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DETERMINANTS OF EXTERNAL BREAST PROSTHESIS UTILIZATION AMONG FEMALE BREAST CANCER SURVIVORS IN MACHAKOS LEVEL 5 HOSPITAL, MACHAKOS COUNTY, KENYA

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ABSTRACT

The utilization of External Breast Prostheses (EBP) among female breast cancer survivor's post-mastectomy (BCSs) is influenced by a complex interplay of patient-related, healthcare provider and systemic factors. Patient-related factors such as age, socioeconomic status, body image, comfort and health literacy play a crucial role in the decision to use EBPs. Younger women might prefer reconstructive surgery while those from lower socioeconomic backgrounds may face affordability issues. The impact on body image and self-esteem combined with the comfort and convenience of using a prosthesis significantly affects utilization. Healthcare provider factors such as recommendations, knowledge and effective communication are vital in guiding patients towards using EBPs. Systemic factors such as EBPs availability and accessibility, insurance coverage and cultural attitudes also play a significant role. The main aim of this study was to investigate the determinants of EBPs utilization among female Breast Cancer Survivors (BCSs) after undergoing mastectomy in Machakos level 5 hospital (ML5H) in Kenya. A total of 69 breast cancer survivors were included in the study. Results showed that 31.9% were aged between 41 to 50 years, 59.4% were residing in rural areas, 56.5% had secondary level education and 82.6% had medical insurance cover. The utilization of EBP was 44.9%. Residing in urban area (adjusted odds ratio (aOR) = 8.15, 95%CI: 2.13 – 31.24, p =0.002), having medical cover (aOR =6.41, 95%CI:1.11 – 25.42, p =0.019) and having adequate knowledge (aOR=5.54, 95%CI: 1.05 – 29.32, p =0.044) were key factors influencing EBP utilization. Thus, there need to enhance EBP use, focus on increasing awareness, improving insurance coverage and ensuring accessible services in both urban and rural areas.

Key Words: *Social Demographics Characteristics, Socio Economic Factors, Knowledge, Utilization of EBPs*

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INTRODUCTION

Breast cancer is the most prevalent cancer in women and ranks second in the world after lung cancer, accounting for 2,088,849 new cases and 626,679 deaths per year (Bray et al., 2018). In 2018, the prevalence of breast cancer in Sub-Saharan Africa was 27.7% for women of all ages. After cardiovascular and infectious diseases, cancer ranks third in Kenya in terms of causes of death (WHO, 2018). In 2018, 5,985 new breast cancer cases were recorded in Kenya accounting for 12.5% of all female cancers with more than 3,286 deaths (Bray et al., 2018). In Kenya, the number of cases of breast cancer is predicted to increase by almost 70% over the next 20 years (Kenya Cancer Policy, 2020).

In order to deal with the catastrophic repercussions of mastectomy, over 80% of women with advanced breast cancer wear External Breast Prostheses (EBPs) (Borghesan et al., 2014), while about 36% of these women have mastectomy (Kummerow et al., 2015). Similarly, another study conducted in Australia found out that when given appropriate information patients chose prosthetic breast reconstruction over breast reconstruction surgery (Zam & Winch, 2019). Apart from improving body appearance and physical recovery, wearing EBPs also improves women psychosocial wellbeing, restoring femininity and preventing scoliosis caused by long-term body imbalances after mastectomy (Kubon et al., 2014).

Data from conducted studies especially in developed countries have reported various factors that influence EBPs utilization. According to a study by Ramu et al. (2014), higher education levels, younger age and urban living contributed to higher utilization of EBPs.

Qui et al., 2020 identified specific EBPs characteristics that impacted their use like color, size, shape, weight and materials used to make. In a systematic study conducted in China to determine the factors that influenced utilization of EBPs, Liang and Xu (2015) identified comfort, cost, appearance, breast cancer survivor mental status and supportive information as major factors that influenced EBPs use. However, recent research regarding EBPs utilization is relatively limited especially in developing countries like Pakistan (Jetha et al., 2017).

The majority of participants in the studies were well educated and from high socioeconomic backgrounds, and the majority of the studies were carried out at private health facilities in urban areas (Eva et al., 2015; Cumbera et al., 2017; Gichuru et al., 2018). Their views may differ from participants living in rural areas with low socioeconomic background and who were less educated. Furthermore, study samples from most of the previously conducted studies were small thus statistical analysis might have been limited and some relationships might have been missed too**.**

In Sub Saharan Africa (SSA), lack of awareness, late presentation in hospital and lack of radiation facilities contributes to late diagnosis of breast cancer hence increased mastectomy cases (Eva et al., 2015). There is scarcity of data describing patterns of EBPs use and factors influencing their use among BCSs following mastectomy in SSA and in Machakos level 5 hospital (ML5H) one of the largest referral hospital in Kenya. Therefore, it is important to investigate these factors with an aim of identifying specific EBPs characteristics, patient and health care provider factors that might contribute to the overall utilization and satisfaction of EBPs among female breast cancer survivors (BCSs) after undergoing mastectomy.

Problem Statement

After advanced breast cancer diagnosis, mastectomy remains to be the most favorable and efficient method used to treat breast cancer. In developing nations, the majority of women with advanced breast cancer have a 5-year survival rate of less than 40% (Cumbera et al., 2017). In Pakistan, 44.4% of women who had mastectomy used homemade prostheses made from clothing and cotton, and some wore lentil-based prostheses, which had negative health effects (Jertha et al., 2015). A study conducted in Kenyatta National Hospital (KNH) between 2014-2018, found out 72.6% of women who were diagnosed with advanced breast cancer underwent mastectomy and only 2.88% chose breast restoration through autologous breast reconstruction (Gichuru et al.,

2018). There is no data reporting the type of breast restoration the remaining percentage of women opted for.

Study findings from developed countries have also reported benefits of EBPs in overcoming stress, improving women's self-esteem and their overall Quality of Life (QoL) after undergoing mastectomy (Qiu et al., 2020; Hojan et al., 2016; Hojan et al., 2014). Kenya and other underdeveloped nations have yet to investigate this phenomenon. Additionally, there is paucity of data on patterns of EBPs utilization and little is known about the factors that influence their use among women who wear them in ML5H after mastectomy and hence the need for this study.

Research Objectives

The objective of this study was to investigate the determinants of external breast prosthesis utilization among female breast cancer survivors in Machakos level 5 hospital, Machakos County, Kenya. The study was guided by the following specific objectives:

- To determine the knowledge levels regarding EBPs among female breast cancer survivors after mastectomy in Machakos Level 5 Hospital, Machakos County, Kenya
- To evaluate the utilization levels of EBPs among female breast cancer survivors following mastectomy in Machakos Level 5 Hospital, Machakos County, Kenya
- To evaluate factors that influencing EBPs utilization among female breast cancer survivors in Machakos Level 5 Hospital, Machakos County, Kenya

Conceptual Framework

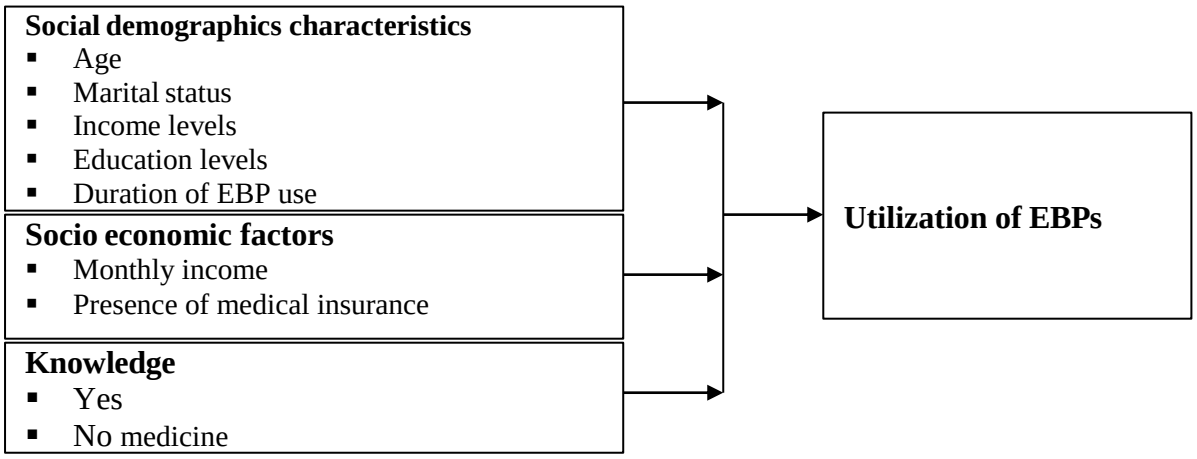


Figure 1: Conceptual Framework

Source: Literature Review

LITERATURE REVIEW

Socio-Demographic Factors Influencing EBPs Utilization

Age

Breast cancer treatment through mastectomy greatly affects women body image, physical appearance and normal functioning (Erturhan & Yılmaz, 2018). As a result of the negative effects, breast cancer patients experience psychological problems like anxiety, depression, distress not and other family and social relationships alteration (Buki et al., 2016). A study by (Zhang et al., 2021) reported body image concerns among older breast cancer female survivors associated with physical activity disturbances, appearance and psychological wellbeing.

According to another Brazilian study, younger women who undergo mastectomy choose immediate breast reconstruction using EBPs because they are more concerned with their body image and sexuality than older women who think about other factors like disease management and treatment (Peres et al., 2015). Ramu et al., (2015) concurred with this study finding on age and EBPs use, in his study, women who were 50 years and above did not wear EBPs because they did not worry much about their body image and appearance as the younger women did. The results of Jetha et al. (2017) support earlier research that found older women felt neglected by their families when it came to using EBPs because they believed that body image was unimportant in old age and that wearing EBP was not that significant following mastectomy.

Education Level

In a study investigating pattern of EBPs use in India, higher levels of education contributed to higher utilization of EBP (Ramu et al., 2017). Women who had attain higher educational levels were aware of EBPs and understood the benefits of wearing them. Additionally, the findings linked education level to urban living where a higher proportion of women who lived in urban areas and had a higher level of education wore prostheses frequently unlike those women who lived in rural areas and had lower education levels. Out of 16 women, only 4 women living in rural areas wore EBPs as opposed to 23 out of 47 women who wore lived in urban areas. This finding is in line with another study carried out in China, which found that EBPs were not covered by health insurance and were not regarded as medicinal supplies in hospitals. Medical professionals were more willing to accept that patients could afford EBPs following mastectomy since the eastern part of China, where this study was carried out, was comparatively economically developed. Qiu and associates, 2019. According to Katende, Tukauhebwa and Joyce (2015) better health seeking behaviors like health promotion, prevention, curative and rehabilitation services were associated with higher education level attained their body image after mastectomy.

Marital Status and Support Network

In most families, men are considered decision makers in health seeking behaviors matters even though it has been established that they access health services less frequently than women (Dowen, 2019). According to a study by Ongolly (2019), men will have more influence on their partner's and their children's health when factors such as cultural practices, time spend at the hospital and low-income levels are overcome. According to Jetha et al. (2017), married women who mostly got support from their spouses had better health-seeking behaviors than those who did not. Social support for women with breast cancer had a positive impact on their psychosocial adjustment to disease, according to the findings of a 2014 study by Selda et al. BCSs were required to be accompanied by their family members during treatment. The term "significant other" was first used in 1953 by

H.S. Sullivon to refer to any other individual who is extremely important to a person's life, well-being, and self-evaluation, such as a close friend, spouse or partner, family member, or relative. Lack of support from family and 'significant other' was reported to negatively influence patients when it came to coping with life after losing a breast/s and when choosing EBPs and other modes of breast restoration after mastectomy (Fink et al., 2017; Awolu & Felix, 2019)

Income Levels

Liang & Xu (2015) reported high cost of EBPs as one of the factors that significantly impacted EBPs utilization among female breast cancer survivors in China. Women who had higher income levels had better access to EBPs compared to those with lower income levels. Higher-income individuals and women from rich families were able to afford the cost of prostheses either out-of-pocket or through better insurance coverage.

Women with higher income levels and had appropriate information on the types of breast restoration available after mastectomy easily accessed healthcare facilities where they got rehabilitation care services (Lam & Winch, 2016). For example, women with insurances were able to utilize EBPs more since they could access and afford specialized care and prostheses provider who assisted them in the selection and fitting of EBPs.

Higher income level is also directly linked to better insurance coverage that significantly influence utilization of EBPs. Most women with higher income levels have comprehensive insurance coverage that enables them to have EBPs access whereas women with lower incomes level face greater financial burden due to limited insurance coverage and may end up having higher expenses thus not utilizing**.**

Barriers Influencing EBPs Uutilization

Cost of EBPs

Studies by Jetha et al., (2017) and Liang & Xu (2015) identified high cost of EBPs a major barrier impacting EBPs use in women after undergoing mastectomy. Similarly**,** Fitch et al., (2014**)** in their study in Canada also reported high EBPs cost to be the main concern affecting women post mastectomy. After mastectomy, most women could not afford the EBPs they preferred like the silicon type that resembled the natural breast and felt more natural for everyday wear. In the Irish context for instance, the government provided all women post mastectomy women with a silicon EBP and two mastectomy bras free of charge after realizing that most women were not wearing EBPs because of their high prices. In Kahmir, India, women's financial difficulties were exacerbated by a lack of adequate health insurance options, and only those from wealthy families were able to obtain prostheses and other breast cancer treatment services because of their unique life experiences (Hamid et al., 2020).

The Duration of EBP Use

The duration of wearing EBPs after mastectomy and the stage of breast cancer at diagnosis influenced its use among women as shown in studies conducted in developed countries. According to Hojan et al., (2020), patients who were diagnosed with breast cancer in its advanced stages and underwent mastectomy did not perceive wearing EBPs as important and ended up not using them and for the few women who decided to use them wore them occasionally especially when in public places. Women who had worn EBPs for a longer time early like 4-5 years after mastectomy or immediately after healing had good experience with them than those who had worn them for a shorter duration of time. Women who wore EBPs continuously for longer duration were able to adapt and adjust to the problems they encountered while wearing EBPs. Continuous wearing of EBPs increased patients' satisfaction and EBPs utilization (Qui et al., 2020). Women were able to adjust and invent new ways of overcoming the challenges posed by EBPs. For example, women improvised ways of holding the EBPs firmly in place to avoid displacement or falling off. Those who wore EBPs constantly and remove them only when going to rest were more satisfied with their EBPs and perceived them as part of their body.

Availability of Information About EBPs

McGhee et al. (2020) discovered that women's post-mastectomy discontent was caused by a lack of knowledge about EBP. Self-satisfaction and self-confidence levels were high in women who got adequate information about EBPs from nurses and other health care providers as early as they started post mastectomy journey. Likewise, Regina & Wilfried (2017) reported the importance of written sources of information like brochures and articles and videos on the types of EBPs available and their advantages in enhancing women recall and use. Increased knowledge levels on EBPs among BCSs was associated with support information that helped most women to be aware of the early warning signs and symptoms for breast cancer and also the importance of seeking treatment and other breast cancer rehabilitative services early enough (Robai et al., 2019).

Availability of EBPs and EBPs types and Characteristics

Most EBP users preferred good quality EBPs in terms of comfort, size, variety, color and shape (Deutsche, 2016**).** In a Chinese comprehensive review, Liang and Xu (2020) found six factors that affected post-mastectomy patients' use of EBP. These included the availability and comfort of EBPs. Most women did not wear EBPs because they did not get them in hospitals and the few that were available in the markets were expensive (Regina & Wilfried, 2017**),** found out that women preferred the newly customized EBPs compared to the conventional traditional EBPs because it felt more like part of their own body and gave them a greater

sense of normalcy than the conventional one.

Hogan et al. (2020) reported weight and size of EBPs to be the major factors affecting its use. Heavy EBPs posed a major challenge to the wearers as it greatly affected their daily normal functioning and activities. Some EBPs such as the conventional ones were very tight and constricting hence women limiting women, they could not bend with ease or conduct physical activities while wearing them (Borghesan et al., 2014). More so, EBPs size also affected its utilization as smaller EBPs were often displaced and others. The material uses to make them impacted EBPs utilization too as most women reported feeling uncomfortable from sweat and skin irritation on the surgical site especially in summer (warm climate) when they wore prosthesis that were made from silicon or nylon.

EBPs Fitting Environment

Women preferred hospitals to be their main fitting and EBPs collection centre. They preferred getting all the services at a central place to avoid transport expenditure and to save on time (Regina & Wilfried, 2017). Lack of space due to poorly displayed EBPs and mastectomy bras made the fitting room look smaller, congested, untidy and poorly ventilated hence reducing women satisfaction levels. A conducive fitting environment was one with adequate space for free movement and one with mirrors for patients to view themselves as they fit EBPs with different types of clothes and bras. According to Thomas and Caleb (2016), women did not wear EBPs when they realize they chose one that was not properly fitting them.

Cultural Beliefs and Traditional Medicine

Cultural beliefs, values and taboos among different communities in developing countries influence EBPs utilization. According to the Pakistani communities, women were restricted from asking questions on issues related to their sexuality thus most of them felt shy to inquire about EBPs following a mastectomy and ultimately stitched a breast prosthesis out of lentils, which had detrimental repercussions on their health (Jetha et al., 2017). The same community prohibited elderly women from using EBPs because they believed that elderly women were already married, others were widows or past child bearing age and therefore they were no supposed to worry about their physical appearance and attractiveness like the younger women.

The use of traditional medicine to manage breast cancer among Sub Saharan Africa (SSA) communities has also influenced EBPs utilization and the general health seeking behaviors among breast cancer survivor after mastectomy. In Sub Saharan Africa communities, breast cancer is associated with supernatural powers. Mastectomy clashes with the 'whole body' notion and it is considered as mutilation of a woman's body part, which is against their health practice. According to them, the only preferred treatment options for breast cancer is healing prayers and traditional medicine (Dinah et al., 2015).

Perceived EBPs use Benefits

Most women reported a feeling of shame in exposing themselves in moment of intimacy with their sexual partners, decreased sexual desires and loss of sensation on operated breast/s (Jucimere et al 2017, Sema & Ayla 2016). Studies conducted in developed countries have found out benefits of using EBPs among post mastectomy women like overcoming stress and improving women's self-esteem hence helping women feel more confident and comfortable with their bodies (Kubra & Meryem, 2017). They are also important in restoring body symmetry, posture and balance especially among women who have undergone one-sided mastectomy**.** Additionally, Physical appearance improvement was one of the main strategies used by participants in Sharareh et al., 2018 study to cope with altered body image after mastectomy. From the previous studies that reported that BCSs use makeup, hairpiece, scarf, veil and breast reconstruction, EBPs was one of them played a major role in correcting their physical defects after mastectomy.

MATERIALS AND METHODS

This study adopted a cross-sectional analytical study design. The cancer clinic at Machakos Level 5 Hospital served as the study's site. The study population was all female breast cancer survivors attending the oncology

clinic at Machakos Level 5 Hospital and who underwent mastectomy at least 6 months before the study.

A consecutive sampling technique was used to recruit women who participated in the study. This technique provided study participants with an equal chance of being selected, increases the strength of the study and reduces the level of bias. The Taro Yamane formula was used to calculate the minimum sample size. This was calculated using a 5% margin of error and a 95% confidence interval.

n=N÷ (1+N (e) 2)

n=sample size N=total population

n=86÷ (1+ 86(0.05)^2) n = 86/1.215

n =70.78

n=71 post mastectomy women

10% of the total population was used to take care of non-response 10/100*86=8.6

8.6+71=79.6 = 80 post mastectomy women

Women who were included in the study had to be over 18 years of age, understand English or Kiswahili and must have undergone mastectomy at least 6 months before the study.

All women who were critically ill and/or on palliative care, women who had previous breast disfigurement due to traumatic injuries or accidents, women with cognitive limitations and women who had undergone breast reconstructive surgery after mastectomy were excluded from the study.

Questionnaires were the main research instrument utilized in this study to gather data. To establish the validity of the questionnaire, a pilot testing was done. A sample questionnaire was administered to 11 women (15% of the sample size) who underwent mastectomy at least 6 months before the pilot study attending oncology clinic at Nakuru County Teaching and Referral Hospital (NCTRH). Pretest data was also pre analyzed to confirm if the tool fully answers the research questions.

Validity of the instruments was verified and reliability test was done to measure the degree to which the questionnaire yields consistent result through pre-testing.

Prior to data analysis using the Statistical Package for Social Sciences (SPSS) version 23.0, the completed questionnaires were reviewed for completeness. Quantitative data was described using descriptive statistics such as means, frequencies, standard deviations, and percentages. The data were described and summarized using frequency distribution tables and measures of central tendency. The strength and connections between the independent and dependent variables were examined using inferential statistics. Chi-square and correlation tests were among them. Additionally, a bivariate logistic regression analysis was performed. Every test was run with a 95% confidence level. Tables, charts, and graphs were used to display the data.

RESULTS

Mastectomy and Breast Restoration Among Study Participants

Table 1 shows the types of procedure done among the study participants. The findings showed that 53.6% (n =37) had mastectomy in the past one year. Majority 63.8% (n =44) had total mastectomy.

Table 1: Mastectomy and breast restoration among study participants

Responses	Frequency	Percent
Period of mastectomy		
In the last 1 year	13	18.8
Within the last 3 years	37	53.6
Within the last 5 years	19	27.6
Type of mastectomy done		
Total Mastectomy	44	63.9
Partial Mastectomy	13	18.8
Lumpectomy	9	13
Radical Mastectomy	3	4.3
Other type of breast cancer treatment		
Chemotherapy	43	62.3
Radiation	6	8.7
Others(targeted/hormonal)	20	29

Yes No

Utilization of External Breast Prostheses

The utilization of EBP was 44.9% (n =31) of all patients. The common types of EBP utilized included cloth/cotton homemade EBP 77.4% (n =24), adhesive EBPs 19.4% (n =6) and conventional EBPs 3.2% (n =1). The findings also showed that 51.6% (n =16) were homemade, donors/hospital 29% (n =9) and retail shops/stores 19.4% (n =6).

Knowledge of EBPs among Female Breast Cancer Survivors in ML5H, Kenya

Majority 92.9% (n =64) reported that EBPs are designed to replace lost breast/s after mastectomy. Additionally, 81.2% (n =56) indicated that wearing a bra is not necessary when using EBPs while 71% (n =49) reported that women who undergo mastectomy are the only ones who can use EBPs. All the respondents 100% indicated that regular cleaning and maintenance of EBPs is important to avoid infection and damage. Slightly above half 52.2% (n =36) indicated that EBPs can be worn during physical activities such as swimming and exercising. Higher proportion of respondents 65.2% (n =45) and 59.4% (n

=41) indicated that EBPs help them restore body symmetry and balance and that EBPs are for cosmetic purposes respectively. However, 55.1% (n =38) disagreed that using EBPs can help prevent shoulder and back pain that may occur after mastectomy as shown in Figure 2.

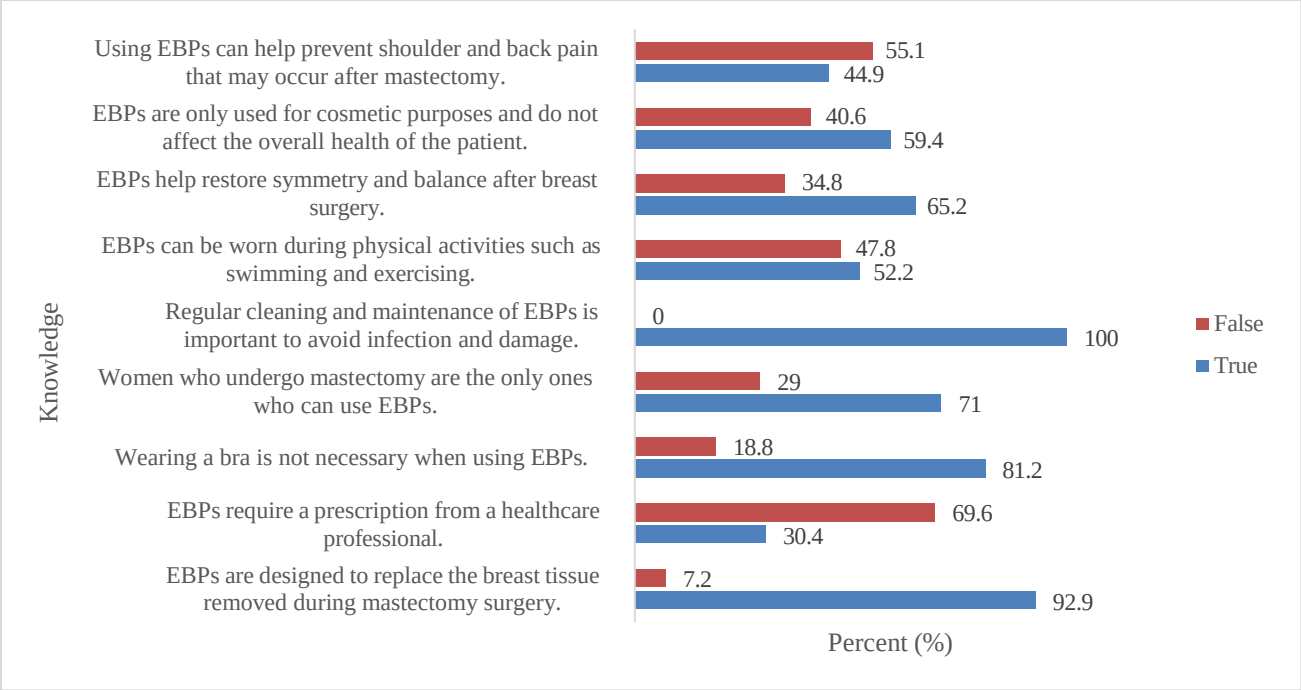


Figure 2: Knowledge of EBPs among female breast cancer survivors in Machakos level 5 hospital, Kenya

Overall Knowledge of EBPs

In investigating the overall knowledge of EBPs among female breast cancer survivors, it was found that 36.2% (n =25) of the respondents had adequate knowledge while 63.8% (n=44) had inadequate knowledge.

The association between knowledge of EBPs and utilization of EBPs among female breast cancer survivors in ML5H, Kenya

The findings from chi square test revealed that there was significant association between knowledge and utilization of EBPs, $\chi^2(1) = 11.613$, p =0.001 as shown in Table 2.

Table 2: The association between knowledge of EBPs and utilization among female breast cancer survivors in ML5H, Kenya

		Utilization of EBP				
	N	Yes n(%)	No n(%)	Chi square	df	p value
Knowledge						
Adequate knowledge	25	18(72.0)	7(28.0)	11.613	1	0.001
Inadequate knowledge	44	13(29.5)	31(70.5)			

Socio-demographic factors influencing EBPs utilization among female breast cancer survivors in ML5H, Kenya

Pearson chi square test was conducted to investigate demographic factors associated with EBPs utilization. The findings showed that place of residence was significantly associated with EBPs utilization among female breast cancer survivors, $\chi^2(1) = 10.013$, p =0.003. Level of education was also significantly associated with EBPs utilization among female breast cancer survivors ($\chi^2(2) = 9.121$, p =0.034. The use of EBPs by female breast cancer survivors was found to be strongly correlated with employment status $\chi^2(2) = 7.383$, p = 0.023). Presence of medical cover was significantly associated with EBPs utilization, $\chi^2(1)$

= 5.766, p =0.019 (Table 3).

Table 3: Socio-demographic factors influencing EBPs utilization among female breast cancer survivors in ML5H, Kenya

	Total	Utilization of EBP				
		Yes n(%)	No n(%)	Chi square	df	P value
Age						
≤30 years	11	5(45.5)	6(54.5)	4.074	3	0.254
31-40	15	7(46.7)	8(53.3)			
41-50	22	13(59.1)	9(40.9)			
>50	21	6(28.6)	15(71.4)			
Residence						
Rural	41	12(29.3)	29(70.7)	10.013	1	0.003
Urban	28	19(67.9)	9(32.1)			
Marital status						
Married	33	19(57.6)	14(42.4)	5.353	2	0.122
Widowed	16	7(43.8)	9(56.3)			
Single	20	5(25.0)	15(75.0)			
Level of education						
Primary	9	4(44.4)	5(55.6)	9.121	2	0.034
Secondary	39	12(30.8)	27(69.2)			
College/University	21	15(71.4)	6(28.9)			
Employment status						
Employed	23	15(65.2)	8(34.8)	7.383	2	0.023
Self-employed	29	8(27.6)	21(72.4)			
Unemployed	17	8(47.1)	9(52.9)			
Monthly income						
< Kshs.30,000	39	19(48.7)	20(51.3)	0.624	2	0.607
Kshs.30,001 – Kshs 50,000	21	8(38.1)	13(61.9)			
Kshs.50,001 – Kshs 70,000	9	4(44.4)	5(55.6)			
Presence of medical cover						
Yes	59	30(50.8)	29(49.2)	5.766	1	0.019
No	10	1(10.0)	9(90.0)			

Factors influencing utilization of EBPs among female breast cancer survivors in ML5H, Kenya

Multivariable analysis was performed on significant factors from the bivariate analysis. According to the results, those who live in urban regions are eight times more likely to use EBPs than people who live in rural areas, adjusted odds ratio (aOR) = 8.15, 95%CI: 2.13 – 31.24, p =0.002. Those who had medical cover were six times likely to use EBPs compared to those without medical cover, aOR =6.41, 95%CI:1.11 – 25.42, p =0.019. Respondents who had adequate knowledge were five times likely to use EBPs compared to those with adequate, aOR =5.54, 95%CI: 1.05 – 29.32, p =0.044 as shown in Table 4.

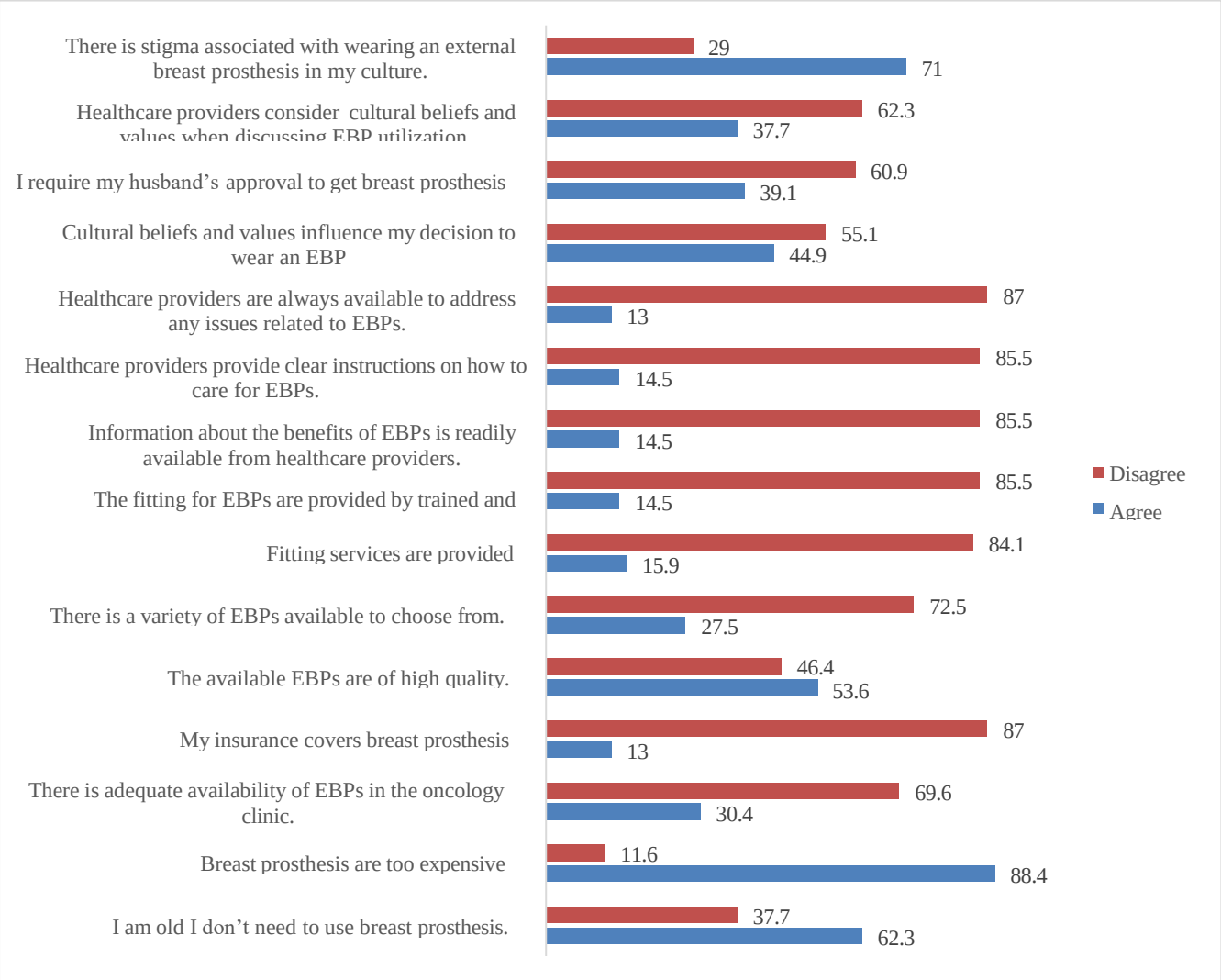
Table 4: Factors influencing utilization of EBPs among female breast cancer survivors in ML5H, Kenya

	aOR(95%CI)	P value
Residence		
Rural	Ref	
Urban	8.15(2.13 - 31.24)	0.002
Level of education		
Primary	Ref	
Secondary	0.91(0.09 - 9.11)	0.933
College/University	1.63(0.32 - 8.32)	0.558
Presence of medical cover		
Yes	6.41(1.11 - 25.42)	0.019
No		
Knowledge		
Yes	5.54(1.05 - 29.32)	0.044
No		

Barriers and facilitators to utilization of EBPs among female breast cancer survivors in ML5H, Kenya

Majority of the respondents 88.4% agreed that EBPs are too expensive and 87% disagreed that their insurance covered for them. Most of them 53.6% agreed that they are readily available in the market. However, 72.5% and 84.1% disagreed that there are varieties of EBPs to choose from and that fitting services are provided respectively. Similarly, 85.5% disagreed that EBPs fitting services are provided by trained and competent staff. A proportion disagreed that information about the benefits of EBPs and how to take care of them is readily available from healthcare providers. Majority (87.1%) disagreed that healthcare providers are always available to address any concerns or issues related to EBPs (Figure 3).

Figure 3: Barriers to utilization of EBPs among female breast cancer survivors in ML5H, Kenya



CONCLUSIONS AND RECOMMENDATIONS

The utilization of external breast prostheses (EBPs) among breast cancer survivors varies widely due to multiple influencing factors. The study found that 44.9% of breast cancer survivors were using EBP. However, most of them utilized the homemade prostheses despite of their limitations. There was a lower utilization of the retail/shop and donor acquired prostheses despite having better qualities than homemade prostheses.

The study revealed that only about one-third of breast cancer survivors had good knowledge about external breast prostheses. This low level of awareness is a significant barrier to utilization, as survivors who are not well-informed about the benefits and availability of EBP are less likely to use them.

The study highlighted the significant role of medical coverage, showing that survivors with health insurance are more likely to use EBP due to reduced financial burdens and better access to specialized care. Additionally, residing in urban areas was associated with higher utilization rates, attributed to better healthcare infrastructure, economic resources, and educational support.

Healthcare providers should ensure that information about EBPs is readily available to all breast cancer survivors through public awareness. This includes offering detailed consultations and providing informational materials about the benefits and use of EBP during post-mastectomy care.

The hospital management in collaboration with Ministry of Health should conduct continuous training programs for healthcare providers including oncologists, surgeons, and nurses. This will ensure they are well-equipped to educate and support patients regarding EBPs options.

The Ministry of Health should advocate for comprehensive insurance coverage for EBP. This includes not only the initial cost but also replacements and maintenance, ensuring financial barriers do not prevent survivors from accessing these devices.

The Ministry of Health should implement subsidized programs to provide EBPs for uninsured or underinsured patients, especially in low-income areas.

Suggestion for Further Research

Further research should be conducted to investigate the comparative effectiveness of different types of EBPs in various demographic and socio-economic groups to identify the most beneficial options for different population group.

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