Special Issue
Journal of General Studies ESUT ISSN: 1115-6767, E-ISSN: 2971-6241 **Vol. 7 No. 1, 2025**

PROSTRATE CANCER PREVENTIVE MEASURES AMONG PATIENTS ATTENDING TERTIARY HOSPITALS IN ENUGU STATE

Sandra. C. Nkwuo, Ph.D & Nnamani, Mary Ngozi, Ph.D
Department of Human Kinetics and Health Education, Faculty of Education. Enugu State University of Science and Technology (ESUT), Agbani, Enugu. ngozinnamani28@yahoo.com +2347037920707

Abstract
The study investigated the prostate cancer preventive measures among patients attending tertiary hospitals in Enugu State. Three research questions and three hypotheses guided the study. Descriptive survey research design was used and the study was carried out in Enugu State. The population for the study consisted 532 prostate cancer patients in tertiary hospitals in Enugu State. The entire population was used because it was considered manageable, hence there was no sampling. A structured questionnaire with a reliability index of 0.61 was used as instrument for data collection. The instrument was administered and retrieved at a later date. A total of 523 (98.3%) copies out of 532 copies of the instrument which were correctly filled and returned were used at the level of data analysis. Data collected were analyzed using mean with standard deviation for the research questions and t-test statistic at alpha level of .05. Findings revealed that prostate cancer patients were able to identify the primary, secondary and tertiary preventive measures for prostate cancer (x=3.56; x=3.36; x=2.78). Furthermore, location was found not to be a factor of variance regarding all the three categorical variables investigated (P>.05). Based on the findings, the researcher concluded prostate cancer patients identified all aspects of preventive measures of prostate cancer. The recommendation among others is that interventions should focus on strategies to enhance its adoption by patients.

Key words: Cancer, hospital, patient, prevention, prostrate.

Introduction
Cancer represents myriads of systemic diseases ravaging man irrespective of age, race or gender in all societies across the globe. Conceptually, cancer is a group of diseases that involve abnormal cellular growth which is capable of spreading to different parts of the body (World Health Organization, 2018). This submission is retreated in a later report by Chukwunta (2020), which describes cancer as a disease in which some of the body cells grow uncontrollably and spread to other parts of the body. It could be deduced from expert submissions that when the body cells begin to record abnormal growth, it may spread to other body regions and in the process renders such areas susceptible to other cancers. Confirmatory studies show that cancer can spread to bladder, bone, brain, breast, cervical, colon, ear, endometrium, esophagus, heart, gall bladder, kidney, blood, lip, liver, lung , mouth and the ovary cancer. Beyond this, other regions of the body that could also be attacked by cancer cells include; pancreas, rectal region, skin, small intestine, spleen, stomach or gastric, testicular, thyroid, vulva and prostate region (Ohazuruike, 2019; Adebowale, 2021). This implies that cancer could develop in any of those regions of the body.

Experts have proposed a unique and systematic way of naming the disease. Cancer is named after the region of the body that is involved so that we have breast cancer (breast), colon cancer (colon), prostate cancer (prostate region) and so on. Prostate cancer is cancer of the prostate region of the body usually in males.

Prostate is the region of male reproductive system that plays a major role in reproductive processes. When the prostate glands are attacked by cancer cells, it may result to prostate cancer which usually reduces the functional capabilities of the male reproductive processes. The incidence ratio of the disease attracted the attention of international agencies such as World Health Organization (WHO), UNICEF, United Nations and others so much so that it is declared a serious public health issue.

The occurrence of prostate cancer presents myriads of symptoms although some individuals may be asymptomatic (without symptoms) at the early stages of the health condition. However, some individuals may show weak or interrupted urine flow, hesitancy, frequency, nocturia, hematuria or dysuria while late-stage prostate cancer commonly spreads to bones and cause pain in the hips, spine or ribs (Olarewaji, Akinola & Oyekunle, 2020). These symptoms may be same among the victims globally.

The global incidence ratio shows an estimated 1,276,106 new cases in 2019, representing 7.1% of all cancers worldwide, while the mortality ratio stood at 358,989, representing 3.8% of all cancers globally (Omonisi, Komolate, Adefehinti & Olasode, 2021). Following these threatening statistics is the ranking of prostate cancer as the second most common cancer and the fifth leading cause of cancer death in men worldwide in 2020 (Global Cancer Project (GLOBOCAN), 2020). What looks like a confirmatory report came from WHO (2021), fact sheet which posits that prostate cancer is one of the leading causes of morbidity and mortality worldwide, with nearly 14 million new cases in the same year which is expected to rise by decades, with 8.8 million deaths recorded. This report confirms the rising cases of the health condition in several continents including Africa.

The African perspective shows age-standardized incidence and mortality rates of 26.6 and 14.6 per 100 000 men, in 2020 alone which placed prostate cancer as the third most common cancer among men and the fourth leading cause of all cancer deaths among both males and females in the region (Olarewaji, Akinola & Oyekunle, 2020).

Current statistics on Nigeria indicate that the country has one of the world's highest estimated mortality rates with age standardized incidence and mortality rates put at 45.6 and 28.4 per 100,000 men, respectively. Specifically, the disease is observed to be responsible for over 9,327 deaths annually and set to increase in the nearest future (Adebowale, 2021). In Enugu State, the pattern of prostate cancer recorded in its cancer registry for a period of ten years noted a progressive increase in the number

of prostate cancer cases (Chukwunta, 2020). This is perhaps confirmatory to the earlier predictions made by the WHO that there would be major increase in prostate cancer incidence and mortality in developing countries due their unhealthy lifestyles (Global Cancer Incidence Mortality and Prevalence (GLOBOCAN), 2020). From the reviewed studies with respect to Nigeria situation, there are potential threats of prostate cancer and as such there is the need to sensitize Nigerian men on the growing trends of the health condition in the country so that some levels of consciousness could be cultivated particularly on the preventive measures of the disease for possible avoidance.

Preventing prostate cancer should be a priority in order to minimize or completely eradicate the disease in Nigeria, specifically among men in Enugu State, southeast geopolitical zone of the country. To prevent means to ensure that something capable of causing harm or danger does not happen. With respect to prostate cancer, to prevent means avoiding those known and avoidable or preventable risk factors like, high body mass index (BMI), low physical activity, smoking, low tomato sauce consumption, high intake of fatty foods, high calcium intake among others (Adebowale, 2018; WHO, 2020). It has been noted that preventing prostate cancer should revolve around lifestyle changes by the individual achievable through eating healthy foods, which emphasizes fruits, vegetables, whole grains and low-fat dietary foods, plenty of potassium, less saturated fats and increased physical activity (Adebowale, 2020). It could be possible that some of the prostate cancer patients attending tertiary health care facilities (HCFs) in Enugu State do not observe some of the above outlined lifestyle modification strategies which may further predispose them to prostate cancer. That is why this present study is focused on them in order to sensitize both the healthy men and patients on the preventive measures of the disease for possible adoption in order to avoid the health conditions associated with prostate cancer.

Prevention of prostate cancer could be inexpensive approach of managing the occurrence of the disease as prevention is better than cure. In that regard, three levels of prevention of prostate cancer are proposed to include primary, secondary and tertiary preventive strategies. The primary prevention is the index level of managing prostate cancer. Primary prevention strategies are important measures designed to improve public health, and it is by far the most cost-effective and sustainable intervention for reducing the burden of cancer globally. It encompasses the elimination or reduction of exposure to recognized risk factors in susceptible populations to prevent a disease (Samuel, 2015). Evidence of effective primary prevention strategies measures in reducing prostate cancer rates are, for example, the observed decrease in cases of male lung cancer from a fall in tobacco smoking or reduced bladder cancer among dye workers after the elimination of aromatic amines' exposures (Samuel, 2015; Idowu & Olowookoro, 2018). Prostate cancer patients in Enugu State stand a chance of minimizing the impact of the disease should they adopt

not only primary preventive measures but also the secondary preventive measures of prostate cancer.

Secondary preventive strategies are designed to improve upon the care procedures and include all the activities towards diagnosis and management of early cancer which is proven to have a potential value (Okolie, Anyanwu & Ochonmma, 2019). Early detection could mean earlier diagnosis of symptomatic prostate cancer, as well as the detection of occult prostate cancer through the mammography screening which is the basis for identifying patients that are symptomatic at the tertiary level of prevention.

Tertiary prevention may be one of the preventive measures of the disease which could minimize its severity and usually it is implemented in symptomatic patients. The primary aim at this level of management is to reduce the severity of the disease alongside with any associated health consequences (Raya, 2019). It also aims at reducing the effects of the disease once it is established in an individual as it alters the course of minimal clinical disease. Furthermore, tertiary prevention has the goal of slowing the progression of clinically diagnosed minimal disease and focuses on halting disease progression and recurrence in patients with prostate cancer (Samuel, 2015). The application of tertiary preventive measures is necessary in order to assist patients attending health care facilities in Enugu State to minimize its progression. Therefore, it is necessary that the three levels of preventive measure are strictly adhered to among the urban and rural men if any meaningful success could be realized both before during and after the care procedures.

Location is a significant socio-demography that tends to impact strongly in any health promotion programme which also ought to be examined among the prostate cancer patients attending HCFs in Enugu State to ascertain how conversant they are with the preventive measure for the health condition. This study will include the opinions of patients who are prostate cancer patients in both urban and rural areas in Enugu State. Mashi (2020), posits that prostate cancer constitute a public challenge in Nigeria in both rural and urban areas. In another report, Adebowale, (2020), reports that lifestyle modifications such as eating healthy foods, which emphasizes fruits, vegetables, whole grains and low-fat dietary foods, plenty of potassium, less saturated fats and increased physical activity for the prevention of prostate cancer is generally abused by prostate cancer patients in both urban and rural settings suggesting the need to investigate men from both settings regarding preventive measures for the health condition.

Providing information for patients about prostate cancer is necessary because it may serve as a useful tool capable of bringing about lifestyle changes. Consequently, Mbugua, Karanja and Oluchina (2021), adduced that information about the disease is key to adoption of preventive strategies for prostate cancer. Majority of prostate cancer patients in Enugu State may be rescued from the adverse health consequences

such as stigmatization, anxiety, depression and others following its occurrence hence the need for this study.

Statement of the Problem

Managing prostate cancer requires that the patients should have full knowledge and understanding of the existence of the health condition as well as the lifestyle measures to either minimize or completely eradicate the disease in the life of the victim. Additionally, there should be adequate hospital-based provisions for effective management of the care procedures so that patients are not overstretched trying to access services provided. However, the situation on the ground in Enugu State does not present a good picture of an ideal situation as there are growing incidences of prostate cancer in men.

The existence of prostate cancer in the life of an individual presents some social and psychological issues especially in regions with strong cultural specialty like Enugu State. In Enugu State, the disease is perceived as "death sentence" and as such comes with stigmatization with its attendant health consequences like anxiety, depression as well as other psychological problems. Perhaps the most worrisome is that majority of prostate cancer patients present the disease late in the hospital which usually results in poor outcomes of the care procedures. Additionally, the tertiary level hospitals where these patients seek care services are without sufficient facilities and equipment (like Radiological Machines) as well as adequate manpower to cater for the growing population of patients in the State. These shortcomings could make diagnosis ineffective resulting in poor outcomes of the care procedures.

Another important consideration is the lifestyle of the inhabitants of Enugu State who by virtue of their trades are predominantly farmers, traders and civil servants who consume excessive starchy foods and alcohol during social activities which may pose hindrances to prostate cancer management. All these factors put together weighed so much on the mind of the researcher to carry out this study preventive measures of prostate cancer.

Purpose of the Study: The specific objectives of this study are to find out the:

1. primary preventive measures of prostate cancer patients in tertiary hospitals in Enugu State.
2. secondary preventive measures of prostate cancer patients in tertiary hospitals in the State.
3. tertiary preventive measures of prostate cancer patients in tertiary hospitals in Enugu State.

Research Questions: The following research questions guided the study.

1. What are the primary preventive measures of prostate cancer among patients attending tertiary hospitals in Enugu State?
2. What are the secondary preventive measures of prostate cancer among patients attending tertiary hospitals in Enugu State?

3. What are the tertiary preventive measures of prostate cancer among patients attending tertiary hospitals in Enugu State?

Hypotheses: The following null hypotheses were tested at 0.05 level of significance.

1. Significant difference does not exist in the mean responses of urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on the primary preventive measures of prostate cancer.
2. There is no significant difference in the mean responses of urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on the secondary preventive measures of prostate cancer.
3. There is no significant difference in the mean responses of urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on the tertiary preventive measures of prostate cancer

Method:

The study adopted descriptive survey research design format and the study area as Enugu State, Southeast geopolitical zone of Nigeria. This choice is born out of the fact that the inhabitants of the state are highly social and during social events, they engage themselves in excessive consumption of starchy foods and drinks, high calories foods and drinks, smoking and other unhealthy practices are potential triggers of prostate cancer

The population for the study consisted of 532 prostate cancer patients attending University of Nigeria Teaching Hospital (UNTH), and Enugu State University of Science and Technology Teaching Hospital (ESUTH), Parklane in Enugu State (which are the two hospitals used for this study). Available statistics show that the population of prostate cancer patients in the two HCFs are 288 (UNTH) and 244 (ESUTH) respectively. A total of 532 prostate cancer patients from University of Nigeria Teaching Hospital (UNTH), and Enugu State University of Science and Technology Teaching Hospital Parklane, GRA, Enugu served as research respondents. Census sampling techniques was adopted because the researcher considered the study population manageable hence there was no sampling.

Researchers made, structured and validated questionnaire consisting of 18 item statements was used to collect data from the respondents. The internal consistency was determined through Cronbach Alpha method with an overall reliability index of 0.71 adjudged high and suitable for the study. Copies of the questionnaire were administered personally by the researcher with the help of four research assistants (nurses) who were duly briefed in a one-day consultative meeting on the aim of the study, administration and retrieval of the copies of the instrument. During the briefing session, the researcher and her research assistants examined the copies of the instrument to ensure that there were no faint pages and also examined the administration and collection process. The respondents were given one week to fill the questionnaire and appointment was booked for collection on a date to be

agreed upon by the respondents and the researcher and /or research assistants. The one-week gap was given because the care procedures are usually rigorous and time consuming hence getting the attention of the patients to fill the instrument on the spot could not have been possible. Again, the consultation is on weekly basis and as such the appointment was made based on clinic days. After retrieving the administered instrument the following week running, it was discovered during the sorting that nine (9) of the administered instruments were not properly filled by the respondents and are subsequently discarded during data analysis. A total of 523 copies out of 532 copies (98.3%) administered instrument were correctly filled and subsequently utilized at the level of data analysis.

The data collected were analysed using mean, standard deviation for the research questions while the hypotheses were tested with t-test statistic at alpha level of .05. The decision rule for the research questions were based on real limit of numbers (Mogul, 2017; Kerks, 2019). The hypotheses were rejected if the P-value is greater or equal to the value of the significance which is .05, otherwise do not reject.

Results. The results of the findings of the study following SPSS posterior data output are presented in tables thus:

Research Question One: What are the primary preventive measures of prostate cancer among patients attending tertiary hospitals in Enugu State?

Table 1: Mean and Standard Deviation of the Respondents on Primary Preventive Measures of Prostate Cancer

n=523

S/N	Primary preventive measures	$\bar{X}$	SD	Dec.
1	Maintain a healthy weight	3.72	0.83	A
2	Cessation of smoking	3.60	0.70	A
3	Moderate intake of alcohol	3.69	0.57	A
4	Regular exercise	3.75	0.48	A
5	Intake of nutritious diet	3,53	0.61	A
6	Stress management	3.52	0.79	A
7	Consumption of tomatoes	3.50	0.81	A
8	Regular body check-up	3.16	0.61	A
	Cluster means and standard deviation	**3.56**	**0.68**	**A**

Key: A-Agree.

Table 1 data shows that out of 523 prostate cancer patients attending tertiary hospital in Enugu State agreed to items 1-8 which deal with primary preventive measures of prostate cancer (x=3.56) Also, the standard deviation value for the aggregate rating (0.68) is small as it is less than one, indicating that there were little or no extreme values. Hence, the mean values so obtained represent the actual opinions of prostate cancer patients regarding primary preventive measures of prostate cancer.

Hypothesis 1: Significant difference will not exist in the mean responses of urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on the primary preventive measures of prostate cancer.

Table 2: The t-test Analysis of mean Ratings of the Respondents on the Primary Preventive Measures of Prostate Cancer

S/N	Primary preventive measures of prostate cancer	Urban Patients $\bar{X}_1$	SD	Rural Patients $\bar{X}_2$	SD	t-cal	p-value	Dec. arks
1	Maintain a healthy weight.	3.66	0.86	3.78	0.80	-1.11	0.83	NS
2	Cessation of smoking	3.44	0.71	3.76	0.69	-0.08	0.72	NS
3	Moderate intake of alcohol	3.70	0.52	3.67	0.62	0.44	0.63	NS
4	Regular exercise.	3.80	0.40	3.70	0.56	0.37	0.57	NS
5	Intake of nutritious diet	3.51	0.62	3.55	0.59	-0.75	0.71	NS
6	Stress management.	3.58	0.67	3.40	0.96	-2.11	0.14	NS
7	Consumption of tomatoes	3.64	0.61	3.40	0.96	-2.11	0.14	NS
8	Regular body check-up	3.65	0.55	3.57	0.67	0.77	0.48	NS

Key: NS-Not Significant.

Data analyzed in table 2 show that the 10 identified items on primary preventive measures had their p-values ranged from 0.14 5 to 0.83 which were greater than 0.05 at 521 degree of freedom. The researcher upholds the null hypothesis and concludes that urban and rural prostate cancer patients did not differ significantly on the primary preventive measures of prostate cancer.

Research Question Two: What are the secondary preventive measures of prostate cancer among patients attending tertiary hospitals in Enugu State?

Table 3: Mean and Standard Deviation of the Respondents on the Secondary Preventive Measures of Prostate Cancer.

		n=523		
S/N	**Secondary preventive measures**	**X**	**SD**	**Dec.**
1	Use of bicalutamide	2.94	0.76	A
2	Use of flutamide	3.05	0.89	A
3	Periodic screening exercises	3.57	0.99	A
4	Use of cryotherapy	3.52	0.85	A
5	Dihydrotestosterone (DHT)	3.73	0.79	A
	Cluster mean and standard deviation	**3.36**	**0.86**	**A**

Table 3 data shows that out of 523 prostate cancer patients attending tertiary hospital in Enugu State agreed with items 1-5 that deal with secondary preventive measures of prostate cancer, use of bicalutamide, flutamide, cryotherapy, periodic exercise screening and DHP are recognized secondary preventive measures (x=3.36). Also, the

standard deviation value for the aggregate rating (0.86) is small as it is less than one, indicating that there were little or no extreme values. Hence, the mean values so obtained represent the actual opinions of prostate cancer patients regarding secondary preventive measures of prostate cancer.

Hypothesis 2: There is no significant difference in the mean responses of urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on the secondary preventive measures of prostate cancer.

Table 4: The t-test Analysis of mean Ratings of the Respondents on the Secondary Preventive Measures of Prostate Cancer

S/N	Secondary preventive measures of prostate cancer	Urban $\bar{X}_1$	Patients SD	Rural $\bar{X}_2$	Patients SD2	t-cal	P-value	Remarks
1	Use of bicalutamide	2.91	0.71	2.97	0.80	-0.55	0.91	NS
2	Use of flutamide	3.00	0.90	3.10	0.88	-1.45	0.08	NS
3	Periodic screening exercises	3.59	1.05	3.55	0.93	-0.87	0.46	NS
4	Use of cryotherapy	3.61	0.76	3.42	0.93	-0.23	0.11	NS
5	Dihydrotestosterone (DHT)	3.61	0.76	3.57	0.93	-1.38	0.13	NS

Result in table 4 revealed that the 5 secondary preventive measures of prostate cancer had their p-values ranged from 0.08 to 0.91 which were greater than 0.05 to 521 degree of freedom. This indicated that urban and rural prostate cancer patients had similar opinions on the secondary preventive measures of prostate cancer. Therefore, the null hypothesis (H_{o1}) was not rejected.

Research Question Three: What are the tertiary preventive measures of prostate cancer among patients attending tertiary hospitals in Enugu State?

Table 5: Mean and Standard Deviation of the Respondents on the Tertiary Preventive Measures of Prostate Cancer

n=523

S/N	Tertiary preventive measures of prostate cancer	$\bar{X}$	SD	Dec.
1	Use of chemotherapy	2.59	0.97	A
2	Use of radical prostatectomy	2.78	1.06	A
3	Use of radiotherapy	2.56	0.99	A
4	Hormonal intervention	2.98	1.04	A
5	Use of antilogous/alogenic	2.97	0.94	A
	Cluster mean and standard deviation	**2.78**	**1.00**	**A**

The data analyzed in Table 5 shows that out of 523 prostate cancer patients attending tertiary hospital in Enugu State that responded to items 1-5 that deal with tertiary

preventive measures of prostate cancer, use of chemotherapy, radical prostatectomy, radiotherapy hormonal intervention ad use of antilogous/alogenic are tertiary preventive measures. This signifies agree. The grand mean of 2.78 indicates agreeing to the item statements. This means that prostate cancer patients generally agreed that the highlighted item statements are tertiary preventive measures of prostate cancer. Also, the standard deviation value for the aggregate rating (1.00) is small indicating that there were little or no extreme values. Hence, the mean values so obtained represent the actual opinions of prostate cancer patients regarding tertiary preventive measures of prostate cancer.

Hypothesis 3: There is no significant difference in the mean responses of urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on tertiary preventive measures of prostate cancer.

Table 6: The t-test Analysis of Mean Ratings of the Respondents on the Tertiary Preventive Measures of Prostate Cancer

S/N	Tertiary preventive measures of prostate cancer	Urban $\bar{X}_1$	Patients SD	Rural $\bar{X}_2$	Patients SD	t-cal	P-value	Remarks
1	Use of chemotherapy	2.50	1.01	2.67	0.93	-1.66	0.11	NS
2	Use of radical prostatecting	2.86	1.05	2.70	1.07	-1.24	0.75	NS
3	Use of radiotherapy	2.40	1.00	2.11	0.97	-1.41	0.13	NS
4	Hormonal intervention	2.45	1.09	1.50	0.98	-1.31	0.39	NS
5	Use of antilogous/ alogenic	2.36	0.95	2.43	0.92	-1.76	0.68	NS

The data analyzed in table 6 show that the 5 identified items on tertiary preventive measures of prostate cancer had their p-value ranged from 0.11 to 0.75 each greater than, 0.05 level of significance. Therefore, the null hypothesis was not rejected. This implies that urban and rural prostate cancer patients attending tertiary hospitals in Enugu State on the tertiary preventive measures of prostate cancer.

Discussion: The discussion of the findings of this study shows that the respondents agreed that maintaining a healthy weight, regular exercise, consumption of tomatoes, regular body check-up, stress management, cessation of smoking and intake of nutritious diet are the primary preventive measures of prostate cancer. Primary preventive measure of prostate cancer entails avoiding those known and avoidable or preventable risk factors like, high body mass index, low physical activity, smoking, low tomato sauce consumption, high intake of fatty foods, high calcium intake, high linoleic acid intake, among others. This finding agrees with Adebowale (2020), report which demonstrated that lifestyle changes can help one control and prevent prostate

cancer. According to the report, this can be achieved through eating healthy foods, which emphasizes fruits, vegetables, whole grains and low-fat dietary foods, plenty of potassium, less saturated fats and increased physical activity. The main reasons for the agreement could be that the prostate cancer patients may have read about the preventive measures which borders on lifestyle modifications. It could be that the counseling services and hand bills provided during clinic meetings are impacting positively in them

The result further revealed that urban and rural prostate cancer patients did not differ significantly on the primary preventive measures of prostate cancer in tertiary hospitals in Enugu State. This finding is in line with Anyawu (2016), who found 52.4 percent of men in urban areas and 73.3 percent of men in rural areas exhibiting positive adherence to the practice of prostate cancer preventive measures. The no difference recorded could be due to the fact that awareness on keep fit programmes is fast growing both in the urban and rural settings of Enugu State of which some of the prostate cancer patients may have been part and parcel of.

Data analysed with regard to research question two revealed secondary preventive measures of prostate cancer in tertiary hospitals in Enugu State indicated that the use of cryotherapy, periodic screening exercises, bicalutamide and dihydrotestosterone are the secondary preventive measures of prostate cancer in tertiary hospitals in Enugu State. This finding corroborates with that of Samuel (2015), which demonstrated the efficacies of the four secondary preventive measures of prostate cancer which included use of bicalutamide, periodic screening exercises, dihydrotestosterone and flutamide. There are possibilities that the respondents may have undergone some of the secondary preventive measures during the care procedures in their hospitals which probably made it possible for them to recognize the secondary preventive strategies. Perhaps, some of them may have read about it on the pages of the newspapers or social media devices.

The corresponding hypothesis revealed that urban and rural prostate cancer patients did not differ significantly in their opinions on secondary preventive measures of prostate cancer in Enugu State. This finding agrees with Aruah (2019), who found that knowledge of secondary preventive measures among prostate cancer does not depend on the patients' location. The no difference may be due to the fact that they both pass through similar procedures in the hospital which obviously may have provided both the urban and rural patients with adequate knowledge about the secondary preventive strategies.

The results of the analysis of research question three shows that the respondents agree with the tertiary preventive measures of prostate cancer of prostate cancer. The result indicated that the use of chemotherapy, radiotherapy, hormonal intervention, radical prostatectomy, 5a-reductase and antilogous/alogenic are the tertiary preventive measures of prostate cancer in tertiary hospitals in Enugu State.

The finding is in agreement with Mashi (2020) who stated that the use of chemotherapy and enzyme 5a-reductase are tertiary measures of preventing prostate cancer. The finding is also in line with Azuonwu and Timothy (2020), which stated that antilogous/alogenic, chemotherapy and radiotherapy interventions have potential functions in tertiary prevention of prostate cancer. The agreement of this findings with author's report is because the patients are familiar with the electrical modalities used during tertiary level hence must have provided them with the knowledge and understanding of tertiary preventive strategies.

The study finding further shows that urban and rural prostate cancer patients had uniform opinions on the tertiary preventive measures of prostate cancer in tertiary hospitals in Enugu State. This is in conformity with Mashi (2020) who reported that geographical location of cancer patients does not influence their knowledge on cancer preventive measures. The main reasons for this difference are because both the urban and rural patients utilize tertiary level hospital in the state where most of the equipment used at tertiary preventive measures are found.

Conclusion: The study concludes that socio-demography of location has no significant influence on different aspects of prostate cancer preventive measures among patients in Enugu State. This suggests that interventions should target the victims in both urban and rural settings.

Recommendations: The following recommendations are made based on the outcome of this study as follows:

1. There is the need for interventions for patients in urban and rural settings through adult fitness programmes and policies, dietary awareness and support systems and others in order to sustain the already existing awareness, knowledge and skills regarding the various aspects of preventive strategies of the disease condition.
2. Hand bills and periodicals where the various preventive strategies are highlighted should be provided to the patients to serve as reference tools for sustaining the growing knowledge of the health condition by patients in the state.
3. Seminars, workshops and symposiums should be organized for them from time to time by the hospital management for continuous sensitization on the available preventive strategies for possible adoption of them in managing prostate cancer.

References

Adebowale, N. (2020). How high cost of cancer treatment has badly affected patients in Nigeria. *Premium Times, February* 4, 2020.

Adewale, O.A. (2018). Evaluation of patients' adherence to chemotherapy for breast cancer, *Afr. Journal Health Science*, 15(5), 22-7.

Chukwunta, F.N. (2020). Knowledge and practice healthy lifestyle among civil servants in Ebonyi State. *Mosul Journal of Nursing*, 10(3), 1-24.

Global Cancer Incidence, Mortality and Prevalence (GLOBOCAN) 2018.Cancer Burden (2020). UK Cancer report and account. *http://www.canceruk.org*., accessed 4/11/2021.

Idowu, A., Olowookere, S.A. & Fagbenil, A.T. (2018). Determinants of cervical cancer screening uptake among women in Ilorin, North Central Nigeria: a community-based study. *CA Cancer Journal Clin,* 65 (14), 117-121.

Krecks, P.T (2019). *Methodology in Educational Research*. Ontario: Pinnacle Books Inc.

Mbugua, R.G., Karania, S. & Oluchina, S. (2021). Barriers and Facilitators to uptake of Prostate cancer screening in a Kenyan rural Community. *The ANNALS OF AFRICAN SURGERY, 18* (3): 130-136.

Mashi, A.L. (2020). Assessing breast cancer burden amongst women at general hospital Katsina State Nigeria. *International Journal of Social and Humanities*, 4 (1), 95-114.

Mogul, C.A. (2017). *Innovations in Construction and Scoring of Research Instruments*. Dundee University Press.

Ohazuruike, P.E. (2019). Perceived impact of cancer and treatment modalities on sexuality and sexual lives on cancer patients in UNTH Ituku-Ozalla Enugu State, Nigeria. *Journal of Medical Oncology and Therapeutics*, 4(1), 18-23.

Okolie, C., Anyanwu, S.N.C. & Ochomma, A.O. (2019). Assessing the quality of life of patients with breast cancer treated in a tertiary hospital is a resource-poor country. *Journal of Gerontol Sec*, 31 (51), 301-310.

Omonisi, A; Komolate, A, Adefehinti, O. & Olasode, B. (2020). Cancer in Ife-ijesha, southwesthern Nigeria, an account of a 20-years cancer registration from Ife-ijesha cancer registry. *International Journal of Internal Medicine,* 9(1), 11-19.

Raya, Y.A. (2019). Factors influencing the quality of life among Jordanian women undergoing breast cancer treatment, a cross-sectional study. *World Journal of Medical Sciences*, 16 (4), 196-202.

Samuel, O.A. (2015). Breast Cancer: The perspective of Northern Nigerian women. *International Journal of Preventive Medicine*, 6 (130), 41-48.

World Health Organization (2018). Cancer prevention strategies. *http.//www.who.int/cancerprevention strategies/en/.*

World Health Organization (2020). Key prevention strategies and control interventions for reducing cancer burden in the WHO African region: A Handbook for Leaders and Managers Regional Office for Africa Brazzaville.

World Health Organization (WHO) (2021). Obesity: preventing and managing the global epidemic. Report of a WHO consultation. (WHO Technical Report Series, No. 894).