Awareness of Prostate Cancer Among Residents in Amasomma and Ogubiri Communities, in the Niger Delta Region, in Bayelsa State, Nigeria

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Abstract

Background of the study: Prostate cancer (PC) has over the years emerged as a public health concern, as it has become the second most common cancer and the fifth leading cause of death among men worldwide. Globally, 1.3 million new cases and 359, 000 related deaths were projected in 2018. PC incidence is the highest among American men of Caucasian and African origin and accounts for most of the cancer-related- deaths among men in sub-Saharan Africa. In 2015, about 25,000 cases of PC were reported in Africa.

Objective of the study: To ascertain the level of awareness of prostate cancer among residents in the Amasomma and Ogobiri communities.

Method of data collection: The study was conducted in Amasoma and Ogobiri communities, Bayelsa state. This was a quantitative study with results drawn from a reasonable sample size. The study was based on a cross-sectional design. A validated questionnaire was designed and used to achieve the aforesaid objectives. The questionnaire was created to obtain demographic data and knowledge on the Study was based on a cross-sectional design. A validated questionnaire was designed and used to achieve the aforesaid objectives. The questionnaire was created to obtain demographic data and knowledge on the awareness of prostate cancer among residents of the Amasomma and Ogobiri communities. awareness of prostate cancer among residents of Amasomma and Ogobiri communities. The sample size was calculated using the Taro Yamane formula. A pilot study was carried out and the results were entered into SPSS to check if the questions elicited the right responses and could be understood. Probability sampling, specifically stratified random sampling, was used to select participants to enhance the rigor and generalizability of this study. The data generated was analyzed using Statistical Package for the Social Sciences (SPSS) version 27 and/or Microsoft Excel. The result was presented using descriptive statistics and expressed as simple percentages. Average values were presented in mean and standard deviation.

Result and discussion: Respondents in this study were comparably more females than males (58.11%) mostly within the age brackets of 31 and 40 years (37.39%). About 54.95% of the respondents were married and 43.24% were reported to have secondary education. Most of the respondents were self-employed (36.04%). The majority of the participants reported that they had heard of prostate cancer (75.68%) with the correct explanation that prostate cancer occurs in the prostate gland (46.6%) but did not know the exact location of the prostate gland (88.29%). Respondents in the study reported a lack of knowledge information on prostate cancer (63.06%), the knowledge of whether a close relative or family member was suffering from prostate cancer (51.35%), the knowledge of the ability of prostate cancer to spread to other parts of the body (73.87%) and its exclusive occurrence in men (52.70%). A significantly low level of awareness and knowledge of risk factors for prostate cancer (22.30+/-14.21%, p=0.0030, t=4.438) was reported among residents of the Ogobiri and Amasoma communities of Bayelsa state. According to a One Sample t-test performed, the level of awareness of knowledge on prostate cancer in the study environment was reported to range from 6.76% to 45.50%, as against the knowledge of the place of lack of fruits and vegetables as risk factors of prostate cancer, and that of age as a risk factor of prostate cancer respectively. According to One sample t-test, the level of knowledge on the prevention of prostate cancer in Ogobiri and Amasoma community of Bayelsa state was reported to range from 7.21% to 29.73%, giving an average of 17.57+/-12.05% score. This level of knowledge on prevention acknowledged was reported to be statistically and significantly low (p=0.0617, t=2.916). A mean of 29.28+/-17.53% level of knowledge on symptoms of prostate cancer in Ogobiri and Amassoma, ranging from 0.0% to 41.44% was reported. This reported level of knowledge on prostate cancer symptoms was statistically low (p=0.0202, t=3.736). The highest known reported symptom was that of painful urination and the least known symptom was that of shortness of breath. A statistically low level of knowledge on the management and treatment of prostate cancer (25.59+/-17.34%, p=0.030, t=3.300) was reported in this study. The highest level of knowledge on prostate cancer management was reported in the areas of the use of surgery on prostate cancer (41.44%).

Conclusion: The study has shown a low level of awareness and knowledge about prostate cancer. Awareness creation and education of Prostate Cancer aims to increase knowledge of prostate cancer. The outcomes of the study suggest the need for educational campaigns with an emphasis on modalities for the screening of prostate cancer using the appropriate media channels for accessibility, to continuously increase awareness about Prostate cancer.

Keywords: Prostate; Pain, Cancer; Bayelsa; Yenagoa Amasoma and Ogubiri

Abbreviations: PC: Prostate Cancer; SPSS: Statistical Package for the Social Sciences; DRE: Digital Rectal Examination; PSA: Prostate-Specific Antigen; NDU: Niger Delta University

Introduction

Prostate cancer (PC) has over the years emerged as a public health concern [1] as it has become the second most common cancer and the fifth leading cause of death among men worldwide [2]. Globally 1.3 million new cases and 359, 000 related deaths

were projected in 2018. PC incidence is the highest among American men of Caucasian and African origin and accounts for most of the cancer-related- deaths among men in sub-Saharan Africa. In 2015, about 25,000 cases of PC were reported in Africa.

Early screening and detection of PC is one of the best ways of reducing PC-related deaths. Yet, PC cases are reported in the late stages of the disease, mostly due to lack of awareness, inadequate knowledge about the disease, unavailability of screening facilities, and absence of adequate educational programs and interventions which are known to increase awareness and PC knowledge levels. Inadequate knowledge about PCs has widely been identified. An Australian study among civilian men and men of the Australian Defence Force reported low levels of knowledge on symptoms, screening, and treatment in both groups. Studies conducted among African-American, Black Caribbean, and Hispanic Americans, adult Ugandan men residing in Kampala, and Nigerian men visiting a hospital in Lagos [3] have also reported low levels of PC knowledge. There are inconclusive views on the factors that influence men's knowledge of PC. Some studies argue that high knowledge levels of PC are related to high education and income levels. Evidence from other studies has also suggested that men at risk of PC, particularly those with a family history of PC [4] and men previously diagnosed with PC [5] have adequate knowledge of PC and screening, yet fail to have the screening done. In Africa, awareness of and early detection is generally not common with a reported prevalence of PC screening of around 2.5%.

Raising general awareness about PC has been underscored as significant, particularly in developing countries [6]. Professional workers are regarded as informed individuals and such expected to be knowledgeable about several issues including health, however, it has been established in sub-Saharan Africa that professional workers even including health workers are inadequately knowledgeable about several related health issues, and have been associated with poor health screening. For emphasis, an analysis of adult male cancers was done per decade since 1960. Results show that prostate cancer has become the number one cancer in Nigerian men and constitutes 11% of all male cancers. These results indicate that despite the absence of screening programs in Nigeria, the number of prostate cancer cases has increased. The known risk factors probably contribute to a varying degree among Nigerians, who are generally of average build or in the low-normal range for body mass index. Moreover, the role of genetics cannot be underplayed. Given its biological characteristics, more cases of prostate cancer probably would be recorded among this population if screening were undertaken.

Prostate cancer can be diagnosed through a collection of tests and procedures such as a digital rectal examination (DRE), prostate-specific antigen (PSA) blood test, and prostate biopsy [7]. The risk factors contributing to prostate cancer were being African-American and Jamaican men, family history, and having diets high in red meats and fatty foods and low in fruits and vegetables (Pamela I and Ellsworth M) The prognosis of a patient with prostate cancer depends on the time of detection; that is, the earlier the detection of prostate cancer, the better the prognosis.

Prostate cancer diagnosis, prevention, and treatment in recent decades have been heavily influenced by awareness and the intention to seek care for it. Men who were aware of the DRE/PSA test were more likely to have been screened compared to men who were not aware of it. A good awareness or understanding of diseases is generally associated with a better healthcare-seeking attitude and behavior [8]. According to a study conducted in Uganda in 2014 and 2013, low awareness related to late diagnosis of prostate cancer is a reported problem [9]. A good level of awareness of prostate cancer is associated with a decrement in morbidity and mortality associated with the disease. However, different studies around the world report that the awareness level of prostate cancer is low.

Objectives of the Study

i. To evaluate the understanding of prostate cancer among people in the Amasomma and Ogubiri communities

ii. To ascertain their level of awareness of the symptoms of prostate cancer.

iii. To ascertain their level of awareness of the preventive measures taken by patients and nonpatients with prostate cancer.

iv. To investigate their level of awareness of treatments used in Prostate cancer.

v. To evaluate the awareness of the risk factors of prostate cancer among residents in these communities.

Methodology

Study site

Amasomma is a community in southern Ijaw local government. Amassoma is the headquarters of the Ogboin clan as well as the Ogboin-North Rural Development Authority in the Southern-Ijaw Local Government area of Bayelsa State and the host community to a campus of Niger Delta University (NDU), Wilberforce Island, Bayelsa state. Amassoma is located about 40 km to the South of Yenagoa the State capital with an altitude of 512 m above sea level. Ogobiri is a community located in Sagbama Local Government Area in Bayelsa State, Nigeria. It shares boundaries with Amassoma and also partly hosts NDU.

Study population

The target population for this study was strictly residents of the Amasomma and Ogobiri communities.

Study design

The study was based on a cross-sectional design. A validated questionnaire was designed and used to achieve the aforesaid objectives. The questionnaire was created to obtain demographic

data and knowledge on the awareness of prostate cancer among residents of the Amasomma and Ogubiri communities. Questions were created using validated methods.

Study Tools and Measures

The study was conducted in Amassoma and Ogobiri communities, Bayelsa state. This was a quantitative study with results drawn from a reasonable sample size i.e. 395. A self-report survey was chosen because it was simple, quick, free of bias, repeatable, and generally accepted as reliable in participant decision-making as compared to a quantitative study (Eyisi et al., 2016; Sarma, 2015). The study questionnaire was also designed to gather data to answer the research questions using statistical techniques. The self-report questionnaire was developed and used as the research tool for achieving the objectives of the study. The questionnaire was created to obtain demographic data and knowledge on the awareness of prostate cancer among residents of the Amasomma and Ogobiri communities. The questions were created using validated methods.

Sample Size Calculation

Population size for Amassoma and Ogobiri: 33,642

Using Taro Yamane formula

$n = N/(1+N(e)2)$

$n = 33,642/(1+33,642 \times 0.05^2)$

$n = 395$

Method of Data Collection

The data for this research was collected by administering the questionnaire to the residents of the Amasomma and Ogobiri communities and the questionnaires were retrieved after a period of 3 weeks.

Pilot Study

A pilot study was carried out and the results were entered into SPSS to check if the questions elicited the right responses and could be understood (Shields L and Tanner A, 2004). The respondents who took part in the pilot study were not included in the actual study to avoid any bias. Amendments were made where ambiguity was observed. An average of 5 to 10 minutes was required to fill out each questionnaire.

Sampling Technique

Probability sampling, specifically stratified random sampling, was used to select participants to enhance the rigor and generalizability of this study (Robinson OC, 2014). This method provides for a more accurate and objective sampling. The study aims to minimize sampling bias and improve the results' external validity by randomly selecting participants (Kennedy-Martin et al., 2014). Although this approach requires meticulous planning and

funding, it contributes to the overall robustness of the study plan and increases the likelihood of a broad application of the findings.

Data Analysis

The data generated was analyzed using Statistical Package for the Social Sciences (SPSS) version 27 and/or Microsoft Excel. The result was presented using descriptive statistics and expressed as simple percentages. Average values were presented in mean and standard deviation.

Inclusion Criteria

i. Residents of the Amasomma community from the age of 18 and above.

ii. Residents of Ogobiri community from the age of 18 and above.

Exclusion Criteria

i. Nonresidents of Amasomma and Ogobiri communities.

ii. Residents below the age of 18 and above.

iii. Those who refused to partake in the study.

Ethical Considerations

The study was approved by the Ethics Committee of the Bayelsa State Ministry of Health. The study met all ethical requirements concerning human subjects, as adopted by the Bayelsa State Ministry of Health, Ethics Committee.

Result

Demographic Characteristics of Respondents in Ogobiri and Amassoma

Respondents in this study were comparably more females than males (58.11%) mostly within the age brackets of 31 and 40 years (37.39%). About 54.95% of the respondents were married and 43.24% were reported to have secondary education. Most of the respondents were self-employed (36.04%). This is shown in table 1 below.

Awareness on Knowledge of Prostate Cancer in Ogobiri and Amassoma

The majority of the participants reported that they had heard of prostate cancer (75.68%) with the correct explanation that prostate cancer occurs in the prostate gland (46.6%) but did not know the exact location of the prostate gland (88.29%). Respondents in the study reported a lack of knowledge information on prostate cancer (63.06%), the knowledge of whether a close relative or family member was suffering from prostate cancer (51.35%), the knowledge of the ability of prostate cancer to spread to other parts of the body (73.87%) and its exclusive occurrence in men (52.70%). This is contained in table 2 below.

Table 1: Awareness on knowledge of prostate cancer in Ogobiri and Amassoma (N=222).

		Count	%
Had heard of prostate cancer	yes	168	75.68
	no	54	24.32
where does prostate cancer occur	prostate gland	104	46.6
	stomach	34	15.2
	liver	83	37.2
	Don't know	1	0.4
Do you know where the prostate gland is located?	yes	26	11.71
	no	196	88.29
what was the first means you heard of prostate cancer	school	82	36.94
	news	0	0
	don't know	140	63.06
Relatives or family members with prostate cancer	yes	0	0
	no	108	48.65
	don't know	114	51.35
Does prostate cancer spread to another part of the body	yes	42	18.92
	no	16	7.21
	don't know	164	73.87
Does prostate cancer occur in females	yes	0	0
	no	117	52.7
	don't know	105	47.3

Table 2: Knowledge of risk factors of prostate cancer in Ogobiri and Amassoma (N=222).

	Yes		No		Don't know	
	Count	%	Count	%	Count	%
Is family history of prostate cancer a risk factor for prostate cancer	92	41.44	3	1.35	127	57.21
Is race a risk factor for prostate cancer	57	25.68	2	0.9	163	73.42
Is age a risk factor for prostate cancer	101	45.5	3	1.35	118	53.15
Is high sexual activity a risk factor for prostate cancer	23	10.36	33	14.86	166	74.77
Is obesity a risk factor for prostate cancer	37	16.67	6	2.7	179	80.63
Is smoking and drinking alcohol a risk factor for prostate cancer	33	14.86	19	8.56	170	76.58
Is lack of adequate fruits and vegetables a risk factor for prostate cancer	15	6.76	19	8.56	188	84.68
Can men of 40 years and below develops prostate cancer?	38	17.12	10	4.5	174	78.38

Knowledge of risk factors of prostate cancer in Ogobiri and Amassoma

A significantly low level of awareness and knowledge of risk factors for prostate cancer (22.30+/-14.21%, p=0.0030, t=4.438) was reported among residents of the Ogobiri and Amassoma communities of Bayelsa state. According to a One Sample t-test performed, the level of awareness of knowledge on prostate cancer in the study environment was reported to range from 6.76% to 45.50%, as against the knowledge of the place of lack of fruits and vegetables as risk factors of prostate cancer, and that of age as a risk factor of prostate cancer respectively. Table 2 contains information on the Knowledge of risk factors of prostate cancer, whereas Table 3 contains information on the One Sample t-test of the description of the positive response patterns of the knowledge of risk factors in the study environment.

Table 3: One sample t-test of positive Knowledge on risk factors of prostate cancer in Ogobiri and Amassoma (N=222).

Mean	Std dev	Min	Max	Sig	t	df	MD	95% CI
22.3	14.212	6.8	46	0	4.44	7	22.3	10.415 to 34.182

Level of knowledge on prevention of prostate cancer in Ogobiri and Amassoma

According to One sample t-test, the level of knowledge on the prevention of prostate cancer in the Ogobiri and Amassoma community of Bayelsa state was reported to range from 7.21% to 29.73%, giving an average of 17.57+/-12.05% score. This level of knowledge on prevention acknowledged was reported to be statistically and significantly low (p=0.0617, t=2.916). this information is contained in table 4 and table 5 below.

Table 4: Level of knowledge on prevention of prostate cancer in Ogobiri and Amassoma (N=222).

	Yes		no		don't know	
	Count	%	Count	%	Count	%
Can prostate cancer be prevented	66	29.73	0	0	156	70.27
Can prostate cancer be prevented by early screening	58	26.13	0	0	164	73.87
Can prostate cancer be prevented by stopping smoking and alcohol	16	7.21	0	0	206	92.79
Can prostate cancer be prevented by physical exercise	16	7.21	0	0	206	92.79

Table 5: One sample t-test of positive Knowledge on the prevention of prostate cancer in Ogobiri and Amassoma (N=222).

Mean	Std dev	Min	Max	Sig	T	Df	Md	95% CI
17.57	12.053	7.21	29.73	0.0617	2.916	3	17.57	-1.606 to 36.746

Level of knowledge on symptoms of prostate cancer in Ogobiri and Amassoma

A mean of 29.28+/-17.53% level of knowledge on symptoms of prostate cancer in Ogobiri and Amassoma, ranging from 0.0% to 41.44% was reported. This reported level of knowledge on prostate cancer symptoms was statistically low (p=0.0202, t=3.736). The highest known reported symptom was that of painful urination and the least known symptom was that of shortness of breath. This information is contained in Table 6 and Table 7 below.

Table 6: Knowledge of symptoms of prostate cancer in Ogobiri and Amassoma (N=222).

	yes		No		don't know	
	Count	%	Count	%	Count	%
Does prostate cancer have any symptoms	92	41.44	0	0	130	58.56
Is painful urinating a symptom of prostate cancer	92	41.44	0	0	130	58.56
Is blood in urine a symptom of prostate cancer	83	37.39	0	0	139	62.61
Is painful ejaculation a symptom of prostate cancer	58	26.13	0	0	164	73.87
Is shortness of breath a symptom of prostate cancer	0	0	26	11.71	196	88.29

Table 7: One sample t-test of positive Knowledge on symptoms of prostate cancer in Ogobiri and Amassoma (N=222).

Mean	Std dev	Min	Max	Sig	t	Df	Md	95% CI
29.3	17.527	0	41.4	0.02	3.74	4	29.3	7.521 to 51.039

Level of knowledge on management and treatment of prostate cancer

A statistically low level of knowledge on the management and treatment of prostate cancer (25.59+/-17.34%, p=0.030, t=3.300) was reported in this study. The highest level of knowledge on prostate cancer management was reported in the areas of the use of surgery on prostate cancer (41.44%). This is contained in Table 8 and Table 9 below.

Table 8: Level of Knowledge on management and treatment of prostate cancer in Ogobiri and Amassoma (N=222).

	yes		no		don't know	
	Count	%	Count	%	Count	%
Can prostate cancer be treated or managed	92	41.44	0	0	130	58.56
Can chemotherapy be used in treating prostate cancer	42	18.92	0	0	180	81.08
Can surgery be used in the treatment of prostate cancer	92	41.44	0	0	130	58.56
Can early screening stop the spread of prostate cancer	58	26.13	0	0	164	73.87
Does prostate cancer reoccur after treatment	0	0	0	0	222	100

Table 9: One sample t-test of positive Knowledge on management and treatment of prostate cancer in Ogobiri and Amassoma (N=222).

Mean	Std dev	Min	Max	Sig	t	df	Md	95% CI
25.59	17.34	0	41.44	0.03	3.3	4	25.586	4.065 to 47.107

Discussion

This study was undertaken to assess knowledge the awareness of prostate cancer among residents in the Amasomma and Ogubiri communities. The study findings suggest a low level of awareness and knowledge of PC among study respondents. This was similar to [5,8,9] studies. In the study carried out, the majority of the participants had heard of prostate cancer but their overall knowledge about it was low such as knowledge about it's spread was low, 73.87% of participants didn't know about its spread, 88.29% of participants didn't know where it is located, 52.70% don't know if it occurs in female 36.94% first heard of prostate cancer from, contrary to my study, The television and radio were the main sources of information on PC in this study. Findings were found in studies. This was indifferent to Adeloye [10], Ngugi [11], Williams [12], Jo et al., [13], and Ferlay et al. [14], studies.

Among South African men visiting a urological clinic [15] and Filipino men in the United States. This suggests the need for a more aggressive educational campaign on prostate cancer [15]. From the study findings, the awareness of the risk factors, prevention, symptoms, and treatment of prostate cancer was low although 45.50% of participants indicated that age is a major risk factor and 26.13% of the participants indicated that early screening is an effective preventive measure and 41.44% of participants indicated that painful urination is a more common symptom of prostate cancer and 41.44% of participants indicated that surgery can be used in the treatment of prostate cancer. For desired results and better impacts, awareness campaigns should also advertise the benefits of PC screening and health centers where PC screening is done [16,17].

The mean percentage Knowledge score in this study was low which suggests that the respondents had a poor knowledge of Prostate cancer. This result relates to results obtained from studies conducted in other parts of the country where awareness and specific knowledge related to prostate cancer were low [13,18], (Ajape et al., 2010). Respondents in this study were comparably more females than males (58.11%) mostly within

the age brackets of 31 and 40 years (37.39%). About 54.95% of the respondents were married and 43.24% were reported to have secondary education. Most of the respondents were self-employed (36.04%). The majority of the participants reported that they had heard of prostate cancer (75.68%) with the correct explanation that prostate cancer occurs in the prostate gland (46.6%) but did not know the exact location of the prostate gland (88.29%) [19-22]. Respondents in the study reported a lack of knowledge information on prostate cancer (63.06%), the knowledge of whether a close relative or family member was suffering from prostate cancer (51.35%), the knowledge of the ability of prostate cancer to spread to other parts of the body (73.87%) and its exclusive occurrence in men (52.70%).

A significantly low level of awareness knowledge of risk factors for prostate cancer (22.30+/-14.21%, p=0.0030, t=4.438) was reported among residents of Ogobiri and Amassoma communities of Bayelsa state. According to a One Sample t-test performed, the level of awareness of knowledge on prostate cancer in the study environment was reported to range from 6.76% to 45.50%, as against the knowledge of the place of lack of fruits and vegetables as risk factors of prostate cancer, and that of age as a risk factor of prostate cancer respectively. According to One sample t-test, the level of knowledge on the prevention of prostate cancer in the Ogobiri and Amassoma community of Bayelsa state was reported to range from 7.21% to 29.73%, giving an average of 17.57+/-12.05% score. This level of knowledge on prevention acknowledged was reported to be statistically and significantly low (p=0.0617, t=2.916). A mean of 29.28+/-17.53% level of knowledge on symptoms of prostate cancer in Ogobiri and Amassoma, ranging from 0.0% to 41.44% was reported [23-35]. This reported level of knowledge on prostate cancer symptoms was statistically low (p=0.0202, t=3.736). The highest-known reported symptom was that of painful urination and the least known symptom was that of shortness of breath. A statistically low level of knowledge on the management and treatment of prostate cancer (25.59+/-17.34%, p=0.030, t=3.300) was reported in this study. The highest level of knowledge on prostate cancer

management was reported in the areas of the use of surgery on prostate cancer (41.44%). This study's findings were consistent with Mofolo et al., [9], Bray et al. [2], Adeloye [10], Ngugi [11], and Williams [12] studies.

Conclusion

The study has shown a low level of awareness and knowledge about prostate cancer. Awareness creation and education of Prostate Cancer aims to increase knowledge of prostate cancer [37-47]. The outcomes of the study suggest the need for educational campaigns with an emphasis on modalities for the screening of prostate cancer using the appropriate media channels for accessibility, to continuously increase awareness about Prostate cancer. In Nigeria, there is no national policy on Prostate Cancer screening, and most public health information is not directed at early detection and treatment. A low screening rate will invariably translate into a late presentation with reduced chances of survival. Although the population benefit of prostate cancer screening remains unproven, studies have reported decreasing prostate cancer mortality rates in countries with more widespread screening policies [7].

Limitations

i. The study sample may not be representative of the study population.

ii. Some of the participants misplaced the questionnaire given to them.

iii. Some of the participants took it for days and did not fill it at all.

iv. Some of them were unable to read and write.

Contribution to literature

This study's findings have contributed to an existing body of knowledge that cough and other minor reasons are implicated in antibiotic use in this part of the world.

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Conflict of Interest

The researchers declare that there was no conflict of interest.

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