



Prevalence and determinants of breast self-examination practice among medical students in higher learning institutions at Ifakara Town, Tanzania.

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Abstract

Background: Breast self-examination (BSE) is a medical examination technique that involves female checking her breasts for any unusual lumps, changes in shape, or swelling. This can help detect breast cancer early. Breast cancer is a serious health issue globally, especially in Sub-Saharan Africa. In Tanzania, breast cancer is the top five most common cancer, accounting for 14.4% of all new cancer cases. Early diagnosis and treatment are the answers to enhancing outcomes for breast cancer. Research shows that many women detect their own breast cancer, suggesting a positive link between BSE and early detection. This study aimed to determine the awareness and practice of Breast Self-Examination (BSE) Practice Among Medical Students in middle and higher Learning Institutions.

Methodology: The cross-sectional study was conducted in Ifakara Town Council (ITC), involving middle and higher learning institutions. Simple random sampling technique was used to recruit female students at different years of study. Closed ended questionnaire was adapted for data collection.

Results: A total of 386 medical students participated. The prevalence of Breast Self-Examination (BSE) practice was 49.0%. While 59.6% reported awareness of Breast Self-Examination, knowledge sources varied: mass media (46.9%), health professionals (37.7%), and relatives/friends (18.4%). Determinants significantly associated with Breast Self-Examination practice included marital status ($p=0.008$), family history of breast cancer ($p=0.005$), and Breast Self-Examination awareness ($p=0.001$). Age group, religious beliefs, program of study, and residency showed no statistically significant association. The moderate level of awareness yet sub-optimal practice rate (49.0%) suggests potential gaps in translating knowledge into consistent preventive action or underlying attitudinal barriers among this age group.

Conclusion: The early detection of breast cancer diseases can be significantly possible by the self-assessment through BSE. An emphasize on Self -assessment of breast health should be emphasized to all ages who are at risk. Education to create awareness through mass media may be one of the priorities through broadcasting and short text in the mobile phones.

Keywords: Breast Self-Examination; Determinants; Awareness; BSE Advocacy; Screening

1. Introduction

Breast cancer is a serious global health issue, especially in sub-Saharan Africa(1,2). Globally, breast cancer is second to lung cancer (2,3) and it was the most diagnosed cancer among females in 2020, with an estimation of 2.3 million new cases (1,4). It is one of the leading cause of cancer-related deaths worldwide (2,3,5,6). The global cancer burden is expected to rise by 64% to 95% especially in low and middle income countries (7,8). Breast cancer is the second most

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common cancer in Tanzania, accounting for 14.4% of all new cancer cases (7). Breast self-examination (BSE), regular clinical breast examination (CBE), and mammography are recommended screening methods for preliminary discernment of breast cancer (7,9,10). Among these screening tests, BSE is still considered non-invasive, simple, inexpensive and accessible option for females at high risk of breast cancer (8,11,12). Unlike clinical breast examination and mammography, which require a hospital visit, technical expertise and specialized equipment, BSE is a cost-free, simplest, non-invasive technique for women to perform (3). In resource-poor environments where regular clinical breast examinations and mammography are unavailable, BSE could be a valuable approach for early breast cancer detection (7,11).

Studies have reported many women to have self-detected breast cancer, suggesting a positive link between breast self-examination (BSE) and early detection (2,6,13). Women who regularly practice BSE are more likely to seek medical attention, including mammography and clinical breast examination (10,14). Additionally, women who correctly perform BSE have a higher chance of detecting lumps early, which can improve survival rates (2,3,5). BSE is advocated screening method that help in reduction of morbidity and mortality rates of breast cancer, a significant global health problem that greatly impacts women's lives (2,6).

Cancer development is a long-term condition which sometimes can start at a tender age, the female university students are important age group to be studied. While studies on BSE awareness and practice exist among university students in some African contexts (15-22), a significant knowledge gap persists regarding its prevalence and determinants specifically among female medical students in Tanzanian higher learning institutions, particularly in settings like Ifakara. Understanding the factors influencing BSE practice in this age group of future healthcare providers who could champion preventive health is essential. This study directly addresses this gap, aiming to explain the prevalence and key determinants of BSE practice among medical students in Ifakara Town, Tanzania.

2. Methodology

2.1. Study sites and design

A cross-sectional study was conducted in Ifakara Town Council (ITC), involving middle and higher learning institutions. Ifakara Town Council (ITC) is located in Kilombero district, Morogoro region, Tanzania. As per the 2022 Population and Housing Census, ITC has a population of 290,424, with a growth rate of 9.8%. The 3 medical schools involved were Saint Francis University College of Health and Allied Sciences (SFUCHAS), Tanzanian Training College for International Health (TTCIH) and Edgar, Maranta, Ifakara College (EMIC) respectively

2.2. Sampling technique

Simple random sampling technique was utilized to recruit female students in the intended institutions. All female students above 15 years of age enrolled in the university and colleges were included. Exclusion criteria included those who were exactly 15 years, those who were not enrolled in these institutions and those who did not sign the consent form. Data collection used a validated closed ended questionnaire which was employed in socio-demographic particulars such as age, sex, religion and marital status. But also, awareness of BSE and source of information in acquisition of BSE knowledge were assessed.

2.3. Data collection and data analysis

Data was collected using key informant interviews and focus group discussions (FGDs) that consisted of groups of 6–10 respondents under the supervision of facilitator and recorder. Participants completed a socio-demographic survey prior to the interviews and discussions. Data were collected using interview and focus group discussion guides which were structured around a set of open-ended questions to explore participant background, knowledge and awareness and BSE practice profiles.

Data from the questionnaires were entered into MS Excel and coded, thereafter analyzed using SPSS. Descriptive statistics was used to outline sample characteristics and prevalence of breast self-examination (BSE) practice. The Cross-tabulation was used to identify factors influencing BSE practice and testing relationship between variables.

2.4. Ethical issues pertaining to human subjects

St. Francis University College of Health and Allied Sciences (SFUCHAS) Institutional Review Board approved this work. The prospective interviewees and FGD participants were asked to take part in the study and those who agree,

voluntarily, signed the consent form. The data collectors maintained confidentiality. However, the option to decline participation at any time was open to all.

3. Results

The study involved 388,386 participants were included in this study, where, 26-35 was the most dominant age group accounting 52.33%, most of the respondents were unmarried, 72.56% while most of them were Christians 74.09%. The results on social-demographic are presented in Table 1.

Table 1 Socio-demographic characteristics and BSE practice among the participants

Variables		Frequency (N)	Percent (%)
Age group	15-25	148	38.34
	26-35	202	52.33
	36-45	36	0.93
Marital status	Single	282	73.56
	Married	104	26.94
Religion	Christian	286	74.09
	Muslim	95	24.61
	Others	5	0.13
Program	Diploma	268	69.43
	Degree	118	30.57
Residency	In-campus	254	65.8
	Off-campus	132	34.2
Family history	Yes	107	27.72
	No	279	72.28
BSE awareness	Yes	230	59.59
	No	156	41.41
Source of information	Mass media	181	46.90
	Health professional	134	37.71
	Relatives/ friends	71	18.4
BSE practice	Yes	189	49.0
	No	197	51.0

In the table below shows a summary of the determinants of BSE practice whereby age group 26-35, marital status, religious beliefs, program, awareness, residence and family history were the determinants of BSE as it is shown in table 2 below. However, marital status ($p=0.008$), family history of breast cancer (BCA) ($p=0.005$) BSE awareness ($p=0.001$) variables, were statistically significant. On the other hand, age group, religious beliefs and residence were statistically not significant.

Table 2 Association between socio-demographic characteristic and BSE practice

Variable	Frequency & Percent		Chi-square	P- value
Respondent age group	Yes N+%)	No (N+%)		
15-25	76 (19.69)	85 (22.21)	40.103	0.123
26-35	107(27.72)	82(21.24)		
36-45	6 (1.55)	30 (7.77)		
Respondent marital status			42.721	0.008
Married	7 (1.81)	11 (2.84)		
Single	182(47.15)	186 ((48.18)		
Respondent religious affiliation			20.131	0.724
Christian	164(42.48)	151 (39.12)		
Muslim	24 (6.22)	41 (10.62)		
Others	1(0.26)	5 (1.30)		
Respondent study program			51.802	0.450
Diploma	90(23.31)	161 (41.71)		
Degree	99 (25.65)	36 (9.32)		
Respondent residence			7.904	0.404
Hostel	141 (36.53)	100 (25.91)		
Out of hostel	48(12.43)	97 (24.61)		
Respondent family history on BSE			51.850	0.005
Yes	118 (30.57)	8 (2.07)		
No	71 (18.39)	189 ((49.0)		
Respondent BSE awareness			149.101	0.001
Yes	183 (47.41)	138 (35.75)		
No	6 (1.55)	53 (13.83)		

4. Discussion

Breast Self-Examination(BSE) practices has been reported to be a useful strategy to evaluate asymptomatic breast cancer development at very early age.as long as cancerous cells develop slowly, the technique could be very useful even at a tender age: however, the knowledge, attitudes and practices of young women to carry out Breast Self-Examination has not been effective. If this approach could be well embedded in the cultural settings of low resource communities, breast cancer could be diagnosed early to serve many lives. Our study assessed the adoption of Breast Self-Examination among medical and biomedical female students to determine their awareness and attitudes towards Breast Self-Examination. The authors targeted this group certainly because they will be mothers and public health workers in the near future. Our study presented, 41.0% prevalence of BSE practices, the findings in this study were, low in comparison to what was reported elsewhere in Tanzania 48.65%(7), while in Nigeria BSE has been reported to range between 52.9% and 92.35%(10). The prevalence of the study was higher comparable to the studies done among female students at Urmia University which reported the BSE prevalence to be 24.6%(16). But also, the study was higher to what was conducted at Mount Kenya university(4) and Debre in Ethiopia which reported BSE to be 30%(15).

The study showed that majority of the student who responded were aged 26 to 35 (52.33%). This is ideal age group for higher learning studies. The study correlate with other study reported by Amoran et al who reported Breast Self-Examination to be mostly preformed in age between 30 and 40 whereby(8). This age group is prone for asymptomatic

benign breast masses such as fibroadenoma. But in some cases, particularly in female with family history of breast cancer may have early stage of BCA. So, BSE practice in this high-risk population, should be advocated regularly to enhance knowledge transformation, attitudes and practices especially among female teenagers.

The mass media was very useful for BSE awareness by 46.9% of all other source of information. There is similarity of this finding with which has been reported in the literature whereby newspapers, televisions, newspapers and radios contribute on Breast Self-Examination awareness(13,14,17) This could be simply explained that, breast cancer screening is much easily communicated through mass media, and the activity is much published. The breast cancer awareness (BCA), campaign is conducted in every month of October each year. In this Breast Cancer Awareness month breast cancer is more advocated using mass media (television, radio and newspaper) making many people to hear it often(14). This technique may be adopted in Tanzania such that during Breast Cancer Awareness week to have educating program through mass media such that most of the people are educated on BSE(4). However, there is much required to be done pertaining on Breast Self-Examination awareness particularly in younger aged population and academic institutes such as to increase the rate of Breast Cancer Awareness screening in Tanzania.

In this study, the association between BSE practice with other variables were denoted based on statistical value of P-value whereby those variables with P-value less than 0.05 was termed as statistically significant. Therefore, marital status ($p=0.008$), family history ($p=0.005$) and BSE awareness ($P=0.001$) were statistically significant. This means the participants with positive family history for breast cancer, and those with BSE awareness were likely to do BSE practice than others. Marital status also had statistically significant to Breast Self-Examination practice ($P=0.008$). Since most of the participants were students such that, most of this group population is not in marriage. However, being single does not exclude them from being diseased, such that they practice for BSE assessment to make their breast health during this premarital life. The religion had no association with BSE practice. Although religion was included, but there was no statistically significant between it and BSE practice.

5. Conclusion

From this study, there is a need of emphasizing self-assessment of breast health to reduce late diagnosis of Breast cancer. Breast Self-Examination may be implemented as routine practice in all women regardless of risk profile such as risked age, marital status and Breast Cancer Awareness family history. Breast Cancer Awareness week may be improved more such that, campaigning on Breast Self-Examination should focus also in rural areas inclusive of middle and higher learning institutions. The university and colleges should encourage and support the student's associations to do campaigns on breast cancer. This could be conducting, community screening especially during Breast Cancer Awareness, month and emphasize on female, students, engagement in the related activities, regardless of their year of study.

Limitation of the study

The study was conducted in a homogeneous population who may not be similar to indigenous community people. However, the aim of this study was to identify Breast Self-Examination practice determinants. These determinants play great role in improving Breast Cancer Awareness participation at community level.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declared no conflict during data collection and publication of this article.

Statement of ethical approval

Ethical clearance for conducting the research was obtained from St. Francis University College of Health and Allied Sciences Institutional Review Board.

Statement of informed consent

Informed consent was sought from all participants, ensuring confidentiality and voluntary participation.

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References

- [1] Fehintola AFO, Onasoga OT, Ogundele OA, Caleb A. Predictors of breast self-examination practices among female undergraduates in selected tertiary institutions in Ogun State , Nigeria : The Health Belief Model Approach. 2024;81(4):30-9.
- [2] Aliyi M, Hotessa Y, Haro A. Breast self-examination practice and associated factors among pastoralist women in the West Guji Zone , Oromia , Ethiopia : a. 2025;(March):1-8. Available from: <https://doi.org/10.3389/fgwh.2025.1501001>
- [3] Nde FP, Clement J, Assob N, Kwenti TE, Njunda AL. Knowledge , attitude and practice of breast self-examination among female undergraduate students in the University of Buea. 2015;4-9.
- [4] Masawa G, Mboineki JF. Assessing breast self-examination knowledge, attitude and practice as a secondary prevention of breast cancer among female undergraduates at the University of Dodoma: a protocol of analytical cross-sectional study. 2024;(May):1-6.
- [5] Alomair AN, Felemban DG, Sami M, Awadain JA, Altowairqi AS, Alfawzan F, et al. Knowledge , attitude , and practice of breast self-examination toward breast cancer among female students at King Saud University in Riyadh , Saudi Arabia. 2020;4(December 2019):429-34.
- [6] Mihret MS, Gudayu TW, Abebe AS, Tarekegn EG, Abebe SK, Abduselam MA, et al. Knowledge and Practice on Breast Self-Examination and Associated Factors among Summer Class Social Science Undergraduate Female Students in the University of Gondar , Northwest Ethiopia. 2021;2021:1-9.
- [7] Id TN, Eustace RW, Makoye JP, Mutalemwa K. Multi-level barriers to early detection of breast cancer among rural midlife women in Tanzania : A qualitative case study. 2024;1-15. Available from: <http://dx.doi.org/10.1371/journal.pone.0297798>
- [8] Amoran OE, Toyobo OO. Predictors of breast self-examination as cancer prevention practice among women of reproductive age-group in a rural town in Nigeria. 2015;56(3):185-9.
- [9] Yusuf A, Okafor I, Olubodun T, Onigbogi O. Breast cancer knowledge and screening practices among undergraduates in a Nigerian tertiary institution , Southwest Region. 2022;22(4).
- [10] Akanbi OO, Adejumo AA, Aina I, Oyedepo VO, Akinloye TA, Habeeb OG. Utilisation and Predictors of Breast Self-Examination among Female Nurses in a Tertiary Medical Centre in North Central Nigeria. 2023;1-9.
- [11] Shaikh, S. I., Channar, H. B., Ahmed, W., Memon, A., Asma, ., & Samo AA. Knowledge, Attitude and Practice of Breast Cancer among Female Students: A Cross-Sectional Study from Pakistan. 2024;18-24.
- [12] Ahmed A, Zahid I, Ladiwala ZFR, Sheikh R, Amjad S. Breast self - examination awareness and practices in young women in developing countries : A survey of female students in Karachi , Pakistan. 2018;1-9.
- [13] Uruntie RO, Oputa CH, Peters E, Otovwe A. Effect of educational intervention on the knowledge , attitude and practice of breast self-examination among female students at a private university in Southern Nigeria. 2024;1-13.
- [14] Khan, Sheraz, Noor ul islam, Jehan Badshah, Abdul Hameed, Hina Ajmal, Nadia Sajid sk. level of knowledge, attitude, and practices regarding breast self-examination among undergraduate nursing students of kpk pakistan. 2023;30(18):898-906.
- [15] Workineh MUC: T and TBSEP and AFAWAFPS in MPHFS, Lake EA, Adella GA. Breast Self-Examination Practice and Associated Factors Among Women Attending Family Planning Service in Modjo Public Health Facilities Southwest Ethiopia. 2021;(June).
- [16] Didarloo A, Nabilou B, Khalkhali HR. Psychosocial predictors of breast self- examination behavior among female students : an application of the health belief model using logistic regression. 2017;1-8.
- [17] Ayed A, Hajar D. Breast Self-Examination in Terms of Knowledge , Attitude , and Practice among Nursing Students of Arab American University / Jenin. 2015;6(4).