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Men's Knowledge of Male Breast Cancer in Ghana

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Abstract

Male breast cancer exhibits a higher mortality rate compared to female breast cancer; however, it remains under-researched in terms of its potential consequences. This study explores men's knowledge of male breast cancer (MBC) in Ghana. Using a qualitative approach, in-depth interviews were conducted with twenty-two (22) purposively and conveniently selected participants between the ages of 18 and 70. Thematic analysis was employed to analyze participants' knowledge of male breast cancer. The findings revealed that most participants, including community members, a male breast cancer patient and a survivor, had limited and inaccurate knowledge of female breast cancer and no awareness or knowledge of male breast cancer. Nevertheless, these knowledge gaps did not deter participants from seeking healthcare, as most expressed willingness to undergo screening for early indicators of breast cancer. The study recommends increased education and awareness about male breast cancer through targeted community outreach.

Keywords: Male breast cancer, female breast cancer, knowledge, awareness, risk factors, symptoms, treatment, prevention

1. Introduction

According to Morounke et al. (2017), approximately 1.28 million new cancer cases and 970 000 cancer deaths are expected by 2030. Breast cancer emerges as a major health concern affecting both genders, though its frequency in males is low (Ancheta, 2023). It is estimated that by 2040, the number of new breast cancer cases will exceed 3 million, with annual deaths

surpassing 1 million (Arnold et al., 2022). Breast cancer remains the most common cancer and leading cause of cancer death in women worldwide (World Health Organization, 2022; Yilmaz, Bebis, and Ortabag, 2013), with the highest mortality rates occurring primarily in low-income countries (Anderson et al., 2006).

The incidence of male breast cancer (MBC) varies geographically; rates are higher in the United States (US) and the United Kingdom (UK) than in Finland and Japan (Contractor et al., 2008). Siegel, Giaquinto and Jemal (2024) highlighted that although male breast cancer accounts for only 1% of breast cancer cases annually in the United States, this translates to an estimated 2,790 new cases each year, with numbers still rising. Globally, the prevalence of male breast cancer has increased from 1 to 1.5 per 100 000 men (Brinton, 2008). Furthermore, it was predicted that 530 men in the United States would die from breast cancer (Giaquinto et al., 2024).

Breast cancer incidence and prevalence are increasingly being reported in developing countries as well (Freihat, Sipos and Kovacs, 2025). One of the most frequently diagnosed cancers and a major contributor to cancer-related deaths in Africa is breast cancer (Adeoye, 2023). Male breast cancer (MBC) appears to be more prevalent in African countries than in high-income countries (Alfehaid, 2023). In Central African countries, a higher percentage of MBC cases, ranging from 6% to 15%, was recorded (Rudlowski, 2008). According to a study by Ahmed et al (2012), 15% of all MBC instances were reported in Zambia, and the incidence rate in Egypt was twelve (12) times higher than in the United States of America. In West Africa, incidence rates of 2% are discovered in Ile-Ife, 2.4% in Lagos, 2.9% in Ghana and 3.75% in Ibadan (Nana-Amankwah and Dapaah, 2024).

Over the past years, male breast cancer (MBC) incidence has consistently increased from 2.4% to 2.9% in Ghana (Quayson et al., 2014). In a more recent study, Akakpo et al. (2023) discovered an increasing incidence rate of 1.8% in Ghanaian men under 40 with breast cancer. Tragically, MBC presents a higher mortality rate compared to its female counterpart (Abdallah et al., 2017). In 2020, almost 80% of the 9,931 men diagnosed with breast cancer died in Ghana (Class FM Online, 2022). Breast cancer deaths have decreased by 42% in women and 28% in men (Anderson et al., 2010), supporting the assertion that men have a poorer prognosis for breast cancer compared to women. The high mortality rate in male breast cancer (MBC) is primarily due to late-stage diagnoses, with men often presenting at more advanced stages than women (Qavi et al., 2021). Despite being less common, MBC poses a serious threat to global public health as the number of breast cancer cases continues to rise. Knowledge and awareness about the causes of MBC, signs and symptoms, prevention, and treatment methods are critical for making early detection a cornerstone of breast cancer control in low- and middle-income countries. Early detection significantly improves the prognosis of breast cancer, enhancing survival rates and reducing mortality rates (Alshawwa et al., 2024). Public awareness and knowledge of male breast cancer (MBC) significantly affect the lives of patients and survivors, with these impacts shaped by the community's social, cultural, and religious beliefs.

Despite the alarming increase in male breast cancer incidence and distinct mortality patterns

in Ghana, literature on MBC remains limited. To address the urgent issue of male breast cancer (MBC), it is essential to explore Ghanaian men's knowledge about the condition. A qualitative analysis could yield insights that may augment awareness, culturally appropriate healthcare interventions, and more effective early detection measures, ultimately contributing to reductions in mortality rates linked to MBC (Okobia et al., 2006).

According to Petrie and Weinman (2012), how people perceive their illness often shapes their approach to treatment. A patient's understanding of a disease influences their worldview and behavior towards it, potentially leading to diverse interpretations (Petrie, Broadbent and Kydd, 2008). The factors shaping one's knowledge of male breast cancer include its etiology (cause), signs and symptoms, methods of detection, and strategies for treatment and prevention.

Experts are inconclusive on the definitive cause of breast cancer in both men and women, as explaining why the disease affects some individuals and not others is challenging (Thomson et al., 2014). Underlying factors that contribute to breast cancer can vary by gender. Female-specific risk factors include early menarche, late menopause and the age at which a woman has her first child. MBC risk factors include advancing age, testicular disorders and hereditary predisposition (Al-Naggar and Al-Nagger, 2012). In terms of age, breast cancer risk for both men and women increases rapidly. However, there have been cases of male breast cancer (MBC) occurring in men as young as 12 years old (Amir and Hirji, 1992), 20 years and below (Zhang et al., 2025), and across various age groups, including 73 years old (Yahaya et al., 2023) and 93 years old (Corwin et al., 1967). Other risk factors include Klinefelter's syndrome, which increases the risk of male breast cancer by 20-50 times compared to males without the condition (Sousa, Moser and Cardoso, 2013). Klinefelter syndrome occurs when men have an extra X chromosome, resulting in the XXY chromosomal pattern. A characteristic feature of Klinefelter syndrome is gynecomastia (Jun, 2022), a condition where excess oestrogen causes the male breast tissue to swell and enlarge, often referred to as "man boobs." This imbalance between oestrogen and testosterone can also increase the risk of male breast cancer (Johnson & Murad, 2009). Studies suggest that gynecomastia is present in 6-38% of male breast cancer cases (Al-Qattan, 2006). Hereditary links are also significant, with family history accounting for 20% of male breast cancer cases (Fentiman, 2009). Having two first-degree relatives with breast cancer, such as a mother, sister, or daughter, raises one's risk of having the disease by four to six times (McPherson, Steel, & Dixon, 2000). Male breast cancer can also stem from environmental factors or underlying conditions. For environmental-related causes, work exposure to elements like heat, radiation, and chemicals heightens the risk of breast cancer (Weiss, Moysich and Swede, 2005). Occupations with high exposure to soap, perfume, gasoline, or exhaust fumes have been associated with male breast cancer (Swergold, Murthy and Chamberlain, 2014). Additionally, increased alcohol consumption is a risk factor, with Guénel et al. (2004) indicating that men who consume 16% more alcohol per 10g of body weight daily have a significantly higher likelihood of developing the disease compared to light consumers. Other identified risk factors include cirrhosis, a liver illness and a history of prostate cancer. This is evident in a study where twelve patients with prostate cancer simultaneously had cases of

male breast cancer (Lee and Jones, 2009).

Common breast cancer symptoms include changes in breast size or shape, skin dimpling, nipple retraction, or skin resembling the texture of an orange peel, known as peau d'orange (Michaelides and Constantinou, 2019). A firm, irregular breast lump is the most common symptom, present in 75% to 95% of men with breast cancer (Gennari et al., 2004). These lumps are usually painless and located in the upper, outer quadrant of the breast (Shetty, 2021). Advanced signs of the disease can include skin ulcers, tenderness, itching, and unexplained weight loss (Malani, 2007; Umoh, Arora and Simmons, 2008). Additionally, spontaneous nipple discharge is observed in approximately 15% of patients with male breast cancer (Parthasarathy and Rathnam, 2012).

Advancements in the understanding and treatment of male breast cancer have largely benefited from research originally conducted on female breast cancer (Kamila et al., 2007). In Ghana, two primary strategies for early detection are self-examination and clinical breast examination (Naku Ghartey Jnr et al., 2016). The efficacy of Breast Self-Examination (BSE) remains debatable; however, the American Cancer Society endorses it as a potential early detection strategy, prompting further evaluations if abnormalities are detected. Mammography serves as an important tool for identifying breast tumors, particularly in obese men with larger breasts or when physical examinations are inconclusive (Şafak, 2015). Furthermore, certain studies indicate that Clinical Breast Examinations might uncover tumors that mammography fails to detect (Saslow et al., 2004). Despite BSE's potential for early detection, it has not been shown to significantly reduce breast cancer mortality rates.

The treatment options for male breast cancer have advanced significantly over time. Historically, radical mastectomy was the primary treatment. Today, surgical procedures such as simple mastectomy or lumpectomy are commonly used for Stage I breast cancer and ductal carcinoma in situ (DCIS) (Fentiman, Fourquet, and Hortobagyi, 2006). Radiotherapy and hormonal therapy, like tamoxifen, are effective treatments for breast cancer, providing similar benefits for both men and women (Lin, Huang and Tam, 2021). However, some patients opt for alternative treatments, such as prayer camps and herbal remedies, often due to strong religious beliefs and vulnerability, regardless of their education (Clegg-Lamptey, Dakubo, and Attobra, 2010). Preventative measures could potentially prevent 30–50% of all breast cancer cases by avoiding known risk factors (Vineis and Wild, 2014).

Most individuals identify media as their primary source of information regarding breast cancer, including electronic media (such as radio, social media, and television), print media (newspapers and posters), and conversations with friends and family (Al-Naggar and Al-Naggar, 2012). In contrast, a study in the UK revealed that 92% of the general population deemed general practitioners as their primary health information source (Opoku, Benwell & Yarney, 2012). Additionally, some breast cancer patients seek information from healthcare professionals, including hospital consultants, family doctors, and nurses (Koutsopoulou et al., 2010). While healthcare providers are recognized as the primary source of information, media and internet sources together account for approximately 50% of all information channels (Al-Amoudi & Abduljabbar, 2012). In Ghana, the doctor-patient ratio is considerably lower

than the World Health Organization (WHO) recommended standard of 1:5,000, standing at 1:13,000, which poses challenges for access to medical practitioners (Muhammed et al., 2013). Local FM stations, which broadcast health information to wide audiences, play a critical role in raising awareness and improving knowledge. Nonetheless, the dissemination of inaccurate information through media channels can lead to various challenges. Thus, it is essential to ensure the accuracy of information shared via media platforms to effectively educate targeted audiences (Opoku, Benwell & Yarney, 2012).

A study conducted by Faria et al. (2021) highlighted significant gaps in knowledge regarding male breast cancer (MBC) among students. Specifically, 65.9% of participants lacked knowledge about MBC, with 77.3% unaware of its risk factors and 68.9% not knowing about breast self-examination. Alarmingly, this lack of awareness also extended to health science students. Goyal et al. (2020) conducted a similar study to assess the level of awareness of male breast cancer among selected male participants. The findings indicate a notable lack of awareness regarding male breast cancer, with only 19% acknowledging that men can develop this condition. Among this group, 4% were uninformed about lifestyle factors that may increase the risk, and 9% lacked knowledge of available treatment options for male breast cancer. In contrast, a study conducted in Turkey by Saritas, Dogan, and Gul (2020) revealed a higher awareness level among male nursing students, with 83.4% of 307 participants recognizing the possibility of male breast cancer. However, the practice of breast self-examination was notably low among these students, as 83.7% reported never having performed it, often citing beliefs that it was unnecessary for males or unengaging.

Thomas (2010) conducted a qualitative study involving 28 men aged 30-60 years to assess their awareness and knowledge of male breast cancer (MBC). The study found that around 80% of participants were unaware that men could develop breast cancer, despite higher risks associated with family history. Notably, 43% of the 12 participants indicated that a diagnosis of MBC would challenge their perceptions of masculinity. These findings underscore a significant lack of awareness regarding MBC among diverse populations.

There are limited qualitative studies highlighting men's awareness, perceptions and knowledge of male breast cancer (MBC) and its outcomes in Ghana. This study addresses the gap by exploring the knowledge of community men residing near a specialized breast cancer center, Peace and Love Hospital, as well as MBC patients and survivors. The goal is to develop effective strategies to reduce Ghana's high morbidity and mortality rates associated with MBC.

2. Methods

2.1 Research Design

An exploratory case study design, with a qualitative approach, was adopted to explore men’s knowledge of male breast cancer in Ghana. Qualitative studies examine participants' perceptions and subjective views in a natural setting in order to better observe and understand research problems and provide solutions to them (Lincoln, Lynham & Guba, 2011). An exploratory case study design was deemed suitable due to the limited existing information

available on this topic in Ghana.

2.2 Study Area and Population

This study was carried out in the Ashanti and Central Regions of Ghana. The study population included twenty (20) men from the Oduom community, a suburb of the Oforikrom Municipality in the Ashanti Region, one (1) male breast cancer patient from the Ashanti Region, and one (1) male breast cancer survivor from the Central Region. The Oduom community was selected due to the presence of a specialized breast care centre, Peace and Love Hospital, dedicated to the diagnosis and treatment of breast cancer. The hospital also owns a non-governmental organization, Breast Care International (BCI), which specializes in promoting breast care awareness and screenings.

These regions were selected after conducting hospital and media outreach to recruit additional participants, a step that became essential due to the loss of some originally recruited individuals (patients and survivors)

2.3 Participant Selection

Participants in the study were chosen using both purposive and convenience sampling techniques. Convenience sampling involved recruiting men who were readily available and willing to take part in the study. Additionally, purposive sampling was utilized to recruit male breast cancer patients and survivors, selected for their unique experiences and characteristics relevant to the study.

2.4 Data Collection

Primary data were collected through in-depth interviews using an unstructured interview guide. The flexibility of this approach enabled participants to share their knowledge and experiences of male breast cancer, while permitting the researcher to probe emerging themes in greater detail. Interviewing individuals from diverse backgrounds enhances the credibility of the findings (Roulston, 2010). In-person interviews were conducted for community members in Oduom. In contrast, phone interviews were arranged for the male breast cancer patient and survivor to maintain confidentiality, anonymity and overcome distance constraints. Interviews were carried out in English or Asante Twi, depending on the participants' preference.

2.5 Data Analysis

Thematic data analysis (TDA) was employed to interpret primary data gathered through interviews. The process involved careful examination of recordings, which were transcribed verbatim. These transcripts were then coded and categorized to uncover patterns and themes related to participants' understanding and knowledge of male breast cancer.

2.6 Ethical Consideration

An ethical clearance was obtained from the Kwame Nkrumah University Review Board. Participants received detailed information sheets and consent forms for their approval. To maintain anonymity and confidentiality, pseudonyms were used, ‘Akan’ names for MBC

participants and 'English' names for Oduom community men. Participants were also informed of their rights to withdraw from the study at any point without any negative consequences.

3. Results

Assessing men's knowledge and awareness of male breast cancer (MBC) is crucial in fostering early detection, reducing mortality rates and minimizing late-stage presentations. The findings below provide insights into men's knowledge of MBC, encompassing awareness and general knowledge of female breast cancer and male breast cancer, perceived causes, detection methods, signs and symptoms, treatment and prevention approaches, as well as sources and preferred modes of information dissemination.

3.1 Socio-Demographic Characteristics

The study interviewed twenty-two (22) participants. This included one (1) male breast cancer patient from the Ashanti Region, one (1) male breast cancer survivor from the Central Region and twenty (20) men from the Oduom Community in the Oforikrom Municipality, Ashanti Region, where the Peace and Love Hospital is situated. The variables representing the socio-demographic characteristics used in this study include age, marital status, religion, level of education, occupation and ethnic group, as these factors can influence an individuals' perception and knowledge of various concepts.

The age range was from twenty (20) to seventy (70) years. The Oduom community members ranged in age from twenty (20) to fifty- four (54), whereas the MBC patient and survivor were 70 and 65, respectively. Most of the interviewees were in their twenties and single, while a few were married or cohabiting. The highest level of education was a university degree, followed by senior high school, junior high school and finally, those with no formal education. Regarding participants' occupation, the study revealed that majority were carpenters, while others worked as tailors, traders, construction agents, with some participants being students and others unemployed. Additionally, the male breast cancer patient (MBCP) was a trader and the survivor, a retiree. Except for one participant who identified as a traditionalist, all male participant in this study were Christians. Furthermore, the MBCP and most of the community members interviewed were Ashantis, while others were Frafra, Kusasi, Ewe, Northerner, and Ivorian. The male breast cancer survivor (MBCS) identified as a Fanti.

3.2 Awareness, Knowledge of Breast Cancer and Male Breast Cancer

Knowledge in this study refers to men having insights, or facts, whereas awareness refers to general familiarity, being conscious, or being informed without having a detailed comprehension of female breast cancer and male breast cancer. The awareness and knowledge of breast cancer among participants were high, as most participants associated it solely with women. The majority of the community members' knowledge of breast cancer was focused on the assumption that breast cancer is caused by witchcraft, the existence of lumps as a symptom and the removal of breast tissue in advanced stages of the disease. Despite widespread recognition of breast cancer as a significant health issue, the idea of male

breast cancer (MBC) was met with shock and scepticism, as majority of the participants were ignorant that males are susceptible to breast cancer. The lack of awareness was not limited to the general community. Prior to receiving their diagnosis, neither the MBC patient nor the survivor interviewed knew that MBC even existed. Although the majority were unaware, a few participants reported having some knowledge; however, this knowledge was limited with respect to risk factors, signs and symptoms, treatment, and preventive measures.

Statements from participants on the awareness and knowledge of BC and MBC include;

> "While I am not a lady? For men, we get prostate cancer and then women also get breast cancer. Men do not have breasts, but rather they have chests"-*Benjamin, community member.*
>
> "Until I became a victim, I never knew about it"- *Mr. Oduro, MBC survivor.*
>
> "For breast cancer, I heard 'hmm' that witches were normally the victims of it. It was later that I got to know it was not true and no, I had no knowledge about MBC, but I knew lumps could be in the breast. I did not know it could be cancerous"- *Mr. Asamoah, MBC patient.*

3.3 Perceived Causes of Male Breast Cancer (MBC)

Participants expressed a wide range of opinions regarding the perceived causes of MBC. The majority of participants based their responses on their prior knowledge of female breast cancer while answering questions on the perceived causes of MBC, assuming that the two conditions could be similar. Others also openly stated they knew nothing or had no clue about the perceived causes of MBC. These perceptions were categorized into several subthemes:

3.3.1 Exchange of Fluids

Participants frequently believed that sexual contact or the use of unsterilized sharp objects may spread MBC.

> "I think that men who engage in oral sex are likely to be affected by this disease. So, the disease is transferred to the man's throat from the woman, which causes breast cancer and eventually kills the man"- *Justin, community member.*
>
> "Okay, a man can get breast cancer from a woman or from a barbering shop. If you are going for a haircut and the person who did his before you has breast cancer and you share the same blade, I think you can get it too" – *Emma, community member.*

3.3.2 Breast-Related Activities

Some participants believed that breast-related activities such as sucking or pressing the breasts or nipples, placing phones and money near the breast area, wearing tight clothing and sustaining breast injuries could lead to MBC.

A participant said;

> "Breast cancer can be caused by caressing, pressing, or sucking the breast because

> sometimes when women have sex with men and the men suck their breast, they believe they can do the same to the man and they will enjoy it." – *Nigel, community member.*

3.3.3 Unhealthy Lifestyles

A large number of insights were derived from unhealthy behaviours such as consuming junk foods, eating late, alcoholism, smoking, lack of exercise and tattooing the breast area.

> "If you take too much alcohol, it can cause male breast cancer"- *Mr. Asamoah, MBC patient.*

> "Tattoo on the chest can cause breast cancer"- *Godfred, community member.*

3.3.4 Physiological Characteristics

Participants made associations between specific physiological traits such as obesity, having a perceived 'female-like' body shape and large breasts. Additionally, the MBC survivor stated that being obese ('oboshie') and having extremely large breasts made him anxious, as he considered it a 'red flag' because those were his features when he was diagnosed.

3.3.5 Genetic Factors

Genetic factors were acknowledged as possible causes of MBC. The MBC patient stated that prior to commencing treatment, the doctors explained to him that MBC could be genetic.

Mr. Asamoah said;

> "They said it is hereditary. They also said it could have happened to a grandparent and through that line, I got affected. So, that is how my child or grandchild can also get it and I said okay."

3.3.6 Environmental Factors

Some participants believed that inhaling poisonous gases and living near high-tension poles were potential causes of MBC.

> "…smoking and inhaling poisonous gases like the smoke from burning tires or fumes from a car can cause male breast cancer" -*Eugene, community member.*

3.3.7 Supernatural and Non- Supernatural Causes

Many participants indicated that MBC could be "spiritually bought" for another person in response to an offense. Others argued that MBC is caused by bewitchment and curses, and that all MBC cases have a spiritual component.

According to Godfred;

> "This is spiritual; someone is bewitching me or the disease has been 'bought' spiritually for me."

Contrary to the statement above, other participants viewed MBC as a medical condition.

Jason also stated that;

> "No, there are no superstitions to this. It is just the body causing that."

3.4 Detection, Signs and Symptoms of Male Breast Cancer (MBC)

The majority of participants identified clinical breast examination and the emergence of some signs and symptoms as a reliable way of determining one's male breast cancer status. Further inquiries into their knowledge of breast self-examination revealed that while many were aware of the practice, they believed it applied to only women or men with large breasts. Some community members expressed discomfort with the idea of performing breast examinations, especially when performed by male healthcare professionals. Nevertheless, most participants indicated their reservations would not stop them from seeking medical attention if they observed any alarming signs and symptoms.

The most commonly mentioned signs and symptoms were related to breast lumps, breast pain (mastalgia) and swollen breasts. Other signs and symptoms of MBC included sores or rashes around the breast and heaviness. A few participants described a general systemic symptom, such as weight loss. However, several participants openly admitted they were unaware of the signs and symptoms of MBC.

3.5 Treatment and Prevention of Male Breast Cancer (MBC)

Most participants were of the view that every disease in Ghana is curable, including male breast cancer. Participants' opinions on the treatment of MBC were diverse, reflecting spiritual, traditional, and biomedical approaches. Some participants preferred spiritual healing through prayers or the use of herbal remedies, while others expressed confidence in clinical treatments such as injections, mastectomy or medication.

One participant remarked:

> "As for that, if they are to cut it completely, my breast, for the disease to be treated, they should leave it to God to heal me, He will do it"- *Michael, community member.*

Bernard, whose grandfather was a herbalist, added:

> "They use herbal medicine to cure the disease because some people are scared of surgery, needles and injections. My grandfather gave breast cancer patients herbal medicine and it came out as phlegm and faeces."

Proposed prevention strategies included maintaining a healthy diet, avoiding tattoos, unsterilized tools, tight clothing and promiscuity, exercising frequently, getting regular breast examinations, and steering clear of environmental risks such as high-tension wires and poles.

> "I know that Peace and Love Hospital is here in Oduom, so all I have to do is 'pa shiw'(without wasting time), go straight to the place to be examined"- *Nigel, community member.*

3.6 Information Dissemination and Sources

Information on breast cancer was mostly associated with women, with fewer references to men. Electronic media emerged as the primary source of breast cancer information, with

radio being the most frequently cited, followed by television and social media. Interpersonal discussions and informal sources, including rumours and information from individuals perceived to be informed or experienced, also influenced participants' awareness of female and male breast cancer. Additionally, some participants got their breast cancer information from traditional medicine practitioners, such as herbalists and chemical vendors.

Participants also emphasized the importance of disclosing one's MBC status to raise awareness, despite fear of stigma. The MBC survivor did not mind disclosing his MBC status to the public but that was not the case for the MBC patient, even though health workers encouraged patients and survivors to educate others on the risk factors, signs and symptoms and preventive measures. Mr. Oduro, the MBC survivor, willingly participated in an NGO campaign exposing his scar to raise awareness about male breast cancer. Despite the proximity of a specialized breast care centre, community health talks specifically addressing MBC were scarce, according to Oduom community members. Most participants expressed willingness to participate in MBC outreach initiatives due to the concern of their health and curiosity about the disease. They recommended that MBC information should be disseminated through outreach programs, electronic media and via traditional and medical health professionals. The majority stated community outreach as the most effective strategy. Suggested ways to accomplish outreach included using information centres, organizing durbars and community talks, involving churches, door-to-door campaigns, distributing posters and employing the use of public address systems. Enhanced educational efforts are essential for bridging the existing knowledge gap and promoting early detection and timely treatment of male breast cancer.

Derrick stated;

> "I have to say it so that they know the kind of disease I have; you are not supposed to hide your disease. There is this saying in Twi that 'wot)nwo yare3 a, nawoya anoaduro,' which literally means 'a problem shared is half solved.' So, you should not conceal it."
>
> "Through renowned TV and radio stations, they can share the information"- *Darwin, community member.*

Gideon indicated;

> "Community health talks on breast cancer are only for females, and it is once in a while because it has been a long time, maybe they do it elsewhere but I have not heard them talk about male breast cancer."

4. Discussion

The study sought to establish a link between the socio-demographic factors such as age, education, occupation, religion, ethnic group and marital status and men's knowledge of male breast cancer (MBC). In terms of age, the majority of the study's participants were in their twenties and single. It is reasonable to expect that older men would have more knowledge than younger men due to greater exposure to health information over the years and accumulated life experiences. Equally, younger men were expected to be well-informed or

have better awareness owing to increased access to health information through formal educational institutions and social media platforms. However, the study reviewed that age did not influence MBC knowledge, as older men were not more knowledgeable than the younger men, and vice versa. Despite limited awareness and knowledge of MBC, all participants had positive health-seeking intentions, indicating that age did not deter them from seeking medical care.

The highest level of education attained was a university degree, followed by senior high school, junior high school and no formal education. Contrary to expectations, participants' educational level did not impact their MBC knowledge regarding the risk factors, signs and symptoms, treatments, and preventive measures. Surprisingly, men with higher education levels did not know more about MBC than those with limited or no education, contrary to what one might expect.

This study also concludes that an individual's occupation may influence their exposure to knowledge and awareness of health issues, such as breast cancer. The majority of respondents (who were primarily engaged in informal and secondary economic activities such as carpentry and tailoring) demonstrated lower levels of knowledge than those in professions linked to research or healthcare. This finding is consistent with existing literature, which suggests that occupational background and training shape health literacy (Saritas, Dogan, and Gul, 2020).

Ethnic backgrounds and religion significantly shape the understanding of health issues, particularly male breast cancer (MBC) in Ghana. Traditional beliefs and religious views contribute to the perception that MBC may be caused by supernatural forces and influence one's susceptibility to the disease. Participants often turn to prayer camps and herbal remedies for treatment, influenced by strong religious convictions, irrespective of educational levels (Clegg-Lamptey, Dakubo, & Attobra, 2010). This aligns with existing research highlighting the link between religion, traditional values, and health knowledge (Tomlinson, 2003).

Marital status can shape a man's level of engagement with health information. Married men tend to be more proactive about health issues, seeking, sharing, and applying health knowledge to enhance their well-being and that of their families, compared to unmarried men. However, in this study, both married and unmarried men exhibited low knowledge of male breast cancer.

This section evaluated participants' knowledge of male breast cancer (MBC) risk factors and the associated signs, symptoms, detection, treatment, and prevention methods. Knowledge about the sources and appropriate channels for disseminating MBC information was also discussed. The study found that while most participants were aware of female breast cancer but had inaccurate knowledge of it, their knowledge of MBC was limited, even among those near the Peace and Love Hospital, where health education is presumed to be easily accessible. This knowledge gap contributes to stigmatization and delays in MBC diagnosis and treatment. Community members in Oduom primarily believed breast cancer only affected women, reinforcing misconceptions and low awareness of MBC. Limited knowledge regarding MBC's risk factors and symptoms was observed, contrasting some literature that shows greater

awareness among men (Saritas, Dogan, and Gul, 2020). Overall, these findings underscore a persistent lack of knowledge about MBC, evident in other studies like Goyal et al. (2020).

Using their previous knowledge of female breast cancer, which they believed to be similar, participants were able to address questions about risk factors, detection, signs and symptoms, treatment, prevention methods, and sources of information on male breast cancer. Knowledge of the perceived causes of MBC among participants was diverse and often based on misconceptions. These varied and often unfounded beliefs highlight the need for accurate information to counteract misconceptions and improve public understanding of the disease. Participants identified various perceived risk factors for male breast cancer, including exchange of fluids during sexual intercourse, the use of unsterilized objects, engagement in breast-related activities such as sucking and pressing, placing mobile phones or money close to the chest, wearing tight clothing, and sustaining injuries to the breast. Participants also associated unhealthy lifestyles such as poor diet, smoking, alcoholism, physical inactivity and tattooing, with an increased risk of MBC. These remarks indicate a lack of understanding of the lifestyle-related risk factors of MBC, often framed through moral or cultural perspectives instead of biomedical explanations. Furthermore, physiological characteristics were mentioned, such as obesity and features considered typically female, including large breasts. Others speculated that hereditary factors, exposure to environmental toxins, and radioactive emissions could be potential causes. Some participants explicitly admitted that they had no prior knowledge of female or male breast cancer, while others dismissed the aforementioned factors.

Cancer was perceived by some participants as a supernatural disease attributable to spiritual forces that are either “spiritually bought” or obtained through bewitchment. This form of thinking is a major factor contributing to delays in seeking help, poor prognosis and increased mortality. However, many others disagreed with this belief, arguing that cancer is a biomedical condition that can affect individuals regardless of gender and without any spiritual influence. These perspectives highlight the coexistence of biomedical and spiritual models, showcasing the diverse health beliefs prevalent in Ghanaian society.

Although their opinions were predicated on their prior understanding of female breast cancer, other literatures support the study’s findings regarding the risk factors; for instance, Guenel et al. (2004) reported that consuming 16% alcohol per day increases the risk of developing MBC. Klinefelter syndrome and gynecomastia have been identified as factors that can cause male breast cancer (Ionescu et al., 2022). A family history of breast cancer also contributes to about 20% of male breast cancer cases (Fentiman, 2009). Despite these corresponding findings, some participants misinterpreted symptoms due to limited knowledge of breast cancer. Some considered breast cancer to be a contagious disease transmitted through the exchange of body fluids or sexual activities. Therefore, interventions and public health efforts should be culturally informed, blending medical facts with cultural beliefs and values to effectively address MBC in Ghana.

Participants view Clinical Breast Examination (CBE) and observation of physical signs and symptoms as the main methods for detecting male breast cancer (MBC). While literature recognizes Breast Self-Examination (BSE) as effective (Naku Ghartey Jnr et al., 2016), many

participants associate it solely with women, believing it is unnecessary for men unless they have female-like features (large and saggy breasts). This gendered misconception leads to a disregard for BSE. Nevertheless, participants expressed willingness to seek healthcare if they noticed symptoms, indicating that their beliefs about breast self-examination did not affect their health-seeking behaviours.

Signs and symptoms of male breast cancer (MBC) include lumps, breast pain, swollen breasts, sores, heaviness, rashes, and weight loss. Some participants were unaware of these signs and symptoms of female breast cancer and male breast cancer. Existing literature corroborates the study's findings, indicating that a firm lump is the most common symptom in 75% to 95% of males (Gennari et al., 2004). Advanced symptoms including skin ulcers, breast tenderness, itching, and weight loss, are associated with advanced stages of the disease (Malani, 2007; Umoh et al., 2008).

Significant research on female breast cancer has enhanced our understanding of male breast cancer (MBC) treatment and prevention, suggesting that MBC could be prevented by addressing its potential causes (Kamila et al., 2007). Effective preventive measures reported by participants included a healthy diet, avoiding tight clothing and tattoos, safe sexual practices, regular exercise, routine checkups, adopting a healthy lifestyle, avoiding unsterilized sharp objects, keeping phones and money away from the chest area, and steering clear of high-tension poles. A study indicates that eliminating established risk factors could prevent 30 to 50% of all cancer incidences (Vineis and Wild, 2014).

The majority of participants believed that male breast cancer (MBC) can be treated, influenced by their awareness of female breast cancer (FBC) treatment options. They mentioned spiritual, traditional, and clinical methods for treatment. According to Petrie and Weinman (2012), how people view their diseases affects how they treat them. Some participants advocated spiritual approaches and herbal medicine as effective treatments for MBC, while others dismissed herbal remedies, stating they could worsen the condition. Clinical treatments discussed included mastectomy, injections, and medication. There is a call for improved education and awareness to counter misconceptions about the causes of MBC, such as associating cancer with communicable diseases like HIV.

This study advocates for the dissemination of information on male breast cancer (MBC) via community outreach, electronic media, and traditional/ medical healthcare providers. Participants highlighted community outreach as the most effective method for increasing awareness and knowledge of MBC and proposed strategies such as information centres, durbars, community discussions, church involvement, door-to-door campaigns, poster displays, and public address systems to engage a larger audience.

Information regarding breast cancer predominantly focuses on women, with minimal attention to male breast cancer. Most participants reported radio as their primary source of information, followed by television, with others relying on social media. This contrasts with earlier findings where 92% of the general population relied on general practitioners for health information (Opoku, Benwell and Yarney, 2012). Nonetheless, media and the internet rank as the second largest sources after healthcare providers (Al-Amoudi & Abduljabbar, 2012).

Additional information channels included interpersonal interactions, traditional medicine practitioners like herbalists, chemical sellers, and medical healthcare professionals. This underscores how various sources can promote healthy behaviours, consistent with findings that patients seek information from interpersonal sources, including hospital consultants, family doctors, ward nurses, and clinic nurses (Koutsopoulou et al., 2010).

5. Conclusion

The study successfully achieved its objectives through a qualitative case study approach, revealing that most male participants possessed limited and inaccurate knowledge regarding female breast cancer (FBC) and were largely unaware of male breast cancer (MBC). Many participants refrained from performing breast self-examinations, associating this practice predominantly with women and men exhibiting traditionally feminine physical traits such as large or sagging breasts. This lack of engagement stems from a knowledge deficit, presenting a public health concern that necessitates increased awareness regarding MBC. Despite misconceptions about FBC, MBC and breast self-examination, most participants expressed willingness to seek medical attention for any potential signs or symptoms. The study advocates for enhanced educational initiatives and community outreach programs focused on raising awareness about male breast cancer.

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Authors' contributions

The first author, Joyce Nana-Amankwah, was the lead researcher responsible for the study's design, data collection, analysis, and draft of the manuscript.

The second author, Jonathan Mensah Dapaah, supervised the research, offering guidance and a critical review of the manuscript.

All authors consented to the final manuscript.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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