also varies. In Telangana, India, Jothula and Sreeharshika (2020) found that the most commonly recognized symptom was the presence of a breast lump, followed by nipple discharge or bleeding. However, symptoms such as dimpling of the nipple or lumps under the armpits were rarely recognized. This limited understanding of clinical indicators reduces the likelihood of early presentation to healthcare facilities.

In Sub-Saharan Africa (SSA), studies indicate substantial knowledge gaps regarding SBE. A systematic review of 21 studies by Udoh et al., (2020) showed significant variations in SBE awareness and knowledge across African countries. In Ghana, Afaya et al., (2022) reported that women demonstrated relatively high knowledge levels of breast screening practices, possibly due to national campaigns promoting breast health awareness. Conversely, a systematic review by Habtegiorgis et al., (2022) in Ethiopia revealed that while many Ethiopian women had heard of SBE, their understanding of its purpose and correct technique remained superficial. Similarly, in the Democratic Republic of Congo, Amasa et al., (2024) found that over half of women in Kinshasa were unaware of SBE, indicating low penetration of breast health education.

Further evidence from Nigeria and Senegal suggests similar gaps. Muktar and Adoke (2024) found that while half of the women in Owo, Nigeria, knew that SBE should be performed monthly, some practiced it weekly or annually showing inconsistency in understanding. In Senegal, Gueye et al., (2024) observed that fewer than half of the women performed SBE using the recommended steps. Moreover, Urga Workineh et al., (2021) in Ethiopia reported that detailed knowledge of self-examination methods was lacking among women attending family planning services. These findings are consistent with a systematic review by Seifu and Mekonen (2021), who concluded that across Africa, many women have heard of SBE but lack adequate knowledge of its purpose, timing and steps. In Tanzania, a cross-sectional study at Majengo Health Center in Moshi Municipality found that although 95% of women had heard of SBE, only 33% had adequate knowledge of how to perform it correctly and less than 30% practiced it regularly (Masawa et al., 2024). Similarly, a study among female healthcare professionals in Kigali, Rwanda, found that while most participants were aware of SBE,

only a minority could perform it correctly or at the recommended intervals (Wolde et al., 2023).

Kenya mirrors the broader African pattern, with rising awareness but limited procedural knowledge and practice. Breast cancer accounts for 16.1% of all cancer cases among women in Kenya, yet early detection remains suboptimal (Kenya National Cancer Control Strategy, 2022). Oguta et al., (2022) found that the practice of SBE was low in Kisumu County despite increasing awareness. Similarly, Maureen et al., (2024) reported that although women in Turbo Sub-County had heard of SBE, they lacked a clear understanding of its proper technique and importance.

Recent national data provide further insights. A 2023 analysis of the Kenya Demographic and Health Survey (KDHS, 2022) revealed that only 44.4% of women of reproductive age were aware of breast examination methods, including SBE (Wessie et al., (2024). In Bomet County, Ayodo (2024) found that 93.8% of women had heard about breast cancer, but only 30.8% knew about SBE and just over half performed it monthly (Ayado, 2024). At Meru Teaching and Referral Hospital, Mugambi et al., (2024) reported that 57% of women had poor SBE knowledge and 70% had poor practice, indicating persistent educational gaps (Mugambi et al., 2024). Evidence from Nairobi also aligns with these findings. Joseph (2024) found that Catholic nuns had partial awareness of SBE but limited procedural knowledge. Similarly, Wassie et al., (2024) reported that awareness of SBE in Kenya varied significantly by education level, residence and access to health information. These findings suggest that while Kenyan women are increasingly aware of breast cancer, comprehensive understanding of SBE remains insufficient, particularly in rural and semi-urban regions.

Despite growing evidence, several knowledge gaps persist. First, most existing studies are cross-sectional and descriptive, limiting understanding of how SBE knowledge changes over time or after targeted interventions. There is a lack of longitudinal or interventional studies assessing whether educational programs translate into sustained behavioral change. Second, geographical gaps exist within Kenya very few studies have been conducted in Tharaka Nithi County, despite differences in cultural beliefs, healthcare access and literacy levels that may influence SBE practice. Third, there is

limited research focusing specifically on women attending maternal and child health (MCH) and family planning clinics, who represent a critical demographic for breast cancer awareness initiatives.

Additionally, standardization issues in measuring SBE knowledge and practice complicate cross-study comparisons. Different researchers use varying definitions of “adequate knowledge” or “good practice,” leading to inconsistent interpretations. Another major gap lies in understanding cultural influences. Although several studies acknowledge that cultural beliefs, myths, and modesty norms affect SBE practice, few provide detailed descriptions of these sociocultural barriers. Finally, the sources of information influencing SBE knowledge such as healthcare workers, community health volunteers, or media campaigns are under-explored in the Kenyan context.

The reviewed literature demonstrates a consistent global and regional trend: awareness of SBE is increasing, but deep understanding and proper practice remain inadequate. Women worldwide, especially in low and middle-income countries, face barriers related to misinformation, cultural norms, and limited access to health education. In Africa and Kenya, the problem is compounded by disparities between urban and rural populations and by the absence of sustained breast health promotion programs.

Addressing these gaps requires targeted interventions that focus on improving procedural knowledge, demystifying cultural misconceptions, and integrating breast health education into routine reproductive health services. A study in Tharaka Nithi County, focusing on women attending family planning clinics, would therefore be timely and valuable. It would fill a critical gap in the literature by providing context-specific data, exploring sociocultural influences, and guiding evidence-based interventions aimed at enhancing early breast cancer detection in Kenya.

2.4 Sociodemographic Factors Influencing SBE Practices among Women

Self-breast examination (SBE) is a cost-effective and accessible method for early detection of breast cancer. However, its practice is influenced by a myriad of sociodemographic factors. Musugire (2020) reported that nurses and midwives in Rwanda with higher education and income levels were more likely to practice SBE.

According to Jothula and Sreeharshika, 2020) women with college education and above in rural India, were more likely to practice SBE as compared to those with secondary education and below. Similarly, Awogbayila et al., (2023) revealed that women in Nigeria are more likely to engage in SBE if they are of higher economic status and those with higher educational qualifications. Conversely, Anangwe (2023) identified that low socioeconomic status, including lack of access to healthcare and educational resources, hindered breast cancer screening among women in Kenya. Additionally, according to Wassie et al., (2024) women from higher socioeconomic backgrounds in Kenya were more aware and practiced SBE more frequently than their lower socioeconomic status counterparts.

The association between the practice of SBE with age tends to differ. Two studies in India demonstrated that there is no significant relationship between age and the practice of SBE (Choudhary et al., 2024; Prathyusha et al., (2022)). However, in Nigeria, Awogbayila et al., (2023) and Muktar and Adoke (2024) revealed that the frequency of SBE increased with age. Similarly, in a systematic analysis of breast cancer screening practices in Ghana, uptake of breast screening practices improved with age (Afaya et al., 2022). On the other hand, in Kenya there is no a well-defined relationship between age and uptake of breast cancer screening practices (Wassie et al., 2024). Thus, this study aims to determine the relationship between age and SBE practice.

Women of higher parity and those with family history of breast cancer tend to practice SBE more often than their counterparts. A study by Azhar et al. (2023) in Indonesia found that women with a history of benign breast conditions or family history of breast cancer were more likely to practice SBE regularly. Similarly, women with past exposure of breast examination are more likely to continue with SBE. Ahmad et al. (2022) cross-sectional study in Jordan reported that women with prior breast-related consultations or exposure to healthcare education demonstrated higher adherence to SBE. In addition, female university students in Malaysia with better general health literacy and regular gynecological check-ups were more likely to perform SBE (Paruchuri et al. (2021)). Susithra & Shah (2024) study in India emphasized that the presence of non-communicable diseases (NCDs), such as obesity or diabetes, negatively influenced SBE practice due to competing health priorities.

According to Korir (2023) in Rwanda highlighted that women attending Kigali University Teaching Hospital with a history of breast pain or lumps had a higher likelihood of performing SBE, while those with chronic illnesses often neglected the practice. According to Israel et al., (2023), women in Southern Ethiopia were more likely to practice SBE if they had a family history of breast cancer.

In Kenya, health-related factors significantly shape SBE practice, particularly in relation to healthcare accessibility and reproductive health. In Turbo Sub-County in Kenya, Maureen et al., (2024) found that women who had undergone previous breast check-ups were more likely to practice SBE. Joseph (2024) studied Catholic nuns in Nairobi and found that those with prior knowledge of breast-related health issues had a higher likelihood of performing SBE. Seifu & Mekonen (2021) reinforced these findings, stating that Kenyan women with a history of breast complications were more inclined to perform regular SBE, while those with chronic illnesses prioritized other health concerns over breast self-examination. The aim of this study is therefore to identify the influence of reproductive health history to women's practice of SBE in Tharaka Nithi County.

2.5 Cultural Factors Influencing SBE Practices among Women

Cultural beliefs and practices play a significant role in shaping health behaviors. Suwannaporn and Chuemchit (2022) explored SBE practices among Akha women in Thailand and found that cultural taboos and modesty were significant barriers of SBE. Women were reluctant to perform SBE due to cultural norms that discourage touching one's body. Similarly, Altunkurek and Hassan (2022) studied Somali women and found that cultural beliefs about illness and fatalism often deterred women from engaging in SBE. Additionally, women in Ondo State in Nigeria engage in SBE according to their ethnicity (Awogbayila et al., 2023). However, there may be relationship between the practice of SBE and religion (These studies underscore the need for culturally sensitive studies and subsequent interventions to address such barriers.

Social support and networks can either facilitate or hinder SBE practices. Aheto (2024) examined socioecological factors influencing medical help-seeking for breast cancer in Togo and found that women with strong social support networks were more likely to

engage in SBE. Similarly, Muktar and Adoke (2024) noted that being married promoted SBE in Sokoto in Nigeria. However, being married or not is not associated with the practice of SBE (Prathyusha et al., 2022). On the other hand, lack of support from family and community members was a significant barrier. Moreover, Maureen et al., (2024) also emphasized the role of community health workers and peer educators in promoting SBE among women in Kenya, suggesting that social networks can be leveraged to enhance SBE practices.

Gender roles and women's empowerment are crucial factors in SBE practices. Udoh et al., (2020) noted that in many sub-Saharan African societies, women's health is often deprioritized, and gender roles that emphasize caregiving over self-care can hinder SBE practices. Additionally, Nigerian women who were more empowered and had decision-making autonomy were more likely to practice SBE (Awogbayila et al., 2023). These findings suggest that empowering women and challenging traditional gender roles can enhance SBE practices. However, more research is needed to ascertain the suggestion.

Globally, stigma surrounding breast cancer and SBE manifests in various forms, including fear of diagnosis, cultural taboos, and misconceptions about the disease. In India, for instance, a program training visually impaired women as medical tactile examiners has improved early detection rates. However, many women still fear breast examinations, worrying that discovering a lump could signify a death sentence. This fear underscores the stigma associated with breast cancer, leading to reluctance in performing BSE or seeking medical help (Bakshi, 2024).

In Africa, stigma is a significant barrier to SBE practice. A study in Southern Ethiopia found that 42.5% of women considered touching their breasts as obscene, reflecting cultural taboos that hinder BSE practice. Additionally, 35.2% avoided SBE due to fear of discovering cancer, indicating that stigma and fear are intertwined in preventing early detection efforts (Israel et al., 2023). In Rwanda, research among female healthcare professionals revealed that less than half had ever performed BSE, with only 33% doing so regularly. The primary reasons included fear of a cancer diagnosis and lack of technical knowledge, highlighting that even medical professionals are not immune to the effects of stigma (Wolde et al., 2023). Similarly, in Cameroon, despite high

awareness of breast cancer, SBE practice remains low. Misconceptions about the disease, such as beliefs in mystical causes, contribute to stigma and deter women from engaging in BSE (Suh et al., 2021).

In Kenya, stigma surrounding breast cancer significantly impacts BSE practices. A study in Coastal Kenya revealed that women feared a breast cancer diagnosis due to potential social rejection, including being considered undesirable or facing divorce. Such stigma leads to reluctance in seeking medical attention or performing SBE (Sayed et al., 2019). Further research indicated that limited decision-making autonomy among women, often requiring permission from husbands or in-laws to seek healthcare, exacerbates the issue. This dependency, coupled with stigma, hampers women's ability to perform SBE or access breast cancer screening services (Gakunga et al., 2019).

2.6 Relationship between Knowledge Level of SBE and Practice of SBE

Knowledge and awareness of breast cancer and self-breast examination (SBE) are vital for early detection and better health outcomes. Studies show that higher knowledge levels are linked with better SBE practice, while low knowledge results in poor uptake.

Globally, the level of SBE knowledge differs by country, education, and exposure to health information. In India, Susithra and Shah (2024) found that women who had better knowledge of SBE performed it more regularly. Awareness of the correct procedure and timing improved their likelihood of monthly practice. Similarly, Azhar et al., (2023) reported in Indonesia that knowledge was a strong predictor of SBE practice. Women who had received breast health education showed greater confidence in examining themselves. In another Indian study, Jothula and Sreeharshika (2020) noted that the practice of SBE was very low among rural women because they lacked knowledge of the correct steps and timing. Other studies confirm this global trend. In Jordan, Ahmad et al., (2022) found that many women were aware of SBE but did not know the correct procedure. In Malaysia, Paruchuri et al., (2021) observed that misconceptions about breast cancer risk factors and limited health information led to low SBE uptake. These findings suggest that awareness alone is not enough; detailed procedural knowledge is necessary for consistent practice.

In Africa, SBE knowledge and practice remain low despite growing awareness of breast cancer. Udoh et al., (2020) conducted a scoping review in sub-Saharan Africa and found that women's attitudes and knowledge significantly affected SBE practice. Most women knew about breast cancer but lacked the skills to perform SBE correctly. In Nigeria, Awogbayila et al., (2023) reported that although many market women were aware of breast cancer, few knew the correct SBE method. Likewise, in Ghana, Afaya et al., (2022) found that higher knowledge levels of breast screening promoted uptake of SBE. A review by Seifu and Mekonen (2021) covering several African countries showed that awareness was rising, but knowledge of the correct SBE procedure remained limited. In Senegal, Gueye et al., (2024) found that less than half of women performed SBE using the recommended technique. Similarly, Workineh et al., (2021) in Ethiopia reported poor knowledge among women attending family planning clinics. Many did not know when or how to perform the examination.

In Tanzania, Marandu et al., (2024) studied Catholic nuns and found that while awareness was high, detailed procedural knowledge varied. Another Tanzanian study among women attending Majengo Health Center in Moshi Municipality found that 95% had heard about SBE, but only about one-third had adequate knowledge of how to perform it correctly. Kenyan studies show a similar pattern. Maureen et al., (2024) found that women of reproductive age in Turbo Sub-County who had higher knowledge of breast cancer and SBE were more likely to practice it. However, sociocultural beliefs and limited access to health information reduced regular practice. Wassie et al., (2024) analyzed Kenya Demographic and Health Survey data and found that knowledge and awareness were strong predictors of SBE practice, though the overall prevalence was still low. Among Catholic nuns in Nairobi, Joseph (2024) also found that knowledge strongly predicted SBE practice.

A study at Meru Teaching and Referral Hospital by Mugambi et al., (2024) reported that 57% of women had poor knowledge and 70% had poor practice of SBE. The authors concluded that low education levels and lack of training opportunities contributed to poor performance. The Kenya Demographic and Health Survey (2022) showed that only 44.4% of women of reproductive age were aware of breast

examination as a way to detect breast cancer. This finding indicates a major knowledge gap among Kenyan women.

Sociocultural influences also play a large role in shaping SBE behavior. A study in South Africa found that beliefs about breast cancer and stigma affected women's willingness to perform SBE (Sarmah et al., 2023). Fear, fatalism, modesty and traditional beliefs were major barriers. Mugambi et al., (2024) also observed that religion, education level, and support from healthcare providers influenced knowledge and practice. Socioeconomic status affects SBE awareness and performance as well. Educated women with better income tend to have more access to information and are more likely to practice SBE. In Nigeria, Awogbayila et al., (2023) found that education level, marital status and exposure to health messages significantly predicted SBE practice.

Despite the increased focus on breast cancer awareness, major gaps remain. Many studies indicate that women may have heard about SBE but lack the correct knowledge of the procedure. Cultural beliefs, fear and stigma also hinder practice. Moreover, most studies in Kenya have been done in urban or semi-urban areas such as Nairobi, Kisumu and Meru. There is limited research from rural settings such as Tharaka Nithi County, where cultural and economic barriers may differ. Most of the existing research is also cross-sectional. It provides associations between knowledge and practice but does not test interventions that could improve awareness and performance. Therefore, there is a need to investigate how knowledge and sociocultural factors influence SBE practice among women in Tharaka Nithi County. Studying women attending family planning clinics at Chuka County and Referral Hospital will help identify the key barriers and promoters of SBE practice. The results can guide tailored education and awareness programs to improve early breast cancer detection in rural Kenya

2.7 Theoretical Framework

This study is guided by the Health Belief Model (HBM) which provides a suitable framework for understanding the determinants of self-breast examination (SBE) among women attending Chuka Level 5 Hospital. The model was developed in the 1950s by Rosenstock to explain why individuals often fail to adopt preventive health behaviors

or screening practices for early disease detection. It has since been widely applied in health promotion research to predict preventive behaviors across different populations (Lemorte, 2019). According to the HBM, the likelihood of engaging in a health-related behavior, such as performing SBE, depends on an individual's perceptions and beliefs about a specific health condition. The model identifies six key constructs that influence behavior: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Advancing Health Equity, 2021; Hochbaum & Rosenstock, 1952).

- i. Perceived susceptibility-refers to an individual's belief about their personal risk of developing breast cancer. In this study, women who perceive themselves to be at higher risk of breast cancer due to factors such as family history or increasing age are expected to be more likely to practice SBE.
- ii. Perceived severity-relates to one's understanding of the seriousness and consequences of breast cancer. Women who believe breast cancer is a severe and life-threatening condition may be more motivated to engage in early detection practices.
- iii. Perceived benefits-involves an individual's belief in the effectiveness of SBE in detecting breast cancer early and improving treatment outcomes. Those who recognize SBE as a useful and accessible screening method are more likely to practice it regularly.
- iv. Perceived barriers- include obstacles that hinder women from performing SBE, such as lack of knowledge, fear of diagnosis, cultural taboos, or misconceptions about breast cancer. Understanding these barriers among women attending Chuka Level 5 Hospital will help identify specific factors that discourage practice.
- v. Cues to action-refers to triggers that motivate individuals to act. These may include health education sessions, advice from healthcare providers, family influence, or exposure to breast cancer awareness campaigns. The presence of effective cues may increase the likelihood of regular SBE practice among women in this setting.
- vi. Self-efficacy- represents a woman's confidence in her ability to correctly perform SBE. Women who feel capable of conducting the examination effectively are more likely to engage in it consistently.

Applying the HBM to this study helps to understand how individual beliefs, sociocultural influences, and knowledge interact to influence SBE practice. For example, women who perceive breast cancer as a serious but preventable disease and believe in their ability to perform SBE correctly are more likely to adopt this behavior. Conversely, those with low perceived susceptibility or who face cultural and psychological barriers may not engage in SBE despite being aware of its benefits.

At Chuka Level 5 Hospital, women attending family planning clinics represent an important group for breast cancer prevention interventions. These women are already engaged with reproductive health services, which provides an opportunity to promote SBE as part of routine health education. However, existing evidence from Kenya and other low resource settings suggest that while awareness of breast cancer may be high, the actual knowledge and practice of SBE remain low due to perceived barriers such as fear, limited or cultural misconceptions.

By adopting the HBM, this study seeks to examine how perceptions of susceptibility, severity, benefits, barriers, cues to action and self-efficacy determine the practice of SBE among women attending Chuka Level 5 Hospital. Understanding these determinants will provide insights into the psychological and social factors influencing breast health behavior in this population. The model also helps in designing targeted educational interventions that address perceived barriers, strengthen self-efficacy and enhance motivation for regular SBE practice. Ultimately, the use of the HBM in this study supports the identification of modifiable determinants that can improve early detection of breast cancer through SBE. This theoretical framework aligns with Kenya's national cancer control strategy, which emphasizes prevention, early diagnosis and community health education. Findings from this study can therefore inform policies and programs that promote sustainable breast health practices among women in Tharaka Nithi County and similar settings.

2.8 Conceptual Framework

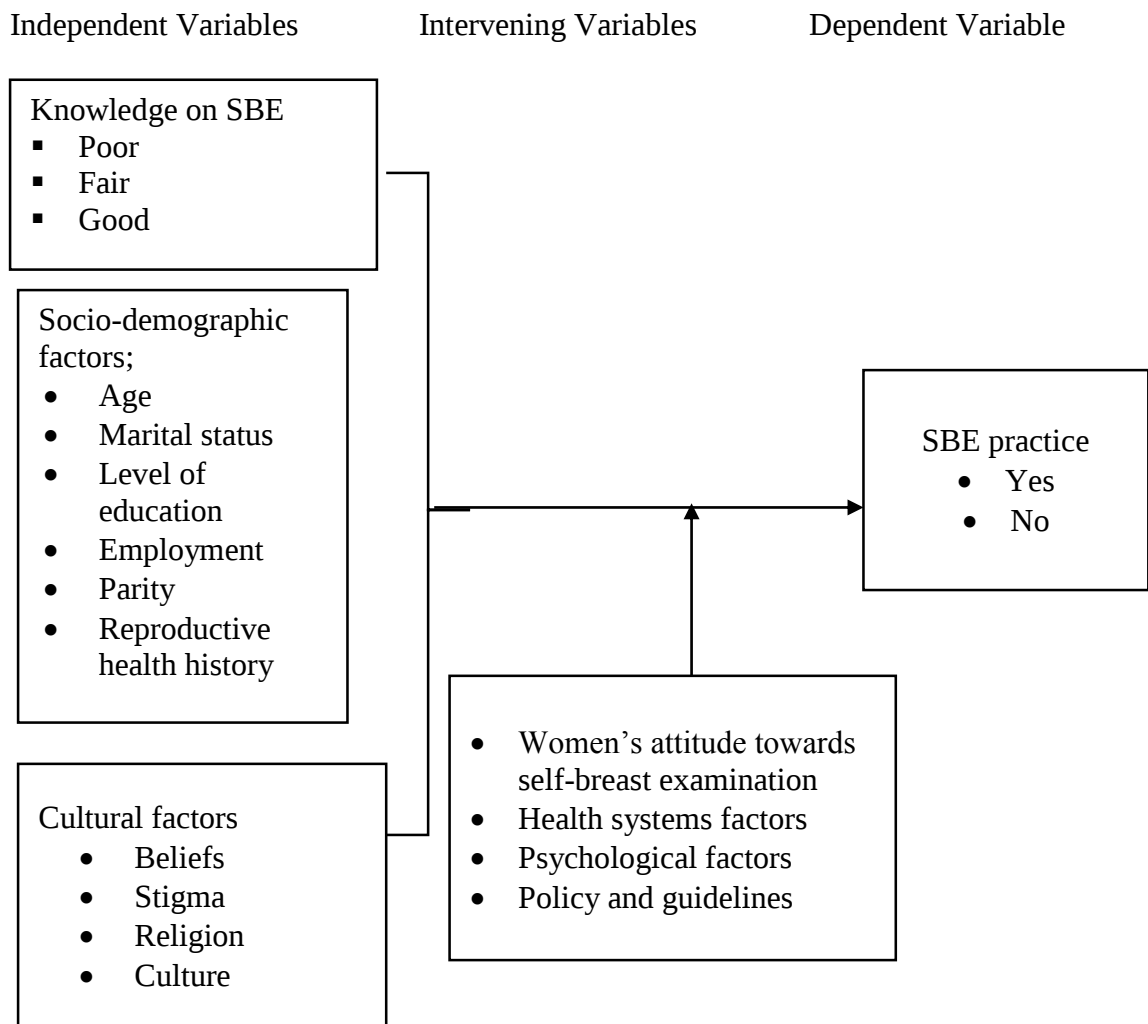


Figure 1: A conceptual framework on determinants of self-breast examination among women attending family planning clinic at Chuka family planning clinic
Source: Author, 2025

Figure 1 highlights the inter-relationship between dependent and independent variables. The practice of self-breast examination (SBE) among women is influenced by a combination of independent, intervening, and contextual factors. Understanding how each of these variables contributes to perform SBE (Yes) or not (No) is essential in designing effective interventions for early breast cancer detection. Knowledge plays a pivotal role in influencing whether women engage in regular SBE. Women who understand the importance of SBE, know how and when to perform it, and are aware of what signs to look out for are more likely to practice SBE consistently. Conversely, lack of knowledge or misinformation can lead to neglect of this crucial preventive

behavior. Knowledge also includes awareness of breast cancer risk factors and the benefits of early detection. The knowledge on SBE can be poor, fair or good.

Cultural beliefs and societal norms heavily influence health-seeking behaviors. In many communities, discussing breast health may be considered taboo or associated with stigma. Myths, such as the belief that touching one's breasts can cause cancer, may discourage women from performing SBE. Additionally, religious views and gender roles may also affect women's autonomy in making health-related decisions. These cultural dynamics can either inhibit or encourage the uptake of SBE practices. Fear of being diagnosed with breast cancer, anxiety, denial, or low self-efficacy can all mediate the relationship between knowledge and practice. Even with sufficient knowledge, some women may avoid SBE because they fear a possible diagnosis or doubt their ability to correctly perform the exam. Addressing these psychological barriers through counseling and peer support is crucial in increasing uptake.

Age, education level, marital status, and income are important determinants of health behavior. Educated women are more likely to access, comprehend, and utilize health information. Younger or unmarried women may feel embarrassed or uninformed about breast health. Financial constraints can also limit access to supplementary screening methods like clinical breast exams or mammography, making SBE a more viable option—provided the woman has the knowledge and confidence to do it. Women who are regularly exposed to breast cancer information through health campaigns, media, healthcare providers, or community programs are more likely to perform SBE. Access to accurate and culturally appropriate health information increases awareness and builds confidence in performing SBE correctly. Women attending family planning clinics present an important opportunity to disseminate such information during routine visits.

The presence of trained healthcare professionals, routine counseling on SBE, and user-friendly health facilities can influence the relationship between knowledge and practice. If the healthcare system does not prioritize breast health education or lacks the resources to support screening, women may remain unaware or unmotivated to conduct SBE. The quality of care and availability of educational materials also determine how well women

are prepared to carry out SBE. National policies and local health strategies that encourage early detection through SBE and CBE can reinforce practice. The Ministry of Health (MOH) guidelines in Kenya recommend SBE as a first-line screening method, especially in resource-limited settings. However, weak policy implementation, lack of enforcement, or absence of community-level programs can dilute the impact of such guidelines.

The practice of self-breast examination is not solely dependent on one factor but is shaped by the interplay between knowledge, socio-cultural context, demographics, healthcare access, psychological readiness, and supportive policy environments. Understanding how these variables influence each other provides a comprehensive foundation for designing interventions tailored to the unique needs and circumstances of women in Tharaka Nithi County. It also highlights the importance of addressing both personal and systemic barriers to improve breast cancer early detection efforts.

CHAPTER THREE

METHODOLOGY

3.1 Study Location

The study was carried out in Chuka Referral Hospital in Tharaka-Nithi County which is a level 5 health care facility located in Chuka Municipality approximately 200 km off Nairobi city along Nairobi-Meru highway. It lies on Latitude 0° 19' 60.00" N and longitude 37°38' 59.99" E. The hospital is located in Tharaka Nithi County which covers an area of approximately 2,564.4 square kilometres and has a population of 193,764 males and 199,406 females. According to Kenya National Population and Housing, 2019 the county has 109,860 households. The county is found on latitude 0° 10' 36.228" S and longitude 38° 3' 47.326" E. It has four administrative sub counties which are; Tharaka south, Tharaka North, Maara and Meru South (County Integrated Development Plan, 2013). The county's main economic activity is farming.

The hospital offers comprehensive healthcare services being the largest referral public hospital in the county. In addition, the hospital has recorded an increase in the number of patients diagnosed with breast cancer after the initial clinical breast examination at MCH as shown in Table 1. This provided an opportunity for the researcher to establish the prevalence and determinants of self-breast examination practice among women attending family planning clinic (Chuka Level 5 Hospital, January, 2025)

Table 1. Clinical Breast Examination (CBE) outcomes at Chuka Level 5 Hospital

Year	Total CBE	Normal	Abnormal	Confirmed breast cancer
2021	226	220	6	2
2022	334	323	11	5
2023	423	407	16	12
2024	575	554	21	17

3.2 Study Design

A research design is a framework in which a study will be implemented (Sileyew, 2019). An analytical cross-sectional research design with mixed methods of data collection was adopted for the study. This cross-sectional design was considered since the researcher has no control over the variables that was studied (Cummings, 2018). In addition, the researcher was able to evaluate the exposure (utilization of family planning

services) and the result (knowledge of breast cancer and self-breast examination) and analyze the data at only one point in time attributable to this study's chosen design (Wang and Cheng 2020). The design was not only cost be effective but also time efficient.

3.3 Study Population

The target population comprised all women of reproductive age (15–49 years) and healthcare providers involved in family planning services at public hospitals within Tharaka Nithi County. This broader group represents individuals who are potential users or providers of family planning and preventive health services, including self-breast examination education.

The accessible population included women attending the family planning clinic and healthcare providers (nurses, clinical officers, and medical officers) working in the Maternal and Child Health (MCH) family planning unit at Chuka Level 5 Hospital. This population was chosen because they were readily available to the researcher and represent the typical users and service providers of reproductive health services within the county.

The study population consisted of women who were present and receiving services at the Chuka Level 5 Hospital family planning clinic during the data collection period, as well as the nurses and medical officers on duty in the same clinic. The hospital serves approximately 150–200 women monthly, averaging 175 women, translating to about 2,100 women annually. These individuals formed the actual participants from whom data on determinants of self-breast examination practices were collected.

3.3.1 Inclusion Criteria

Sampled and willing women attending the MCH family planning clinic and the nurses, medical and clinical officers on duty during the data collection period were included in the study.

3.3.2 Exclusion Criteria

Those unwilling to participate was excluded from the study. In addition, those who were unable to provide a written consent were excluded from the study. Nurses and doctors on leave and off duty during the data collection period, on internship and the newly employed (less than one year of practice) were also be excluded from the study. Women who were sick at the time of data collection were also excluded from the study.

3.4 Sampling

3.4.1 Sample Size Determination

The sample size for this study was determined using the Cochran's (1997) formula:

$$n = Z^2 P \frac{(1 - P)}{d^2}$$

Where:

n-sample size

Z- is the corresponding confidence level set at 1.96 for 95% confidence interval

p- is the estimated value for the proportion of a sample that has the condition of interest (practices SBE). Since the proportion of women practicing SBE in Kenya is 34.5% (Wassie et al., 2024), p was set at 35%.

d- is the degree of margin of error set at 5%

Substituting the figures:

$$\begin{aligned} n &= \frac{1.96^2 \times 0.35 \times 0.65}{0.05^2} \\ n &= \frac{1.96^2 (0.35)(0.65)}{0.0025} \\ n &= \frac{0.8753}{0.0025} \end{aligned}$$

n = 351

Since the target population is below 10,000, the sample size was adjusted using the formula recommended by Mugenda and Mugenda (2003)

$$Nf = \frac{n}{1 + n/N}$$

Where;

Nf = desired sample size when the population is less than 10,000.

n=desired sample size when the population is more than 10,000 (351).

N= estimate of the size or total population (2100/12 (Chuka Level 5 Hospital, 2025).

$$Nf = 351 / \{1 + (351/175)\}$$

$$351/3 = 117$$

$$Nf = 117$$

According to Bujang (2021), an additional allowance should be provided to cater for potential non-response participants. Therefore, 10% of the population was added to cater for attrition rate (12 patients)

$$\text{Sample size} = 117 + 12 = 129 \text{ patients}$$

Hence 129 eligible women attending Chuka level 5 hospital MCH family planning clinic was sampled for the study.

A nurse, a clinical officer and a doctor working in the MCH family planning clinic was interviewed as the key informants.

3.4.2 Sampling Procedure

Systematic random sampling and convenient sampling techniques was employed to select participants. This approach ensures that every patient has an equal opportunity to participate in the study while minimizing bias (Taherdoost, 2016). The n^{th} number was determined by dividing the total population (2100) by the sample size (), resulting in the thirteenth number. As patients arrive at the family planning clinic, they were assigned serial numbers in the daily patient register. Every thirteenth number was then used to identify participants based on the calculated n^{th} number. If a selected participant declined to provide consent, a replacement was chosen from those who were not initially allocated the n^{th} number. This process continued until the target number of participants is reached. Additionally, purposive sampling was used to recruit nurses, doctors and clinical officers working in the Maternal and Child Health (MCH) family planning clinic for the key informant interviews.

3.5 Data Collection Tools

A researcher-administered semi-structured questionnaire was used to gather data on respondents' demographic data, practice of self-breast examination, breast cancer knowledge on risk factors, signs and symptoms and uptake of breast screening services.

An interview schedule was used to interview the key informants (nurses working at MCH, family planning clinic).

3.5.1 Questionnaire

A researcher developed and administered questionnaire was used to collect data on sociodemographic characteristics, knowledge on SBE (10 questions), practice of SBE (12 items) and cultural factors (10 items). The questionnaire was used to obtain quantitative data from the women attending the family planning clinic.

3.5.2 Interview Schedule

A researcher developed interview schedule was used to obtain qualitative data from the HCPs who were the key informants. The interview schedule guide had 6 questions which were used to explore the HCPs perspective in reference to women's knowledge and practice of SBE

3.6 Pre-testing of Study Instruments

The data collecting tool was pre-tested in the MCH family planning clinic department of Embu Teaching and Referral Hospital. Ten percent of the study sample (16.3= 17 patients and one nurse) was used. Findings from the pre-test helped the researcher in refining the final data collection tools.

3.6.1 Validity Test

To ensure the validity of the research questionnaire and interview guide used in studying self-breast examination (SBE) practices among women attending the family planning clinic at Chuka Level 5 Hospital, several strategies was employed. First, a comprehensive literature review was conducted to inform the development of the instruments and ensure they align with previous studies and established guidelines such as those from the World Health Organization and the Kenya National Cancer Control Strategy. This review helped in identifying key themes and variables relevant to SBE knowledge, practice, and influencing factors. The tools then underwent expert evaluation by professionals in midwifery, obstetric nursing, and public health, as well as academic supervisors, who assessed the instruments for content coverage, clarity, and cultural appropriateness. Their feedback was used to refine the questions and ensure

they are comprehensive and aligned with the study's objectives. Face validity was ensured through pre-testing with a small group of participants similar to the target population, allowing the identification and revision of ambiguous or unclear questions. Construct validity was addressed by aligning all questions with a clearly defined conceptual framework that connects knowledge, sociodemographic and cultural factors to SBE practices. Furthermore, methodological triangulation, using both quantitative questionnaires and qualitative interview guides, enhanced validity by enabling cross-verification of findings. This mixed-methods approach offers a deeper understanding of both the measurable and contextual aspects of SBE behaviour. Finally, the development process followed an iterative refinement cycle, incorporating insights from literature, expert feedback, and pilot testing to ensure that the final instruments are valid, contextually appropriate, and effective in capturing accurate data. These measures collectively ensured that the data collection tools were reliable and capable of generating trustworthy insights to inform interventions aimed at improving SBE awareness and practice.

3.6. 2 Reliability Test

The tools to be used by the researcher to collect data was tested for reliability by use of test retest method. This was done through data collection from the same individuals at two different points in time using the questionnaire and afterwards comparing the correlation co-efficient of the two set of results. This study's questionnaire had a correlation coefficient of 0.88 which was appropriate since it was more than 0.7 (Singh et al., 2012). Hence, the tools were therefore adopted for the study.

3.7 Procedure for Data Collection

Data was collected using the researcher-administered questionnaires for the patients and an interview guide for the key informants. All women visiting the family planning clinic at the time of data collection and meets the inclusion criteria voluntarily participated in the study. The subjects signed an informed consent to show their wish to take part in this study. They were the explained the reason the study is being carried out and that privacy and confidentiality was ensured. The subjects were also informed of potential benefits of the study and that there are no adverse effects related with the study participation. A researcher-administered questionnaire was used to obtain

sociodemographic data, practice of SBE, knowledge on SBE and cultural factors related to SBE from women visiting FP clinic.

A key informant interview guide was utilized to generate a conversation while the researcher documents the responses and records them using a tape recorder. These interviews aim was to help the researcher gather additional insights into the prevalence of self-breast examination, as well as the sociocultural and hospital-based factors that may either encourage or hinder the practice of self-breast examination.

3.8 Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 29.0 was used to examine quantitative data. Descriptive statistics, such as percentages, medians, frequencies, mean, and standard deviation, were used to summarize the socio demographic characteristics of the participants. The participants' age groups were divided into two around the median age which was 28. On the knowledge domain on breast examination items every correct response attracted '1' score while a wrong response was awarded '0'. The total score was transformed into percentage knowledge score. For comparison purposes, knowledge level was divided into three groups using the interquartile ranges "poor (58 and below)", "fair (59 - 82)", and "good (83 and above)" as it had been used in previous studies (Elsawy et al., 2023; Oboli et al., 2024). The Chi-square test and regression tests were used to demonstrate the association between breast examination knowledge and self-breast examination practices. An independent t-test was used to determine the differences in knowledge between those who practiced SBE and those who did not shown in Table 2.

Under the cultural practices, the responses; strongly disagree, disagree, agree and strongly agree were grouped into two: agree (agree and strongly agree) and disagree (disagree and strongly disagree). The Chi-square test and regression tests were used to demonstrate the association between cultural practices and SBE practice. Statistical significance was set at <0.05 . Qualitative data was analysed thematically by examining the content. Quantitative data was cross-referenced and integrated with qualitative findings. Once analysed, the data was presented through narratives (summarizing the researcher's findings), as well as with tables, figures, and charts.

Table 2: Data analysis matrix

Objective	Data	Type of data	Analysis procedure
1. To determine the number of women practicing SBE	Number of participant practicing SBE	Nominal Ordinal	Descriptive analysis: Percentages, frequencies
2. To determine the level of knowledge of SBE	Knowledge score	Continuous	Descriptive analysis – mean, standard deviation
3. To determine the sociodemographic factors influencing SBE practices	Socio-demographic characteristics Themes	Continuous Ordinal data	Chi-square, regression analysis, Thematic analysis
4. To determine the cultural factors influencing SBE practices	Cultural factors Themes	Nominal	Chi-square, regression analysis, Thematic analysis
5. To determine the relationship between knowledge and practice of SBE	Knowledge level SBE practices	Continuous Ordinal	Regression analysis Independent t-test

3.9 Ethical Considerations

Ethical approval was sought from Chuka University Ethics and Research Committee (Appendix IV). Permit to carry out the study was obtained from the National Council for Science, Technology and Innovation (NACOSTI) license number NACOSTI/P/25/4177365 (Appendix V). The county administration, as well as the county director of health services in Tharaka Nithi County, was requested for permission to carry out the study (Appendix VI). Permission to collect data was sought from the Chuka Referral Hospital administration. The goal of the study and the importance of their involvement was explained to the study subjects. They were also advised that the exercise was of one's free will, and that they can opt to omit any question they wish not to answer fully or in part, as well as to stop the process at any moment. The participants were also informed that there were no risks related with the study and there were no direct benefits following participation but the study would lead to improved levels of knowledge and uptake practices in the future. Participants were ensured that any information received was only serving the objectives of this study.

Serial numbers were used on the questionnaires hence the participants were anonymous. Willing participants signed a consent form to indicate their willingness. Filled in questionnaires were kept by the researcher in locked cabinets and access to analyzed data was limited to the Principal investigator, the supervisors and the CU research ethical committee members. The analyzed data will be stored in coded form with passwords in soft copy for five years according to NACOSTI guidelines.

CHAPTER FOUR

RESULTS

4.1 Sociodemographic Characteristics of Study Participants

The study sampled 127 participants with a mean age of 26.03 years with a SD of ± 7.46 , a median of 28 years and a range of 18 to 54 years (Table 3). A slight majority were aged 18 to 28 years (54.3%, $n = 69$). Marital status showed that nearly equal proportions of being single (45.7%, $n = 58$) or married (44.1%, $n = 56$). More than half had attained tertiary education (55.9%, $n = 71$), indicating a relatively high education level among respondents. In terms of religion, the largest group identified as Catholic (47.2%, $n = 60$). A slightly higher proportion lived in rural areas (54.3%, $n = 69$) compared to urban areas. Regarding sources of income, majority were in formal employment (27.6%, $n = 35$) and almost a quarter of the participants (24.4%, $n = 31$) identified as students. Most participants (62.2%, $n = 79$) had up to two children with a mean of about two children per respondent. For family planning, the implant was the most widely used method (37.8%, $n = 48$) while intrauterine device (IUD) was the least commonly used method (11.8%, $n = 15$). The majority did not report a family history of breast cancer (78%, $n = 100$).

Table 3: Sociodemographic characteristics of study participants

Characteristic	N(%)
Age	
Mean ($\pm$ SD) 26.03 (± 7.46)	
Median 28	
Range 18 - 54	
Age group	
18 –28	69 (54.3)
≥ 29	58 (45.7)
Marital Status	
Single	58 (45.7)
Married	56 (44.1)
Separated/Divorced	13 (10.2)
Level of education	
Primary education	10 (7.9)
Secondary education	46 (36.2)
Tertiary education	71 (55.9)
Religion	
Catholic	60 (47.2)
Protestant	56 (44.1)
Muslim	11 (8.7)

Table 3: Sociodemographic characteristics of study participants (Continued)

Residence	
Rural	69 (54.3)
Urban	58 (45.7)
Sources of Income	
Formally employment	35 (27.6)
Farming	27 (21.3)
Business lady	34 (26.8)
Student	31 (24.4)
Number of children	
Mean ($\pm$ SD) 2.19 (1.4)	
Median 2	
Mode 2	
Range 0 – 6	
0 – 2	79 (62.2)
3 and above	48 (37.8)
Family planning method on	
Depo-Provera	35 (27.6)
COCs	29 (22.8)
Implant	48 (37.8)
IUD	15 (11.8)
History of breast cancer in the family	
No	100 (78.7)
Yes	27 (21.3)

Six health care providers (HCP) working in MCH family planning clinic at the time of data collection were also interviewed as Key informants. Their characteristics are summarized in Table 4. Majority were nurses (50%, n = 3), females (66.7%, n = 4) with either degree or higher diploma (33.3, n = 2). Their mean age was 41.17, SD of $\pm$ 6.8 with a range of 32 to 48 years. The average years of experience was 12.50 years, SD of $\pm$ 4.68 and a range of 8 to 12 years

Table 4: Sociodemographic Characteristics of HCP

Characteristics	n (%)
Cadre	
Nurse	3 (50)
Medical officer	1 (16.7)
Clinical officer	2 (33.3)
Age	
Mean ($\pm$ SD) 41.17 ($\pm$ 6.8)	
Median 42.50	
Range 32 - 48	
Highest qualifications	
Certificate	1 (16.7)
Higher diploma	2 (33.3)
Degree	2 (33.3)
Masters	1 (16.7)
Years of experience	
Mean ($\pm$ SD) 12.50 ($\pm$ 4.68)	
Median 11.50	
Range 8 - 12	
Gender	
Male	2 (33.3)
Female	4 (66.7)

4.2 SBE Practice

More than half of the participants (66.1%) reported to have ever performed SBE as shown in Figure2.

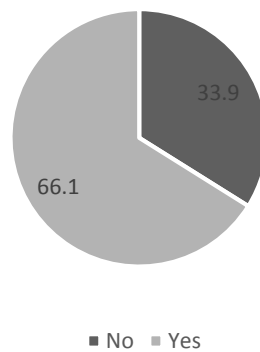


Figure 2: Proportion of women who have ever performed SBE

The interview discussions revealed a similar trend. A nurse explained; “*Many women are aware of SBE but rarely make it part of their routine. They usually only think about it if there’s pain or visible changes*”, (Nurse II, MCH, 2025). The gynecologist had similar views; “*In my experience, very few women perform SBE regularly, maybe less*

than twenty percent bring it up themselves, unless they have a breast complaint or are responding to a health campaign” (Gynecologist at MCH, 2025). A clinical officer remarked; “Among the young women, SBE is not common. They often think they are too young to worry about breast cancer” Clinical Officer at the MCH, 2025).

In terms of frequency of carrying out the SBE among participants who performed SBE (n = 84), figure 3 shows that only a slightly more than half (52.4%) of them did it at least once a month as recommended.

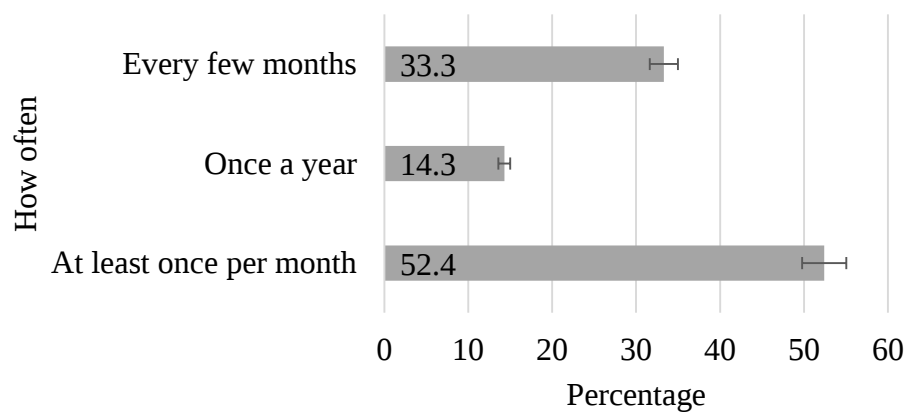


Figure 3: Participant’s frequency of carrying out the SBE

Of the 33.9% who reported not to perform SBE, majority reported that they did not know the correct procedure of doing so (51.2%, n = 22), others thoughts their breasts were okay (30.2%, n = 13) while the least feared they would find a lump (18.6%, n = 8), Table 5.

Table 5: Reasons why the participants were not performing SBE (Multiple responses)

Reason	n(%) (n=43)
I forget	12 (27.9)
I don’t know how to do it correctly	22 (51.2)
I don’t think it’s necessary	13 (30.2)
I fear finding a lamp	8 (18.6)
I don’t have time	9 (20.9)
My breasts are okay	13 (30.2)

Similarly, during the interview, the gynecologist highlighted that fear is one of the hindrances to performing SBE among women “Fear is a big reason. Many women are afraid of finding a lamp, because in their minds, that means cancer” (Gynecologist,

MCH). One nurse further added; *“Many women say they simply forget. They don’t have a set date or reminder to do it every month, (Nurse II, MCH,2025). Another nurse explained; “Some women lack confidence to do the SBE. They fear they might do it wrong or not feel the right thing, (Nurse I, MCH, 2025). The clinical officer emphasized that others have no time to do the SBE; “For mothers in particular, busy schedules mean they often put their own checks the last thing”, (Clinical Officer I).*

In terms of when the SBE was done in reference to the menstrual cycle, most (47.6%) performed it at the recommended time. It is observed from figure 4 that a few carried out SBE at any time (27.4%) or did not consider the time of the cycle (13.3%).

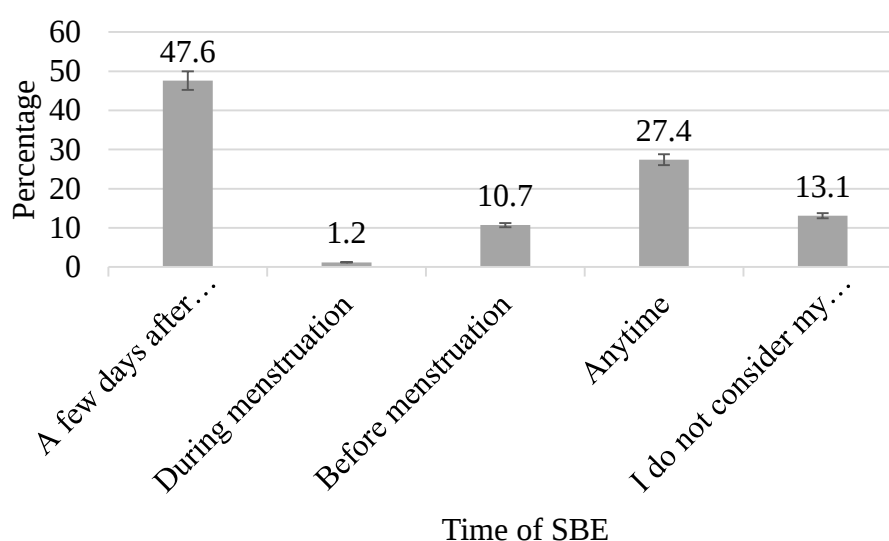


Figure 4: Participant’s time of SBE in menstrual cycle

The study sought to establish where the women carried out SBE. Table 6 shows that most women who performed SBE (72.6%, n = 61) examined their breasts while standing in front of a mirror, which is recommended for visual inspection to detect visible changes. Unfortunately, only 27.4 % n = 23, examined while lying down, despite the fact that palpation is often more effective when lying down due to better breast tissue spread. When it comes to technique, exactly half of the respondents used the palm (50%, N = 42), which is recommended. Encouragingly, the majority (83.3%, n = 70), examined both breasts during the SBE, indicating fairly comprehensive practice among those who do it. Regarding what signs they look for, 83.3% (n = 70) reported checking for lumps in the breast or armpits closely followed by checking for nipple discharge (76.2%, n = 64). The least examined signs and symptoms were pulling or inversion of the nipple (31%, n = 26) and scaling or dryness of the nipple area (15.5%, n = 13).

Table 6: Specific SBE practices of study participants

Practice	n (%) (n = 84)
How she examines the breast	
Standing in front of the mirror	61(72.6)
While taking a shower	27 (32.1)
While lying down	23 (27.4)
Part of hand used to examine the breast	
Finger tips	42 (50)
Palm	42 (50)
Examines both breasts	
No	14 (16.7)
Yes	70 (83.3)
Signs and symptoms looked for (Multiple responses)	
Nipple discharge	64 (76.2)
Skin dimpling/discoloration	42 (50)
Changes in breast size	42 (50)
Lumps in breast and armpits	70 (83.3)
Pain or soreness in the breast	47 (56)
Pulling/recent inversion of the nipple	26 (31)
Scaling/dryness of the nipple area	13 (15.5)

According to figure 5, healthcare providers were the largest source of information on SBE (75%) while the least was from family and friends (21.4%). This indicates that probably, the respondents have the right information regarding SBE.

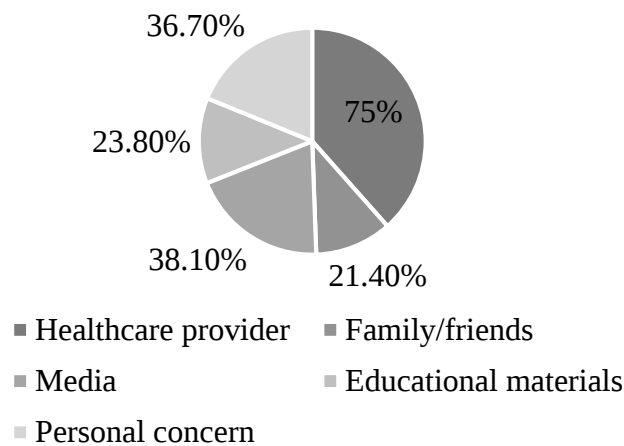


Figure 5: Sources of information on SBE

4.3 Sociodemographic Factors Influencing SBE Practices

The association between performing SBE with various sociodemographic characteristics revealed that, of all the characteristics tested, level of education and source of income were the only variables significantly associated with having ever

performed SBE: $\chi^2 = 14.393$, $df = 2$, $p = 0.001$ and $\chi^2 = 10.295$, $df = 3$, $p = 0.016$, respectively (Table 7)

Table 7: Association of performance of SBE with sociodemographic characteristics

Characteristic	Ever performed SBE		χ^2	df	p-value
	No n(%)	Yes n(%)			
Age group					
18 –28	26 (20.5)	43 (33.9)	0.989	1	0.321
≥ 29	17 (13.4)	41 (32.3)			
Marital Status					
Single	24 (18.9)	34 (26.8)	3.550	2	0.169
Married	14 (11)	42 (33.1)			
Separated/Divorced	5 (3.9)	8 (6.3)			
Level of education					
Primary education	5 (3.9)	5 (3.9)	14.393	2	0.001**
Secondary education	24 (18.9)	22 (17.3)			
Tertiary education	14 (11)	57 (44.9)			
Religion					
Catholic	20 (15.7)	40 (31.5)	0.038	2	0.981
Protestant	19 (15)	37 (29.1)			
Muslim	4 (3.1)	7 (5.5)			
Residence					
Rural	26 (20.5)	43 (33.9)	0.989	1	0.321
Urban	17 (13.4)	41 (32.3)			
Sources of Income					
Formally employed	5 (3.9)	30 (23.6)	10.295	3	0.016**
Farming	12 (9.4)	15 (11.8)			
Business lady	11 (8.7)	23 (18.1)			
Student	15 (11.8)	16 (12.6)			
Number of children					
0 – 2	27 (21.3)	52 (40.9)	0.009	1	0.922
3 and above	16 (12.6)	32 (25.2)			
Family planning method on					
Depo-Provera	14 (11)	21 (16.5)	3.008	3	0.391
COCs	12 (9.4)	17 (13.4)			
Implant	12 (9.4)	36 (28.3)			
IUD	5 (3.9)	10 (7.9)			
History of breast cancer in the family					
No	31 (24.4)	69 (54.3)	1.716	1	0.190
Yes	12 (9.4)	15 (11.8)			

** - Statistically significant at 95%;

Table 8 further shows that, participants with tertiary education were 0.247 less likely to perform SBE as compared to those with primary education (AOR= 0.247, 95% CI 0.101

– 0.608, $p = 0.002$. In addition, farmers were significantly 4.48 times more likely to perform SBE as compared to those in formal employment (AOR = 4.48, 95% CI 1.31 – 15.29). Business ladies and students did not differ significantly in performing SBE compared to women in formal employment, ($p > 0.05$).

Table 8: Multivariate regression between performance of SBE and sociodemographic characteristics

	Characteristic	COR	df	AOR (95% CI)	p - value
Performance of SBE No	Level of education				
	Primary	0 ^a		0 ^a	
	Secondary	-1.136	1	0.32 (0.02 – 1.43)	0.136
	Tertiary	-1.397	1	0.25 (0.10 – 0.61)	0.002**
	Sources of Income				
	Formally employed	0 ^a			
	Farming	1.500	1	4.48 (1.31 – 15.29)	0.017**
	Business lady	0.610	1	1.841 (0.56 – 5.76)	0.294
	Student	0.901	1	2.461 (0.82 – 7.35)	0.107

0^a- Reference category; AOR – Adjusted Odds Ratio; CI – Confidence interval; ** - statistically significant at 95%

4.4 Knowledge on SBE

4.4.1 General Awareness of SBE

The study sought to establish the general awareness on SBE. The results are presented in Table 9. A majority (92.2%, $n = 118$) reported having heard of SBE. In addition, 90.6% ($n = 115$) agreed that SBE can help in early detection of breast cancer. This shows that basic awareness about the importance of SBE is relatively widespread among the respondents. However, in reference to engaging with HCP, only 60.6% ($n = 77$) had ever discussed SBE with HCP. Moreover, only 67.7% ($n = 86$) reported to have been taught on SBE showing that about a third of the respondents have ever received practical guidance on proper technique, despite being aware of its importance.

Table 9: General awareness on SBE

Question	No n (%)	Yes n (%)
Have you ever heard of self-breast examination?	9 (7.1)	118 (92.9)
Self-breast examination can help in early detection of breast cancer?	12 (9.4)	115 (90.6)
Have you ever discussed self-breast examination with a healthcare provider?	50 (39.4)	77 (60.6)
Have you ever been taught on SBE?	41 (32.3)	86 (67.7)

In addition, the HCP confirmed that they often educate the women on SBE. One nurse reported; *“As the women wait to be served, we usually give health talks in the waiting areas and also when they are being served in the FP rooms”* (Nurse I, MCH, 2025). Another nurse added; *“We use posters and pamphlets in the clinic so women can read on steps themselves”* (Nurse III, MCH, 2025). Further, the gynecologist shared; *“I try to use every chance to teach SBE, using breast models to demonstrate when time allows”* (Gynecologist, MCH, 2025).

4.4.2 Knowledge on SBE

A large proportion (73.2%, n = 93) knew that SBE should be performed at least once a month, and nearly 90 % (n = 114) understood that it should involve both visual inspection and palpation. Similarly, high awareness was noted for recognizing signs of potential breast cancer: 78% (n = 99) knew a lump could be a warning sign, 89% (n = 113) recognized nipple discharge or inversion as abnormal, 90.6% (n = 115) knew skin changes like dimpling or redness could signal danger, and 69.3% (n = 88) were aware that a lump in the armpit could be significant. However, only 58.3% (n = 74) correctly identified that SBE should include awareness of the steps involved, and 70.9% (n = 90) knew it should be done in different positions for thoroughness. More than half of the participants (63.9%, n = 80) knew that the palm is used for breast examination. Timing knowledge showed a gap as only 63% (n = 80) knew the best time to perform SBE is a few days after menstruation ends. Notably, only 29. 1% (n = 37) were aware that SBE should start at around age 20.

As shown in table 10, the mean percentage knowledge score was 69.88% (SD (± 20.709), with a median of 75% and a range of 8% to 100%.

Table 10: Knowledge on SBE

Knowledge questions	Correct n (%)	Wrong n (%)
Self-breast examination should be performed at least once a month?	93 (73.2)	34 (26.8)
Are you aware of the steps involved in performing a self-breast examination?	74 (58.3)	53 (41.7)
SBE should be done both visually and by touch (palpation)?	114 (89.8)	13 (10.2)
SBE should be done in different positions (e.g., standing, lying down)?	90 (70.9)	37 (29.1)
The woman should use the palm of her hand to perform SBE?	88 (69.3)	39 (30.7)
The best time to do SBE is a few days after the menstrual period ends?	80 (63.0)	47 (37)
SBE should start at the age of 20 years	37 (29.1)	90 (70.9)
A lump in the breast can be a sign of breast cancer?	99 (78)	28 (22)
Changes in breast shape or size can be a sign of breast cancer?	74 (58.3)	53 (41.7)
Nipple discharge or inversion may indicate a problem?	113 (89)	14 (11)
Skin changes (e.g., dimpling or redness) on the breast can be abnormal?	115 (90.6)	12 (9.4)
A lump in the armpit can be a sign of breast cancer?	88 (69.3)	39 (30.7)
Knowledge score		
Mean ($\pm$ SD) 69.88 ($\pm$ 20.709)		
Median 75		
Range 8 - 100		

When knowledge level was grouped into three using the interquartile ranges, majority of the participants, (38.6%) had good knowledge level, Figure 6.

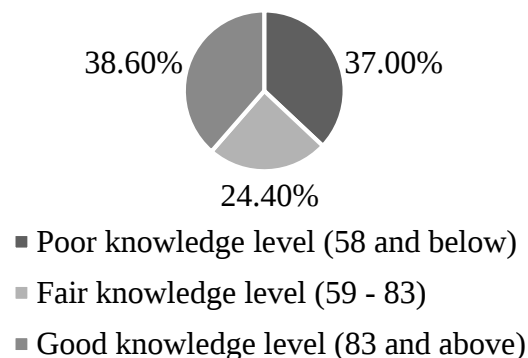


Figure 6: Distribution of knowledge level

A Chi-square test was used to determine the association of sociodemographic characteristics and knowledge of SBE. The association between level of knowledge of

SBE with respondent's sociodemographic characteristics showed that, level of education was the only characteristic significantly linked with SBE knowledge at 95% confidence level ($\chi^2 = 15, 602$, $df = 4$ and $p = 0.004$). Table 11 also shows that other sociodemographic characteristics did not have any significant association with SBE ($p > 0.05$).

Table 11: Association between knowledge level and sociodemographic characteristics

Characteristic	Knowledge Level			χ^2	df	p-value
	Poor n (%)	Fair n (%)	Good n (%)			
Age group						
18 –28	26 (20.5)	20 (15.7)	23 (18.1)	2.394	2	0.302
≥29	21 (16.5)	11 (8.7)	26 (20.5)			
Marital Status						
Single	23 (18)	14 (11)	21 (16.5)	0.687	4	0.953 ^b
Married	20 (15.7)	13 (10.2)	23 (18.1)			
Separated/Divorced	4 (3.1)	4 (3.1)	5 (3.9)			
Level of education						
Primary education	8 (6.3)	-	2 (1.6)	15.602	4	0.004**
Secondary education	20 (15.7)	13 (10.2)	13 (10.2)			
Tertiary education	19 (18)	18 (14.2)	34 (26.8)			
Religion						
Catholic	25 (19.7)	17 (13.4)	18 (14.2)	6.097	4	0.192 ^b
Protestant	18 (14.2)	10 (7.9)	28 (22)			
Muslim	4 (3.1)	4 (3.1)	3 (2.4)			
Residence						
Rural	26 (20.5)	19 (15)	24 (18.9)	1.189	2	0.552
Urban	21 (16.5)	12 (9.4)	25 (19.7)			
Sources of Income						
Formally employed	8 (6.3)	7 (5.5)	20 (15.7)	9.556	6	0.145
Farming	13 (10.2)	7 (5.5)	7 (5.5)			
Business lady	12 (9.4)	11 (8.7)	11 (8.7)			
Student	14 (11)	6 (4.7)	11 (8.7)			
Number of children						
0 – 2				0.969	2	0.616
3 and above	30 (23.6)	17 (13.4)	32 (25.2)			
	17 (13.4)	14 (11)	17 (13.4)			
Family planning method on						
Depo-Provera	12 (9.4)	12 (9.4)	11 (8.7)	3.206	6	0.783 ^b
COCs	11 (8.7)	7 (5.5)	11 (8.7)			
Implant	19 (15)	9 (7.1)	20 (15.7)			
IUD	5 (3.9)	3 (2.4)	7 (5.5)			
History of breast cancer in the family						
No	35 (27.6)	24 (18.9)	41 (32.3)	1.257	2	0.533
Yes	12 (9.4)	7 (5.5)	8 (6.3)			

**- Statistically significant at 95%; ^b -Fisher's Exact;

An ordinal logistic regression was conducted to further examine the sociodemographic factors influencing knowledge on SBE. The model included values with a p -value of ≤ 0.2 at bivariate level: level of education, religion, and source of income. Table 12 shows, compared to participants with tertiary education, participants with primary education were significantly about 6 times more likely to have poor knowledge level; AOR = 5.635, 95% CI; 0.945 – 33.584, $p = 0.038$. Although participants with secondary education were 2.292 more likely to have good knowledge level, the likelihood was not significant ($p>0.05$).

Table 12: Multivariate regression between knowledge level and sociodemographic characteristics

		Characteristic	COR (95% CI)	AOR (95% CI)	df	p - value
Level of knowledge Good	Poor level of knowledge	Level of education				
		Primary education	7.16 (1.38 – 37.20)	5.64(0.95 – 33.58)	1	0.038**
		Secondary education	2.75 (1.12 – 6.74)	2.29 (0.86 – 6.10)	1	0.096
		Tertiary education	0 ^a	0 ^a		
		Religion				
		Catholic	1.04(0.21 – 5.24)	1.49 (0.25 – 8.76)	1	0.659
		Protestant	0.48 (0.10 – 2.41)	0.61 (0.11 – 3.56)	1	0.586
		Muslim	0 ^a	0 ^a		
		Sources of Income				
		Formally employed	0.31(0.10 -0.98)	0.39 (0.11-1.34)	1	0.133
		Farming	1.46 (0.43 – 4.90)	0.96(0.24 – 3.75)	1	0.947
		Business lady	0.86(0.28 – 2.67)	0.99 (0.29 – 3.36)	1	0.991
		Student	0 ^a	0 ^a		
	Fair level of knowledge	Level of education				
		Primary education	8.21(3.43 – 11.28)	3.42 (2.74 – 8. 49)	1	0.734
		Secondary education	1.89 (0.73 – 1.92)	1.396 (0.48 – 4.07)	1	0.541
		Tertiary education	0 ^a	0 ^a		
		Religion				
		Catholic	0.71(0.14 – 3.64)	0.66 (0.11 – 3.94)	1	0.652
		Protestant	0.27(0.05 – 1.41)	0.23 (0.04 – 1.38)	1	0.107
		Muslim	0 ^a	0 ^a		
		Sources of Income				
		Formally employed	0.64(0.17 -2.39)	0.79 (0.19 – 3.26)	1	0.746
		Farming	1.83(0.43 – 7.77)	2.29 (0.46 – 11.47)	1	0.314
		Business lady	1.83(0.50 – 6.72)	2.20 (0.55 – 8.90)	1	0.268
		Student	0 ^a	0 ^a		

0^a- Reference category; AOR – Adjusted Odds Ratio; CI – Confidence interval; ** - statistically significant

4.5 Association of Knowledge Level and Practice

An independent t-test was done to determine if there were significant knowledge differences in reference to performing SBE and general awareness of SBE. In table 13, there was statistically significant difference in mean scores of those who had ever performed a SBE and those who had not ($t = -4.04$, $p = <0.001$). The magnitude of the differences = -14.82, (95% CI: -22.08 - -7.57) was significant. The results suggest that knowledge had an influence on performance of SBE. Specifically, the results suggest that participants with good knowledge are more likely to perform SBE than those with poor knowledge.

In addition, there was a statistically significant difference in knowledge score of the participants who had ever discussed SBE with the health care provider and those who had not ($t = -5.06$, $p = < 0.001$). The magnitude of the differences = -17.4 (95% CI: -24.21--10.59) was significant. This suggest that discussing SBE with a HCP had an influence in knowledge level. Women who discuss SBE with the HCP are more likely to have good knowledge while those who did not were likely to have poor knowledge.

Moreover, those had been taught on SBE differed significantly with those who had not been taught ($t = -5.18$, $p = < 0.001$). The magnitude of the difference = -18.56; 95 CI: -25.64- -11.47 was significant suggesting that teaching women on SBE influences their knowledge. Specifically, the women who had been taught on SBE were more likely to have good knowledge on SBE as compared to those who had not been taught.

Table 13: Differences in knowledge and performance of SBE

Characteristic	Yes	No	t	df	p- value	MD	SED	95% CI
Ever performed SBE	84	43	-4.04	125	<0.001*	-14.82	3.67	-22.08 - -7.57
Ever discussed on SBE with a HCP	77	50	-5.06	125	<0.001*	-17.4	3.44	-24.21- -10.59
Ever been taught on SBE	86	41	-5.18	125	<0.001*	-18.56	3.58	-25.64- -11.47

MD-mean difference; SED – standard error of the difference; CI – 95% confidence interval; *Statistically significant at 95%

In a bivariate analysis, knowledge level was associated with the performance of SBE. Table 14 shows that, women with poor knowledge level were significantly 0.204 less likely to perform SBE than those with good knowledge level (COR = 0.204, 95% CI: 0.079 – 0.526, $p = 0.001$). Likewise, respondents with fair knowledge were also significantly less likely to perform SBE than those with good knowledge (COR = 0.309, 95% CI 0.108 - 0.880, $p = 0.028$).

Table 14: A bivariate logistic regression analysis showing association between knowledge levels and prevalence of involvement in FANC

	Knowledge level	B	df	COR (95%CI)	p - value
Performance of SBE Yes	Poor knowledge	-1.592	1	0.204 (0.079 –	0.001**
	Fair knowledge	-1.175	1	0.526)	0.028**
	Good knowledge	0 ^a		0.309 (0.108 – 0.880)	

0^a - reference category; COR – Crude Odds Ratio; CI – Confidence Interval; ** - statistically significant

4.6 Cultural Factors Influencing SBE Practices

In table 15, most participants (57.5%) disagreed that discussing breast health is inappropriate in their culture, indicating a moderate of openness to dialogue about breasts health. A majority (73.2%) also disagreed that women are discouraged from performing self – breast examinations. Religious practices appeared less restrictive: 87.4% disagreed that their religious beliefs discourage them from performing SBE, and 78% rejected the belief that faith alone can protect them from diseases such as breast cancer. Gender dynamics and access to health decisions are influenced by men, and 68.5% disagreed that it is difficult for women to access health information without male approval.

Despite the encouraging cultural beliefs and practices, several beliefs could still hinder consistent practice of SBE. About half of the participants (51.2%) disagreed that their family encourages them to practice SBE. In addition, 44.9% agreed that their friends influence their decision to practice SBE, showing peer influence in performance of SBE. Less than half of the participants (37.8%) agreed that women in their community openly discuss SBE suggesting cultural silence around the topic still persists for many. Moreover, age-related misconceptions may also act as barriers; nearly half (48%) agreed that breast cancer is considered a disease of older women in their community, implying that younger women may feel less urgency to prioritize SBE.

Table 15: Cultural beliefs and practices.

Cultural belief / Practice	n (%)	
	(Disagree)	(Agree)
In my culture, discussing breast health is considered inappropriate.	73 (57.5)	45 (42.5)
Women in my community are discouraged from performing self-breast examinations.	93 (73.2)	34 (26.8)
My family encourages me to practice self-breast examination.	65 (51.2)	62 (48.8)
My friends influence my decision to practice self-breast examination.	70 (55.1)	57 (44.9)
Women in my community openly discuss self-breast examination.	79 (62.2)	48 (37.8)
My religious beliefs discourage me from performing self-breast examination.	111 (87.4)	16 (12.6)
I believe that faith alone can protect me from diseases like breast cancer.	99 (78)	28 (22)
In my culture, women's health decisions are influenced by men.	76 (59.8)	51 (40.2)
It is difficult for women in my community to access health information without male approval.	87 (68.5)	40 (31.5)
Breast cancer is considered a disease of older women in my community, so younger women do not prioritize self-breast examination.	66 (52)	61 (48)

On cultural influences on SBE, the gynecologist remarked; *"In some communities, discussing breasts openly is still considered shameful, which makes SBE uncomfortable"* (Gynecologist, MCH, 2025). The clinical officer further noted; *"Family influences matter too; if the husband does not support SBE, some women will avoid it altogether"* (Clinical Officer, MCH, 2025). A nurse also added that some women said they rely on God for their health; *"A few women say they rely on God to protect them, so they don't feel the need to check themselves"* (Nurse III, 2025). Discussing common misunderstanding, the gynecologist also noted that; *"A big misconception is that only older women can get breast cancer, so younger women don't feel the need to do the SBE"* (Gynecologist - MCH, 2025). Another nurse pointed out: *"It's common for women to believe that if there's no family history of breast cancer, they are safe and don't need to bother with SBE"* (Nurse II MCH, 2025).

4.7 Association of Cultural Beliefs with Encouragement to Carry out SBE

The association between cultural beliefs with encouragement to carry out SBE is summarized in Table 16. It is observed that family encouragement to perform SBE (χ^2

= 11.378, df= 1, $p = 0.001$), peer influence from friends ($\chi^2 = 5.640$, df =1, $p= 0.018$), and disagreeing that faith alone can protect from diseases like breast cancer ($\chi^2 = 6.233$, df = 1, $p = 0.013$) were significantly associated with performing SBE.

Table 16: Association of cultural beliefs and practices with performance of SBE.

Cultural belief/practice	Performance of SBE		χ^2	df	p -value
	No n(%)	Yes n(%)			
In my culture, discussing breast health is considered inappropriate.					
Disagree	22 (17.3)	51 (40.2)	1.062	1	0.303
Agree	21 (16.5)	33 (26)			
Women in my community are discouraged from performing self-breast examinations.					
Disagree	29 (22.8)	64 (50.4)	1.110	1	0.292
Agree	14 (11)	20 (15.7)			
My family encourages me to practice self-breast examination.					
Disagree	31 (24.4)	34 (26.8)	11.378	1	0.001**
Agree	12 (9.4)	50 (39.4)			
My friends influence my decision to practice self-breast examination.					
Disagree	30 (23.6)	40 (31.5)	5.640	1	0.018**
Agree	13 (10.2)	44 (34.5)			
Women in my community openly discuss self-breast examination.					
Disagree	30 (23.6)	49 (38.6)	1.582	1	0.209
Agree	13 (10.2)	35 (27.6)			
My religious beliefs discourage me from performing self-breast examination.					
Disagree	36 (28.3)	75 (59.1)	0.800	1	0.371
Agree	7 (5.5)	9 (7.1)			
I believe that faith alone can protect me from diseases like breast cancer.					
Disagree	28 (22)	71 (55.9)	6.233	1	0.013**
Agree	15 (11.8)	13 (10.2)			
In my culture, women's health decisions are influenced by men.					
Disagree	21 (16.5)	55 (43.3)	3.277	1	0.070
Agree	22 (17.3)	29 (22.8)			
It is difficult for women in my community to access health information without male approval.					
Disagree	27 (21.3)	60 (47.2)	0.984	1	0.321
Agree	16 (12.6)	24 (18.9)			
Breast cancer is considered a disease of older women in my community, so younger women do not prioritize self-breast examination.					
Disagree	18 (14.2)	48 (72.7)	2.661	1	0.103
Agree	25 (19.7)	36 (28.3)			

** - Statistically significant at 95%

Multivariate logistic regression analysis (Table 17), after adjusting for other variables, family influence remained a significant predictor of SBE. Specifically, women who agreed that their family encourages them to practice SBE were significantly 0.4 times more likely to perform SBE compared to those who disagreed (AOR = 0.35, 95% CI; 0.15 – 0.81, $p = 0.014$). Although friends' influence appeared to increase the likelihood of SBE practice, this association was not statistically significant in the multivariate model (AOR = 0.57, 95% CI; 0.24 – 1.33, $p = 0.194$). Similarly, women who believed that faith alone can protect them from diseases like breast cancer had higher odds of not performing SBE, although this finding was non-significant too (AOR = 2.442, 95%CI; 0.982 – 5.973, $p = 0.055$).

Table 17: Multivariate regression between cultural practices and performance of SBE

	Cultural belief/practice	COR (95% CI	df	AOR (95%CI)	p - value
Performance of SBE Yes	My family encourages me to practice self-breast examination.	3.80(1.71 -8.42)			
	Disagree	0 ^a	1		
	Agree			0.35(0.15– 0.81)	0.014**
	My friends influence my decision to practice self-breast examination.				
	Disagree	2.54(1.17-5.53)	1		
	Agree	0 ^a		0.57(0.24 -1.33)	0.194
	I believe that faith alone can protect me from diseases like breast cancer.				0.055
	Disagree	0.34(0.14– 0.81)	1	2.42 (0.98 – 5.97)	
	Agree	0 ^a			

0^a -reference category; AOR – Adjusted Odds Ratio; CI – Confidence Interval; ** - statistically significant

The recurring themes during the interviews are summarized in Table 18. The HCP felt the practice of SBE is low and there are some knowledge gaps and misconceptions among women concerning SBE. They also identified some barriers to practicing SBE such as fear and forgetfulness among others. Limited trust among the women in SBE was also highlighted as well as the cultural and religious influences on SBE. Finally, efforts to educate the women on SBE also came out strongly, though they mentioned that the time to do so is limited.

Table 18: Recurring themes in the interviews

Theme	Description	Key insights
Low prevalence of SBE:	Routine SBE remains uncommon	Few women practice SBE regularly, younger women are less likely to perceive themselves at risk
Knowledge gaps and misconceptions:	Misunderstanding about SBE and breast cancer risk	Women believe only older women get breast cancer, think special tools are needed, confuse SBE with clinical exams
Barriers to performing SBE:	Multiple factors hinder regular practice	Fear of finding a lump, forgetting, lack of confidence in technique, and competing family responsibilities.
Limited trust in SBE:	SBE is often seen as less reliable than clinical exams	Many women prefer professional checks, trust increases if women receive proper demonstration and guidance
Cultural and religious influences:	Cultural norms shape attitudes towards SBE	Modesty, discomfort with discussing breasts, reliance on faith alone, and male partner attitudes affect practice
Education efforts	Various methods are used to teach SBE	Providers use individual counselling, breast models, posters, pamphlets, group talks and reminders despite the limited time

CHAPTER FIVE

DISCUSSION

5.1 Number of Women Practicing SBE

The current findings indicate that a substantial proportion of the participants (66.1%) reported ever performing SBE. This rate was relatively higher than what had been document in similar studies. Paruchuri et al., (2021) found that only about half of Malaysian university students had ever performed SBE. In addition, it was also higher than Ahmad et al. (2022) who reported about 30 % of women in Jordan practiced SBE regularly. Similarly, lower levels of SBE had been estimated in Sub Saharan Africa at 20% to 65% (Seifu and Mekonen ,2021). Likewise, Kessie et al., (2021) found that only about 36% of Ethiopian female university reported ever performing SBE.

Compared to studies carried out in Kenya, the current finding (66.1%) also appears slightly higher which shows that a higher percentage of women in the area of study were carrying out SBE. Maureen et al., (2024) reported about 40% of women of reproductive age in Turbo sub-county had ever performed SBE. Moreover, Joseph (2024) noted low rates among Catholic nuns in Nairobi with practice often hindered by cultural and spiritual factors. The comparatively higher prevalence in the current study could be attributed to the sample being drawn from MCH clinic context where women are more likely to receive targeted health education, and regular reminders about breast health during routine visits.

Despite the relatively high proportion of women who reported ever performing SBE, the frequency of practicing it monthly, as recommended, remains suboptimal. Only slightly more than half (52.4%) of those who practiced SBE did so every month. This was slightly higher that figures reported regionally, where Seifu and Mekonen (2021) found that regular monthly practice was as low as 17% in pooled African data. Kassie et al (2021) also reported about 28% among Ethiopian students. Maureen et al., (2024) also highlighted that only about 22% of women performed SBE monthly in Kenya. This suggest that while awareness may be increasing, consistency in practice is still limited. The findings of relatively higher levels of consistency may reflect the influence of repeated health education within clinic setting, which has been shown to positively impact routine behaviors (Wassie et al., 2024).

The reasons for not performing SBE, such as lack of knowledge about the correct procedure, fear of finding a lump, and the belief that their breasts were healthy are consistent with barriers identified globally and regionally. Ahmad et al., (2022) and Hamid et al., (2024) both noted that fear of detecting a lump or a cancer diagnosis often deters women from examining their breasts. This was also emphasized in qualitative data of the current study where the gynecologists described fear as a major hindrance. Additionally, nurses noted forgetfulness and low confidence in performing SBE correctly discouraged routine practice. Similar finding had been reported in Tanzania where Marandu et al., (2024) found that fear and misconceptions about breast cancer significantly affected the willingness of Catholic nuns to perform SBE.

Regarding the technique, the finding showed that, while most women used recommended practices such as visual inspection in front of a mirror, fewer examined their breasts while lying down (27.4%), even though palpation is more effective in this position. This gap aligns with regional findings where practical demonstration of the correct technique is often lacking (Workineh et al., 2021; Seifu and Mekonen, 2021). When it comes to signs checked during SBE, the majority reported checking for lumps and nipple discharge. However, less attention was paid to subtle signs such as nipple inversion and scaling. This trend is similar to findings where women tend to associate SBE primarily with detecting lumps while neglecting other early signs of breast cancer (Paruchuri et al., 2021; Kassie et al., 2021).

Overall, while awareness and practice of SBE appear relatively higher among the current sample than in many comparable studies, gaps remain in frequency, technique, and comprehensive self-checking for less obvious symptoms. This suggests that although knowledge dissemination is improving, particularly among women who access the MCH services, more emphasis should be placed on practical demonstrations, consistent reminders, and addressing psychological barriers such as fear and lack of self-efficacy.

5.2 Sociodemographic Factors Influencing SBE

The current study revealed that level of education and source of income were the only sociodemographic factors significantly associated with whether women had ever

performed SBE. Specifically, women with tertiary education were significantly less likely to perform SBE compared to those with primary education. This finding is consistent with some previous studies which determined that higher education increases the risk of performing SBE due to better access to health information and improved literacy (Ahmad et al., 2022; Azhar et al., 2023; Hamid et al., 2024). However, the direction of the association in this study contradicts most previous research. Many studies found that women with higher education are more likely to perform SBE. On the contrary, the current study found that women with tertiary education were actually less likely to perform SBE than those with primary education. Paruchuri et al., (2021) in Malaysia and Kassie et al., (2021) in Ethiopia reported that university students had higher SBE practice than women with basic education. Similarly, Seifu and Mekonen (2021) concluded in their systematic review that higher educational attainment is a strong positive predictor of SBE performance across Africa. The unexpected inverse relationship in the current study could be due to the contextual differences. Women with tertiary education in the current study may be ongoing young university students who may still be thinking they are not at risk of breast cancer hence not perform it. It is also possible that health messaging about SBE is more effectively targeted at women with lower education levels through community health programs and outreach at local clinics, which they access more often.

Furthermore, in the current study, women engaged in farming were about 4.5 times more likely to perform SBE compared to those who were formally employed. This contradicts finding by Wessie et al., (2024) who found that women's economic engagement influenced their participation in breast cancer screening in Kenya. However, formal employment was generally associated with better access to health information and screening services (Wessie et al., 2024). Nonetheless, Azhar et al., (2023) and Marandu et al., (2024) highlighted that in some contexts, self-employment or informally employed women may have closer ties to community health programs that promote SBE during outreach. On the other hand, formally employed women may have less flexibility or time to attend community health education sessions (Azhar et al., 2023; Marandu et al., 2024). The current finding suggests that local community health initiatives may be better reaching farming communities, possibly through rural

health extensions and women's self-help groups that provide both economic and health education support.

Despite the fact that the participants of the current study were generally young-educated women, there was no significant association between age and SBE practice. This supports findings by Seifu and Mekonen (2021) who reported that age was not always a consistent predictor of SBE practice in Africa. However, the finding contradicts Hamid et al., (2024) and Ahmad et al., (2022) found that older women tended to practice SBE more frequently than younger ones, likely due to increased perceived risk. The lack of significance here could be because the sample was relatively homogenous in age, clustered around reproductive years, or because breast health messages were equally targeted to both younger and older women attending MCH services. Further, marital status, religion, residence, and family history of breast cancer showed no significance association with SBE practice. Likewise, Workineh et al., (2021) found that urban-rural residence did not always produce clear differences in SBE practice when health access was comparable.

While the influence of education and income source is significant with previous literature, the direction and nature of these associations differ in this setting. The findings highlight the importance of contextual factors such as accessibility of health education, competing life demands, and the effectiveness of local outreach strategies targeting different population groups. This underscores the need for tailored health promotion strategies that address barriers unique to women with higher education and formal employment, while strengthening community-level support for women in informal sectors like farming.

Therefore, the research hypothesis: **H₀₁** - There is no statistically significant relationship between sociodemographic characteristics of women attending family planning clinic at Chuka Level 5 Hospital and their practice of SBE is therefore rejected. This denotes that level of education and sources of income are significant predictors in performance of SBE.

5.3 Knowledge of SBE

5.3.1 General Awareness

The present study revealed a notably high general awareness of SBE, with 92.9% of participants reporting they had heard of it and 90.65 agreeing that it plays a vital role in the early detection of breast cancer. This could be associated with the fact that they are taught on SBE during the clinic visit: *“As the women wait to be served, we usually give health talks in the waiting areas and also when they are being served in the FP rooms”* (Nurse I, MCH, 2025). This high level of awareness supports previous findings by Khan et al., (2022) who reported high general awareness about SBE among Pakistan women. Similarly, in a study among female university students in Malaysia, 95% had heard of SBE and agreed it is important for early detection (Paruchuri et al., 2021). Likewise, Azhar et al., (2023) systematic review and meta-analysis among Indonesian women reported that while general awareness of SBE uniformly in urban and rural setups. In Kenya, a study by Oguta et al., (2022) revealed similar results with 96.2% of the participants being aware of SBE. These finding suggest that majority of women have foundational awareness of SBE though it may not translate to practice. However, the finding is higher than findings within the African region. Jothula and Sreeharshika (2020) found that that only about 67% of women in rural Telangana had heard of SBE. Udoh et al., (2020) reported similarly mixed results in their scoping review across Sub-Saharan Africa, where general awareness varied widely from as low as 40% in some rural areas to over 80% in urban centers. The high awareness in the current sample can be attributed to the fact that these women attend MCH services where they are frequently exposed to health education sessions, pamphlets, posters, and direct interactions with HCPs. This was supported by the nurses and gynecologist who confirmed that SBE education is often integrated into routine services which may contribute to the high awareness. *“I try to use every chance to teach SBE, using breast models to demonstrate when time allows”* (Gynecologist, MCH, 2025). This health facility-based exposure echoes the findings of Hamid et al., (2024) among Saudi Arabian women, where frequent health talks in primary health centers were credited for boosting awareness about SBE.

Despite this positive awareness picture, it is worth noting that only 60.6% of respondents had ever discussed SBE with a HCP. Furthermore, just 67.7% reported that

they had ever been taught how to perform SBE. This shows a notable gap between basic awareness and actual skill acquisition. This is not unique to this setting. Ahmad et al., (2022) also reported that while over 85% of women in Jordan knew about SBE, less than half reported having been taught how to perform it correctly. In the same breadth, Kassie et al., (2021) in Ethiopia observed that while awareness among female university student was high, formal instruction on the procedure was often lacking. This gap indicates a missed opportunity where awareness campaigns succeed in creating cognitive recognition but fail to provide the necessary hand-on skill development.

This discrepancy in knowledge level and skills may reflect practical constraints within healthcare setting such as limited time during clinic visits, overburdened staff, or lack of privacy for demonstrations. The gynecologist's comment that that demonstrate when *"time allows"* illustrates how practical barriers may limit structured teaching, despite goodwill from HCP. This echoes findings by Khan et al., (2022) and Habtegiorgis et al., (2022), who both noted that time constraints, lack of resources like breast models, and staff shortages can undermine consistent practical training on SBE in resource-limited contexts.

5.3.2 Level of Knowledge

While general awareness was impressively high, the depth of knowledge showed important gaps. A majority of participants (73.2%) correctly identified that SBE should be performed at least once a month. This was higher than the 60% reported among rural women in Andhra Pradesh who reported the recommended frequency (Prathyush et al., 2022). The finding was however consistent with findings by Paruchuri et al., (2021) and Hamid et al., (2022) where university students and urban women demonstrated high knowledge.

Knowledge on correct timing of SBE in the menstrual cycle was lower; only 63% knew that SBE should ideally be performed a few days after menstruation ends. This supported similar gaps observed in other low- and middle-income contexts. Jothula and Sreeharshika (2020) found that less than half of rural women in Telangana knew the optimal timing. Habtegiorgis et al., (2022) reported similar trend in Ethiopia. Even among more educated populations, timing of SBE is commonly misunderstood. Azhar

et al., (2023) illustrated that, while many women knew the frequency of performing SBE, fewer knew when to do it in Indonesia.

On knowledge of technique of SBE, about 70.9% knew that SBE should be done in different positions, while standing and lying down. In addition, 69.3% correctly identified the palm as the appropriate part of the hand to use. This aligns with Maureen et al., (2024) in Kenya who reported that, while many women knew the importance of palpation and visual inspection. However, practical knowledge of correct hand technique and positioning was not always adequate (Maureen et al., 2024). This shows that, although there is a relatively good number of women practicing SBE, a number of them may be doing it incorrectly.

In terms of recognizing signs and symptoms, 78% knew a lump could signal cancer, and over 89% recognized abnormal nipple discharge or inversion as warning signs. The results align with previous knowledge levels reported by Muktar and Adoke (2024) among antenatal clinic attendees in Nigeria and by Gueye et al., (2024) among women in Senegal. These results support the conclusion by Ebrahimoghli et al., (2025) that breast cancer awareness has improved considerably across many LMICs, likely due to expanded sensitization programs.

However, knowledge that SBE should ideally start at age 20 was strikingly low: only 29.1% knew this. This was similar to previous findings by Seifu and Mekonen, (2021) and Udoh et al., (2020). Early initiation of SBE is often overlooked in health messages that focus more on adult women or those presenting with symptoms. This finding suggest that adolescent and youth-friendly health education remains a weak spot as observed in Tanzania by Marandu et al., (2024).

Overall, the mean knowledge score in this study was 69.88 with a median of 75% indicating a good overall understanding of SBE. This was higher than 39.4% findings in Kisumu (Oguta et al., 2022). This could be attributed to the fact that Oguta et al., (2022) focused on specifically on young women unlike the present study which focused on all women attending MCH, FP clinic. However, the result aligns with Seifu and Mekonen's (2021) meta-analysis across Sub-Saharan Africa who found that 60 – 75%

of women demonstrated adequate SBE knowledge when asked direct questions, but fewer could explain or demonstrate the steps correctly.

It is clear from the spread of correct responses that while basic awareness is commendable, the procedural depth is lacking for specific aspects, especially timing, early initiation and practical steps. The interquartile categorization showing that only about a third of participants scored a “good” knowledge level further underlines the need for targeted educational reinforcement

5.4 Association of Knowledge with Practice of SBE

There was a statistically significant difference in knowledge scores between women who had ever performed SBE and those who had not ($t = -4.04$, $p < 0.001$). This confirms the role of knowledge in driving preventive practices. This finding echoes the results of Awogbayila et al., (2023), who reported that women with better knowledge on breast cancer were significantly more likely to engage in regular SBE. Similarly, Oguta et al., (2022) observed that among young women attending MCH in Kisumu, Kenya, those with higher knowledge scores practiced SBE more frequently than those with poor knowledge. Additionally, the current study shows that participants who had discussed SBE with a HCP had significantly higher knowledge scores ($t = -5.06$, $p < 0.001$). This supports with the findings of Maureen et al., (2024), who identified health education sessions with HCPs as key facilitator of improved breast cancer awareness and SBE uptake among women in Turbo sub-county, Kenya. Likewise, Wassie et al., (2024), interactions with HCPs were positively associated with increased knowledge and likelihood of performing breast examination in Kenyan context. Moreover, teaching on SBE was found to be significantly associated with higher knowledge ($t = -5.18$, $p < 0.001$). This was consistent with a study by Prathyusha et al., (2022), who reported that women who had received formal instruction on SBE had higher knowledge scores and were more likely to practice SBE regularly. This relationship is further reinforced by Susithra and Shah (2024), who emphasized that educational interventions improve women’s confidence in performing SBE.

Further analysis revealed that women with poor knowledge were 79.6% less likely to perform SBE compared to those with good knowledge ($p = 0.001$). Moreover, those

with fair knowledge were 69.1% less likely to perform SBE ($p = 0.028$). These findings support Jothula and Sreeharshika (2020), who determined a direct statistically significant relationship between high knowledge level and frequency of SBE. Similar trend was noted by Muktar and Adoke (2024) in Nigeria where poor knowledge was a major barrier to SBE uptake. The results also support Udoh et al., (2020) systematic review which emphasized that lack of knowledge and low awareness are the most frequently reported barriers to SBE practices across SSA.

The research hypothesis; H_{03} – There is no statistically significant relationship between knowledge level of SBE of women attending family planning clinic at Chuka Level 5 Hospital and practice of SBE is therefore rejected. This shows that knowledge of SBE is a significant predictor of performance of SBE.

These finding of the current study support a substantial body of literature indicating that increased knowledge, formal education, and professional engagement significantly enhance women's likelihood of performing SBE. These results highlight the critical need for interventions by the HCP focusing on education, counselling, and empowerment to enhance breast cancer early detection practices across diverse populations.

5.5 Cultural Factors Influencing SBE Practice

The study showed that cultural silence around breast health remains prevalent, with only 37.8% of participants agreeing that women in their community openly discuss SBE. This supports findings from Suwannaporn and Chuemchit (2022), who studied Akha women in Thailand and reported similar cultural barriers which restrict open dialogue about women's bodies. Likewise, Sayed et al., (2019) observed in rural coastal Kenya that taboos around breast discussions and modesty norms often prevent women from engaging in or even learning about SBE. Despite cultural reservations, the current study also observed a relatively positive approach; most participants (57.5%) disagreed that discussing breast health was inappropriate, and 73.2% disagreed that women were discouraged from performing SBE. These findings resonate with observations by Gakunga et al., (2019), where it was noted that a growing openness and awareness among Kenyan women in coastal region. Similarly, Afaya et al., (2022), in

their scoping review in Ghana, found that women were becoming more receptive on breast cancer information, although social norms continued to play a role in screening uptake.

One of the significant findings from this study was the role of familial and peer in SBE practice. Women who reported that their family encouraged SBE were more likely to perform SBE. This was in support to Muktar and Adoke (2024) who noted that familial support and friend encouragement were pivotal facilitators of SBE among Nigerian women attending antenatal clinic.

Furthermore, the current study shows that religious beliefs were generally not seen as barriers to SBE; 87.4% disagreed that religion discouraged SBE, and 78% disagreed with the belief that faith alone could prevent breast cancer. However, there was a significant association between the belief that faith alone could prevent breast cancer and practice of SBE, though it was not a significant predictor. Similar findings were reported in Ethiopia that some religious beliefs were associated with practice of SBE (Israel et al., 2023). However, in Togo, religious and spiritual beliefs delayed help-seeking for breast cancer symptoms (Aheto (2024).

The influence of age-related misconceptions was also noted in the current study, with 48% agreeing that breast cancer is a disease of older women. This is backed up with the qualitative remarks made by the gynecologist in the study. Moreover, it mirrors findings by Wolde et al., (2023) that younger female healthcare professionals in Rwanda were less likely to prioritize SBE due to similar beliefs. Additionally, Gakunga et al (2019) also emphasized this misconception as a barrier in Kenyan communities, where breast cancer was traditionally viewed as a condition affecting older women only.

While progress has been made in normalizing SBE in some communities, persistent misconceptions, modesty norms, and spiritual beliefs continue to pose challenges. The results highlight the need for culturally sensitive interventions that involve families, address myths, and empower women through diverse health education strategies.

Research hypothesis; **H₀₂** – There is no statically significant relationship between cultural factors of women attending family planning clinic at Chuka Level 5 Hospital and their practice of SBE is therefore rejected. This denotes that family support is a significant predictor of performance of SBE.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings

The participants were predominantly young adults with a median age was 28 and the average age was 26.03. Most participants were from rural settings, had achieved a high level of education as over half had tertiary education. The group was fairly split between being single and married. The main sources of income were formal employment and running a business. Regarding health and family, the majority of the participants had a two children or fewer and the most commonly used family planning method was the implant. In addition, more than three-quarters of the participants reported no family history of breast cancer.

The study also involved six healthcare providers as key informants. Their average age was 41.17 and their ages ranged from 32 to 48 years. Half of them were nurses while medical and clinical officers constituted the remaining half. The HCP participants were predominantly female. In terms of educational qualifications, a third of the HCPs participants held a higher diploma or a degree.

More than half of the participants reported having ever performed SBE. However, both the women and the HCP indicated that while awareness is relatively high, regular practice of SBE is low. HCP highlighted that many women only perform SBE when experiencing symptoms or when prompted by health campaigns. Among those who performed SBE, just over half so every monthly as recommended. The main barriers to SBE among the non-practicing participants was lack of knowledge on how to do it correctly, a perception that their breasts were healthy, and fear of finding a lump. Similar views were reported by the HCP when they cited fear, forgetfulness, lack of confidence and busy schedules especially among mothers, as key deterrents. Among those who carryout out SBE, half of them used the palm to examine the breasts and most examined both breasts. The most frequently checked signs were lumps and nipple discharge, while signs such as inversion or dryness of the nipple were the least commonly observed. HCP were the primary source of SBE information. HCPs reported actively promoting SBE through health education in waiting areas, individual counselling during visits, use of visual aids. However, they also cited some constrains

such as limited time and lingering misconceptions since some thought that clinical breast examination is better than SBE.

Analysis of relationship between sociodemographic characteristics and practice of SBE revealed that education level and source of income were significantly associated with SBE performance. Women with tertiary education were less likely to perform SBE compared to those with only primary education. Interestingly, farmers were significantly more likely to perform SBE compared to women in formal employment.

On knowledge of SBE, most of the women in the study had heard of SBE and believed it helps with early detection of breast cancer. However, above half had ever discussed SBE with a HCP. The knowledge level was uneven. The most highly correctly responded question was on “skin changes on the breast can be abnormal”. The least correctly answered question was on steps of SBE and changes in breast size and shape is a sign of breast cancer. The mean knowledge score as about 70% and majority of the participants had good knowledge level of 83% and above. Education level was significantly associated with SBE knowledge while other sociodemographic factors did not show significant relationship. Further analysis revealed that compared to participants with tertiary education, participants with primary education were significantly 2.122 more likely to have poor knowledge level.

Culturally, most participants did not perceive major religious or community prohibitions against SBE. However, barriers may exist within the participants as family encouragement was inconsistent with 51% of the women not being encouraged by their family members. There was presence of peer influence and some women believed breast cancer mainly affects older women. A minority expressed faith-based fatalism: trusting divine protection over screening. Family encouragement to perform SBE, peer influence from friends and disagreeing that faith alone can protect from diseases like breast cancer were significantly associated with performing SBE. However, family encouragement was a significant predictor of the likelihood for SBE practice. Women who agreed that their family encourages them to practice SBE were significantly 0.4 times less likely not to perform SBE compared to those who disagreed.

6.2 Conclusion

Based on the research findings, the researcher concluded that more than half of women attending family planning clinic at Chuka level 5 hospital practice SBE. Majority do it monthly a few days after menstruation period. Majority of the women attending family planning clinic at Chuka level 5 hospital had good knowledge level of SBE. However, there were gaps on the correct steps of carrying out a SBE and identifying some signs of breast cancer such as changes in breast size. Among women attending family planning clinic at Chuka Level 5 Hospital, level of education and source of income were significant predictors of SBE performance. On cultural factors influencing SBE practices among women attending family planning clinic at Chuka Level 5 Hospital, women who are agreed that their family encourages them to practice SBE were significantly 0.4 times more likely to perform SBE compared to those who disagreed. The relationship between knowledge level and practice of SBE among women attending family planning clinic at Chuka Level 5 Hospital, participants with higher knowledge level were more likely to practice SBE compared to those with poor knowledge level.

6.3 Recommendations of the Study

Based on the findings of this study, the researcher recommends the following action in reference to policy, practice and further research.

- i. Integrate SBE education into national and county health programs: The Ministry of Health and Tharaka Nithi County Health Department should incorporate structured SBE training into routine reproductive health, family planning, and maternal-child health services.
- ii. Develop standardized SBE training materials: The Ministry of Health should design simple, pictorial, and language-appropriate materials outlining correct SBE steps and signs of breast cancer for use across all health facilities.
- iii. Promote family and community involvement: Policymakers should include family-focused health promotion strategies in breast cancer prevention policies, emphasizing the role of family encouragement in improving women's adherence to SBE practices.
- iv. Strengthen facility-based education: Nurses and other HCP at Chuka Level 5 Hospital should provide step-by-step demonstrations of SBE during family

planning and reproductive health sessions, ensuring every woman can perform SBE correctly.

- v. Use community health volunteers for outreach: The hospital should collaborate with community health volunteers (CHVs) to deliver SBE education and follow-up support to women in the community
- vi. Engage families in awareness efforts: Healthcare providers should involve men and family members in health talks to encourage supportive home environments that promote regular SBE practice among women.

6.4 Recommendations for Further Research

- i. Further research is needed to explore the unexpected finding that women with tertiary education were less likely to perform SBE compared to those with primary education within the study participants. Qualitative studies using interviews or focus group discussions can help uncover the underlying reasons, such as time constraints or over-reliance on clinical screening.
- ii. Evaluate intervention effectiveness: Future studies should assess the impact of structured SBE education programs on improving accuracy and frequency of SBE practice among women in rural Kenya.
- iii. Investigate family and cultural influence: Researchers should explore how family support, cultural norms, and gender dynamics influence women's willingness and confidence to perform SBE.
- iv. Compare inter-county practices: Comparative studies across counties should be carried out to identify best practices and inform context-specific strategies for promoting SBE in Kenya.

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APPENDICES

Appendix I: Consent form

Part I: Participant Information and Consent Form

Introduction

My name is Josephine Ireri, a postgraduate student at Chuka University. I am conducting research on the "Determinants of Self-Breast Examination Practices Among Women Attending the Family Planning Clinic at Chuka Level 5 Hospital, Kenya." You are invited to participate in this study, but your participation is entirely voluntary.

What Participation Involves

If you choose to take part, you will be asked a series of questions related to self-breast examination. The process will take approximately 10 to 15 minutes. You are encouraged to ask any questions about the study at any time. You also have the right to withdraw from the study at any point without affecting the healthcare services you receive.

Risks

There are no known risks associated with participating in this study, aside from the time commitment of 10–15 minutes needed to complete the questionnaire. If you find any question uncomfortable, you are free to skip it.

Benefits

While there are no direct personal benefits from participating, your contribution will help improve our understanding of self-breast examination practices in Tharaka Nithi County. The findings may contribute to better breast cancer prevention and management strategies in the future.

Confidentiality and Data Protection

To ensure your privacy, your responses were recorded using serial numbers instead of names, keeping your information anonymous and untraceable to you. All collected data was used strictly for research purposes. Completed questionnaires were securely stored in a locked cabinet by the researcher to prevent unauthorized access, alteration, or loss.

Contact Information

If you have any questions regarding this study, now or in the future, you may contact Josephine Ireri at 0722 637771 or the Chuka University Institutional Research Ethics Review Committee.

Part II: Consent Form

I have read and understood the information provided regarding the study on the "Determinants of Self-Breast Examination Practices Among Women Attending the Family Planning Clinic at Chuka Level 5 Hospital, Kenya." I have received all necessary details about the study, and I voluntarily agree to participate.

Signature/thumbprint.....Date.....

Appendix II: Questionnaire

Part A: Demographic data

1. Age (years).....
2. Marital status:
Single () Married ()
3. Highest level of education:
None () Primary() Secondary () College ()
4. Religion: Catholic () Protestant () Muslim () Others (specify)
.....
5. Residence: Rural () Urban ()
6. Source of income: Employed () Farming () Business () Others
.....
7. No. of Children.....
8. Type of family planning method being used.....
9. Is there any history of breast cancer in your family?
Yes ()
No ()

Part B: Practice of Self-Breast Examination (SBE)

1. Have you ever performed a self-breast examination (SBE)?
Yes () – *(proceed with question 4)*
No ()
2. If yes, how often do you perform SBE?
At least once a month ()
Every few months ()
Once a year ()
3. If NO, why *(select all that apply)*
I forget ()
I don't know how to do it correctly ()
I don't think it's necessary ()
I fear finding a lump ()
I don't have time ()
My breasts have no problem to examine ()
Other (please specify)

(do not continue with this section, go to the knowledge questions)

4. When did you last perform SBE?.....
5. At what point in your menstrual cycle do you usually do SBE?
 - A few days after menstruation ()
 - During menstruation ()
 - Before menstruation ()
 - Any time ()
 - I don't consider my cycle when doing SBE ()
6. How do you usually examine your breasts? (Select all that apply)
 - Standing in front of a mirror ()
 - While taking a shower ()
 - While lying down ()
7. What part of your hand do you use to do SBE?
 - Fingertips ()
 - Palm ()
8. Do you check both breasts, including the underarm area, when performing SBE?
 - Yes ()
 - No ()
9. What do you look for when performing SBE (select all that apply)
 - Nipple discharge ()
 - Skin dimpling/discolouration ()
 - Changes in breast size ()
 - Lumps in the breast and armpits ()
 - Pain or soreness in the breast ()
 - Pulling/recent inversion of the nipple ()
 - Scaling/dryness of the nipple area ()
12. Who or what has influenced your practice of SBE the most? (Select all that apply)
 - Healthcare provider ()
 - Friends or family ()
 - Media (TV, radio, social media, internet) ()
 - Educational materials (posters, brochures) ()
 - Personal concern about breast health ()

I have never been influenced to do SBE ()

Part C: Knowledge on SBE

Instructions: Please answer the following questions by ticking (✓) the appropriate box: **Yes or No.**

No.	Question	Yes	No
General Awareness			
1	Have you ever heard of self-breast examination?		
2	Self-breast examination can help in early detection of breast cancer?		
3	Have you ever discussed self-breast examination with a healthcare provider?		
4	Have you ever been taught on SBE?		
Knowledge questions			
4	Self-breast examination should be performed at least once a month?		
5	Are you aware of the steps involved in performing a self-breast examination?		
6	SBE should be done both visually and by touch (palpation)?		
7	SBE should be done in different positions (e.g., standing, lying down)?		
8	The woman should use the palm of her hand to perform SBE?		
9	The best time to do SBE is a few days after the menstrual period ends?		
10	SBE should start at the age of 20 years		
11	A lump in the breast can be a sign of breast cancer?		
12	Changes in breast shape or size can be a sign of breast cancer?		
13	Nipple discharge or inversion may indicate a problem?		
14	Skin changes (e.g., dimpling or redness) on the breast can be abnormal?		
15	A lump in the armpit can be a sign of breast cancer?		

Part D: Sociocultural factors

Instructions: Please indicate your level of agreement with the following statements by selecting one of the options: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), Strongly Disagree (SD).

	Statement	SA)	(A)	(N)	(D)	SD)
1	In my culture, discussing breast health is considered inappropriate.					
2	Women in my community are discouraged from performing self-breast examinations.					
3	My family encourages me to practice self-breast examination.					
4	My friends influence my decision to practice self-breast examination.					

5	Women in my community openly discuss self-breast examination.					
6	My religious beliefs discourage me from performing self-breast examination.					
7	I believe that faith alone can protect me from diseases like breast cancer.					
8	In my culture, women's health decisions are influenced by men.					
9	It is difficult for women in my community to access health information without male approval.					
1	Breast cancer is considered a disease of older women in my community, so younger women do not prioritize self-breast examination.					

Appendix III: Key informant interview schedule

Sociodemographic data

1. Which cadre do you fall in?
Nurse []
Medical Officer []
Psychologist []
2. What is your age in completed years?..... years
3. What is your highest academic qualification?
Certificate []
Diploma []
Higher National Diploma []
Degree []
Postgraduate Degree []
4. Indicate your years of work experience.....

Section B: SBE practice

1. In your experience, how common is the practice of self-breast examination (SBE) among women attending this facility?
2. What are some common misconceptions or knowledge gaps that women have about SBE?
3. What are the main reasons women give for not performing SBE regularly?
4. Do you think women trust SBE as an effective method for early breast cancer detection? Why or why not?
5. How do cultural beliefs and attitudes influence women's willingness to perform SBE?
6. How often do you educate women about SBE during consultations and which methods do you use?

Appendix IV: Ethical Clearance

CHUKA UNIVERSITY
Knowledge is Wealth (*Sapientia divitia est*) Akdli ni Mali

CHUKA UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE

Telephones: 020-2310512/18
Direct Line: 0772894438
Email: info@chuka.ac.ke
P. O. Box 109-60408, Chuka
Website: www.chuka.ac.ke

REF: CUIERC/NACOSTI/799
TO: Anderson Miriti
11th July, 2025

RE: Transformative Leadership in Promoting Innovation and Change at Kenya Medical Training College

This is to inform you that *Chuka University IERC* has reviewed and approved your above research proposal. Your application approval number is *NACOSTI/NBC/AC-0812*. The approval period is 11th July, 2025 – 11th July, 2026.

This approval is subject to compliance with the following requirements;

- Only approved documents including (informed consents, study instruments, MTA) will be used
- All changes including (amendments, deviations, and violations) are submitted for review and approval by *Chuka University IERC*.
- Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to *Chuka University IERC* within 72 hours of notification
- Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *Chuka University IERC* within 72 hours
- Clearance for export of biological specimens must be obtained from relevant institutions.
- Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- Submission of an executive summary report within 90 days upon completion of the study to *Chuka University IERC*.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely


Dr. Benjamin Kanga
SECRETARY



Appendix V: NACOSTI Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 229714	Date of Issue: 08/August/2025
RESEARCH LICENSE	
	
This is to Certify that Miss.. JOSPHINE KATHONI IRERI of Chuka University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Tharaka-Nithi on the topic: DETERMINANTS OF SELF-BREAST EXAMINATION PRACTICE AMONG WOMEN ATTENDING FAMILY PLANNING CLINIC AT CHUKA LEVEL 5 HOSPITAL, KENYA. for the period ending : 08/August/2026.	
License No: NACOSTI/P/25/4177365	
Applicant Identification Number 229714	 Ag. Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.	
See overleaf for conditions	

Appendix VI: County Authorization


THARAKA NITHI COUNTY GOVERNMENT
DEPARTMENT OF HEALTH SERVICES AND SANITATION
CHUKA REFERRAL HOSPITAL
OFFICE OF THE MEDICAL SUPERINTENDENT
P.O. BOX 8 - 60400
CHUKA
CELL: 0728 226 333 EMAIL: medsuprchuka@gmail.com

When replying please quote:
REF: CKA/MED/T/16/VOL.VI/088 DATE: 19TH SEPTEMBER, 2025

JOSPHINE K. IRERI
ID/NO. 23047290
REG NO: SM20/45772/20
CHUKA UNIVERSITY

RE: NO OBJECTION TO REQUEST FOR AUTHORIZATION TO COLLECT DATA AT CHUKA COUNTY REFERRAL HOSPITAL

The above subject refers.

Following your request via institution letter **Ref No. SM20/45772** dated **21st July 2025**, for an opportunity to carry out data collection on **Determinants of Self-Breast Examination Practice Among Women Attending Family Planning Clinic at Chuka County Referral Hospital**, from **15th September, 2025 to 22th September 2025**, your request has been granted.

This is subject to the following:

- That you will adhere to all the Ethical Guidelines for your research as stipulated in your Institutional Ethics Review Committee recommendations.
- That you will commit to share your research findings with the Hospital for purposes of Quality Improvement in Service Delivery.
- That the data collection exercise will not interfere with service delivery at the hospital.

If the conditions stipulated above are acceptable to you, kindly sign below:

NAME JOSPHINE K. IRERI SIGN [Signature] DATE 19/9/2025

[Signature]
ENID KARIMI MBAKA
HUMAN RESOURCE OFFICER
CHUKA COUNTY REFERRAL HOSPITAL

CHUKA REFERRAL HOSPITAL
P.O BOX 8 - 60400, CHUKA.
TEL: 0728 226 333
19 SEP 2025
MEDICAL SUPERINTENDENT
CHUKA

Appendix VII: Map showing the location of Chuka Level 5 Hospital

