Determinants of Breast Cancer Screening among Rural Women, Homa Bay County, and Western Kenya

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Abstract - **Breast cancer is a serious disease and it is one of the major causes of morbidity and mortality in Kenya and the World as a whole. It can be controlled by early detection, and prompt treatment or management. This paper aimed to demonstrate the screening levels of breast cancer among women in Homa-Bay County and determine factors associated with breast cancer screening. This was a cross-sectional study, which was done in April 2019 in two purposively selected sub-counties in Homa Bay County, Western Kenya. A region, which had previously registered lower screening levels of cancer in national surveys. Data analysis was majorly descriptive showing proportions. A Chi-square test was used to check for the association of categorical variables with breast cancer screening. Results indicated that the majority of the respondents had not gone (87.35%) for screening compared to those who had gone for screening (12.65%). Factors that were found to be significantly associated with breast cancer included if the woman was smoking (Chi-Square p-value = 0.02, history of a family member diagnosed with breast cancer (Chi-Square p-value = 0.004), and having undergone X-ray at one point in life (Chi-Square p-value = 0.021). The study concluded that breast cancer screening is still very low in Homa- Bay County and factors such as smoking and having a family member who had been diagnosed with breast cancer are associated with breast cancer screening. We recommend an increased health promotion and education activities based on breast cancer screening so that the women can go for the available cost-effective screening methods such as Clinical Breast Examination in Homa Bay County. This can be done through increased campaigns for breast cancer screening and home visits to encourage breast cancer screening or self-breast examination.**

Keywords: **Breast cancer, screening, women, detection, and home campaigns.**

I. INTRODUCTION

Breast cancer is one of the most common cancers worldwide [1]. Breast cancer is the leading cancer in women accounting for 24.2% of cancer cases in women and it is the leading cause of death of cancer deaths in women (15%) according to the global cancer report [1]. The incidence of new cancers is about 1.7 million representing about 12% of all new cancer cases and 24% of all cancers in women. Breast cancer is also the fifth most common cause of cancer deaths in women after lung cancer, liver cancer, colorectal cancer, and stomach cancer respectively [2]. Moreover, more deaths result from breast cancer in developing countries as compared to the developed countries despite higher incidences in the developed countries [3]. Regionally, in Eastern Africa, breast cancer incidence according to the global cancer statistics stands at 19.3 per 100000 women compared to 89.7 per 100000 women in Western Europe [1]. In Kenya, breast cancer is the third highest cause of morbidity and mortality with a prevalence of 34 per 100,000 people [4]. Breast cancer also accounts for 7% of deaths annually, according to [5].This is after infectious diseases and cardiovascular diseases [5]. This high prevalence and incidences rates of breast cancer need to be controlled.

One method of breast cancer control is early breast cancer diagnosis through early screening especially in targeting risk populations [6]. Early screening of breast cancer leads to early treatment and is important in preventing deaths that breast cancer would cause [7]. In Kenya, the Ministry of Health proposes breast cancer screening in its National Strategy for the Prevention and Control of Non-Communicable Diseases 2015-2020 [4] . Breast cancers detected early during screening examinations are likely to be minor and still restricted to the breast, making them easier to treat [7].

Coincidentally, the greatest hindrance to early treatment of breast cancer patients is late screening [8] contributed to inadequate knowledge of Kenyans on breast cancer [9]. Other limitations to breast cancer screening include inadequate screening centers [5], and a lack of well-equipped health facilities for the public with the ability to handle cancer cases. By end of the year 2018, there were only five cancer radiation centers in the country, which are all in the capital city of Nairobi; the human capacity is also considerably low.

Cognizant of the cancer threat in Kenya, intervention approaches such as awareness programs focusing on early diagnosis, advancement in medical facilities, and the rise of cancer campaign groups as well as the creation of a cancer

research institute have been put forward [4]. In terms of screening, currently there exist a higher screening for breast cancer in developed countries at 78% but this is not the same for developing countries where screening is at 18% [7]. As a result of higher screening in developed countries, it has resulted in early treatment. However, many patients succumb to the disease in developing countries including Kenya due to low survival rates associated with late diagnosis and late-onset of treatment of breast cancer patients [1].

Moreover, there also exists a variation in screening uptake for breast cancer between urban and rural women in response to breast cancer screening services in Kenya [10]. Women in urban areas have a higher probability (90 % odds) of access to breast cancer screening compared to their rural counterparts in Kenya [10]. This inadequate knowledge of breast cancer and low breast cancer screening results in late cancer diagnosis and hence lots of death. In addition, the latest figures in Homa Bay County recorded lower screening levels of 7.8 % [11] against, the screening rate in Kenya at the same time, which was about 14 %. Furthermore, no cancer center exists in Homa Bay. These factors make most people die of breast cancer without knowing what was ailing them [11] having not been diagnosed with the disease. Late diagnosis of breast cancer makes it almost impossible for curative care for breast cancer patients. This paper presents the levels of screening and some of the behavioral factors that are associated with the breast cancer screening practice in Homa bay County.

II. METHODOLOGY

This was a cross-sectional descriptive study. Structured questionnaires were distributed to 320 women participants in two purposively selected sub-counties (regions) in Homa Bay County, Kenya. The 320 women were then drawn systemically from the selected household that consented to take part in the study. The systematic sampling procedure with a sample frame of households was provided by the local authority. Data analysis was descriptive while the association of factors was determined by using the Chi-square test of the hypothesis. Factors with p-values less than 0.05 were considered to be significantly associated with breast cancer screening. Before the study was undertaken, the reasons and purposes of the study were clearly explained to the participants. Ethical approval for the study was obtained from Kenyatta University Ethical Review Committee NO. PKU/901/1961.

III. RESULTS

Sociodemographic characteristics of the respondents

Table one below explains the sociodemographic characteristics of the of participants.

Table 1. Socio Demographic Characteristics

	Sub county	n		Frequency	Percent	95% CI	
						Lower	Upper
Age	Ndhiwa	N=162	<= 30.00	32	19.8	13.6	25.9
(Years)			31.00 - 40.00	39	24.1	17.3	30.9
			41.00 - 50.00	46	28.4	21.6	35.8
			51.00 - 60.00	24	14.8	9.9	20.4
			61.00 - 70.00	16	9.9	5.0	14.2
			71.00 - 80.00	5	3.1	.6	6.2
	Kasipul	N=157	<= 30.00	30	19.1	13.4	25.53
			31.00 - 40.00	45	28.7	22.3	36.3
			41.00 - 50.00	28	17.8	12.1	24.2
			51.00 - 60.00	26	16.6	10.8	22.3
			61.00 - 70.00	21	13.4	8.3	18.5
			71.00 - 80.00	7	4.5	1.3	7.6
Level of education	Ndhiwa	N=163	Non formal	13	8.0	3.7	12.3
			Primary	51	31.3	23.9	38.7
			Secondary	53	32.5	25.8	39.9
			Tertiary Education	46	28.2	21.5	35.6
	Kasipul	N = 158	Non formal	16	10.1	5.7	15.2
			Primary	90	57.0	48.7	64.6

			Secondary	43	27.2	20.3	34.8
			Tertiary Education	9	5.7	2.5	10.1
Religious affiliation	Ndhiwa	N=163	Catholics	30	18.4	12.3	24.5
			SDAs	69	42.3	34.4	50.3
			Protestants	57	35.0	27.6	41.7
			Other	6	3.7	1.2	6.7
			Muslim	1	.6	.0	1.8
	Kasipul	N=158	Catholics	46	29.1	22.8	36.1
			SDAs	50	31.6	24.1	39.2
			Protestants	42	26.6	19.6	34.2
			Other	20	12.7	8.2	17.7
Marital status	Ndhiwa	N=147	Married	110	74.8	66.7	81.6
			Divorced	7	4.8	1.4	8.2
			Single	7	4.8	1.4	8.2
			Separated	1	.7	.0	2.0
			Widowed	22	15.0	9.5	21.1
	Kasipul	N=132	Married	83	62.9	54.5	71.2
			Divorced	10	7.6	3.8	12.1
			Single	5	3.8	.8	7.6
			Separated	2	1.5	.0	3.8
			Widowed	32	24.2	15.9	31.8
Polygamous marriage	Ndhiwa	N=147	Yes	35	23.8	17.0	30.6
			No	112	76.2	69.4	83.0
	Kasipul	N=132	Yes	47	35.6	27.3	43.9
			No	85	64.4	56.1	72.7
Main occupation	Ndhiwa	N=147	Farming (Small scale)	53	36.1	28.6	44.2
			Business	23	15.6	9.5	21.8
			Teacher	46	31.3	23.8	38.8
			House wife	21	14.3	8.8	19.7
			Others	4	2.7	.0	5.4
	Kasipul	N=132	Farming (Small scale)	84	63.6	55.3	71.2
			Business	19	14.4	9.1	20.5
			Teacher	4	3.0	.8	6.1
			House wife	14	10.6	6.1	15.9
			Others	11	8.3	4.5	12.9
Parity	Ndhiwa	N=147	1	18	12.2	7.5	17.7
			2	29	19.7	13.6	26.5
			3	29	19.7	13.6	26.5

			>3	68	46.3	38.1	54.4
			5	3	2.0	.0	4.8
	Kasipul	N=132	1	12	9.1	4.5	14.4
			2	15	11.4	6.1	17.4
			3	15	11.4	6.8	17.4
			>3	87	65.9	57.6	73.5
			5	3	2.3	.0	5.3

Behavioral characteristics

Table 2 summary of behavioral characteristics of the women

						95% CI	
	Sub county	N		Frequency	%	Lower	Upper
Alcohol	Ndhiwa	158	Yes	13	8.2	3.8	12.7
			No	145	91.8	87.3	96.2
	Kasipul	159	Yes	8	5.0	1.9	8.8
			No	151	95.0	91.2	98.1
Tobacco	Ndhiwa	149	Yes	1	.7	.0	2.0
			No	148	99.3	98.0	100.0
	Kasipul	150	Yes	7	4.7	1.3	8.0
			No	143	95.3	92.0	98.7
Having a Family member diagnosed with cancer	Ndhiwa	N=158	yes	37	23.4	17.1	30.4
			No	121	76.6	69.6	82.9
	Kasipul	N=153	yes	19	12.4	7.2	17.6
			No	134	87.6	82.4	92.8
Use of hormonal pills	Ndhiwa	N=161	yes	72	44.7	37.3	52.2
			No	89	55.3	47.8	62.7
	Kasipul	N=151	yes	57	37.7	29.8	45.7
			No	94	62.3	54.3	70.2
Sexually active	Ndhiwa	N=154	Yes	122	79.2	72.7	85.7
			No	32	20.8	14.3	27.3
	Kasipul	N=148	Yes	103	69.6	62.8	77.0
			No	44	29.7	22.3	36.5
			21	1	.7	.0	2.0
Have undergone X ray	Ndhiwa	N=160	yes	55	34.4	27.5	42.5
			No	105	65.6	57.5	72.5
	Kasipul	154	yes	45	29.2	22.1	36.4
			No	109	70.8	63.6	77.9

The table above summarizes the behavioral characteristics of the respondents

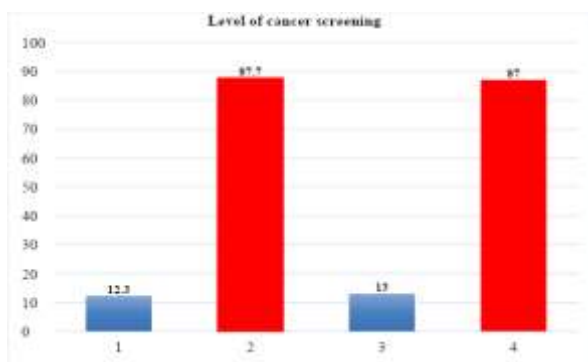Fig 1. Uptake of screening of breast cancer

Figure one above gives the level of breast cancer screening in the two sub-counties of Homabay. The level of breast cancer screening in the two sub-counties were 12.3% and 13% respectively for Ndhiwa and Kasipul. They had almost similar levels of breast cancer screening uptake. It shows lower screening levels of breast cancer in Homa Bay County.

The figure above indicates the level of screening of breast cancer in Homa Bay County.

Fig 2. Uptake of different screening methods
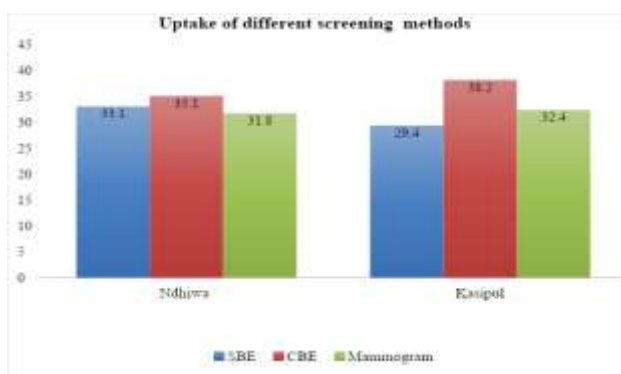
The three major screening methods of breast cancer were looked at to see which among them is the most attended method is by the women of Homabay County. As shown on Fig 2 above, most of the women have gone for the clinical breast cancer examination (CBE) for both Ndhiwa (35.1%) and Kasipul at 38.2% respectively.

Fig 3. Reasons for not screening for cancer.
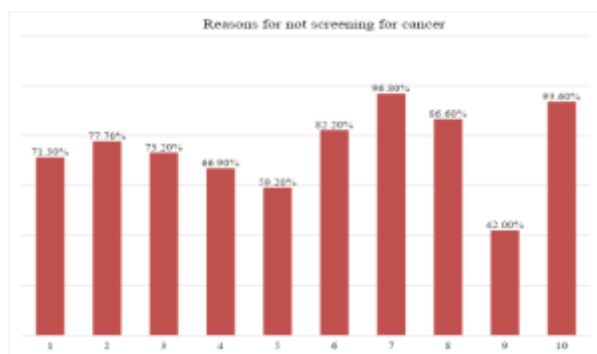
The respondents were also asked reasons why they do not go for screening in both the sub-counties, in Kasipul, 96.8 % said it is a dangerous exercise while another 93.6% said screening is not profitable to them, 86.6% feared cancer and hence would not want to be tested for it. It is also evident that lack of awareness was the least reason for not going for the screening. Only 59.2% and 42% in Ndhiwa and Kasipul respectively said they were not aware. Although this is still a large proportion of the respondents.

IV. FACTORS ASSOCIATED WITH BREAST CANCER SCREENING

The table below describes the analysis to find out the factors associated with breast cancer screening among the women in Homabay County in Kenya.

Using a Chi-square test of hypothesis, smoking cigarettes was found to be associated with breast cancer screening (Chi-square =12.70, P-value = 0.02). Another factor that showed significant association was having a family member who has been diagnosed with cancer before (Chi-square =9.623, P-value = 0.004). Having experienced a form of treatment involving x-ray also was associated with going for breast cancer screening (Chi-square =5.31, P-value = 0.021. The rest of the factors did not show any significant statistical association.

Table 3. Factors Associated with Breast Cancer Screening

		Screening for Breast Cancer			
		Yes	No	X^2 value	P value
Being a Smoker	Yes	2	6	12.70	0.02
	No	24	265		
Polygamy	Yes	8	84	0.378	0.344(exact)
	No	19	201		
Alcohol intake	Yes	4	15	3.696	0.158
	No	24	268		
Use of hormonal pills	Yes	11	116	1.485	0.223
	No	24	159		
Having a Family member diagnosed with cancer	Yes	13	22	9.623	0.004
	No	43	231		
Use of family planning pills	Yes	11	24	1.485	0.223
	No	116	159		
Sexual Activity	Yes	23	13	2.714	0.438

	No	199	63		
X ray Experience	Yes	18	19	5.31	0.021
	No	82	193		
No of Children	2 and below	6	30	0.803	0.412
	More than 2	31	239		

V. DISCUSSION

The results indicate low breast cancer screening among rural women in Homa Bay County in the sub-counties of Ndhiwa and Kabondo where the research was done at 12.3% and 13 % respectively. From the results, the screening method that has been experienced by the residents of these two sub-counties in the Clinical Breast Examination (CBE) at 35.1% and 38.2% in Ndhiwa and Kabondo respectively. CBE was higher compared to Self-breast examination (SBE) and mammogram in both sub-counties. Most people are likely to go for CBE because of the confidence they have in the health practitioner to assess their condition compared to their test. As for mammography, the high cost associated with it could have led to it being shunned by the women. The reasons for low breast cancer screening could be due to the perceived high cost of screening as 71.3% of the respondents in Ndhiwa while 82% in Kasipul Sub County indicated that high cost is one of the reasons which can hinder them from undertaking breast cancer screening. Other reasons included such reasons as the perception that the screening process is dangerous (77.7 % in Ndhiwa and 96.8%) in Kasipul respectively. A study by [12] and [13] found attitudinal factors as some of the reasons why women don't go for breast cancer screening corroborate these findings. **Figure three** above shows other reasons why there could be reduced screening levels of breast cancer among rural women. Even though binary, the analysis did not reveal a statistical significance with the chi-square test. These findings corroborate a finding by Patel et al (2014) on the reasons for low breast cancer screening. Other factors did not show any significant statistical association with breast cancer screening.

In other studies, looking at the association of socio-demographic factors in relation to cancer screening e.g., cervical cancer, factors including low monthly income, age and residence have been found to be associated with the low uptake of screening in Ethiopia [14]. Another study [15] found no relationship between the socio-demographic factors studied and cancer screening. In their research to identify the variables related to cancer screening participation among caregivers. [16] Discovered that individuals with lower levels of education had a reduced likelihood of participating in cancer screening exams. Another research [17]) established that patients from underprivileged socio-economic backgrounds had a reduced likelihood of getting checked for breast cancer resulting from a lack of medical insurance

services [18]. In their research in Uganda demonstrated that the extent of literacy and position of an individual at work had an influence on screening for breast cancer. This is backed by a research that found that the hectic schedule of employed women to be one of the variables connected to breast cancer screening [12]

VI. CONCLUSION AND RECOMMENDATIONS

This paper concludes that being a smoker, having a family members who has been diagnosed with cancer and having been done for a X ray were significantly associated with the breast cancer screening among women in Homa Bay county. Meaning those who had family members diagnosed with a cancer were more likely to go for breast cancer screening. In addition those who smoke and those have gone for X ray previously were more likely to for breast cancer screening. Hindrances to breast cancer screening included the perceived high cost of most screening methods for breast cancer, the perception that screening is dangerous, and fear of being diagnosed with cancer. This paper suggests a need for increased health promotion and education activities based on breast cancer screening so that the women can go for the available cost-effective screening methods such as Clinical Breast Examination.

Conflict of interest.

There is no conflict of interest that pertains to the publication of this paper

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