Breast self-examination among female clients in a tertiary hospital in Eastern Uganda

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ABSTRACT

Background: Breast self-examination is a widely accepted, inexpensive and non-complex screening method for breast cancer because it does not entail complex technical training and therefore a more practical approach in a resource limited setting. This study aimed to assess the knowledge and practice of breast self-examination among female clients at Mbale Regional Referral hospital.
Methods: A cross sectional study employing qualitative and quantitative methods was carried out among 386 women selected by simple random sampling. Data was analyzed using SPSS v 16.0 and presented in tables. Univariate and bivariate analysis was done and a *P-value < 0.05* was considered statistically significant while the results with a *P-value ≤ 0.2* were considered for multivariate analysis.
Results: Both the knowledge and practice of breast self-examination among the participants in this study were low. Less than 50% of the participants had ever heard about breast self-examination. Only 24% of those who had ever heard about breast self-examination correctly reported that it should be done monthly. Both knowledge and practice of breast self-examination were associated with living in the urban setting, high level of education, occupation and religion.
Conclusion: There was limited knowledge about breast self-examination among women in Mbale Regional Referral Hospital and this corresponds with the low practice of the same. Only a few participants reported practicing breast self-examination monthly.

1. Background

Breast cancer has been reported as a second leading cause of cancer deaths in women and is still a global public health concern (Agatha and Nankumbi, 2016). Worldwide, it remains the most frequently diagnosed cancer and the leading cause of cancer deaths among females, it is responsible for 23% of the total cancer cases and 14% of the cancer deaths with a 3% annual incidence and 1.8% death rate as cited by (Atuhairwe et al., 2018).

In 2012, a greater proportion of all cancers (56.8%) and cancer deaths (64.9%) occurred in less developed parts of the world. Due to absence of prompt recognition and access to treatment services, incidence rate is highest in more developed regions but mortality is much higher in less developed regions (Segni, 2016). In low and middle-income countries, women face several barriers to breast cancer care, right from accessing prompt detection programs to receiving timely diagnosis

and suitable treatment. This has been reflected in the breast cancer 5-year survival outcomes which are 40–60% in low and middle-income countries as opposed to 84% survival outcomes reported in the developed countries (Birnbaum et al., 2019). In Sub-Saharan Africa, breast cancer is on the rise, especially in Uganda where it has risen by 5.2% per year during the past 15 years (Scheel et al., 2018).

In Uganda, breast cancer has been documented as the third most common after Kaposi's sarcoma and cervical cancer with an incidence rate of 22 per 100,000 women (Segni, 2016). Early detection of breast cancer is important for early treatment and as such, we will be reducing on cancer related mortality. Breast self-examination, clinical breast exam, and mammography are the recommended screening methods aimed at reducing breast cancer mortality and related morbidity. There has been a debate about the effectiveness of routine breast self-examination in early detection of breast cancer. However, it has been recommended as a method for increasing breast health awareness

because it is inexpensive, easily accessible, and a non-complex screening method. It is therefore a more practical approach in a resource limited setting like Uganda (Ardahan et al., 2015).

World Health Organization has recommended mammography as a highly effective screening method. However, it is more applicable in countries with good health infrastructure (Khan et al., 2015). In this study we assess the knowledge and practice of breast self-examination among female clients at Mbale Regional Referral hospital.

2. Materials and methods

2.1. Research design

A cross-sectional research design employing qualitative and quantitative methods was used.

2.2. Study setting

Mbale Regional Referral Hospital is located at the heart of Mbale town, in Mbale Municipality in Eastern Uganda. Mbale hospital is a government institution and a Regional referral in the eastern region. It has a bed capacity of 400 occupants.

2.3. Target population and sampling technique

Female clients above 18 years at the Family planning unit, Early Infant Diagnosis clinic and Out-patient department of Mbale Regional Referral Hospital were interviewed. These sites were chosen for data collection because they serve clients who easily suit the inclusion criteria and besides, the sites serve a relatively high number of female clients which can be representative of the entire female population obtaining services from Mbale Regional Referral Hospital. It was also convenient for the researcher in terms of access to the research participants.

A simple random sampling technique was used where the researcher explained the procedure to the participants, then tossed a coin labeled 1 and 2 on opposite sides, the number which appeared first was taken as the starting point. This procedure was repeated every day before data collection process started.

3. Inclusion criteria

All female clients who were at the study site, above 18 years of age and of sound mind who provided written consent were included in the study.

4. Exclusion criteria

All female clients bellow 18 years of age, those who were critically ill, and those who declined to consent were not included in the study.

4.1. Sample size determination and procedures

Using Kish and Leslie's formula for sample size determination when the proportion of a given attribute in a non-defined population is known (Israel, 2009);

$$n_0 = Z^2 pq/e^2$$

where

n_o = required sample size.
Z = normal standard deviation (Z-score) of 1.96.
P = prevalence of women who knew how to perform breast self-examination in a study carried out in a similar setting. 35.2% knew how to perform breast self-examination in a study carried out in Kyadondo county in Kampala (Atuhairwe et al., 2018), therefore a value of 35.2% was adopted for P.
q = (1 − P)
e = Tolerable margin of error (± 5%).
C = confidence interval of 95%.
None response = 10% of n_0
Substituting for n_0, we get 350.5, approximately 351 participants.
Sample size = n_o + none-response.
Sample size = 351 + 35 = 386 participants.

4.2. Data collection techniques and procedures

Data was collected using interviewer administered questionnaires on a face to face interaction with one client at a time.

Female clients at the respective units were identified by the researcher. Procedures showing where to start were explained to them, upon establishing a starting point, the researcher obtained informed written consent and a questionnaire was administered to clients who agreed to participate. This was done on one client at a time.

4.3. Data analysis

Collected data was entered in Microsoft excel, cleaned, coded and imported to SPSS Version 16.0 statistical package for analysis. Univariate and bivariate analysis was done. Those with p value ≤ 0.2 were considered for multivariate analysis.

4.4. Data presentation

Statistical frequency distribution tables, graphs and charts were used for data presentation in terms of proportions, absolute values, percentages, and confidence intervals for point estimates at 95% level of confidence with a *P-value* of less than 0.05 considered as statistically significant.

4.5. Ethical considerations

Approval to carry out the study was obtained from Busitema University Faculty of Health Sciences Institutional Review Board and Cure Hospital Research and Ethics committee. Administrative clearance to carry out the study was obtained from the hospital administration of Mbale Regional Referral Hospital.

Informed consent was obtained prior to the actual data collection exercise. Identification numbers were used to ensure anonymity. Access to collected data was restricted to only persons directly involved in the study. Participants were free to refuse to participate or to withdraw at any time. Such a decision did not affect the medical care they received or possible participation in future research studies in anyway. There was a possibility that women will wait longer than before because they had to attend to research. The procedures were clearly explained to the research participants including the possibility that they may delay. Those who agreed to continue with the study were allowed to consent and participate.

5. Results

5.1. Socio-demographic characteristics of respondents

A total of 386 women responded to the questionnaire (response rate 100%). The mean age of the respondents was 32.97. The minimum age was 18 years while the maximum was 72 years. Majority of the respondents (40.7%) were between 21 and 30 years of age. More than half (52.8%) of the respondents were urban dwellers. Majority of the respondents (36.8%) had attained primary education and only 20.7% attained tertiary education. The highest proportion (25.6%) were peasants and 30% of the respondents were Anglicans (Table 1).

Table 1

Demographic characteristics of study participants at Mbale Regional Referral Hospital, 2019 (N = 386), mean age = 32.97, minimum age is 18, maximum age is 72.

Variable	Frequency	Percentage
Age category		
< / = 20	48	12.4
21–30	157	40.7
31–40	81	21
41–50	52	13.5
Above 50	48	12.4
Address		
Urban	204	52.8
Rural	182	47.2
Highest level of education		
Primary	142	36.8
O level	137	35.5
A level	23	6
Tertiary	80	20.7
Others	4	1
Occupation		
Peasant	99	25.6
Teacher	40	10.4
Health worker	15	4
Business	68	17.6
Student	62	16
Housewife	62	16
Others	40	10.4
Religion		
Catholic	81	21
Pentecostals	95	24.6
Anglican	116	30
Moslem	84	21.8
Others	10	2.6

5.2. Knowledge of breast self-examination

Less than half of the respondents (39.4%) reported having heard about Breast Self-Examination and (60.6%) did not hear about Breast Self-Examination. Out of the 152 respondents who heard about Breast Self-Examination, majority (55.9%) obtained the information from the health worker. 0nly 58.6% knew how to perform Breast Self-Examination and 24.3% of these reported correctly that Breast Self-Examination should be done on a monthly basis. When asked about the time of the month Breast Self-Examination should be done, only 11.8% 0f the respondents reported correctly that it should be done a week after periods and 44.1% of the respondents did not know the correct time of the month to do so. A good proportion (69.1%) of the respondents reported correctly that all women should perform Breast Self-Examination and 63.1% acknowledged that it was very important in early detection of breast cancer (Table 2).

5.3. Practice of Breast Self-Examination among respondents

When asked if they had ever done Breast Self-Examination; out of the 152 respondents who heard about Breast Self-Examination, 41.4% of the participants had never done so and 32.6% of those who had ever practiced Breast Self-Examination reported that they last did it a month ago. Only 16.9% of this reported that they do BSE monthly while the practice among 33.7% respondents was depended on when they remembered to do it or whenever they felt unwell (Table 3).

5.4. Factors associated with knowledge and practice of Breast Self-Examination

Address, level of education, occupation and religion, *P-values* (0.000, 0.000, 0.000 and 0.007) respectively were found to be strongly

Table 2

Participant's Knowledge (Frequencies and percentages) of Breast Self-Examination at Mbale regional referral hospital, 2019.

Variable	Frequency	Percentage
Heard of BSE		
YES	152	39.4
NO	234	60.6
Heard from		
News/media	35	23
Health worker	85	55.9
Friends	16	10.5
School	13	8.6
Others	3	2
Know how to perform BSE		
YES	89	58.6
NO	63	41.4
How often BSE should be done		
Daily	25	16.4
Monthly	37	24.3
Annually	9	6
Every 3 years	2	1.3
Don't know	71	46.7
Others	8	5.3
Time of the month BSE should be done		
1 week after periods	18	11.8
2 weeks after periods	15	9.9
Anytime	52	34.2
Don't know	67	44.1
Category of women to perform BSE		
All women	105	69.1
Post-menopausal women	2	1.3
Females 12–45 years	22	14.5
Don't know	23	15.1
Importance of BSE		
Important	50	32.9
Very important	96	63.1
Don't know	6	4

Table 3

Practice of Breast Self-Examination (frequency and percentage) among study participants in Mbale regional referral hospital, 2019.

Variable	Frequency	Percentage
Ever done BSE (N = 152)		
YES	89	58.6
NO	63	41.4
Last time of BSE (N = 89)		
Last month	29	32.6
3 months ago	14	15.7
Last year	23	25.8
Don't know	7	8
Others	16	17.9
How often Participants do BSE (N = 89)		
Daily	21	23.6
Monthly	15	16.9
Every 3 months	13	14.6
Once in a year	10	11.2
Others	30	33.7

associated with participant's knowledge about Breast self-examination. Similarly, participant's address, level of education, occupation and religion were strongly associated with the practice of Breast Self-Examination, *P-values* (0.000, 0.000, 0.000, and 0.004) (Table 4). It was also noted that knowledge of Breast Self-Examination was strongly related to practice (*P-value* = 0.000).

Table 4
factors associated with knowledge and practice of Breast Self-Examination among study participants at MRRH 2019.

Variable	Ever heard of BSE.				Know how to perform BSE.					Ever done BSE				
	YES n (%)	NO, n (%)	P-value	95% CI	YES n (%)	NO, n (%)	NA, n (%)	P-value	95% CI	YES, n (%)	NO, n (%)	NA, n (%)	P-value	95% CI
Age category														
</=20	12 (25)	36 (75)	0.241	0.208–0.295	9 (18.8)	3 (6.2)	36 (75.0)	0.213	0.164–0.245	9 (18.8)	3 (6.2)	36 (75.0)	0.175	0.133–0.209
21–30	65 (41.4)	92 (58.6)			43 (27.4)	22 (14.0)	92 (58.6)			43 (27.4)	22 (14.0)	92 (58.6)		
31–40	35 (43.2)	46 (56.8)			17 (21.0)	18 (22.2)	46 (56.8)			16 (19.8)	19 (23.5)	46 (56.8)		
41–50	19 (36.5)	33 (63.5)			9 (17.3)	10 (19.2)	33 (63.5)			9 (17.3)	10 (19.2)	33 (63.5)		
Above 50	21 (43.8)	27 (56.2)			11 (22.9)	10 (20.8)	27 (56.2)			12 (25.0)	9 (18.8)	27 (56.2)		
Address														
Urban	104 (51.0)	100 (49)	0.000	0.000–0.008	66 (32.4)	38 (18.6)	100 (49.0)	0.000	0.000–0.008	65 (31.9)	39 (19.1)	100 (49.0)	0.000	0.000–0.008
Rural	48 (26.4)	134 (73.6)			23 (12.6)	25 (13.7)	134 (73.6)			24 (13.2)	24 (13.2)	134 (73.6)		
Highest level of education														
Primary	40 (28.2)	102 (71.8)	0.000	0.000–0.008	16 (11.3)	24 (16.9)	102(71.8)	0.000	0.000–0.008	16 (11.3)	24 (16.9)	102 (71.8)	0.000	0.000–0.008
O level	47 (34.3)	90 (65.7)			27 (19.7)	20 (14.6)	90 (65.7)			28 (20.4)	19 (13.9)	90 (65.7)		
A level	12 (52.2)	11 (47.8)			9 (39.1)	3 (13.0)	11 (47.8)			8 (34.8)	4 (17.4)	11 (47.8)		
Tertiary	53 (66.2)	27 (33.8)			37 (46.2)	16 (20.0)	27 (33.8)			37 (46.2)	16 (20.0)	27 (33.8)		
Others	0 (0)	4 (100)			0 (0.0)	0(0.0)	4 (100)			0 (0.0)	0 (0.0)	4 (100)		
Occupation														
Peasant	29 (29.3)	70 (70.7)	0.000	0.000–0.008	12 (12.1)	17 (17.2)	70 (70.7)	0.000	0.000–0.008	12 (12.1)	17 (17.2)	70 (70.7)	0.000	0.000–0.008
Teacher	27 (65.7)	13 (32.5)			17 (42.5)	10 (25.0)	13 (32.5)			18 (45.0)	9 (22.5)	13 (32.5)		
Health worker	15 (100)	0 (0)			13 (86.7)	2 (13.3)	0 (0.0)			12 (80.0)	3 (20.0)	0 (0.0)		
Business	25 (36.8)	43 (63.2)			12 (17.6)	13 (19.1)	43 (63.2)			12 (17.6)	13 (19.1)	43 (63.2)		
Student	20 (32.3)	42 (67.7)			16 (25.8)	4 (6.5)	42(67.7)			15 (24.2)	5 (8.1)	42 (67.7)		
Housewife	17 (27.4)	45 (72.6)			5 (8.1)	12 (19.4)	45 (72.6)			6 (9.7)	11 (17.7)	45 (72.6)		
Others	19 (47.5)	21 (52.5)			14 (35.0)	5 (12.5)	21 (52.5)			14 (35.0)	5 (12.5)	21 (52.5)		
Religion														
Catholic	18 (22.2)	63 (77.8)	0.007	0.000–0.012	9 (11.1)	9 (11.1)	63 (77.8)	0.005	0.000–0.012	9 (11.1)	9 (11.1)	63 (77.8)	0.004	0.000–0.008
Pentecostals	45 (47.4)	50 (52.6)			33 (34.7)	12 (12.6)	50 (52.6)			33 (34.7)	12 (12.6)	50 (52.6)		
Anglican	46 (39.7)	70 (60.3)			26 (22.4)	20 (17.2)	70 (60.3)			27 (23.3)	19 (16.4)	70 (60.3)		
Moslem	38 (45.2)	46 54.8			18 (21.4)	20 (23.8)	46 (54.8)			17 (20.2)	21 (25.0)	46 (54.8)		
Others	5 (50.0)	5 (50.0)			3 (30.0)	2 (20.0)	5 (50.0)			3 (30.0)	2 (20.0)	5 (50.0)		

Table 5

Multivariate analysis of variables with P-value ≤ 0.2. Relationship between participant's demographic characteristics and hearing about Breast Self-Examination.

Variable	Knowledge of BSE		P-value	95% CI
	YES n (%)	NO n (%)		
Address				
Urban	104 (51.0)	100 (49)	0.000	1.751–4.475
Rural	48 (26.4)	134 (73.6)		
Highest level of education				
Primary	40 (28.2)	102 (71.8)	0.000	0.513–0.761
O level	47 (34.3)	90 (65.7)		
A level	12 (52.2)	11 (47.8)		
Tertiary	53 (66.2)	27 (33.8)		
Others	0 (0)	4 (100)		
Occupation				
Peasant	29 (29.3)	70 (70.7)	0.013	1.03–1.286
Teacher	27 (65.7)	13 (32.5)		
Health worker	15 (100)	0 (0)		
Business	25 (36.8)	43 (63.2)		
Student	20 (32.3)	42 (67.7)		
Housewife	17 (27.4)	45 (72.6)		
Others	19 (47.5)	21 (52.5)		
Religion				
Catholic	18 (22.2)	63 (77.8)	0.002	0.586–0.887
Pentecostals	45 (47.4)	50 (52.6)		
Anglican	46 (39.7)	70 (60.3)		
Moslem	38 (45.2)	46 54.8)		
Others	5 (50.0)	5 (50.0)		

6. Multivariate analysis

Variables with *P-values* ≤ 0.2 were considered for multivariate analysis. This included address, highest level of education, occupation and religion (Table 5 below).

7. Discussion

7.1. Knowledge and practice of Breast Self-Examination

This study found that less than half of the study participants (39.4%) had knowledge about Breast Self-Examination. Of those who had knowledge about Breast Self-Examination, health workers were the primary source of information (55.9%) followed by News/media (23%). Our findings are contrary to the findings of the study carried out among university students of Tabuk which revealed that almost all (95.5%) of the participants had knowledge on Breast Self-Examination and the primary source of information was news/media (40.3%) followed by health workers (21.7%) (Gonzales et al., 2018). This may be because our study was carried out in the general population with women of both low and high levels of education compared to their study among university students who had intermediate to high level of education. A study among nursing students in Lahore reported 100% knowledge on Breast Self-Examination, findings that are dissimilar to ours. This is possibly because nursing students may have heard about BSE from school and the training hospitals and they are more sensitized in terms of disease preventive measures (Umbreen and Medical, 2017).

Whereas a number of participants reported having heard about Breast Self-Examination (58.6%) only 24.3% of them reported correctly that it should be done on a monthly basis, and 46.7% did not know how often it should be done. When asked about the time of the month Breast Self-Examination should be done, only 11.8% of the respondents reported correctly that it should be done one week after periods while 44.1% of the respondents did not know the correct time of the month to do examine their breasts. This was contrary to study findings from Adama Science and Technology University in Ethiopia among female

health science students which revealed that (44.1%) of the respondents correctly reported that Breast Self-Examination should be done monthly and while 25.6% of the respondents didn't know when and how often it should be done (Segni, 2016).

Majority of our respondents (69.1%) reported correctly that all women should perform Breast Self-Examination and a high proportion (63.1%) recognized that Breast Self-Examination was very important in early detection of breast cancer. This indicates that majority of our respondents understand the value of Breast Self-Examination in early detection of breast cancer. Previous studies have also documented that women who are more aware about the benefits of early detection of breast cancer are more likely to perform Breast Self-Examination (Khan et al., 2015).

7.2. Practice of Breast Self-Examination among respondents

Out of 152 participants who heard about Breast Self-Examination in our study, more than half (N = 89, 58.6%) had ever practiced BSE and 41.4% had never practiced it. This disagrees with results from a study carried out in 3 universities in Ajman where 22.7% of the participants had ever done Breast Self-Examination and more than half (77.3%) had never done BSE (Al-Sharbatti et al., 2018).

7.3. Factors associated with knowledge and practice of Breast Self-Examination

Our study also established that, participant's address, highest level of education, and occupation were significantly associated with the knowledge and practice of Breast Self-Examination. Participants who lived in urban areas were more knowledgeable and more likely to practice Breast Self-Examination, this is possible because information can easily be accessed through televisions, newspapers, and the internet, and in addition, people in towns are more informed about the current advances in disease prevention. A similar study carried out in Malaysia found out that women in rural areas had lower levels of knowledge about BSE than those in urban areas (Khan et al., 2015).

However, there was no significant relationship between age and knowledge or practice of Breast Self-Examination. Other studies have also reported no relationship between age and knowledge or practice of Breast Self-Examination (Al-Sharbatti et al., 2018). Some studies have however reported age to be significantly associated with knowledge or practice of Breast Self-Examination (Khan et al., 2015).

Our study also reports a statistically significant association knowledge and practice of Breast Self-Examination. Though we cannot give the exact reason for this association, we think that improving the knowledge of women about Breast Self-Examination leads to improved breast health awareness which has a direct effect on the practice. Majority of the participants who did not perform BSE reported lack of knowledge about the procedure. This is in agreement with studies elsewhere which found out that lack of knowledge was the main barrier towards practice of BSE (Khan et al., 2015; Gonzales et al., 2018).

7.4. Why we must bring the rural communities into the picture

This study has highlighted that living in a rural area is associated with lesser knowledge and practice of breast self-examination. The debate surrounding the efficacy of routine breast self-examination in early detection of breast cancer in women older than 20 years may go on and on but it is a more practical approach in resource limited settings. Breast self-examination, when done frequently can lead to early detection and treatment of breast cancer. Similar studies have found the practice of breast self-examination useful for early detection and management of breast cancer (Ardahan et al., 2015). The rural population in Eastern Uganda and Uganda as a whole is characteristically economically disadvantaged and uneducated. This study again highlights that low education is significantly associated with no knowledge

and hence practice of breast self-examination and this may soon see both the incidence and death due to breast cancer rising among the rural population. It is against this background that the rural population needs to be brought to the picture.

7.5. Limitations of the study

Since the study was carried out in a regional referral hospital, there is a possibility of selection bias since this does not represent what happens on lower health centers. In-depth knowledge of the participants was not assessed in our study; we recommend future studies employing qualitative methods to clearly assess this area for better understanding of the problem.

7.6. Conclusion

The knowledge and practice of BSE among women attending Mbale Regional Referral Hospital was low. Participant's address, level of education, occupation and religion were significantly associated with the knowledge and practice of Breast Self-Examination. Health workers were the primary source of information on Breast Self-Examination and Practice of Breast Self-Examination was significantly associated with the participant's knowledge and practice of Breast Self-Examination.

7.7. Recommendations

We recommend that hospitals adopt BSE health education programs to improve on women's knowledge and practice of BSE in order to promote early detection and treatment of breast cancer. The media should also be well utilized to target the rural communities by incorporating in-depth explanations and illustrations on how to do BSE and is health related benefits.

Secondary schools and training institutions should have health education programs that aim at improving knowledge and practice of BSE.

Consent for publication

Not applicable.

Availability of data and materials

Data from this study will be made available by the corresponding authors on request.

Authors statement

JC, participated in conception of the research idea, study design and drafting the first manuscript; LVNS and JSI conducted critical reviews and supervised the study. All authors have read and approved the final version of the manuscript.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijans.2019.100186.

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