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Uptake of Breast Self-Examination Strategy as Preventive Control Measures of Breast Cancer Among Adult Reproductive Females in Kayonza District, Rwanda

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Abstract

Breast cancer (BC) remains one of the leading causes of death globally, affecting women in both developed and developing countries. One of the most accessible and cost-effective prevention methods is Breast Self-Examination (BSE), which empowers women to detect abnormalities early. This study aimed to assess the uptake of BSE as a preventive control measure for breast cancer among adult reproductive females in Kayonza District, Rwanda. The findings aim to inform the development of national policies and strategies to enhance early detection, and to guide the Ministry of Health (MoH) in promoting regular BSE practice among women. A cross-sectional descriptive design with both quantitative and qualitative components was used. The quantitative survey involved 375 women aged 30–60 years selected from five health centers in the district, employing a multistage sampling technique. Data were collected using structured questionnaires and interviews, then coded, categorized, and analyzed using Microsoft Excel and SPSS. Descriptive statistics (frequencies, percentages) and Pearson correlation analysis were used. Results revealed a statistically significant relationship between BSE practice and breast cancer prevention, with a moderate positive correlation coefficient of 0.343* and a p-value of 0.001 ($p < 0.01$), indicating that BSE significantly contributes to early detection. Despite this, the study found that many women in Kayonza lack proper knowledge or skills to perform BSE correctly. The study concludes that BSE plays a significant role in breast cancer prevention and recommends that the Ministry of Health, the Kayonza District Health Unit, and the broader community intensify awareness campaigns and provide practical training on BSE to improve uptake and effectiveness.

Keywords: *Breast Self-Examination, Breast Cancer Prevention, Reproductive Females, Kayonza District*

1.1 Background of the study

Globally, Cancer is recognized as a global problem. Recent reports indicate that 1 in 5 men and 1 in 6 women worldwide will develop cancer in their lifetime. Denmark, Ireland and Belgium are the three countries with the highest cancer incidence rate per 100,000 people around the world. Breast cancer mortality in high-income countries dropped by 40% between the 1980s and 2020 (WHO, 2021). Breast Self-Examination (BSE) is a screening method used in an attempt to detect

early breast cancer or a check-up a women does at home to look for changes in the breast tissue including possible lumps or swelling. Breast cancer is the most commonly diagnosed cancer among American women (WHO, 2021).

In America, the risk of developing breast cancer in women was 13% which is equivalent to 1 in every 8 women in their life time, which is the leading cause of death among women and 70% of breast cancer were reported in low and middle income countries where in Ethiopia, 22.6% breast cancer cases were reported. Different reports show that BC is still a fatal disease worldwide, in that, doing BSE should the best way to detect it earlier.

Practice of breast self-examination have been reported in different countries; 63.8% in Turkey, 78% in Cameroon, 64.01% in Saudi Arabia, 74.9% in Libya. Good practice of breast self-screening as preventive measures of breast cancer among adult females were reported in Vietnam, 15.8%, Turkey, 8.5%, Ghana,37.6%, Cameroon, 38.5%, 39.2% in Egypt and 12.1% in Libya. "The study done in Ethiopia, 2021, a community based study". The objective of the WHO Global Breast Cancer Initiative (GBCI) is to reduce global breast cancer mortality (Abeje S, Seme A, Tibelt A., 2019). The strategies for improving breast cancer outcomes depend on fundamental health system strengthening to deliver the treatments that are already known to work. Reducing breast cancer mortality by 2.5% per year would avert 25% of breast cancer deaths by 2030 and 40% by 2040 among women under 70 years of age. The study done in Rwanda, 2020, showed that, BC was deadly malignancy in women in both developed and developing countries where about 2.1 million cases and 627,000 deaths were reported in 2018, which were estimated that, 25.1% deaths in developed countries and 14.3% deaths in developing countries women die annually (Collin LJ, 2021).

Breast Cancer (BC) is a malignant cell growth in the breast, if not treated, it spreads to other areas of the body which is commonly occurs in womenAccording to World Cancer Research Fund International, WCRFI (2020), there were more than 2.26 million new cases of breast cancer in women. Breast cancer became the most common cancer globally as of 2021, accounting for 12% of all new annual cancer cases worldwide (WHO). In Rwanda, breast cancer incidence rate is estimated at 41.0 per 100,000 women with a mortality rate of 19.4 per 100,000 (WHO, 2020), the data of GLOBOCAN 2020. Rwanda National Breast Cancer Control Plan (RNCCP), 2020-2024, shows that the strategies and expected results in Early Detection of Breast Cancer include the decreased stage of breast cancer from 77%to 25% by 2024 by establishing systematic clinical breast exam for women aged 30 years at the health facility and educating women on monthly breast self-examination and also the use of Mammography, the breast clinical examination recommended by WHO (GLOBOCAN, 2018). Holding Breast Cancer Awareness Walk, 2022, the Ministry of Health (MOH) through Rwanda Biomedical Center (RBC) and Imbuto Foundation in the theme "Early detection saves lives" said that each year, 650 breast cancer patients are diagnosed (MoH Rwanda, 2022). The research showed that, in Sub-Saharan Africa (SSA), BC is becoming a serious public health issue with increased incidence and high mortality rates compared to developed countries in the world, where in Rwanda with more than 12 million inhabitants, breast cancer is the second cause of mortality after cervical cancer.

It is very important to practice BSE because it is very easy to carry it out on an individual him/herself and doing so, one will be preventing economic and health burden that should be

brought by BC in the societies. The importance and purpose of performing BSE once a month is to help females understand and determine if the breasts are normal or abnormal.

1.2 Problem Statement

Breast Cancer remains the leading cause of deaths among the women in Africa (Donkor et al., 2015). An estimated 882,900 women in developing countries were diagnosed, where 324,000 of them died with the higher prevalence rates noted in East, North and West Africa. The same estimation done by Bray et al., 2018 shows that 627,000 women died from breast cancer accounting for approximately 15% of all cancer deaths among adult reproductive females. GLOBOCAN 2020 data shows that, breast cancer incidence rate in Kenya estimated at 40.3 per 100,000 with mortality rate of 17.8 per 100,000 where the annual breast cancer incidence is about 12% of all new cancer cases and mortality rate is about 7.7% of all cancer deaths (Ministry of Health, 2015) .

To all the studies and researches done, they show low levels of practices about breast cancer self-screening which is still a problem as responded by the respondents. Doing BSS by females would be good way to manage the issue identified, therefore, this study is designed to cover the gaps that remained unknown so as females become aware of their self-breast test on their own in order have well beings in their societies, communities and country as whole (Beyer KMM, 2021).

1.3 Objectives of the study

1.3.1. General objectives

The aim of this study is to determine the Uptake of Breast Self-Examination Strategy As Preventive Control Measures of Breast Cancer among Adult Reproductive Females in Kayonza District, Rwanda.

1.3.2. Specific objectives

1. To determine the awareness of Breast Self- Screening in Kayonza District.
2. To assess the Knowledge, Attitudes and Practice (KAP) with low Breast Self-Exam among adult females in Kayonza District.
3. To assess how socio- cultural, level of education and knowledge contribute Breast Self-Screening among adult females in Kayonza District.
4. To explore the challenges faced by adult reproductive females to carry out BSS.

1.4 Research questions

1. What are the Knowledge, Attitudes and Practice (KAP) which lead to low Breast Self-Screening among adult females in Kayonza District?
2. What are the main social-cultural factors that lead to low Breast Self- Exam among adult females?
3. What are the challenges faced by adult females to carry out BSE as a preventive control measures?

1.5 Scope of the Study

This research emphasized on the determination of the Uptake of Breast Self-Examination Strategy as Preventive Control Measures of Breast Cancer among Adult Reproductive Females in Kayonza District, one of thirty Districts of Rwanda, divided into 14 Sectors, 69 cells and 602 villages. It is located in the Eastern Province about 130 km from Kigali City. Data were collected for a period of one month of March, 2024.

2.0 Literature Review

This chapter reviews literature on breast self-examination (BSE) as a preventive strategy against breast cancer among adult reproductive females. It covers global, regional, and local perspectives, examining awareness levels, practice trends, and influencing factors such as age, education, and access to health services. The section also outlines relevant theories and identifies knowledge gaps that justify the current study.

2.1 Theoretical Literature

2.1.1 Breast and breast cancer

In dictionary, breast is defined as a glandular organ located on the chest which is made up of connective tissue, fat and breast tissue that contains glands that make milk. According to Susan G. Kamen, breasts are made of breast tissue and fat along with nerves, veins, arteries and connective tissue that helps hold everything in place. Center for Disease Control and Prevention suggest that breast cancer is a disease in which cells in the breast grow out of control. American Cancer Society (ACS) describes breast cancer as a type of cancer that starts in the breast, on one or both breasts, it almost occurs entirely in women but men can get it too (Society., American Cancer, 2021).

Breast cancer arises in the lining cells of ducts in the glandular tissues of the breast. Initially, the cancerous growth confined to the ducts or lobules where it generally causes no symptoms and has minimal potential for spread, (WHO, 2021). UNESCO describes breast cancer as it happens when cells of the breast grow and divide in an uncontrolled way, creating a mass of tissue called tumor. Signs of breast cancer include feeling a lump in the breast, experiencing a change in the size of the breast and seeing changes on the skin of the breast (Fung S, 2020).

2.1.2 Breast self-examination

According to National Cancer Institute (NCI), breast self-examination is a way a persons can check their own breasts by feeling the lumps or other changes. By doing so, a person can learn how their breasts look normally and notice once the change occurs. Medline Plus describes breast self-exam as a check-up a woman does at home to look for changes or problems in the breast tissue. WHO, 2022, breast self-examination is an inspection of your breasts that you do on your own by using your eyes, hands in order to increase your breast awareness. In 2022, MOH Rwanda suggested that every women once a month should do self-breast exam just as standing in front of the mirror and check symptoms of breast cancer in order to be aware of their breasts (Ministry of Health, 2015).

WHO, 2020 outlined the factors that increase the risk of developing the breast cancer which include: increasing age, obesity, harmful use of alcohol, family history of the breast cancer, history of radiation exposure, reproductive history such as age menses began, tobacco use and postmenopausal hormone therapy. Through prolonged breastfeeding, regular physical activity,

weight control, avoidance of: harmful use of alcohol, exposure to tobacco smoke, prolonged use of hormones and reduces the excessive radiation exposure, the risk factors should be reduced in a clear manner (Getie A, 2020). In 2020, 2.3 million women were diagnosed and 685,000 died globally. Once the first sign is detected, seeking medical attention allows for more successful treatment. The symptoms of breast cancer include: breast lump or thickening, alternation in size, shape or appearance of the breast, dimpling, redness, pitting or other alternation in the skin, nipple change in appearance or the change on the skin around the nipple, and nipple discharge. According to Thomson Medical, breast self-examination should be done by an individual herself through the following steps: stand before the mirror and look at both breast and check for anything unusual around the breast, looking in the mirror and raise your arms around your head to allow you see underside the breast, hands on hips while bending forward to look the normal shape of the breast, lie down flat on your back to easier check the whole breast, conduct BSE while you shower to feel the breast changes underneath and finally examine your nipple for bleeding discharge by squeezing gently the nipple to find out if there is bleeding or any discharge.

Regular BSE will help you be familiarize with the feeling and look of your breast to enable you detect any changes and abnormalities more easily. Mammography is valuable as an early breast cancer detection to give a chance of complete recovery since more treatment choices may be available as much as possible.

2.2. Empirical Literature

2.2.1 Prevalence of females towards breast- self examination

Breast Self-Examination practice is being done in both developing and developed countries around the world but the levels differ greatly. According to Cancer Statistics, 2022, a total of 1,918,030 new cases and 609,360 cancer deaths occurred in United State where breast cancer- was seen increasing by 0.5% annually. Also among the ten leading cancer types, a total of 934,780 new cases, 287,850 (31%) is of breast cancer and in 287,270 total deaths, 43,250 (15%) is of breast cancer. The study done in Egypt showed that females limited to health literacy and breast cancer-related skills. The same study conducted in Bangladesh assessing the educational intervention on breast cancer knowledge and breast self-examination among female university students shows that, a total of 400 females university students aged 18-26 years had inadequate awareness and knowledge about BSE at the base line, increasing the awareness and knowledge on breast cancer and breast cancer screening was found crucial. The study done in Iran shows that 14.8% of women who carried out BSE, 5.7% done it adequately and 9.4% performed it on a regular basis. It showed that the Iranian women need to be educated to recognize the risk factors to promote the early detection of breast cancer (Rahman SA, 2021).

The study done in Ethiopia, (Fung S, 2020), BSE and associated factors among women in Wolaita Sodo, it is important to carry out early detection of breast because it decreases morbidity and mortality of breast cancer. It involves the woman looking at and feeling each breast for possible lumps, distortions, or swellings. BSE is a simple exercise that can potentially save all women's lives wherever there are. The same study conducted in Kayonza District, one of the eastern province of Rwanda, 2018 shows clearly that among 30.9% respondents claimed that they do not know about breast cancer screening, and females are less likely to listen to radio as the source of

health information, that they are overloaded with home duties because they are caretakers and due to culture beliefs, they do not get time to hear for health information.

2.2.2. Factors associated with females to carry out breast self-exam

The research done in China to women in their 30s and 40s shows that studies are still required according to age, education, occupation and environmental characteristics to maximize educational effects and development of educational programs. The same study done in Ethiopia shows that being employed, a student, knowledge of BSE and breast feeding up to 24 months are the factors affected performing BSE (Wolaita Sodo, 2020), that girls' education and increasing awareness through electronic media should improve breast cancer outcomes (Kibret A, 2022).

Inadequate knowledge, unfavorable attitude and poor practice towards BSE are the associated factors (Asmare et al. BMC Women's Health, 2022). Age, marital status, level of education of BSE, medical background, access to internet, source of information and level of income also influence the practice of BSE among females. Three categories under which the study summarized those factors are feelings, experiences and lifestyle.

The study done in Iranian women (2012) shows that the sociocultural factors associated with BSE practice are Perceptions, Enablers and Nurturers. Both of which present negative behaviors. The same research done by Vanessa B.Sheppard et al., on breast cancer shows that the most important factors are agreeability, relying on god, fear, religious beliefs, experiences, cancer legend of enabling factors are accessibility, skill and negligence of service providers. Family members, family negative reactions, family and society members unawareness are the most important nurturing factors (Seyed Abolhassan Naghibi, 2014).

The way to fight breast cancer and reduce death hazards is to conduct early detection programs in women's BSE. Once one does it individually should increase knowledge of her breast status. Cumber et al., 2017, American Cancer Society, reported that cultural and religious beliefs, challenging health needs and deficiency in economic status are linked with ineffective breast cancer knowledge and deficiency health seeking behaviors (Josephine, 2015).

2.2.3. Challenges faced by females to carry out BSE

The study done by Akhtari- Zavare et al, Springer Plus (2015), among Malaysian female students' shows that the following were barriers towards BSE practice among 742 respondents. These are; they do not know to do it, it takes much time to do BSE, they do not have symptoms, doing BSE feels not necessary, some other said they do not have privacy for BSE practice, inadequate educational programs- about breast health awareness and lack of knowledge about BSE practice (Mehrnoosh Akhtari-Zavare, 2015).

The study done shows that perception of no disease threat, lack of knowledge, fear of detecting cancer prevent participants from performing BSE and are therefore noticed as BSE practice barriers. The study conducted in Palestinian women in Gaza City (2020), shows that they think they had no disease, no need to do BSE, lack of knowledge, fear of detecting cancer, perception that it deviates privacy and feeling embarrassment (Baloushah, 2020).

2.2.4. Advantages BSE practice among Rwandan females

The study done by Allen et al., 2010 shows that BSE practice has many advantages like knowledge and skills on how to control the women's health, getting information, becoming familiar of her breast status and that BSE practice done once a month after menses is very easier, simpler and non-invasive technique which can be done by anyone else without referring on medically skilled person. BSE is the best way that could help a person to know what is normal and what is abnormal in the female's breast (ACS (2012). The recommendation to women over 20 years of age by NCCN (2014) is to perform a monthly BSE to detect newly lumps and all the other breast changes for early treatment and diagnosis (Organization., World Health, 2020). The BSE is the primary preventive method which is widely recommended as the way of early detection for early treatment, much efforts must be put in place to encourage, support and teach women the proper ways to examine themselves for early detection of tumors (Dibisa TM, 2020).

2.3 Conceptual Framework

The conceptual framework of this study illustrates how socio-cultural factors (such as religion, beliefs, values, social class, and education), demographic characteristics, and knowledge or awareness about breast cancer influence the practice of breast self-examination (BSE) among adult reproductive females.

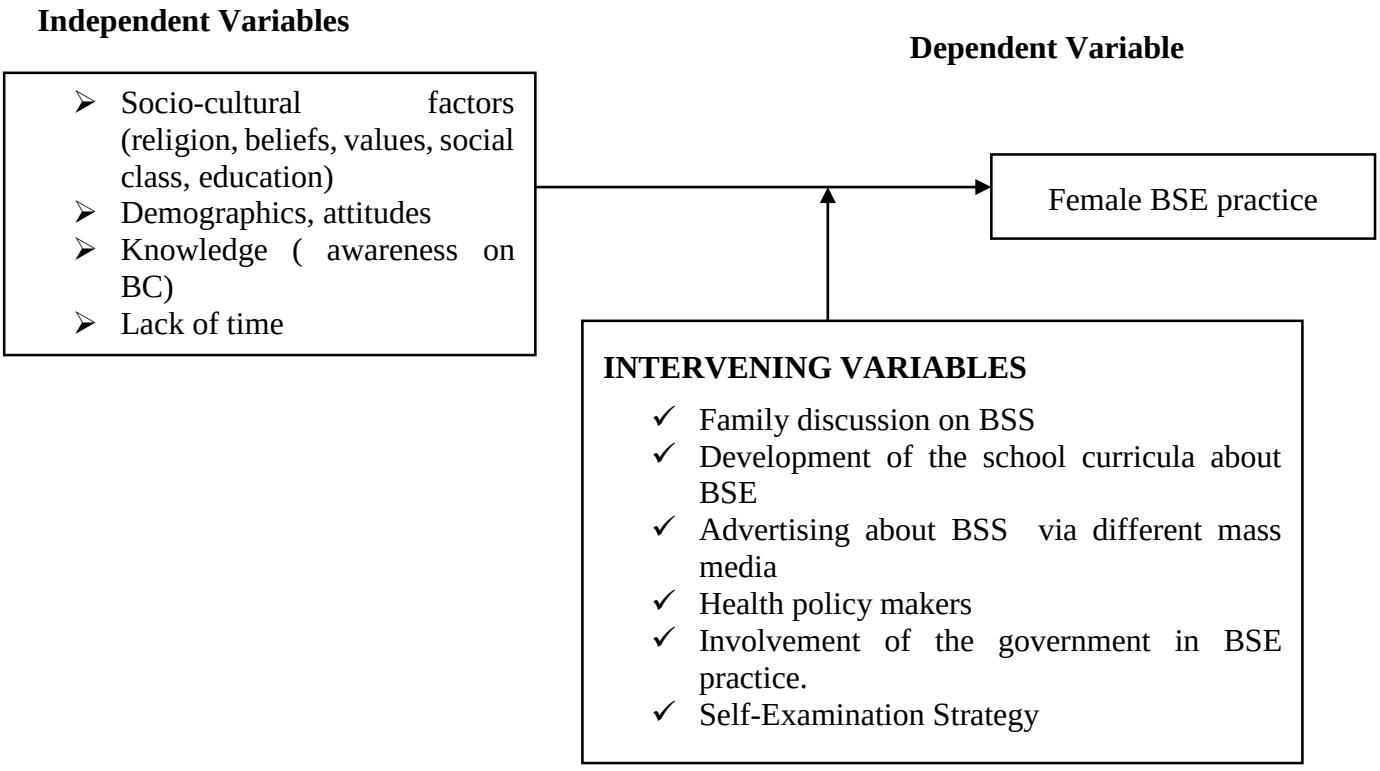

Figure 1. Conceptual framework

These independent variables affect the dependent variable—female BSE practice—either directly or through key intervening factors. These mediating elements include family discussions on BSE, inclusion of BSE in school curricula, mass media awareness campaigns, support from health policymakers, government involvement in screening programs, and structured self-examination strategies. Collectively, the framework highlights that while individual awareness and socio-demographic conditions are important, institutional and societal support systems play a critical role in enabling or hindering the uptake of BSE as a preventive health behavior.

3.0 Research Methodology

This study adopted a quantitative research approach using a correlational design, guided by Creswell (2014), to examine the relationship between variables through structured data collection and statistical analysis. The target population consisted of 375 females aged 30–60 years attending health centers in Kayonza District, Rwanda. Using Yamane's formula with a 5% margin of error, a sample size of 194 participants was determined. A multistage sampling technique was employed: stratification by social status, educational level, and income; random village selection; and systematic sampling of households. For the qualitative component, one knowledgeable participant per village was selected purposively. Data collection involved structured questionnaires for quantitative data and interview guides for qualitative responses, both developed in English and translated into Kinyarwanda. Reliability was confirmed using Cronbach's alpha ($\alpha = 0.86$), while validity was ensured through pretesting, supervisor review, and feedback from proposal defense. Quantitative data were analyzed using SPSS, employing descriptive statistics, frequencies, means, and correlations, while qualitative data were transcribed, translated, and thematically analyzed. Ethical approval was secured from Mount Kenya University, and informed consent was obtained from all participants, ensuring voluntary participation, confidentiality, and data use strictly for academic purposes.

4.0 Findings

This chapter shows the presentation, analysis and interpretation of the findings in scientific way which enables the beneficiaries of this research project to understand its outcomes. This chapter consists of the information from the first in hand data collected on field. The primary data were collected from the perception of the respondents on the study using questionnaire which was distributed to adult reproductive females in Kayonza District. Researcher planned in third chapter 195 questionnaires distributed to adult reproductive females, 195 questionnaires to the researcher and were answered. The statistical package for social science (SPSS) were used to analyze the findings.

4.1 Identification of adult reproductive females

To analyze the bio data of the respondents, descriptive statistics were used to get information about the respondents in terms of gender, religion, education background, marital status, age and employment status. The findings of demographic of respondents are shown in the table below:

Table 1: Social Demographic Characteristics of Respondents

		Frequency	Percentage
Age of respondents	Between 30 and 35	59	30.4%
	Between 35 and 40	76	39.2%
	Between 40 and 45	39	20.1%
	45 and above	20	10.3%
	Total	194	100.0%
Marital status of respondents	Single	8	4.1%
	Married	184	94.8%
	Others	2	1.0%
	Total	194	100.0%
Education background of respondents	Primary	4	2.1%
	Secondary	16	8.2%
	Advanced diploma	103	53.1%
	Bachelors	71	36.6%
	Others	0	0.0%
	Total	194	100.0%
Religion of respondents	Christian	175	90.2%
	Muslims	12	6.2%
	Other religion	7	3.6%
	Total	194	100.0%
Employment of respondents	Employed	71	36.6%
	Unemployed	113	58.2%
	Others	10	5.2%
	Total	194	100.0%

Table 1 indicated that among adult reproductive female's participants, 30.4% were aged between 30 and 35 years old, 39.2% were aged between 35 to 40 years old, 20.1% were aged between 40 to 45 years old and 10.3% were aged between 45 and above. This showed that age was represented fairly during this study. This implies that respondents who participated in this study were aged between 35 and 40 years old with 39.2%. Table 4.1 showed that marital status of respondents, 4.1 % were single participants, 94.8% were married, Other category of participants were in other with 2.1%. The majority of respondents who contributed to this study were married with 94.8%. Education background of respondents showed that 2.1 % had primary level of study, 8.2% had secondary level of study, 43.1 hold advanced diploma and 36.6% hold bachelor's degree of study. The majority of respondents who contributed to this hold advanced diploma with 53.1%. Depending on Religion of respondents, the table showed that 90.2% were Christians, 6.2% were Muslims, and 3.6% were in other religions. The majority of respondents who contributed were Christians with 90.2%. Employment of respondents showed that 36.6% were employed, 58.2% were unemployed and 5.2% other. The majority of respondents who contributed were unemployed with 58.2%.

Table 2: Awareness of Breast Self-Examination

			Between 30 and 35	Between 35 and 40	Between 40 and 45	45 and above
Have you ever heard of breast self-examination	Strongly disagree	Count	12	15	15	4
		% within Age of respondents	20.30%	19.70%	38.50%	20.00%
	Disagree	Count	10	9	6	4
		% within Age of respondents	16.90%	11.80%	15.40%	20.00%
	Neutral	Count	18	26	4	5
		% within Age of respondents	30.50%	34.20%	10.30%	25.00%
	Agree	Count	15	20	9	4
		% within Age of respondents	25.40%	26.30%	23.10%	20.00%
	Strongly agree	Count	4	6	5	3
		% within Age of respondents	6.80%	7.90%	12.80%	15.00%

This table shows that 2 respondents with20.3% who are between 30 and 35 years old strongly disagree that they have never heard about breast self-examination, 15 respondents with 19.75% who are between 35 and 40 years old strongly disagree to the statement, 15 respondents who are between 40 and 45 years old strongly disagree to the statement and 4 respondents with 20.0% who are above 45 years old strongly disagree to the statement.

The table also shows that 10 respondents with 16.9% who are between 30 and 35 years old disagree that they have never heard about breast self-examination, 9 respondents with 11.8% who are between 35 and 40 years old disagree to the statement, 6 respondents with 15.4% who are between 40 and 45 years old disagree to the statement and 4 respondents with 20.0% who are above 45 years old disagree to the statement.

In other hand table also shows that 18 respondents with 30.5% who are between 30 and 35 years old are neutral to the statement that they have never heard about breast self-examination, 26 respondents with 34.2% who are between 35 and 40 years old neutral to the statement, 4 respondents with 10.3% who are between 40 and 45 years old are neutral to the statement and 5 respondents with 25.0% who are above 45 years old are neutral to the statement.

The table shows that 15 respondents with 25.4% who are between 30 and 35 years old agree to the statement that they have heard about breast self-examination, 20 respondents with 26.3% who are between 35 and 40 years old agree to the statement, 9 respondents with 23.1 % who are between 40 and 45 years old agree to the statement and 4 respondents with 20.0% who are above 45 years old agree to the statement.

Lastly the table shows that 4 respondents with 6.8% who are between 30 and 35 years old strongly agree to the statement that they have heard about breast self-examination, 6 respondents with 7.9% who are between 35 and 40 years old strongly agree to the statement, 5 respondents with 12.8 % who are between 40 and 45 years old strongly agree to the statement and 3 respondents with 15.0% who are above 45 years old strongly agree to the statement.

The findings from the below figure showed that the participants who strongly disagree to the statement scored 46%, 29% disagree, 53% neutral, 48% agree and 18% strongly agree to the statement that they have heard about BSE.

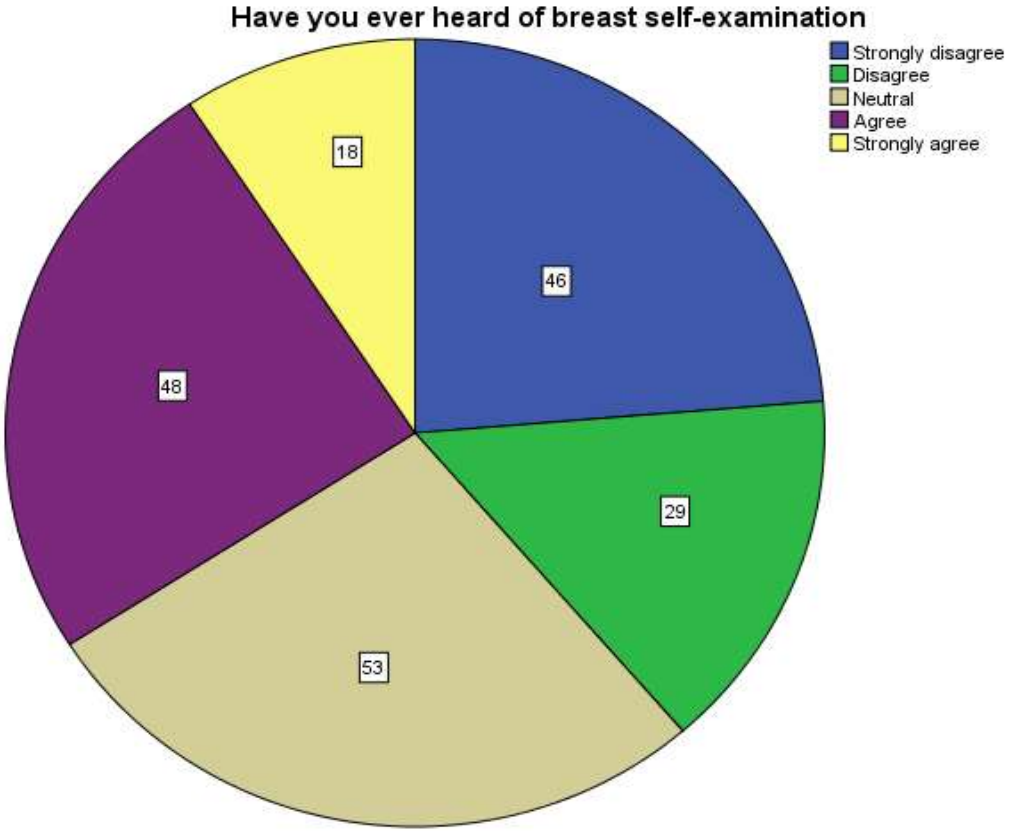

Figure 2. Knowledge of Breast Self-Examination

Table 1. Marital Status Of Respondents' and Breast Self – Examination

			Marital status of respondents		
			Single	**Married**	**Others**
Have you ever done breast self – examination	Strongly disagree	Count	5	97	0
		% within Marital status of respondents	62.5%	52.7%	0.0%
	Disagree	Count	1	43	1
		% within Marital status of respondents	12.5%	23.4%	50.0%
	Neutral	Count	0	14	1
		% within Marital status of respondents	0.0%	7.6%	50.0%
	Agree	Count	1	15	0
		% within Marital status of respondents	12.5%	8.2%	0.0%
	Strongly agree	Count	1	15	0
		% within Marital status of respondents	12.5%	8.2%	0.0%

Table 3 shows that 3 respondents with 62.5% who are single strongly disagree that they do not do breast self-examination, 97 respondents with 52.7% who are married strongly disagree to the statement, respondents who are in other group strongly disagree to the statement. The table also shows that 1 respondent with 12.5% who are single disagree that they do not do breast self-examination, 43 respondents with 23.4% who are married disagree to the statement, 1 respondent with 50.0% who are in other group disagree to the statement.

In other hand table also shows that 0.0% of respondent who are single are neutral that they did not do breast self-examination, 14 respondents with 7.6% who are married are neutral to the statement, 1 respondent with 50.0% who are in other group is neutral to the statement.

The table also shows that 1respondent with 12.5% who are single agree that they did breast self-examination, 15 respondents with 8.2% who are married agree to the statement, 0.0% of respondent who are in other group agree to the statement. Lastly the table shows that 1 respondents with 12.5% who are single strongly agree that they did breast self-examination, 15 respondents

with 8.2% who are married strongly agree to the statement, 0% of respondent who are in other group strongly agree to the statement that they did breast self-examination.

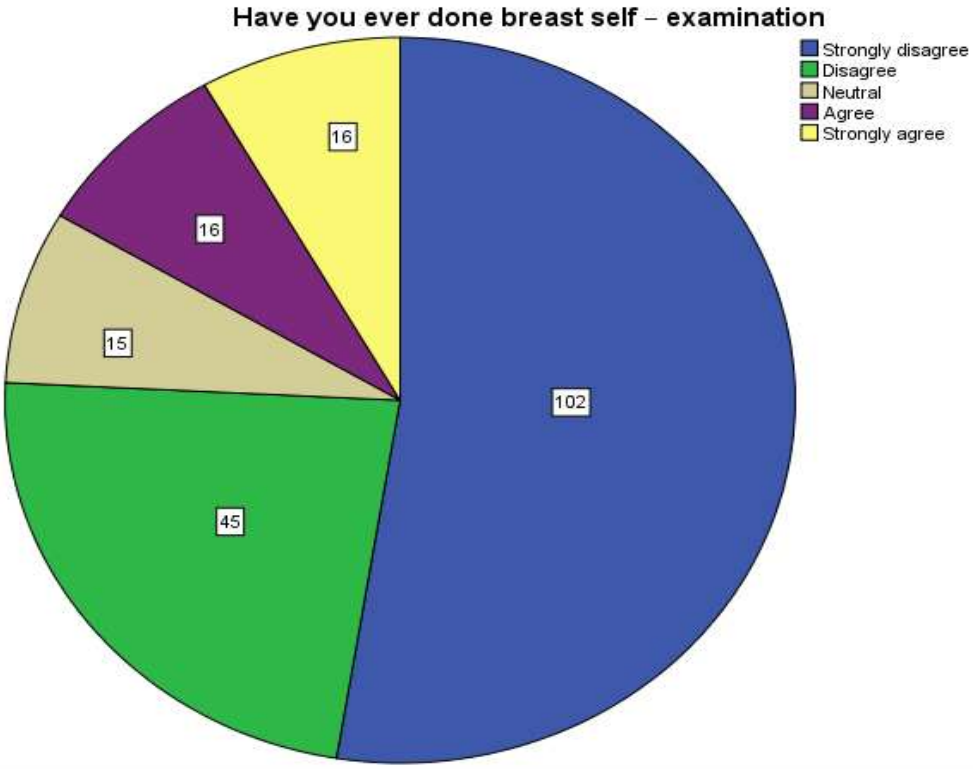

Figure 3. Percentage of Marital Status of Respondents On How They Did BSE

The findings from the above figure showed that the participants strongly disagree to the statement scored 102%, 45% disagree, 15% neutral, 16% agree and 16% strongly agree to the statement that they have heard about BSE.

Table 2. How Education Back Ground Influence BSE Practices

			Education background of respondents			
			Primary	Secondary	Advanced diploma	Bachelors
Education influence negatively the practice of BSE	Strongly disagree	Count	1	5	44	47
		% within Education background of respondents	25.0%	31.3%	42.7%	66.2%
	Disagree	Count	0	2	25	11
		% within Education background of respondents	0.0%	12.5%	24.3%	15.5%
	Neutral	Count	3	4	19	5
		% within Education background of respondents	75.0%	25.0%	18.4%	7.0%
	Agree	Count	0	3	10	3
		% within Education background of respondents	0.0%	18.8%	9.7%	4.2%
	Strongly agree	Count	0	2	5	5
		% within Education background of respondents	0.0%	12.5%	4.9%	7.0%

Table 4 shows that 4 respondents with 25.0% who has primary level of education strongly disagree that education back ground influence negatively the practice of BSE, 5 respondents with 31.3% who have secondary level of education strongly disagree to the statement, 44 respondents with 42.7% hold advanced diploma strongly disagree to the statement, 47 respondents with 66.2% hold bachelors degree of education strongly disagree to the statement.

The table shows that 0.0% of respondents who has primary level of education disagree that education back ground influence negatively the practice of BSE, 2 respondents with 12.5% who

have secondary level of education disagree to the statement, 25 respondents with 24.3% hold advanced diploma disagree to the statement, 11 respondents with 15.5% hold bachelors degree of education strongly disagree to the statement.

In other the table shows that 75% of respondents who has primary level of education are neutral that education back ground influence negatively the practice of BSE, 4respondents with 25% who have secondary level of education are neutral to the statement, 19 respondents with 18.4% hold advanced diploma are neutral to the statement, 5 respondents with 7.0% hold bachelors degree of education are neutral to the statement.

The table shows that 0.0% of respondents who has primary level of education agree that education back ground influence negatively the practice of BSE, 3 respondents with 18.8% who have secondary level of education agree to the statement, 10 respondents with 9.7% hold advanced diploma agree to the statement, 3 respondents with 4.2% hold bachelors degree of education agree to the statement.

Lastly the table shows that 0.0% of respondents who has primary level of education strongly agree that education back ground influence negatively the practice of BSE, 2 respondents with 12.5% who have secondary level of education strongly agree to the statement, 5 respondents with 4.9% hold advanced diploma strongly agree to the statement, 5 respondents with 7.0% hold bachelors degree of education strongly agree to the statement.

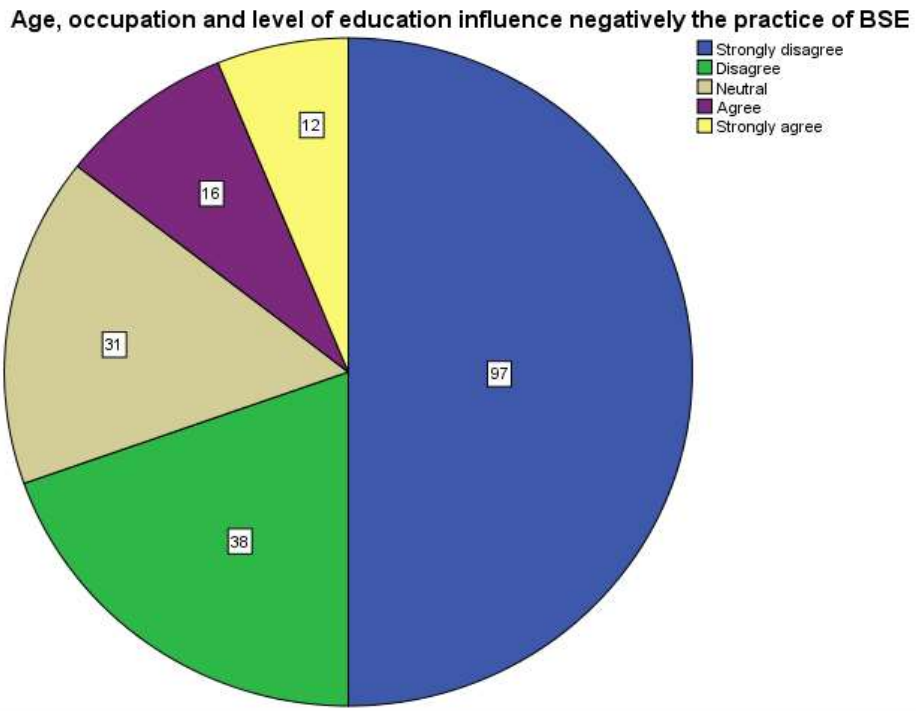

Figure 4. Perception of Education Background's Influence on BSE

The findings from the above figure showed that the participants strongly disagree to the statement scored 97%, 38% disagree, 31% neutral, 16% agree and 12% strongly agree to the statement that education back ground influence negatively the practice of BSE**.**

4.2 Perceptions of Adult Reproductive Females on Prevalence And Practice Of BSE

This section concerns the evaluation of the perceptions on prevalence and practice of BSE where 10 question were asked and answered by respondents, and are shown in the below tables:

Table 3. Perception of Respondents On Prevalence and Practice Of BSE

	Mean	Standard Deviation
Have you ever heard of breast self-examination	2.81	1.30
Have you ever done breast self – examination	1.96	1.30
Have you seen white discharge coming out while testing	1.77	1.42
Have you detected something like stones while testing	2.86	1.48
Is it easy to carry out breast self-examination test	3.14	1.25
Brest self- exam could be done by each female on her own	3.66	1.10
Do you think females have an important part in BSE practice	3.79	3.83
It is advised to do BSE once a month	3.56	1.40
Lack of job and level of income can contribute to low BSE practice	2.53	1.42
One does BSE practice when signs like breast swelling, nipple crust and redness, nipple discharges blood, skin sores, sunken nipple and changes in the size or shape of the breast are all observed.	2.26	1.22
	2.83	

Table 5 shows the perceptions of adult reproductive females on prevalence and practice of BSE. In assessing on prevalence and practice of BSE,10 items were considered and the findings are follows: The first item states that have you ever heard of breast self-examination and this was perceived with the mean of 2.81 (tend to weak) and standard deviation of 1.3 (heterogeneous) meaning that respondents have different perceptions and tend to weak on this statement. The second item states that Have you ever done breast self-examination. This was perceived with the mean of 1.96 (weak) and standard deviation of 1.3 (heterogeneous) meaning that respondents they do not have any information on the statements and have different perceptions.

Third item states that Have you seen white discharge coming out while testing this was perceived with the mean of 1.77 (weak) and standard deviation of 1.42 (heterogeneous) meaning that respondents they do not have any information on the statements on the statements and have

different perceptions on this statement. Four item states that Have you detected something like stones while testing was perceived with the mean of 2.86 (Tend to weak) and standard deviation of 1.48 (heterogeneous) meaning that respondents they tend to weak means that somehow the agree with the statements and have different perceptions on this statement. Five item states that is it easy to carry out breast self-examination test was perceived with the mean of 3.14 (Tend to agree) and standard deviation of 1.25 (heterogeneous) meaning that respondents they tend to agree with the statements and have different perceptions on this statement. Six item states that Brest self-exam could be done by each female on her own was perceived with the mean of 3.66 (Tend to agree) and standard deviation of 1.10 (heterogeneous) meaning that respondents they tend to agree with the statements and have different perceptions on this statement. Seven item states that do you think females have an important part in BSE practice was perceived with the mean of 3.79 (Tend to agree) and standard deviation of 3.80 (heterogeneous) meaning that respondents they tend to agree with the statements and have different perceptions on this statement.

Eight item states that it is advised to do BSE once a month was perceived with the mean of 3.56 (Tend to agree) and standard deviation of 1.40 (heterogeneous) meaning that respondents they tend to agree with the statements and have different perceptions on this statement. Nine item states that Lack of job and level of income can contribute to low BSE practice was perceived with the mean of 2.53(Tend to weak) and standard deviation of 1.40 (heterogeneous) meaning that respondents the statements and have different perceptions on this statement. ten item states that One does BSE practice when signs like breast swelling, nipple crust and redness, nipple discharges blood, skin sores, sunken nipple and changes in the size or shape of the breast are all observed was perceived with the mean of 2.26(Tend to weak) and standard deviation of 1.22 (heterogeneous) meaning that respondents the statements and have different perceptions on this statement.

4.3 Perceptions of adult reproductive females on associated factors toward low BSE among females

This section concerns the evaluation of the perceptions on associated factors toward low BSE among females where 5 question were asked and answered by respondents, and are shown in the below tables:

Table 4. Perception of respondents on associated factors toward low BSE among females

	Mean	Standard Deviation
Fear of discovering a lump in a female breast leads to non- practice of BSE	2.40	1.49
Some females know that the health workers are the ones to check their breast health status	2.92	1.48
It is enough to check the breast once a year	2.08	1.27
Relying on god, religious beliefs and cancer legend contribute to low BSE practice	2.44	2.48
Age, occupation and level of education influence negatively the practice of BSE	2.01	1.25

The table 6 shows how respondents perceive on give statements. The first stated that Fear of discovering a lump in a female breast leads to non- practice of BSE where mean is 2.40 and standard deviation is 1.49 this means that the respondents tend to disagree to the statement with different understanding. The second stated that Some females know that the health workers are the ones to check their breast health status where mean is 2.92 and standard deviation is 1.48 this means that the respondents tend to disagree to the statement with different understanding. The three stated that It is enough to check the breast once a year where mean is 2.08 and standard deviation is 1.27 this means that the respondents tend to disagree to the statement with different understanding. The four stated that Relying on god, religious beliefs and cancer legend contribute to low BSE practice where mean is 2.44 and standard deviation is 1.48 this means that the respondents tend to disagree to the statement with different understanding. The fifth stated that Age, occupation and level of education influence negatively the practice of BSE where mean is 2.01 and standard deviation is 1.25 this means that the respondents tend to disagree to the statement with different understanding.

4.4 Perceptions of Adult Reproductive Females on Challenges Faced By Females To Carry Out BSE

This section concerns the evaluation of the perceptions on challenges faced by females to carry out BSE among females where 6 question were asked and answered by respondents, and are shown in the below tables:

Table 5. Perception of respondents on challenges faced by females to carry out BSE

	Mean	Standard Deviation
BSE practice takes much time	2.09	1.19
Doing BSE practice costs much	2.39	1.36
Some females do not know to do BSE	3.38	1.31
Lack of knowledge and feeling that it is not necessary to do BSE	3.67	1.31
Females do not want know that they have breast cancer	3.14	1.45
Community Health Workers are sometimes unavailable	3.19	1.58

The table 7 shows how respondents perceive on given statements. The first stated that BSE practice takes much time where mean is 2.09 and standard deviation is 1.19 this means that the respondents tend to disagree to the statement with different understanding. The second stated that Doing BSE practice costs much where mean is 2.39 and standard deviation is 1.36 this means that the respondents tend to disagree to the statement with different understanding. The three stated that some females do not know to do BSE where mean is 3.38 and standard deviation is 1.31 this means that the respondents tend to agree to the statement with different understanding. The four stated that Lack of knowledge and feeling that it is not necessary to do BSE where mean is 3.67 and

standard deviation is 1.13 this means that the respondents tend to agree to the statement with different understanding. The fifth stated that Females do not want know that they have breast cancer where mean is 3.14 and standard deviation is 1.45 this means that the respondents tend to disagree to the statement with different understanding. The sixth stated that Community Health Workers are sometimes unavailable where mean is 3.19 and standard deviation is 1.58 this means that the respondents tend to agree to the statement with different understanding.

The information recovered from the respondents, data was entered in SPSS and the outcomes presented in the table. The table establishes the general correlation analysis that evaluate uptake of breast self-examination strategy as preventive control measures of breast cancer among adult reproductive females. In chapter one, hypothesis of study has been written in affirmative declarative sentences. The hypotheses were Ho (null hypothesis), which written in negative form and Ha (Alternative Hypothesis) written in positive form. The statistical testing based on Ho, which is written in negative form. Testing a hypothesis means reject or accept Ho. Therefore, the hypotheses are as table below.

Table 6. Correlation Analysis

		BSES	BC
BSES	Pearson Correlation	1	.343**
	Sig. (2-tailed)		.000
	N	194	194
BC	Pearson Correlation	.343**	1
	Sig. (2-tailed)	o.000	
	N	194	194

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8 delivers a Pearson correlation of coefficient between breast self-examination strategy as preventive control measures and breast cancer among adult reproductive females, the population (N) was 355 and sample size 195 the significant level is 0.01, the statistical evidence confirmed that breast self-examination strategy as preventive control measures plays a significant influence on breast cancer among adult reproductive females .the Pearson correlation in the table shows that there s .343* interpreted as moderate correlation and P-value is .000 which is less than 0.01 in addition that when the p-value is less than significant level, it means that the variables are significantly correlated. Therefore, we reject the null hypothesis and conclude that is significant relationship between breast self-examination strategy as preventive control measures and breast cancer among adult reproductive females in Kayonza District. The researcher concluded that breast self-examination strategy play as significant role in preventing female breast cancer in Kayonza District but the findings showed that some of female in Kayonza they do not know how to test them self-breast cancer.

5.0 Discussion of the findings

The findings revealed varied awareness levels of breast self-examination (BSE) among adult reproductive females across different age groups in Kayonza District. Among respondents aged 30–35 years, 20.3% strongly disagreed that they had ever heard of BSE, while a comparable 19.7%

of those aged 35–40 also expressed strong disagreement. The same pattern continued in the 40–45 and 45+ age brackets, where 38.5% and 20.0% respectively also strongly disagreed. Neutral responses were most dominant among respondents aged 35–40 years (34.2%) and 30–35 years (30.5%), indicating uncertainty or limited knowledge. Those who agreed or strongly agreed that they had heard of BSE were fewer, with only 6.8% of 30–35-year-olds and 7.9% of 35–40-year-olds strongly agreeing, suggesting that a majority either lacked awareness or were unsure about the practice.

Regarding the actual practice of BSE, the data showed that a significant proportion of women across different marital statuses, particularly singles (62.5%) and married women (52.7%), strongly disagreed that they practiced BSE. Only a small percentage of women across marital categories agreed or strongly agreed that they conducted BSE regularly, reflecting a considerable gap between awareness and action. This gap may be attributed to a lack of confidence, cultural taboos, or insufficient knowledge on proper BSE techniques. It also suggests that even among women who have heard of BSE, routine practice remains low and may be influenced by other underlying socio-cultural or systemic barriers.

Supporting this, a study by Ayebo (2021) demonstrated how targeted training interventions significantly improved BSE-related knowledge. Prior to training, only 55.6% of peer trainers and 60.3% of students in a Ghanaian cohort knew BSE could detect breast cancer, but post-training awareness rose to 98.4% and 97.6% respectively. Knowledge about treatment options also improved significantly. This reinforces the idea that structured health education programs can transform awareness into actionable practice. Applying similar training efforts in Kayonza could bridge the awareness-practice gap, enabling women not only to recognize the importance of BSE but to confidently engage in it as a preventive health behavior.

6.0 Conclusions

The study established that breast self-examination (BSE) is a vital preventive strategy against breast cancer, yet its uptake among adult reproductive females in Kayonza District remains low due to inadequate awareness, limited practice, and socio-cultural barriers. Despite a moderate positive correlation between BSE practice and breast cancer prevention, many women still lack knowledge of how to properly conduct BSE, and misconceptions persist across various demographic groups. Factors such as education level, marital status, religious beliefs, and access to information significantly influence BSE practice. The study emphasizes the need for structured health education programs, community mobilization, and policy support to bridge the gap between awareness and actual BSE practice, thereby enhancing early detection and reducing breast cancer-related mortality in Rwanda.

7.0 Recommendations

Based on the findings of this study, several recommendations are proposed for key stakeholders. The Rwanda Ministry of Health is advised to implement targeted training programs for health professionals to equip them with the skills necessary to educate and assist women above 30 years on proper breast self-examination (BSE) techniques. This recommendation is supported by the statistically significant correlation ($p = .000$) observed between BSE as a preventive strategy and breast cancer awareness among adult females. The Ministry should also invest in and distribute essential screening equipment for early detection. At the community level, women are encouraged

to adhere to breast cancer prevention guidelines provided by health workers and to seek timely medical advice in the event of breast-related concerns. Additionally, the Kayonza District Health Unit should conduct monthly sensitization campaigns to raise awareness about the importance of BSE as a cancer management strategy. Finally, the study recommends further research across a wider population and geographic scope to validate and expand on these findings, given the current study's limited timeframe and coverage.

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