



OPEN Barriers to orthodox medical care of prostate cancer in Ghana

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Traditional medicine is widely used in sub-Saharan Africa, particularly in Ghana, where it is commonly integrated with modern orthodox medicine. This study examines the barriers that delay the pursuit of orthodox medical care for prostate cancer (PCa) in Ghana's Central region, where a blend of traditional and modern orthodox medicine exists. The preference for indigenous traditional medicine often results in late-stage presentations of PCa, adversely affecting patient outcomes. This prospective cross-sectional study was conducted from July to December 2022 at the Cape Coast Teaching Hospital (CCTH) and in four local communities. We investigated why men prefer traditional over orthodox medicine and identified cultural beliefs, attitudes, and gaps in health awareness that contribute to delays in diagnosing and treating PCa. The study involved administering questionnaires, providing education on PCa, and conducting free prostate-specific antigen (PSA) screening. Ethical approval was obtained from the Ethics Research Committee of the Ghana Health Service. A total of 282 patients participated, including 268 men from the communities and 14 diagnosed with PCa at CCTH after initially consulting traditional healers. Of the community-recruited patients who underwent PSA testing, 26% had elevated PSA levels and underwent further diagnostic procedures. Ultimately, nine of 268 community patients were confirmed to have PCa. Most patients (57.4%) had limited education, which correlated with late presentations and various misconceptions about PCa. The study highlights significant cultural and economic barriers that lead to the late-stage presentation of PCa among men in Ghana's Central region. There is a critical need for a culturally sensitive, multi-pronged strategy that enhances public education about the benefits of early diagnosis and fosters collaboration between traditional healers and orthodox healthcare providers to improve prostate cancer outcomes in Ghana.

Keywords Prostate cancer, Traditional medicine, Ghana, Health barriers, Early diagnosis

Abbreviations

| | |
|-------|-------------------------------------------------|
| CCTH | Cape Coast Teaching Hospital |
| CHPS | Community-Based Health Planning and Services |
| HFCI | Henry Ford Cancer Institute |
| PCa | Prostate cancer |
| PMABC | Precision Medicine for Aggressive Breast Cancer |
| PSA | Prostate-specific antigen |

Background

Traditional medicine is widely practiced in Africa¹. It has been estimated that over 80% of the population in sub-Saharan Africa, uses traditional medicine². The appeal of traditional medicine is based on the practitioners' ability to understand their patients' ailments and experiences within a cultural context³. In most African countries traditional medicine and orthodox medicine practitioners do not work together leaving patients to choose from the available two options of care^{4,5}. However, where traditional medicine is the first option, there is

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a delay in seeking orthodox care. In Mozambique, 62% of patients visiting an HIV clinic had indicated the use of traditional medicine before consulting at the clinic. This caused delays in accessing health care in HIV cases and resulted in more profound symptoms and increased viral load of patients⁶. A study in Guinea also showed that individuals with epilepsy had been seeking care from traditional healers (TH) for more than 3 years before seeking orthodox medical care⁷. A study in Nigeria identified affordability, easy access, societal influence, and potency as some of the reasons for preference for traditional medicine⁸.

In Ghana, approximately 75% of the population relies on indigenous traditional medicine, considered accessible and affordable^{9,10}. In this context, traditional medicine includes health practices and beliefs that use herbal and spiritual therapies alone or in combination to prevent, diagnose, or treat illnesses^{11,12}. Many Ghanaian men with PCa initially seek help for their urinary symptoms from traditional medicine providers, who offer various remedies¹³. They typically turn to orthodox medical care only when they experience severe complications, such as urinary retention or bone pain, often due to metastasis¹³. A significant challenge is the high prevalence of late-stage PCa presentations, often due to a preference for indigenous traditional medicine initially^{12,14}. This pattern contributes to the late hospital presentation of PCa patients, resulting in poor outcomes^{10,15}.

Methods

Study aim

To address the delayed presentation of PCa patients to hospitals and ultimately decrease mortality from prostate cancer among men in Ghana, we adopted a multi-stakeholder, multilevel approach. Our goal was to explore and mitigate the beliefs and practices leading patients to initially prefer and seek traditional medicine. Specifically, we aimed to reduce the mortality rate by identifying and overcoming barriers to early diagnosis of PCa in men from Cape Coast, Ghana. We investigated why men opt for indigenous traditional medicine over orthodox (conventional) medical care and addressed the cultural beliefs, attitudes, and gaps in health awareness that delay the diagnosis and treatment of prostate cancer.

Study design

This prospective cross-sectional study was conducted from July to December 2022. We focused on identifying the barriers and reasons men in the Central region of Ghana choose indigenous traditional medicine over orthodox medical care. The study period spanned six months.

Research team

The project was executed by researchers from Cape Coast Teaching Hospital (CCTH) in collaboration with the Henry Ford Cancer Institute (HFCI) in Michigan, USA, and Precision Medicine for Aggressive Breast Cancer (PMABC) in Ghana. The local team included the principal investigator (a urologist), six research assistants from the University of Cape Coast, two nurses from CCTH, and six nurses from four Community-Based Health Planning and Services (CHPS) compounds across the study sites. The research assistants and CHPS nurses engaged directly with participants in their communities, while the CCTH nurses recruited patients at the hospital. Regular collaborative meetings with partners from HFCI and PMABC facilitated expert support throughout the study. The Ethics Research Committee of the Ghana Health Service granted ethical approval and all methods were performed in accordance with the Helsinki regulation.

Study sites

The study was carried out at CCTH and within the communities of Ampenyi, Brenu Akyim, Aburansa, and Abeyee in the Komenda-Edina-Eguafo-Abirem Municipality of the Central region of Ghana. These locations were chosen due to the high number of traditional medicine providers. At CCTH, the research occurred in the Urology Clinic and the specialist Out-Patients Department. In the communities, the study occurred at CHPS compounds, participants' homes, and traditional healers' workplaces. Community-based Health Planning and Services (CHPS) program is focused on bringing primary health services close to the community through community involvement and ownership. It is led by a Community Health Officer (CHO) and supported by nurse volunteers drawn from the community.

Study population and process

We recruited two distinct groups of patients for this study. The first group consisted of men in the communities using traditional medicine for their urinary symptoms and the second group was all men diagnosed with PCa at CCTH who had previously sought treatment from traditional healers. These two groups of patients were selected to be able to include all men with PCa and have experience with the use of traditional medicine. We excluded men from the communities who do not use traditional medicine and those diagnosed with PCa at CCTH who had never used traditional medicine.

Participant identification

Participants from the communities of Ampenyi, Brenu Akyim, Aburansa, and Abeyee in the Central region of Ghana were identified through CHPS nurses. The nurses reviewed medical records from their institution for all men aged 40 years and older, who presented with urinary symptoms from 2019 to 2022 and had reported seeking care from traditional healers. The nurses then guided the research team to these men's homes, introduced them, and helped obtain informed consent. The visit had three objectives: administer questionnaires, educate about prostate cancer, and offer PSA screening. After the questionnaire, we educated the men on prostate cancer and the importance of PSA screening for early detection. Subsequently, participants were invited to schedule a free serum PSA screening at their community CHPS compound. Those with PSA levels over 4.0 ng/ml underwent

transrectal ultrasound-guided prostate biopsies at CCTH, with diagnosed cases managed by a multidisciplinary team.

The second group comprised men diagnosed with PCa at CCTH who had previously consulted traditional healers. The team interviewed each newly diagnosed patient during the study, offering study participation to those who had used traditional medicine. Informed consent was obtained from all subjects and/or their legal guardian(s).

Patient questionnaire

The study questionnaire was developed by local researchers with input from HFCI and PMABC team members. A preliminary pilot test of the questionnaire was conducted at the Ampenyi community and at the CCTH. The result of the pilot testing was used to update the questionnaire for better clarity.

The questionnaire assessed participants’ knowledge of prostate cancer, their attitudes toward prostate cancer screening, and the barriers to seeking orthodox medical care.

The questions that were asked included participants’ knowledge about prostate cancer risk factors, symptoms, and the role of screening in early diagnosis. Questions were asked about how their religious and cultural beliefs, accessibility, availability, and affordability of healthcare influenced their choice between orthodox and traditional medicine.

Patient education

The research team educated patients on the anatomy and functions of the prostate gland, common diseases affecting it, risk factors and symptoms of PCa, the importance of screening for early diagnosis, and available treatment options. We also addressed misconceptions about orthodox medical care, such as fears associated with urethral catheterization or impotence.

Data analyses

Data were captured using KoboToolbox software, downloaded into Microsoft Excel, and imported into IBM SPSS Statistics for Windows, Version 25.0. (Armonk, NY: IBM Corp.) for analysis. We conducted a descriptive analysis of the results.

Ethical considerations

Ethical approval for this study was obtained from the Ethics Research Committee of the Ghana Health Service. Participants’ identities were protected by using identification numbers instead of names. The communities and health facilities were also anonymized to maintain confidentiality.

Results

Two hundred eight-two patients participated in the study, including 268 men from the communities with urinary symptoms who sought care from traditional healers and 14 who were diagnosed with PCa at CCTH after initially consulting traditional healers (Table 1). During the study period, CCTH diagnosed 37 new cases of PCa, 14 of whom had initially consulted traditional healers for their urinary symptoms. Most patients were Christians, and the mean age of the patients was 54.9 (± 16.9) years, and the majority (57.4%) had no education or only primary-level education, as shown in Table 2.

PSA Results

Of the 268 community-recruited patients who were offered free PSA testing, 231 (86%) attended the CHPS compounds for testing. Sixty-one of these (26%) had a PSA level greater than 4 ng/ml and underwent prostate biopsies. Nine patients (14.8% of those biopsied) had histologic confirmation of PCa. Thus, we confirmed PCa in 9 of the 268 patients recruited into the study from the various communities. For these nine newly diagnosed patients and the 14 previously diagnosed at CCTH, metastatic work-ups including abdominopelvic computed tomography scans and bone scans were performed. All 23 patients had tumors that had spread beyond the prostate gland, with eight (34.8%) showing bone metastasis and 15 (65.2%) having locally advanced disease. All

| Recruitment site | Number of participants (N) |
|-----------------------------------------|----------------------------|
| Patients recruited from the communities | 268 |
| Patients recruited from CCTH | 14 |
| Total number of patients | 282 |
| Religion | |
| Christian | 263 |
| Muslim | 15 |
| Traditionalist | 2 |
| Buddhist | 1 |
| Atheist | 0 |
| Non-religious | 1 |
| Total | 282 |

Table 1. Demographics of participants. CCTH, Cape Coast Teaching Hospital.

| Education level | Participants (N) |
|---------------------|------------------|
| No formal education | 26 |
| Primary | 136 |
| Secondary | 74 |
| Tertiary | 46 |
| Total | 282 |

Table 2. Participant levels of education.

| PCa knowledge level | Participants, N (%) |
|------------------------------------------------------|---------------------|
| Have heard of PCa | 213 (75.5) |
| Know that PCa affects males only | 186 (66.0) |
| Identify family history as a risk factor for PCa | 158 (56.0) |
| Identify aging as a risk factor for PCa | 127 (45.0) |
| Identify frequent urination as a symptom of PCa | 102 (36.2) |
| Identify blood in urine as a symptom of PCa | 76 (27.0) |
| Identify bone pain as a symptom of PCa | 53 (18.8) |
| Identify PCa screening as useful for early diagnosis | 12 (4.3) |

Table 3. Knowledge of PCa. PCa, prostate cancer.

| Barrier | Participants, N (%) |
|-------------------------------------------------------------------------------|---------------------|
| Identify religion as a factor influencing patient's choice of health facility | 44 (15.6) |
| Believe patients find it difficult to schedule hospital appointments | 60 (21.3) |
| Believe traditional health centers are more patient-friendly than hospitals | 54 (19.1) |
| Believe orthodox medicine is more expensive than traditional medicine | 174 (61.7) |
| Believe traditional medicine is more effective than orthodox medicine | 80 (28.4) |

Table 4. Barriers identified.

| Reason given for preferring traditional medicine | Participants, N (%) |
|-----------------------------------------------------------------------------------|---------------------|
| Herbal medicine is more affordable to me as compared to orthodox medicine | 225 (79.8) |
| Herbal medicine is more readily accessible to me than orthodox medicine | 196 (69.5) |
| Due to spiritual issues behind some sicknesses | 155 (55.0) |
| They give medicines for treatment instead of undergoing surgery | 148 (52.5) |
| The treatment is very fast due to the herbs | 134 (47.5) |
| Services are very easy because they can go to their patients' homes | 96 (34.0) |
| They have time for monitoring and follow-ups | 75 (26.6) |
| Family and friends advise me to seek treatment from traditional healers when sick | 140 (49.6) |

Table 5. Reasons stated for patient preference for traditional medicine.

the patients had adenocarcinoma of the prostate with Gleason (3 + 3 = 6) in two, (3 + 4 = 7) in five (4 + 3 = 7) in eight, (4 + 4 = 8) in four, (4 + 5 = 9) in three and (5 + 4 = 9) in one.

Knowledge of PCa

Seventy-five percent of patients knew of PCa, but only 35% understood it primarily affects males. Fifty-six percent recognized a family history and 45% acknowledged increasing age as a risk factor (Table 3). Misconceptions were common: both frequent and infrequent sexual intercourse were incorrectly cited as leading causes of PCa. Forty-four patients (15.6%) attributed spiritual causes to the disease, including beliefs that curses from women led to the need for spiritual healing. Other cited causes included the use of local sex-enhancing drugs and changes in lifestyle and Western diets. Awareness of bone pain as a symptom of metastatic PCa was notably low, with only 18.8% of patients recognizing this symptom. Only 4.3% acknowledged the role of PCa screening in early diagnosis.

Barriers to accessing orthodox care

Most patients (61.7%) perceived orthodox medical care as more expensive than traditional care (Table 4), and 79.8% preferred traditional medicine due to affordability (Table 5). A 71-year-old retired fisherman stated he could no longer afford orthodox treatments since retirement. Another noted the flexibility of paying traditional medicine providers on credit, an option not available in orthodox centers. Less than one-third (28.4%) believed traditional medicine was more effective than orthodox medicine for treating PCa. Many patients held misconceptions about PCa and its treatment, including fears of impotence and the requirement to wear a urethral catheter in orthodox settings. Regarding the influence of religious or cultural beliefs on healthcare choices, only 15.6% acknowledged such influence.

Discussion

According to the Global Cancer Statistics 2020, PCa has the highest age-standardized incidence and mortality rates among cancers in men in sub-Saharan Africa¹⁶. Notably, some West African regions report the world's highest rates, which have increased over recent decades¹⁶. In Ghana, PCa was responsible for 1031 deaths, or 0.59% of total deaths in 2020, with an age-adjusted death rate of 24.21 per 100,000¹⁶. Epidemiological studies indicate that late presentation of PCa significantly contributes to high mortality rates in Ghana^{15,17,18}. Most Ghanaian men first seek treatment for urinary symptoms from traditional healers, leading to delayed presentations at orthodox facilities with advanced disease stages¹⁹.

In this study, we diagnosed metastatic prostate cancer in 8% of participants who were receiving care from traditional healers. In the clinic all PCa patients who participated in this study and reported previously consulting traditional healers presented with either locally advanced or metastatic disease as well. While the average age at which men sought help from traditional healers was 54.9 years, the average age of diagnosis was 69 years, suggesting a long delay in seeking medical care which contributes to advanced prostate cancer presentation. This is similar to findings from Trinidad and Tobago where men with symptomatic presentation of PCa consulted with traditional healers and delayed in seeking medical help²⁰, with 75% of participants reporting some knowledge of PCa. This heightened awareness may stem from the extensive educational campaigns on PCa and men's health conducted by various groups and organizations nationwide²¹. However, it is concerning that only 4.3% of the participants recognized the importance of PCa screening for early diagnosis. This highlights the critical need for extensive, structured, and tailored education about PCa screening. Previous research has shown that low educational levels correlate with limited knowledge about screening, whereas higher educational levels are associated with more favorable attitudes and practices toward cancer screening^{22,23}. For instance, a study among Ghanaian teachers who all had tertiary education revealed that 97.5% acknowledged the significance of screening for PCa¹⁰. All the patients who said screening was helpful for early PCa diagnosis in this study had post-secondary/tertiary-level education. Our study findings, therefore, corroborate the assertion that high levels of education are associated with good perceptions of prostate cancer screening. Thus, education on the need for prostate cancer screening has to be tailored to be culturally and socially appropriate and not a one-size-fits-all. Most importantly, all study participants consented to get screened for prostate cancer when they were educated by the study team on the importance. This further confirmed that, if education is done right, it is effective irrespective of the educational or social background of the participant.

Barriers

Economic and financial factors

It is well documented in the health-seeking behavior literature that economic factors have a significant impact on the utilization of healthcare services. Studies conducted in Ghana and other African countries have reported that patients consider traditional medicine to be more affordable than hospital care^{24–27}. Economic constraints were the most cited barrier, with 61.7% of patients perceiving orthodox care as more expensive than traditional medical care. Although only 28.4% of participants believed that traditional medicine was more effective than orthodox medicine, about 80% still preferred traditional medicine because they could not afford the cost of orthodox medical care. A similar finding is reported in Ethiopia where the availability of traditional medicine at minimal cost as opposed to the unaffordable cost of orthodox medicine influenced patients to visit traditional practitioners rather than orthodox centers²⁸. Since traditional healers prioritize social relations and companionship rather than money, community members access traditional medicine without worrying much about financial constraints. Most Ghanaians rely on the National Health Insurance Scheme, which does not cover PCa management, further hindering access to orthodox care²⁹. There is a need to analyze the comprehensive cost of traditional care in comparison to orthodox or hospital care since the former may require payment over some time, it may be considered affordable, which might not be so.

Accessibility

Accessibility emerged as a significant barrier, with 69.5% of patients finding traditional medicine more accessible than orthodox care. In Ghana, PCa management is concentrated in few secondary and tertiary healthcare facilities, which are not readily accessible to many, especially in rural areas. Conversely, traditional healers, who are embedded within the communities, are easily accessible, with 34% of patients preferring them because they offer home treatments^{30,31}.

Faith and religion

Religion plays a pivotal role in men's PCa beliefs. Men are known to delay help-seeking because of their belief that God will heal them through church attendance and prayer requests or traditional medicine²⁰. Studies in Africa show that illnesses that were assumed to have arisen from the breaking of taboos, witchcraft, and evil spirits were seen to be best treated by traditional practitioners^{32–34}. Similarly, this study found that 15.6% of patients

chose traditional medicine over orthodox medicine due to religious beliefs, perceiving traditional remedies as necessary for ailments with supposed spiritual origins. This preference underscores the broad appeal of the traditional medicine system in Ghana, which integrates herbal, folk, and spiritual elements^{10,35}. There is thus an urgent need to educate the public continuously on prostate cancer, its causes, and treatment.

Education and culture

The fact that approximately 57% of patients either had no formal education or only primary education may contribute to their preference for traditional medicine. Tabi et al.¹⁰ found that well-educated Ghanaians might perceive receiving health information and treatment from less-educated traditional medicine providers as demeaning. Moreover, well-educated patients often reject the unhygienic practices commonly associated with traditional medicine providers and, as a result, opt for orthodox medicine. The limited educational background of patients can lead to misconceptions such as fear of impotence, catheterization, and surgery, which may drive them toward preferring traditional medicine, again highlighting the need for patient education.

Situational factors

The impact of social factors on health-seeking behavior has been well-established in the literature. The social-ecological model for instance holds that social influence from friends and family and norms within social networks have a major influence on health-seeking behavior³⁶.

The impact of family, relatives, and friends on patient's decisions to use traditional medicine was evident in this study. Nearly half of the participants reported that a relative or friend influenced their choice of traditional medicine. Similarly, in a study in Ethiopia, participants were influenced to choose traditional medicine by friends, neighbors, and family members, who claimed to have been cured by traditional medicine²⁸. Social and environmental factors are pivotal in many Ghanaians' healthcare decisions. In rural areas, where power hierarchies strongly influence health decision-making, people of low socioeconomic status often rely on family leaders and friends for economic and logistical support in accessing healthcare³⁷. In many cases, these influential figures may recommend traditional medicine because it is perceived as less expensive and more cost-effective than orthodox medical care.

Practical implications

This study highlights the significance of Ghanaian men's beliefs and experiences towards appraisal of symptoms and different approaches to help-seeking actions along pathways to diagnosis for PCa. Socioeconomic factors, religious beliefs, misconceptions about prostate cancer, and limited knowledge of PCa screening were identified as major barriers to orthodox medical care. The findings of this study also contribute to public health policy and health promotion. It elucidates the need for education on the benefits of PCa screening, the involvement of religious leaders and traditional healers in addressing misconceptions about PCa and orthodox treatment and reducing out-of-pocket payments for the management of PCa in healthcare facilities. These findings can inform stakeholders about decreasing PCa mortality rates and improving the quality of life and survival for men with PCa.

Limitations

Our study had several important limitations. First, the design as a cross-sectional study restricts our ability to establish causal relationships between the use of traditional medicine and the late presentation of PCa. Second, our findings are based on self-reported data, which could be subject to recall bias, especially concerning past medical histories and treatment-seeking behaviors. Third, the study was conducted in a specific geographical area of Ghana, which may limit the generalizability of the results to other regions with different socioeconomic profiles and healthcare infrastructures. Finally, while we attempted to account for various socioeconomic and cultural factors, other unmeasured variables, such as detailed economic data and deeper cultural nuances, could further influence health-seeking behaviors.

Conclusions

The coexistence of traditional and orthodox medicine in Ghana presents unique challenges and opportunities for improving PCa outcomes. Our findings underscore the significant cultural and economic barriers that contribute to the late-stage presentation of PCa in the Central region of Ghana. To combat the high prevalence of late-stage presentations and reduce mortality from PCa, it is crucial to adopt a culturally sensitive, multi-pronged strategy that educates the public about the benefits of early diagnosis, challenges the reliance on traditional remedies, and promotes collaboration between traditional healers and orthodox healthcare providers. Implementing such a comprehensive and inclusive approach is essential for advancing timely and effective PCa treatment in Ghana.

Data and materials availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Author contributions

P.O.M.M.: Contributed to the conception and design of the work. Data acquisition, analysis, drafting of the manuscript and revising it for intellectual content. P.A.: Contributed to data acquisition, analysis and initial drafting of the manuscript. A.S.: Contributed to data acquisition, analysis and initial drafting of the manuscript. E.K.M.-B.: Contributed to data acquisition, analysis and initial drafting of the manuscript. G.O.: Contributed to

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Declarations

Competing interests

The authors declare no competing interests.

Ethical approval

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Additional information

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