

Short Communication

Prostate Cancer Study in Ghana: Life Time Risk & Mini Review of the disease

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Abstract: Objective: Prostate cancer is a very significant disease in the black community, yet underestimated! To assess the state of the disease in the Ghanaian community and working out the lifetime risk of the disease to provide the National road map for interventions. **Method:** Extensive literature review was conducted using search engines such as pubmed articles with the key word prostate cancer in Ghana from 2015-2019. The life time risk was also calculated based on statistics on prostate cancer available in literatures from 2015-2019. The number of men diagnosed with prostate cancer, their ages based on Ghana Health Service Report findings in 2015, Information on annual deaths from prostate cancer and men population (from the Population and Housing Census 2010(PHC) and projected 2.5 annual growth rate. **Result:** The author found out that, **4 out of every 10 male** or **2 out of every 5 male** Ghanaian Men will be diagnosed with Prostate Cancer at some points in their life. This is the life time risk of every Ghanaian male born from day one. This life time risk was solely centered on Ghanaian men, basing the figures on the 6-year single centre study at Brong-Ahafo Region to also represent the national outlook of the disease. Using the Brong Ahafo figure of 40.07% as national average brings 5,902,485 of the estimated current male population of 14,730,435 (based on the 2010 PHC male figure of 12,024,845 as adjusted by 2.5% annual growth rate) at risk of the disease. **Conclusion:** There has to be an urgent national discourse to address the gloomy picture of prostate cancer in Ghanaian men. The **4 out of every 10 male** or **2 out of every 5 male** life times risk also represents other studies calculated internationally in black men. However, this is the first study to focus on Ghanaian men in entirety.

Keywords: Prostate cancer, Risk calculation, Ghana, interventions, Public Health.

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INTRODUCTION

Prostate cancer is underestimated subject in Ghana; yet more men are battling with the disease. There is also more studies revealing the high incidence and death of the disease in Ghanaian men. For instance, one research studies by Egote *et al.*, 2019, aimed at reducing the paucity of data on prostate cancer by assessing the incidence, patterns and presentation in the Brong Ahafo Region of Ghana and also sought to provide region-specific hardcore data that will help to assess the issue and provide remedies.

The study authors, reviewed all prostate disease cases recorded from the year 2009 to 2014. They employed men from 40 years (based on previous studies) and above were eligible for screening. Diagnostic and screening tools for prostate cancer at the study site were family history, serum prostate specific antigen (PSA) test, digital rectal examination, urological ultrasound scan and histopathology (biopsy).

Age, PSA values and year of screening/diagnosis were also retrieved from their

folders/archives for the purposes of the study. Histological findings and parameters considered in the study included diagnosis, carcinoma grading, perineural invasion (PNI) - and percentage of affected tissues (%TA).

The researchers revealed that, Prostate cancer constituted 236 cases (40.07%) of the 589 prostate diseases reviewed. The highest annual prevalence was recorded in 2014 with an incidence rate of 21.6% (51 cases). Interestingly enough, the ages of patients ranged from 46 to 101 years with a modal age range of 70 - 79 years and a mean \pm SD of 71.7 ± 11.2 . The mean PSA value recorded was 37.5 ng/ml (± 68.9) with predominance in the 11 - 20.9 ng/ml (61 cases/patients) (27.9%) range. Moderately differentiated adenocarcinoma (intermediate grade) was the dominant grade of prostate cancer accounting for 61.4% (145 cases) of the 236 cases.

There was a significant correlation ($p = 0.001$) between grading of prostate cancer and perineural invasion. The study authors further revealed that, Only

21.2% graded cancer cases had perineural invasion with >50% affected tissues found in half of them.

The study authors concluded that, “there is a high incidence (40.07%) of prostate cancer in the Brong Ahafo Region of Ghana, presenting mostly with advanced prostatic carcinoma. Reported cases also show high %TA (Tissues Affected and PNI (Perineural invasion). Development and implementation of public health interventions are needed to address some of these issues”.

The study authors proposed development and implementation of public health interventions to address this. In 2015, during the John Dramani Mahama’s administration, I proposed fathers’ Day to be declare as National Day for Prostate Awareness; but it later turned into ‘Medical Politics’. I think, this is the right time for the current administration to consider the proposal for Fathers’ Day to be declare to raise awareness of prostate cancer. The current government also promised a special cancer policy in their 2016 Manifesto, yet nothing has been done!

DISCUSSION

Prostate Size in Ghanaian Men

In another 2018 study also by Egote *et al.*, the authors reported a patient with a prostatic hyperplasia weighing exactly 700 g which was successfully removed at the Brong Ahafo Regional Hospital theatre in Ghana by Pfannestiel Transvesical Simple Prostatectomy.

A prostatic hyperplasia of enormous size is very uncommon and to the best of their knowledge, only ten of such cases have been previously reported. Their case reported constitutes the eleventh heaviest prostate reported in medical literature and also forms the first case report of giant prostatic hyperplasia from Ghana.

Age as Risk factor for Prostate Diseases in Ghana

To assess the risk age for prostate diseases in Brong Ahafo Region, Egote *et al.* 2018 research further employed a selective prospective study to review prostate cases from 2009 to 2014. Subjects were selectively recruited for the study using the reference age of the study location (40 yrs) – men from 40 years and above were eligible for testing. They concluded that Ghanaian men between the ages of 50 and 89 are highly predisposed to prostate diseases compared to those <50 years and >89 years. “This observation may provide a rational for effective medical or preventive interventions especially among Ghanaian Adults”. They added.

Increased Risk in military occupations in Ghana

Adler *et al.*, 2019 study revealed that risk was increased among men in management and military occupations. Risks were also elevated for management

and military-specific jobs based on 3-digit level Standard Occupational Classification definitions. Sensitivity analyses accounting for access to medical care did not show significant differences. The study authors aimed to evaluate the association between usual adult occupation and Prostate cancer risk in Ghanaian men, a population with historically low rates of Prostate cancer screening.

The study dubbed the Ghana Prostate Study, a case-control study of Prostate cancer that was conducted from 2004 to 2012 in 749 cases and 964 controls. In-person interviews were conducted to collect information from participants, including longest held job. Industrial hygienists classified job titles into occupational categories. Unconditional logistic regression was used to calculate ORs and 95% Cis(Odds ratios (ORs), confidence intervals(Cis)) for the association between longest held job and Prostate cancer risk (overall, aggressive (Gleason \geq 7)), controlling for potential confounders.

The study provides some evidence for increased risk of Prostate cancer among men in management and military occupations, which is consistent with the published literature. However, they concluded “Additional research is needed to clarify the drivers of the associations between these occupations and Prostate cancer risk”.

Prostate cancer also top in Men in Kumasi Municipality

Another 2019 recent study by Amoako *et al.*, revealed that prostate cancer had the highest incidence of 10.5 per 100,000. The mean age of all cancer cases was 51.3 years (with a range of 1 to 99 years). The study authors reviewed data from the Kumasi Cancer Registry for the year 2015. Data collected included clinical and demographic information, laboratory reports and source of case information. Data was entered into the Canreg-5 software. Data was initially analysed using Canreg-5 to estimate the incidence and age standardised rates (ASR) for various tumours. Data was also exported to Microsoft Excel for further analysis using Epi Info version 7.1.4. Microsoft Excel was used to generate charts and graphs. Aggregated data for the years 2013 and 2014 were also analysed for trends in cancer incidence and ASR.

One interesting thing about this Kumasi’s study that focused on all cancers is that, the study authors also found that, lung and skin cancers are rare. Here is what they said “Our report indicates that breast cancer is the commonest female cancer in Ghana and is consistent with other evidence. The leading male cancer reported in this study is consistent with other local and international reports. Lung and skin cancers are rare in Kumasi”.

Population at Risk of Prostate Cancer in Ghana

The final results of the 2010 Population and Housing Census (PHC) showed that the total population of Ghana as at 26th September, 2010 was 24,658,823. The results indicated that Ghana's population increased by 30.4 percent over the 2000 population figure of 18,912,079. The recorded annual intercensal growth rate in 2010 was 2.5 percent as against 2.7 percent recorded in 2000.

The results revealed that there were 12,633,978 females and 12,024,845 males. This implied that females constituted 51.2 percent of the population and males 48.8 percent, resulting in sex ratio of 95 males to 100 females. It also showed increase in population density from 79 people per square km in 2000 to 103 per square km in 2010.

METHODOLOGY

National Breakdown (2010)

Sex	Figure Annual	Percentage	Ratio
Growth Rate			
Females	12,633,978	51.2%	0.100
	2.5%		
Males	<u>12,024,845</u>	48.8%	0.95
	2.5%		
24,658,823			

Projected Population growth for 2019

Brong Ahafo	(B/A)	National
Male Population (2010)	1,145,271	12,024,845
Male Population (2019)	1,402,957	14,730,435
<i>[Projected at 2.5% p.a.]</i>		

Population at risk of Prostate Cancer in 2019

Brong Ahafo [40.07%]	562,165
National [40.07%]	5,902,485

Working out the Ghanaian Men Life Time Risk of Prostate Cancer

- The researcher used different types of data about who gets prostate cancer annually in Ghana based on the literature reviews:
- The number of men diagnosed with prostate cancer and their ages annually
- Information on annual deaths from Prostate cancer based on the Ghana Health Service(GHS) 2015 report
- Information about the population of Male in Ghana (from the Population and Housing Census 2010 report (PHC) and projected 2.5 annual growth rate.
- Egorte *et al.*, 6-Year Single Center Retrospective Study, 2019 findings which placed Men in the Brong-Ahafo Region to 40.07% of been affected by prostate cancer to represent the national outlook of the disease.

will be diagnosed with prostate cancer at some point in their lives.

- The researcher will regularly review this work to make sure that men get the most up-to-date information about prostate cancer risk in Ghana.*
- Using the Brong Ahafo figure of 40.07% as national average brings 5,902,485 of the estimated current male population of 14,730,435 (based on the 2010 PHC male figure of 12,024,845 as adjusted by 2.5% annual growth rate) at risk of the disease.*
- Using the Brong Ahafo figure of 40.07% as national average brings 5,902,485 of the estimated current male population of 14,730,435 (based on the 2010 PHC male figure of 12,024,845 as adjusted by 2.5% annual growth rate) at risk of the disease. This implies that **4 out of every 10 male** or **2 out of every 5 male** of whatever age in Ghana are at risk of getting prostate cancer and this must call for a national dialogue by all the stakeholders.*
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RESULTS:

- The Researcher used all this information to calculate Ghanaian men's lifetime risk of getting prostate cancer.*
- The Researcher found out that **4 out of every 10 male** or **2 out of every 5** Ghanaian men*

vii. *Annual prostate cancer death is 75% in Ghana based on Ghana Health Service 2015 data (fig 1, fig 2)*

What is Lifetime Risk?

There are different ways of explaining a man’s risk of getting prostate cancer. For instance, according to research studies, Black men have three times chances more likely to develop prostate cancer than white men of the same age. This way of explaining risk is called relative risk and it means the difference in risk of one group of people compared to another. According to the

Prostate cancer UK, “This information is still correct – it is just a different way of explaining a man’s risk of getting prostate cancer”.

So that we know that, *4 out of every 10 male or 2 out of every 5 Ghanaian male* will be diagnosed with prostate cancer at some point in their lives. This is their lifetime risk of getting prostate cancer. What it means is that, the risk that a Ghanaian male has of being diagnosed with the disease at some point during their life. According to reviews, people find lifetime risk a clear way of understanding their chances of getting a disease such as prostate cancer.

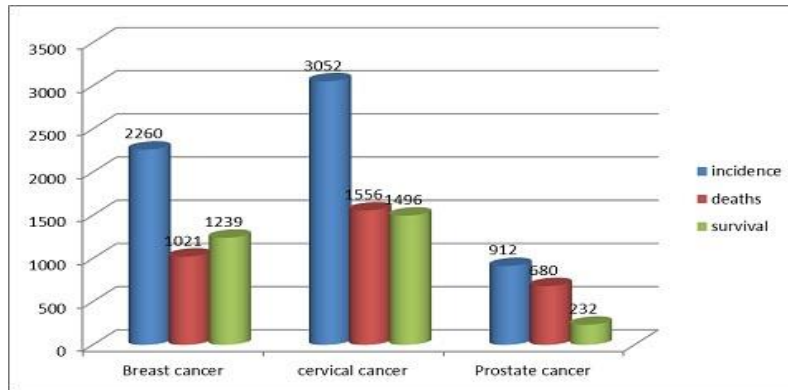


Fig. 1 Annual Prostate Cancer incidence rate in Ghana: More men die of prostate cancer now in Ghana according to Ghana Health Service 2015 report

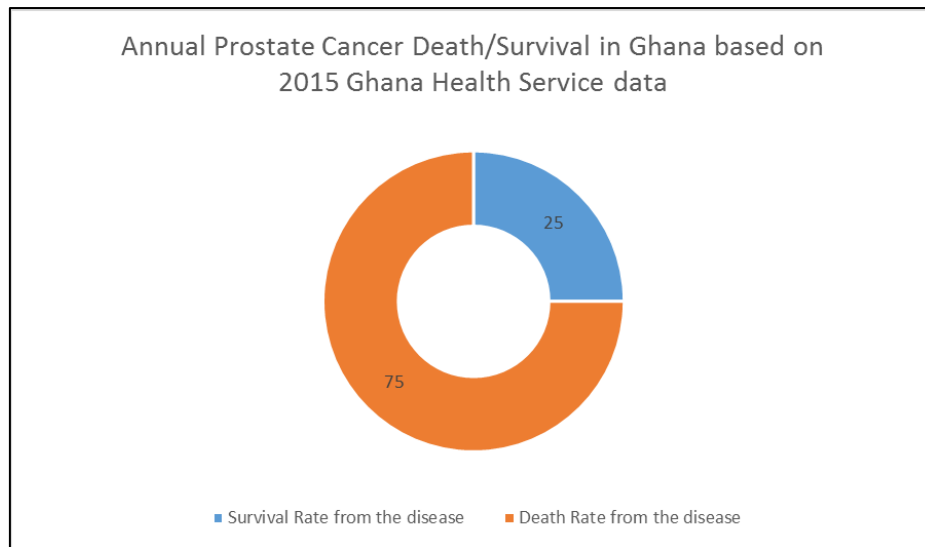


Fig 2.
Ghanaian Man’s Risk of Getting Prostate Cancer by age 50
2 in 5



Don’t Let it Be You!

CONCLUSION

The study author, a prostate cancer researcher and advocate in Ghana, has been looking at ways to explain to Ghanaian men their risk in a clear way that

they can help them relate to the disease. This will help us raise awareness of prostate cancer and help men understand their risk.

The researcher finally worked out that 4 *out of every 10 male* or 2 *out of every 5 male* will be diagnosed with prostate cancer at some point in their lives. Using the Brong Ahafo figure of 40.07% as national average brings 5,902,485 of the estimated current male population of 14,730,435 (*based on the 2010 PHC male figure of 12,024,845 as adjusted by 2.5% annual growth rate*) at risk of the disease. This means 4 *out of every 10 male* or 2 *out of every 5 Ghanaian male* of whatever age in Ghana is at risk and this must call a national dialogue of all stakeholders. Now the message is simple: Time to take action on prostate health in Ghana!

Conflict of interest

None

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About the Author:

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