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Sociodemographic Determinants Affecting the Practice of Breast Self-Examination Among Women in Northern Ghana

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Abstract

Cancer is a group of diseases in which genetically damaged cells proliferate autonomously. Such cells cannot respond to normal regulatory mechanisms that ensure the intercellular cooperation required in multicellular organisms. Consequently, they continue to proliferate, thereby robbing nearby normal cells of nutrients and eventually crowding surrounding healthy tissue. Breast cancer is the most widespread malignancy among females worldwide, accounting for the greatest percentage of deaths (15.5%) from all cancers in women. It was estimated the number of new cases in 2020 would exceed 2.2 million. The research work showed that the participants were abreast with Breast self-examination (BSE) techniques. And that majority of our respondents have a significantly positive impression of BSE. This tallies with the outcome of a study on affected perception of BSE among female secondary school teachers with high perception of BSE. Regarding age, there is a noticeable trend regarding the increase in age and the mean age. Specifically, women aged 30-39 years have the highest mean BSE practice score (41.8947), followed by those aged 40-49 years (40.3333), while the lowest mean score is observed among women aged 10-19 years (36.0000). This suggests a potential correlation between age and BSE practice, with older women exhibiting higher BSE engagement. In conclusion this study's primary objective is to assess the

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practice and determinants of breast self-examination among women in Chereponi District, Northern Region of Ghana. It will help other part of the world to create awareness of the importance of Breast cancer examination at the early stage, avoiding complication in feature.

Keywords: Sociodemographic, Determinants, Affecting, Practice, Breast, Self-Examination, Women

INTRODUCTION

Cancer is a group of diseases in which genetically damaged cells proliferate autonomously. Such cells cannot respond to normal regulatory mechanisms that ensure the intercellular cooperation required in multicellular organisms. Consequently, they continue to proliferate, thereby robbing nearby normal cells of nutrients and eventually crowding surrounding healthy tissue [1].

There is a steady increase in incidence of cancers as observed in most developed and developing countries. Apart from incidence, cancer related deaths are also increasing. In 2008 alone, up to 7.6 million people died from cancers all over the world with about 70% of these deaths occurring in developing countries [2].

In the whole world, there were 14 million new cases and 8 million deaths in 2012, and in 2018, there were 18.1 million new cases and 9.6 million cancer-related deaths [3]. This value is projected to rise by at least 70% by the year 2030 [4]. It is estimated that more than 250,000 new cases of cancers are diagnosed in Nigeria every year and up to 10,000 Nigerians die each year from cancer related causes (Baba and Hincal, 2016). These estimates are based largely on hospital generated data without provision for the many cases that do not present themselves in hospitals as well as the many cases of misdiagnosis in our numerous peripheral hospitals ([2].

Breast cancer is the most widespread malignancy among females worldwide, accounting for the greatest percentage of deaths (15.5%) from all cancers in women. It was estimated the number of new cases in 2020 would exceed 2.2 million [1, 2]. Subsequently, it seems obvious that more effective treatments than those currently in use are sorely needed. Current cancer treatments include hormone therapy, chemotherapy, radiotherapy, immunotherapy, and surgery. Some of these treatments have serious deleterious side effects in patients [3-5].

Breast self-examination BSE is an important act of primary prevention and considered a strong vital sign for the early detection of breast cancer. Carrying out a BSE regularly is important because it enables women to detect any warning signs, lumps or abnormalities in the breast tissue as and when they occur. Early diagnosis, facilitated by BSE, will allow women to book appointments with their physicians, receive a proper diagnosis, and hopefully, improve the chances of a cure and reduce mortality.

Nevertheless, whilst BSE can be positive (leading to early detection and maybe better prognosis), it is not performed equally amongst all groups of women. Sociodemographic factors such as age, education level, socioeconomic status, cultural beliefs and access to health information are important predictors of whether a woman is likely to engage in BSE regularly. Younger women or those with higher levels of education may be more likely to perform BSE because they are perhaps better able to understand its importance. Women with a lower socioeconomic background or cultural backgrounds may perform BSE less often because they may not have access to healthcare resources, health literacy or appropriate norms regarding breast health that encourage their use. These sociodemographic factors are important because they enable us to understand which women are not undergoing BSE and address targeted public health interventions that may help to increase its uptake and use more effectively.

Obaji et al [6] employed a cross-sectional design to gather data on female undergrad students across four higher institutions in Enugu State, Nigeria. A self-reported questionnaire measured the presence of breast cancer and the use of breast self-examination, which were analyzed both descriptively and inferentially, using statistical tools like Chi-square distribution and now it can be expressed on the conversion table as:

Only 38.50% of the respondents had a good knowledge of breast cancer, while 56.80% had poor knowledge of breast self-examination. The research yielded a more significant relationship between the knowledge of breast self-examination and its practice, as it was observed that female students with good knowledge of BSE are more likely to practice BSE frequently.

Azage et al [7] used cross-sectional study design and among the study participants that included 423 women who attended Sinamega Primary Hospital Bahir Dar, Ethiopia. Data was collected using structured interview potentially using a pre-tested questionnaire and apparently descriptive statistics and logistic regression analysis were performed. The finding

disclosed that 54.4% of participants have poor knowledge about BSE and only 22.7% of participants practiced BSE. Factors that were related with good knowledge and BSE practice included educational level, being married, and family exist of Breast Cancer.

Similarly, another cross-sectional study conducted by Balogun et al. [8] used 400 female traders in Ibadan, Nigeria to determine the knowledge and practices about breast self-examination (BSE). Data was collected with the help of a semi-structured interviewer-administered questionnaire and descriptive statistics, chi-square tests, and logistic regression analysis were utilized for data analysis. The study showed that 53.3% of the participants had good knowledge about breast cancer while only 30.5% of the participants had good knowledge about BSE; and 37.5% of the female traders who participated in the study practiced BSE. The study showed that participants with higher educational status and those who received information from health professionals had good knowledge and practice of BSE.

Although these reported quantitative studies have primarily varied regional and population samples, all studies have generally agreed that women's knowledge and awareness about breast cancer and BSE varied at different level and that there was generally good knowledge of breast cancer but the knowledge on BSE and self-practice were low. The reasons for conducting these studies were primarily to measure women's knowledge of breast cancer and their BSE, such as the reasons, how often they practiced it and its knowledge and practice. Several predictor variables were also presented, including educational level, exposure to health professionals' information regarding the disease, and positive attitudes to BSE.

Furthermore Al-Muhandis and Rashid [9] also used descriptive cross-sectional design and conducted online survey via a self-report questionnaire with 400 female students across four colleges at Salahaddin University, Erbil, Iraq. They collected and analyzed the data using descriptive statistics, chi-square tests and logistic regression analysis. Their descriptive results revealed that 62.8% of the participants had good breast cancer knowledge while only 29.5% had good BSE knowledge. A total of 33.5% of them performed BSE examinations regularly. Better attitude towards BSE and obtaining information from healthcare professionals were associated with good knowledge and practice of BSE.

Barriers to BSE among women are multifactorial, reflecting numerous factors that impinge on the adoption of BSE in normal health care.

The main barrier that was found to impair BSE rates tends to revolve around a lack of awareness, such as women not knowing that BSE should be done or not knowing how to do it properly [10]. This lack of awareness was also due to the lack of educational resources being available to certain women, particularly if they were from ethnic or migrant communities, and were unable to read many of the awareness campaigns or information [11].

Concerns that performing BSE will lead to the discovery of a lump among young women are misplaced, but they reflect underlying beliefs about the effectiveness of BSE as a strategy for early cancer detection, along with fear about a cancer diagnosis. Misconceptions about breast cancer might be influenced by perceptions of cancer risk that are susceptible to imprecise statements in news media coverage or that stem from the exaggerated leanings of politicians who promote a wellness message supported by ill-gotten funds from private interests like the Texas alcohol industry. Additional risk factors identified include feelings about one's own breasts, with modesty concerns or taboos about talking about one's breast health restricting open dialogue and information-seeking behaviours, for example.

Lack of access to care and resources such as preventive care, breast health education and medicines in general, especially among underserved and lower income populations, can be another impediment [12]. Financial constraints, not having health insurance and lack of availability of resources can hinder the opportunity for women to access the resources that they need to perform BSE, as well as obtain guidance.

For many women, these doubts about the guidelines and efficacy of BSE are a reflection of an underlying feeling of ambiguity. There is a widely shared narrative of doubt as women find themselves wrestling with conflicting and confusing advice from clinical providers and/or media messages regarding their breast-self exam. This discordance is significant, and in many cases, women might not know where to turn for accurate information about BSE.

Overcoming them requires context-specific, multifactorial interventions to promote education, awareness and access, and build upon while respecting cultural sensitivities and preferences. Some examples of such culturally prepared approaches culturally designed education materials, community outreach programmes and improved access to health facilities could help to redistribute the burdens from BSE promotion and propagation in

women in various cultural settings. In conclusion, effective overcoming of these barriers could be pivotal to reinforce the calls for BSE promotion not only to decrease the misdiagnoses of breast abnormalities, but also to improve the breast health outcomes of women across the world.

The study's primary objective is to assess the practice and determinants of breast self-examination among women in Chereponi District, Northern Region of Ghana.

MATERIALS AND METHODS

Research Design

A community-based cross-sectional research design with a mixed methods approach was utilized in assessing the practice and determinants of breast self-examination among women in Chereponi District, Northern Region of Ghana

Population for the study

The study was carried out among female population residing in Chereponi District, Northern Ghana. This group will serve as the primary focus for data collection and analysis regarding BSE practices, awareness, and determinants within the district.

Inclusion and Exclusion Criteria

The inclusion criteria, women eligible for participation in this study were those aged 18-49 years and reside within the Chereponi District of the Northern Region in Ghana.

The study on breast self-examination among women in Chereponi District in the Northern Region of Ghana will exclude individuals with physical limitations that prevent them from performing breast self-examination effectively, women who are pregnant or breastfeeding. Women unable to understand the question or give consent due to cognitive impairment and Women who residents of Chereponi are not, to maintain the study's geographic focus.

Sample Size

The sample size for the survey questionnaire was be determined using the Cochran formula for determining sample size for infinite populations, with a 95% confidence level and a 5% margin of error.

Formula:

$$n = \frac{Z^2 * pq}{d^2}$$

Where,

n= sample size required

Z = Z score

p = Practice of breast self-examination

q = 1-p

d = margin of error

Sampling Techniques

The sampling technique utilized for this study was multi-stage. First, 4 councils (Tombu, Tambong, Wenchiki, and Nansoni) were randomly selected from the 6 councils in Chereponi district. Secondly, a simple random sampling technique by balloting was used in selecting 4 communities, one apiece for each of the selected councils giving a total of 16 communities within Chereponi district. Thirdly, the sample size for each council chosen was determined by proportionate random sampling, using the estimated population of the selected council. Finally, one eligible woman was chosen from randomly selected households. where there was no eligible woman, the next contiguous household was visited.

Qualitative Data: In addition to administering the survey, the qualitative component of the research entailed determining a small subset of participants from the survey sample to conduct Key Informant Interviews to use semi-structured interviews, which will afford a deeper exploration of the dynamics and reasons behind gender-based sexual violence experiences, perceptions and attitudes by women towards BSE, and the contextual factors that influence their BSE practice. Each participant will be subjected to two interviews, one at the onset of the study and the other after the study. A purposive sampling technique was employed, whereby participants representative of different aspects of the study were selected for the interviews based on various characteristics, such as age, level of education, gender, occupation, and ethnicity. This will allow for a thorough exploration of the phenomenon by focusing on key aspects and understanding how it varies across different

dimensions. These cases will be purposefully chosen to shed light on how women view practices of BSE from their perspective. Interviews can go forward altogether in a single session or through a virtual platform where participants can access sites that are more convenient as opposed to making a trip to a physical office to participate. In sum, 15 participants were selected for the qualitative study.

Study Tools

The study tools for this study were both quantitative and qualitative information.

Quantitative data consisted of numerical information gathered through structured questionnaires, focusing on factors such as demographic characteristics, awareness of breast self-examination, frequency of practice, and potential barriers to performing BSE.

Qualitative data were sourced through in-depth one-on-one interviews to allow the researcher to provide in-depth insight into how the respondents experienced and perceived breast self-examination (BSE). This in-depth interview will enhance the richness of insight into the determinants of BSE practice and help to interpret the quantitative findings.

Methods of Data Collection/Instrumentation

The study utilized a mixed methods of data collection:

For quantitative data, structured questionnaires consisting of items on demography, awareness, knowledge of BSE, frequency of BSE practice, and perceived barriers to BSE were self-administered to the convenience sample of the researcher among eligible females within the Chereponi district of the Northern Region of Ghana.

Similarly, qualitative data was collected through exchanges with participants based on an interview guide developed by the researcher, which could allow for a more detailed exploration of participant experiences, feelings, and perceptions regarding BSE. Like the questionnaire, a semi-structured approach was adopted that encouraged ease of probing and following up on important emerging themes

Data Management and Analysis

The quantitative analysis consists of descriptive statistics, such as frequencies, percentages, means, and standard deviations to summarise the participants' sociodemographic profile and the practice of BSE behaviour. Inferential statistical tests such as chi-square testing or logistic regression analysis were further explored to assess the associations between sociodemographic variables (e.g. age, education, socioeconomic level) and BSE behaviour.

The SPSS (Statistical Product and Service Solutions) software was the statistical package used for quantitative analysis.

Thematic analysis was carried out to analyse the qualitative data from the semi-structured interviews. This included systematically coding the data, and identifying patterns and themes related to the factors affecting BSE practice from the interview transcripts.

Coding: The interview transcripts were coded line by line to identify recurring patterns, concepts, or ideas. Codes were organised into themes, which represented big-picture ideas of what matters to people concerning BSE, encapsulating their experiences, beliefs, and attitudes around BSE. All in all, 15 participants were interviewed. Participants were coded to maintain confidentiality; (R1, R2, R3 and R15) and their age was between 19 and 45

Interpretation: The identified themes from the qualitative content were interpreted together with the quantitative findings, to provide a better understanding of the determinants of BSE among women in Chereponi district. The piece of software used for this qualitative analysis was NVivo. NVivo provides a space for organising, analysing, and understanding qualitative data such as text, audio, video, and/or images.

Ethical Consideration

Ethical approval for this study was sought from the University of Port-Harcourt Ethics Committee. Permission was also obtained from the Cherponi District Health Authority and the various selected Community Heads to study in their communities. Informed verbal consent was obtained from each woman before participating in the study. This included the assurance of confidentiality, a description of the study objectives, and a specific request for permission to conduct the interview. Consent was obtained in the local dialect and English language.

RESULTS

Table 1: Sociodemographic Determinants Affecting the Practice of Breast Self-Examination Among Women

Indication		Mean BSE score	Number	Std Deviation
Age	10-19 years	36.0000	6	.00000
	20-29 years	39.6588	170	8.21681
	30-39 years	41.8947	190	7.61713
	40-49 years	40.3333	18	8.41567
	Total	40.7396	384	7.94399
Highest Educational Level	Primary education	40.7000	20	5.96569
	Secondary education	47.1250	32	3.58986
	Tertiary education	39.10315	332	7.20721
	Total	40.7396	384	7.94399
Religion	Islam	40.5217	368	8.02174
	Christianity	45.7500	16	3.00000
	Total	40.7396	384	7.94399
Marital Status	Single	40.9839	248	7.90529
	Married	40.4462	130	8.17641
	Divorced/Separated	37.0000	6	.00000
	Total	40.7396	384	7.94399
Employment Status	Student	42.3590	78	9.47310
	Employed full-time	38.7576	198	7.54020
	Employed part-time	42.1818	44	8.85877
	Self-employed	45.6429	28	3.23424
	Unemployed	42.5556	36	3.91659
	Total	40.7396	384	7.94399
Household Income (Monthly)	Less than₵ 500	41.3095	84	7.75992
	₵ 500 – 999	43.8400	50	5.82521
	₵ 1,000 - 1,999	40.8824	68	8.83941
	₵ 2,000 - 2,999	40.3333	72	7.36952
	₵ 3,000 or more	39.0727	110	8.34542
	Total	**40.7396**	**384**	**7.94399**

Field survey: June 2024

Table 2: Correlation Analysis knowledge levels and the practice of breast self-examination among women

Correlations			
		Knowledge Levels	Practice of BSE
Knowledge Levels	Pearson Correlation	1	.777**
	Sig. (2-tailed)		.000
	N	384	384
Practice of BSE	Pearson Correlation	.777**	1
	Sig. (2-tailed)	.000	
	N	384	384

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

Field Survey: June 2024

DISCUSSION

Table 1 offers insights into sociodemographic determinants affecting the practice of breast self-examination among women. Each category, such as age, highest educational level, religion, marital status, employment status, and household income, is associated with a mean and standard deviation, reflecting the average age or level within the category and the degree of variability, respectively.

Regarding age, there is a noticeable trend regarding the increase in age and the mean age. Specifically, women aged 30-39 years have the highest mean BSE practice score (41.8947), followed by those aged 40-49 years (40.3333), while the lowest mean score is observed among women aged 10-19 years (36.0000). This suggests a potential correlation between age and BSE practice, with older women exhibiting higher BSE engagement.

In terms of educational attainment, women with secondary education have the highest mean BSE practice score (47.1250), followed by those with tertiary education (39.10315), while women with primary education have the lowest mean score (40.7000). This indicates a potential association between higher educational attainment and increased BSE practice.

Regarding religion, Christian women exhibit a higher mean BSE practice score (45.7500) compared to Muslim women (40.5217), suggesting potential differences in BSE practice based on religious affiliation. Specifically, Christian women, on average, reported a higher frequency of engaging in BSE compared to Muslim women.

Regarding marital status, single women have the highest mean BSE practice score (40.9839). Specifically, single women, on average, reported a higher frequency of engaging in BSE compared to married and divorced/separated women.

Concerning employment status, self-employed women have the highest mean BSE practice score (45.6429), followed by students (42.3590), while unemployed women have the lowest mean score (42.5556). This suggests potential variations in BSE practice based on employment status.

Regarding household income, women with monthly incomes between Ghana cedis ₵500 - 999 have the highest mean BSE practice score (43.8400). This indicates potential differences in BSE practice based on household income levels. Thus, women with lower to moderate household incomes tend to have higher mean BSE practice scores compared to women with higher household incomes.

Overall, the analysis highlights the potential influence of sociodemographic factors such as age, educational attainment, religion, marital status, employment status, and household income on the practice of breast self-examination among women

The bivariate correlation analysis was used to see if there is an association between level of knowledge and BSE practice. Correlation study was done between level of knowledge and the practice of breast self-examination (BSE) showed that there is a very high positive relationship between the two variables.

The Pearson correlation between the level of knowledge and BSE can be conducted as 0.777**, shown in table 2, a very high positive relationship at the 0.01 level (2-tailed). The above table 2 shows that as the awareness of breast cancer, the knowledge of BSE and its importance increases, regular BSE practice is more likely to take place.

There is a very strong relationship between the level of knowledge and breast self-examination (BSE), therefore, women with higher understanding of breast cancer, how it occurs and how best to detect it are more likely to practice BSE on regular basis, likewise,

women with lower levels of understanding might not be able to practice BSE on regular basis.

The Level of knowledge about breast cancer and the importance of breast self-examination among women in Chereponi District, the data offer important information about knowledge and awareness towards breast cancer and the importance of breast self-examination among women. Overall, it can be said that the women in the survey had an overall high level of awareness and understanding.

First, respondents had moderate knowledge on how breast cancer develop (mean=4.06, SD 0.822). This indicates that the majority of women have adequate understanding of breast cancer and their subsequent willingness to avail themselves to various prophylactic and early detection programs. Similarly, women cited moderate knowledge on breast cancer risk factors (mean = 3.95, SD = 0.800). It is important for women to have some knowledge about the risk factors related to breast cancer for early detection. Lastly, respondents had a moderate knowledge on common signs and symptoms of breast cancer (mean = 3.94, SD = 0.782). Together, these results show that women have a good knowledge on risk factors and symptoms associated with breast cancer.

A key finding of this research is that respondents had significant knowledge on the significance of early detection in the treatment outcome (mean = 4.20, SD = 0.762). This is an important finding because screening and early detection are significant components in facilitating early treatment. The fact that very few women were able to identify themselves as having done BSE in the past year signalled the need for improving their knowledge on screening methods. Screening methods means picture test and other physical tests which are carried out for detecting abnormality. The statistic which shows that 33.3% knew about mammogram support the point that women need more information or knowledge on the screening methods.

Even then, a moderate number of women expressed their confidence in using BSE as a method of early detection on breast abnormalities (mean = 4.08, SD = 0.887). Given that BSE is recommended by the National Cancer Institute (NCI) and the American Cancer Society (ACS), it follows that women should demonstrate confidence in using this method since it is recommended. In addition, a moderate percentage (mean = 3.49, SD = 1.105) of women knew the proper technique of BSE. This indicates that there is some understanding

on how to properly conduct BSE. Whether the information about the technique is derived from direct instruction or knowledge from media articles remains unknown.

Moreover, it was interesting to note that moderate percentage (mean = 3.58, SD = 0.998) of women were aware of the recommended frequency for conducting a BSE.

We can say that the Breast Cancer Awareness was very strong, where respondents had strong knowledge of where they can seek medical advice when they noticed any changes in their breasts (mean = 4.04; SD = 0.884) and believed that knowledge on Breast Cancer and BSE is essential for women's health (mean = 4.36; SD = 0.904). Overall, these findings indicate that women think that they need take more active roles for their breast health issues.

CONCLUSION

The following information reveals some patterns about the socio-demographic determinants which affect the women who are practising BSE of their breasts or not. It has been found that there are really noticeable patterns about who practises the BSE and who not, there are certain connection between socio-demographic factors and BSE practice which influences the motives, age and habits of women who are practising or not practising BSE.

There is also an age-related pattern, where BSE practice increases in more advanced age categories. Mean BSE practice score turns to be higher in women aged 30-39 years and 40-49 years when compared to younger age groups, which make us assume that older age group and BSE are somehow connected, and women over 30 years old desire to perform BSE more frequently.

Woman's years of education is also associated with practice of BSE, with woman with secondary education having the highest mean BSE practice scores, and followed by those with tertiary education, while woman with primary education have the lowest mean BSE practice scores, which reflect an inverse gender inequity in education and BSE practice.

Religious belief was another factor that predicted BSE practice; a higher proportion of Christian women regularly engaged in BSE than Muslims. This could potentially be due to religious dictates.

However, Breast self-examination is a health awareness activity that is more likely to be undertaken by single women. These findings confirm the crucial role played by family and relatives in the past.

Specifically, employment status revealed significant differences in the mean BSE practice score was for self-employed women and students, and unemployed women. This indicates potential differences in terms of engaging in BSE activities, as those who are self-employed and studying have relatively higher BSE practice scores when compared to unemployed women.

Finally, the level of household income also significantly influences mean BSE scores as BSE practice increases as household income decreases (i.e., from low, to moderate, to high). This is congruent with the supposition that there may be some connection between household income and BSE as women from the low- and moderate-income brackets score higher in BSE relative to those from higher income households.

Conflicts of Interest: The authors declare no conflict of interest.

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