

FACTORS INFLUENCING THE USE OF PROSTATE CANCER PREVENTIVE MEASURES AMONG MEN IN RIVERS SOUTH-EAST, NIGERIA

Grace Ngozi Okafor and Chinedu Emmanuel Nwosu

^{1,2}Department of Nursing Science University of Port Harcourt, Nigeria

Abstract

This study investigated the predictors to utilization of preventive measures of prostate cancer among men attending health facilities in Rivers South-East senatorial district, Rivers State. Seven objectives, seven research questions and six hypotheses were stated to guide the study. Literature was reviewed under conceptual framework, theoretical framework and empirical review. A descriptive cross-sectional design was adopted with a population which consisted of 134,311 men from 50 years and above in Rivers South East Senatorial district. A sample size of 500 was selected using the multi-staged sampling procedure. The instrument for data collection was semi structured questionnaire titled 'Questionnaire on Predictors of Utilization of Prostate cancer preventive measures (QPUPCPM)' with a reliability coefficient of 0.82. Analysis was done with the aid of the Statistical Product for Service Solution (IBM SPSS 23) using mean, standard deviation and linear regression at 0.05 alpha level. The finding of the study showed that the level of utilization of prostate cancer preventive measures among men attending health facilities in Rivers South East Senatorial District was low (1.86 ± 0.85). The result of the study indicated that the utilization of prostate cancer preventive measures was predicted by the availability of screening facilities ($r = 0.97$, $R^2 = 0.972$, $p < 0.05$); affordability of screening services ($r = 0.94$, $R^2 = 0.891$, $p < 0.05$); educational attainment ($r = 0.94$, $R^2 = 0.896$, $p < 0.05$); knowledge of benefit of early diagnosis ($r = 0.95$, $R^2 = 0.920$, $p < 0.05$); religious belief ($r = 0.91$, $R^2 = 0.841$, $p < 0.05$); and support from partners ($r = 0.94$, $R^2 = 0.894$, $p < 0.05$). It was concluded that, utilization of preventive measures of prostate cancer among men was predicted by several factors as mention above. The Ministry of Health should make effort to promote prostate cancer prevention among men by establishing well organized prostate cancer screening programme at strategic points in the State.

Keywords: Cancer, Men, Predictors, Prevention, Prostate, Utilization

Introduction

Utilization of healthcare service remain the best and global means of disease identification, treatment and control. The expansion of health care system resulted into provision of diagnostic centers such as cancer screening centers

for early detection which provide an indication for treatment or management. The prostate is a walnut-sized organ in the male reproductive system. It is located below the bladder in front of the rectum and surrounds the upper part of the urethra (the tube that empties urine from the bladder); it helps regulate bladder control and produces the seminal fluid that nourishes and transports sperm. Prostate adenocarcinoma (Pa) is the most common type of non-skin melanoma among men globally (Tasian, 2012). More than 99% of prostate cancers (Pc) develop in the gland cell that is why it is called adenocarcinoma otherwise it is called sarcoma (Siegel et al., 2018). Prostate adenocarcinoma is a condition in which the ability to regulate cell growth or death is lost, as a result, cells grow out of control around the prostate gland to form a concentrate of abnormal cells known as tumours (Kolade, 2017). Most prostate cancers are slow growing, although some grow relatively fast (Stewart & Wild 2014; National Cancer Institute 2015). The existing cases of prostate cancer is high among black or African men than more than American (WHO, 2021). In 2020, WHO (2021) reported that the Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020, or nearly one in six deaths of which prostate cancer was 1.41million cases included. Prostate cancer is the second most frequent malignancy (after lung cancer) in men worldwide, counting 1,276,106 new cases and causing 358,989 deaths (3.8% of all deaths caused by cancer in men) in 2018 (Bray et al., 2018; Ferlay et al., 2019). Rates of prostate cancer differ over 50-fold among various international populations. Ascertainment biases constitute an important, but incomplete, explanation for the observed international variations in prostate cancer incidence. Countries that do not utilize prostate-specific antigen (PSA) testing typically have a much lower rate of prostate cancer compared with those that do. Of the several known prostate cancer risk factors, the most important are age, ethnicity, genetic factors, and possibly dietary factors (Moris, 2016). The incidence and mortality of prostate cancer worldwide correlate with increasing age with the average age at the time of diagnosis being 66 years. Of note, for African- American men, the incidence rates are higher when compared to the White men, with 158.3 new cases diagnosed per 100,000 men and their mortality is approximately twice as White men (Panigrahi et al., 2019). Reasons for this disparity have been hypothesized to differences in social, environmental and genetic factors. Although 2,293,818 new cases are estimated until 2040, a small variation in mortality will be observed (an increase of 1.05%) (Ferlay et al., 2019). Diet and physical activity play an important role in prostate cancer development and progression. Dietary factors are mainly associated with the observed worldwide and ethnic differences in the incidence rates of prostate cancer (Rawla, 2019). Equally, it is predicted that by 2025, the incidence of cancer raises 45% in developing countries (Pakzad et al., 2016). High body mass indexes, obesity, physical inactivity, dietary factors, smoking are strongly associated with increased risk of prostate cancer (Peisch et al., 2017). It has also been shown that the risk level varies with the level of familial relationship and the age of the disease manifestation (Albright *et al.*, 2017).

Report by World Health Organization (WHO) shows that within a period of four years, deaths from PCa in Nigeria increased by almost 100 percent, killing 26 men daily, up from 14 men every day (Raphael, 2016). In order to improve PCa survivorship, it is important for every man to know his risk of having the disease as well as the associated signs and symptoms (Olawajun et al., 2020). In Nigeria, prostate cancer is the leading cause of cancer-related deaths in men 40 years and above. It is common in Rivers State with a incidence of 114/100,000, evidence from hospital in port Harcourt (Eke et al. cited in Raphael & Abhulimen, 2022).

The knowledge about the possibility of developing prostate malignancy as a type of cancer begins with the identification of prostate as one of the organs in the human body that can be diseased. While awareness of cancer is generally on the increase in Nigeria malignancy of the breast, cervix, head and neck are the most commonly known types. As prostate cancer develops, many men do not experience striking symptoms at its early stages. Besides, many men who are in their 40s and may require screening could have the notion that prostate cancer is only a health challenge for the very elderly, the significant role played by the organ in the reproductive process. Besides, morbidity in the prostate and any of the surrounding anatomical structures could arise from the management of a diseased prostate gland and subsequently bring about mortality (Olawajun et al., 2020).

It is estimated that one-third of the cases of prostate cancer can be prevented and another third can be cured if detected early through screening (Enemugwem et al., 2019). There is also evidence that the recent decline in cancer mortality in several countries was as a result of screening and early detection. This fact was proven through two large international trials to determine the benefit of screening and early detection of prostate cancer. Hence, there is a need to assess men's intentions to undergo prostate cancer screening in this study. That said, the recommended screening tests for prostate cancer are the measurement of serum prostate-specific antigen (PSA) (Moyer, 2012). Other screening tests such as digital rectal examination and ultrasonography are also essential in the diagnosis of prostate cancer. Furthermore, prostate-Specific Antigen (PSA) testing for prostate cancer has been reported to avert one prostate cancer death per 27 additional cases detected during 13 years (Mamawala et al., 2017). Several characteristics of these methods such as easy to use, low price and availability, and extraordinary results in reducing the incidence of cancer and reducing the severity of cancer during the diagnosis phase show the importance of these examinations (Shafi et al., 2013). These facts clarify the necessity of intervention for the risk group to improve prostate cancer preventive measures; on the other hand, health planning programs needs to identify the effective and predictive determinants of behavior (Steinmetz et al., 2016; Jalilian et al., 2016). The prevalence of prostate cancer can be low if the men are aware of early diagnosis, affordability of service, and availability. Utilization of health care service could the ability of the population to access the health facility for the purpose of diagnosis, treatment, management, palliative care and even counselling service. Men who perceived that they are risk of prostate cancer may likely decide a means of identifying the problem

and prevent it from occurring. Ekwan et al. (2023) reported that more than half of the population of men (70.7%) utilizes the health care service for the purpose of screening and rescreening after the initial information about prostate cancer. It is pertinent note that early identification of this deadly condition may reduce the chances of the condition from getting worse. Kim et al. (2022) indicated that in their study utilization of prostate cancer screening gradually increases from year to year ranging from 29.4% in 2016 to 41.9% in 2018 respectively. Additionally, Bassey et al. (2019) reported in Nigeria that the utilization of health care service for prostate cancer screening was based on those who have develop clinical indications of the health problem. Bugoye et al. (2019) reported that the men above 60% were 21 times more likely to utilize prostate cancer screening services as compared with young men. Knowledge has to do with the familiarization and awareness of concepts or condition such as prostate cancer. It is plausible that men who aware and know about the diagnosis may go early to check the condition of their prostate gland for either enlargement or cancerous. In Nigeria, studies of Bassey et al. (2019) reported that knowledge of prostate cancer was statistically significantly associated with the utilization of prostate cancer screening services at $p < 0.011$. Ojewola et al. (2017) added that only 47.5% of men were aware of prostate cancer and they lack knowledge of prostate cancer services whilst only 25.1% know about prostate cancer screening service. Mirzaei- Alavijeh et al... (2018) illustrated in their study that men who had the knowledge of prostate cancer were over 3 times more likely to ensure early diagnosis through utilization of screening services in the health facility. Bugoye et al. (2019) in their study it was indicated that about half of the proportion of men (48.9%) had good knowledge of prostate cancer and were screened. Mofolo et al. (2015) buttressed that fewer proportion of men (11.0%) knew about prostate cancer signs and symptoms as such could not go for diagnosis in the health facility. It is possible that knowledge about prostate cancer plays a role in the utilization of screening services. Affordability of health care service depicts that the cost service that taking by the patient. It is expected that health care service at different level should at cost that every individual, family and community can afford. Cost effectiveness of prostate cancer screening service may deter the extent of utilization. Kizub et al. (2022) reported that the cost health care and cancer medicine is low in government owned health facility as compared with health care services in the private facility were most drugs are not affordable. Recently, Petricca et al. (2023) indicated that the increase in cost of health services affected the availability and utilization of prostate cancer screening service. Health financing constitutes a major factor that determine the rate of utilization of health care service especially the stage of diagnosis. Ooms et al. (2020) reported that the low level of utilization of prostate cancer was as a result of poor income status of patient and vulnerable group. Bizimana et al.. (2020) in their study it was found that the good percentage of men were unable to use the prostate screening service reason been that it is expensive and they cannot afford. The availability of prostate cancer screening service is more likely to be in the private settings than in government owned facility.

Educational attainment is the level of education that an individual had received over the period in time which include primary, secondary and tertiary levels of education. Educated men may have good understanding and get familiar with their health condition and would develop at means to managing and improving their health status. It is pertinent to note that educated men be able to utilize health care service such as prostate cancer screening as compared with less or uneducated ones. Ekwan et al. (2023) in their study, it was reported that educational status of men was significantly associated with the utilization of prostate cancer screening services ($p < 0.05$). Studies of Morlando et al. (2017) affirmed that men with higher level of education were more likely to predict the utilization of prostate cancer screening service. Mofolo et al. (2015) added that the Level of school education, race and language were statistically significantly associated with level of knowledge of prostate cancer screening service. Cancer of the prostate is amenable to screening, and this may reduce mortality from the disease almost by half. Factors associated with poor preventive practices include ignorance of the disease, inadequate diagnostic facilities even in urban areas and poverty, all leading to late presentations in the clinics. More so, most communities in Nigeria are characterized by low formal education, poor health services, health literacy, and health promotion activities mostly built around maternalchild health and infectious diseases. The reduced access to knowledge hypothetically heightens pessimistic risk perception. Despite the pathological trend associated with prostate cancer incidence, Nigerian men are ignorant of the risk factors for the disease despite rising prevalence and despite the country's movement toward a demographically aging population. Studies conducted in Nigeria revealed that there was often little awareness of prostate cancer among the risk group. Furthermore, there is a dearth of information regarding men's knowledge of prostate cancer in Rivers State.

In Rivers South East senatorial district, people are not fully aware of the existing cases of prostate due to lack of information across the environment such as they see no reason for the visiting the health service. Over the recent times the cost of health care services has been increasing both diagnosis and treatment to the extent that most people including men are not willing to obtain the health care service. Hence, it is against this background that this study sees the need to assess the predictors of prostate cancer and their influence on utilization of preventive measures among men in Rivers South-East senatorial district, Rivers State. The study provided answers to the following research questions:

1. To what extent does availability of screening facilities predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers SouthEast Senatorial District, Rivers state?
2. To what extent does affordability of screening services predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers SouthEast Senatorial District, Rivers state?
3. To what extent does religious belief predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers state?

4. To what extent does support from partner predict utilization of prostate cancer preventive measures among men

Hypotheses

The following hypotheses guided the study and were testing at 0.05 alpha level:

1. Availability of screening facilities will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State.
2. Affordability of screening services will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State.
3. Religious belief will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State.
4. Support from partner will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State.

Methodology

The study used a descriptive cross-sectional design with a study population which comprised of four thousand, seven hundred and eighty-three (4,783) men who attended healthcare facilities from January to June, 2023 in Rivers South East Senatorial District. The sample size for this study was 525 men from age 50 years and above. A multi-stage sampling procedure was adopted for the study which was presented in three stages in order to select the sample for the study. Stage one involved the use of simple random sampling technique to select Khana, Andoni, Eleme, Tai and Gokana Local Government Areas of Rivers State out of seven L.G.As in Rivers South East Senatorial district by balloting without replacement. Stage two involved the use of stratified sampling technique to select men in the age group of 50 years and above to form strata of the population for the study. The researcher was limited to men within the selected age range which were more vulnerable to prostate cancer. At stage three, the non-stratified proportionate random sampling technique was employed to select only 105 men each from the healthcare facilities in the five selected Local Government areas used for the study to enable the researcher gather data from the sample. The instrument for data collection was a semi-structured questionnaire titled Questionnaire on Predictors of Utilization of Prostate cancer preventive measures (QPUPCPM) with reliability coefficient was 0.82. The questionnaires were administered to the respondents after explaining the purpose of the study and obtaining their verbal consent to participate. The respondents were assured of their anonymity and the confidentiality of the information collected from them. Completed questionnaires were immediately retrieved from respondents. The data obtained from the retrieved questionnaires were analyzed using Statistical Product for Service Solution (IBM SPSS 23). Results were presented using mean, standard

deviation and regression analysis for research questions, also, the null hypothesis was tested using linear regression at 0.05 level of significance.

Results

The results of the study are shown below:

Table 1: Regression analysis showing extent to which availability of screening facilities predict utilization of prostate cancer preventive measures among men

Model	R	R Square	Adjusted Square	R Std. Error of the Decision Estimate		
1	0.97	0.95	0.95	0.42	Very High relationship	

Table 1 revealed the regression analysis of extent to which availability of screening facilities predict utilization of prostate cancer preventive measures among men. The result of the study indicated that 95.2% of utilization of prostate cancer preventive measures was predicted by the availability of screening facilities ($R^2 = 0.972$); with a very high positive relationship between availability and utilization ($r = 0.97$). Therefore, the extent to which availability of screening facilities predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was very high.

Table 2: Regression analysis showing extent to which affordability of screening services predict utilization of prostate cancer preventive measures among men

Model	R	R Square	Adjusted Square	R Std. Error of the Decision Estimate		
1	0.94	0.89	0.89	0.64	Very High relationship	

Table 2 revealed the regression analysis of extent to which affordability of screening services predict utilization of prostate cancer preventive measures among men. The result of the study indicated that 89.1% of utilization of prostate cancer preventive measures was predicted by affordability of screening services ($R^2 = 0.891$); with a very high positive relationship between affordability and utilization ($r = 0.94$). Therefore, the extent to which affordability of screening services predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was very high.

Table 3: Regression analysis showing extent to which religious belief predict utilization of prostate cancer preventive measures among men

Model	R	R Square	Adjusted Square	R Std. Error of the Decision Estimate		
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1	0.91	0.841	0.84	0.77	Very High relationship
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Table 3 revealed the regression analysis of extent to which religious belief utilization of prostate cancer preventive measures among men. The result of the study indicated that 84.1% of utilization of prostate cancer preventive measures was predicted by religious belief ($R^2 = 0.841$); with a very high positive relationship between religious and utilization ($r = 0.91$). Therefore, the extent to which religious belief predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was very high.

Table 4: Regression analysis showing extent to which support from partner predict utilization of prostate cancer preventive measures among men

Model	R	R Square	Adjusted Square	R Std. Error of the Decision Estimate		
1	0.94	0.89	0.89	0.63	Very High relationship	

Table 4 revealed the regression analysis of extent to which support from partner utilization of prostate cancer preventive measures among men. The result of the study indicated that 89.4% of utilization of prostate cancer preventive measures was predicted by support from partners ($R^2 = 0.894$); with a very high positive relationship between support from partner and utilization ($r = 0.94$). Therefore, the extent to which support from partner predict utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was very high.

Test of Hypotheses

Table 5: Linear Regression analysis on availability of screening facilities and utilization of prostate cancer preventive measures among men

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	1751.422	1	1751.42	9664.24	0.00*	Rejected
	Residual	88.439	488	0.18			
	Total	1839.86	489				

*Significant. $p < 0.05$

Table 5 revealed the regression analysis between availability of screening facilities and utilization of prostate cancer preventive measures among men. The findings of the study revealed that availability of screening facilities significantly predicted the utilization of prostate cancer preventive measures among men [$f(1,488) = 9664.24$,

$p < 0.05$]. Therefore, the null hypothesis which stated that availability of screening facilities will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was rejected.

Table 6: Linear Regression analysis on affordability of screening services and utilization of prostate cancer preventive measures among men

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	1639.37	1	1639.37	3990.47	0.00*	Rejected
	Residual	200.48	488	.41			
	Total	1839.86	489				

***Significant. $P < 0.05$**

Table 6 revealed the regression analysis between affordability of screening services and utilization of prostate cancer preventive measures among men. The findings of the study revealed that affordability of screening services significantly predicted the utilization of prostate cancer preventive measures among men [$f(1,488) = 3990.47$, $p < 0.05$]. Therefore, the null hypothesis which stated that affordability of screening services will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was rejected.

Table 7: Linear Regression analysis on religious belief and utilization of prostate cancer preventive measures among men

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	1547.06	1	1547.06	2578.46	0.00*	Rejected
	Residual	292.79	488	.60			
	Total	1839.86	489				

***Significant. $P < 0.05$**

Table 7 revealed the regression analysis between religious belief and utilization of prostate cancer preventive measures among men. The findings of the study revealed that religious belief significantly predicted the utilization of prostate cancer preventive measures among men [$f(1,488) = 2578.46$, $p < 0.05$]. Therefore, the null hypothesis which stated that religious belief will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was rejected.

Table 8: Linear Regression analysis on support from partner and utilization of prostate cancer preventive measures among men

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	1645.58	1	1645.58	4133.56	0.00*	Rejected
	Residual	194.27	488	.39			
	Total	1839.86	489				

***Significant. $p < 0.05$**

Table 8 revealed the regression analysis between support from partner and utilization of prostate cancer preventive measures among men. The findings of the study revealed that support from partner significantly predicted the utilization of prostate cancer preventive measures among men [$f(1,488) = 2578.46, p < 0.05$]. Therefore, the null hypothesis which stated that support from partner will not significantly predict the utilization of prostate cancer preventive measures among men attending health facilities in Rivers South-East Senatorial District, Rivers State was rejected.

Discussion of findings

The findings of the study were discussed below:

The finding of the study showed that the level of utilization of prostate cancer preventive measures among men attending health facilities in Rivers South East Senatorial District was low (1.86 ± 0.85). This finding may not be surprising possibly because the health facilities where the respondents were drawn from was not focused on cancer cases. The finding of this study is in line with that of Ekwan et al. (2023) whose study on the uptake of prostate cancer screening and associated factors among men aged 50 years and above in Lira city, Uganda showed poor level of prostate cancer prevention among men. The finding of this study is in consonance with that of Ogunsanya et al. (2017) whose study on prostate cancer screening among young multiethnic black men in Austin, Texas which showed that low level of prostate cancer prevention measures. The finding of the study is similar to that of Ebuehi and Otumu (2011) whose study on prostate screening practices among male staff of the University of Lagos, Lagos, Nigeria showed that the practice of prostate cancer screening was low (28.4%). This poor prevention which involves screening could be accounted for the late presentation reported in several studies. Lower mortality is reported in developed countries due to early detection, while in developing countries, most cancer victims are diagnosed with late stage, incurable tumors, pointing to the need for education schemes and better detection programs (Nakandi et al., 2013). However, the finding of this study is not in line with that of Morrison et al. (2017) whose study among screening behaviors in Jamaican men revealed a moderate level of prostate cancer prevention measures. This variation found could be due to the difference in study area and sample size in the two different studies.

The result of the study indicated that 95.2% of utilization of prostate cancer preventive measures was predicted by the availability of screening facilities ($R^2 = 0.972$); with a very high positive relationship between availability and utilization ($r = 0.97$). This finding is anticipated because for any healthcare service to be used it must be made available. The finding of this study is in keeping with that of Bassey et al. (2019) whose study on the level of utilization of prostate cancer screening services among oncology social workers in the Niger Delta Region of Nigeria revealed that availability predicted the utilization of prostate cancer prevention services. The finding of this study is in line with that of Mekuria et al. (2021) whose study on the prevalence of cervical cancer and associated factors among patients who attended cancer screening center at Gahandi Memorial Hospital, Ethiopia has good preventive behaviour of screening when the screening services are available. This similarity between the previous and present study could be due to the homogeneity of the study respondents and the concept under study. The result of the study indicated that 89.1% of utilization of prostate cancer preventive measures was predicted by affordability of screening services ($R^2 = 0.891$); with a very high positive relationship between affordability and utilization ($r = 0.94$). The finding of this study may not be argued against because the affordability of any healthcare services determines its use, people may find it difficult to access any health service they cannot afford to utilize. The finding of this study is in keeping with that of Bassey et al. (2019) whose study on the level of utilization of prostate cancer screening services among oncology social workers in the Niger Delta Region of Nigeria revealed that affordability predicted the utilization of prostate cancer prevention services. This similarity between the previous and present study could be due to the homogeneity of the study respondents and the concept under study. The result of the study indicated that 84.1% of utilization of prostate cancer preventive measures was predicted by religious belief ($R^2 = 0.841$); with a very high positive relationship between religious and utilization ($r = 0.91$). The finding of this study corroborates that of Young et al. (2018) whose study on factors influencing the decision to attend screening for cancer in the UK showed that religious affiliation predicted utilization of prostate cancer preventive measures. The finding of this study is expected thus not surprising because religion has a strong force in determining several health behaviours in a large context across the globe. Some men may have low awareness, negative attitude and poor practices towards cervical cancer because of their religious affiliation as they may not believe that they can have such illness as prostate cancer hence, needless screening for it or adhering to its prevention. Some may even associate practicing prostate cancer screening as faithlessness in their God and doubting His ability to keep such illness far from them. Thus, the religion of men may have a strong influence on cervical cancer screening among them. The finding of this study corroborates that of Jayasekera et al. (2019) whose study examined the effects of individual-level and area-level characteristics on advanced prostate cancer diagnosis among Medicare which showed that religious affiliation

predicted prostate cancer preventive measures. The similarities found between the present study and previous ones might be due to the homogeneity of the study population as both studies were carried out among men. The result of the study indicated that 89.4% of utilization of prostate cancer preventive measures was predicted by support from partners ($R^2 = 0.894$); with a very high positive relationship between support from partner and utilization ($r = 0.94$). The finding of this study corroborates that of Young et al. (2018) whose study on factors influencing the decision to attend screening for cancer in the UK showed that support from partners predicted utilization of prostate cancer preventive measures. The finding of this study corroborates that of Jayasekera et al. (2019) whose study examined the effects of individual-level and area-level characteristics on advanced prostate cancer diagnosis among Medicare which showed that support from partner predicted prostate cancer preventive measures. The similarities found between the present study and previous ones might be due to the homogeneity of the study population as both studies were carried out among men.

Conclusion

Based on the findings of the study it was concluded that, the predictor's utilization of preventive measures of prostate cancer among men attending health facilities in Rivers South-East Senatorial District are: availability of screening facilities, affordability of screening services, religious belief and support from partners.

Recommendations

The following recommendations were made based on the findings of the study:

1. The Ministry of Health should make effort to promote prostate cancer prevention among men by establishing well-organized prostate cancer screening programme at strategic points in the State.
2. Non-governmental health agencies should also do more in terms of improving the awareness of prostate cancer by continuous campaign, seminars and workshops for men.
3. The primary healthcare board should also make the screening easily available and affordable for men, by creating a cancer screening section in every primary healthcare facility.
4. The ministry of health should adapt prostate cancer screening package by integrating it with other healthcare services at all the levels of healthcare.

REFERENCES

- Albright, F.S., Stephenson, R.A., Agarwal, N., & Cannon-Albright, L.A. (2017). Relative risks for lethal prostate cancer based on complete family history of prostate cancer death. *The Prostate*, 77, 41-4
- Bassey, A. L., Isangha, S. O., Eya, O. I., & Victor, U., (2019). Utilization of prostate cancer screening services in the Niger Delta Region of Nigeria: Situation Analysis and Implications for Oncology Social Workers. *European Journal of Scientific Research*, 154(3), 280-293.

- Bizimana, T., Kayumba, P. C., & Heide, L. (2020). Prices, availability and affordability of medicines in Rwanda. *PloS One*, 15(8), e0236411.
- Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, 68, 1-7.
- Bugoye, F. C., Leyna, G. H., Moen, K., & Mmbaga, E. J. (2019). Knowledge, perceived risk and utilization of prostate cancer screening services among men in Dar Es Salaam, Tanzania. *Prostate Cancer*, 24(6), 3048.
- Ebuehi, O.M. and I.U. Otumu. (2011). Prostate screening practices among male staff of the University of Lagos, Lagos, Nigeria. *African Journal of Urology*, 17(4), 122-134
- Ekwan, R., Bua, E., Nantale, R., Opito, R., Abingwa, P., Sserwanja, Q., Kuteesa, J., & Mukunya, D. (2023). Uptake of prostate cancer screening and associated factors among men aged 50 years and above in Lira city, Uganda: a cross-sectional study. *Biomedical Central Public Health*, 23(1), 432-439.
- Enemugwem, R.A., Eze, B.A., Ejike, U., Asuquo, E.O., & Tobin, A. (2019). Prostate cancer screening: assessment of knowledge and willingness to screen among men in Obio Akpor LGA, Rivers State, Nigeria. *African Journal of Urology*, 25, 1-4.
- Ferlay, J. E. M., Lam, F., Colombet, M., Mery, L., Pineros, M., Znaor, A., & Soerjomataram I. (2019). *Global cancer observatory: cancer today*. International Agency for Research on Cancer.
- Ferlay, J., Soerjomataram, I., Ervik, M., Dikshit, R., Eser, S., Mathers, C., & Bray, F. (2013). *Globocan cancer incidence and mortality worldwide*. International Agency for Research on Cancer.
- Jalilian, F., Joulaei, H., Mirzaei-Alavijeh, M., Samannezhad, B., Berimvandi, P., Karami Matin, B., & Mahboubi, M. (2016). Cognitive factors related to cigarettes smoking among college students: an application of theory of planned behavior. *Social Science*, 11(7), 1189-1193.
- Jayasekera, J., Onukwugha, E., & Naslund, N. (2019). Epidemiological determinants of Advanced Prostate cancer in elderly men in the United States. *Clinical Medicine Insight. Oncology*, 12(1), 1-7.

- Kim, D. D., Daly, A. T., & Koethe, B. C., (2022). Low-Value Prostate-specific antigen test for prostate cancer screening and subsequent health care utilization and spending. *Journal of American Medical Association*, 5(11), e2243449.
- Kizub, D. A., Naik, S., Abogan, A. A., Pain, D., Sammut, S., Shulman, L. N., & Martei, Y. M. (2022). Access to and affordability of World Health Organization essential medicines for cancer in Sub-Saharan Africa: Examples from Kenya, Rwanda, and Uganda. *The Oncologist*, 27(11), 958–970.
- Kolade, O. A. (2017). Knowledge and utilization of prostate cancer screening services among male civil servants in iseyin local government area, Oyo state, Nigeria. *European Journal of Biology and Medical Science Research*, 5(3), 38-45
- Mamawala, M. M., Rao, K., Landis, P., Epstein, J. I., Trock, B. J., Tosoian, J. J., Pienta, K. J., & Carter, H. B. (2017). Risk prediction tool for grade re-classification in men with favourable- risk prostate cancer on active surveillance. *Bob Jones University International*, 120(1), 25– 31.
- Mekuria, M., Edosa, K., Endashaw, M., Bala, E.T., Chaka, E.E., Deriba, B.S., & Tesfa, B. (2021). Prevalence of cervical cancer and associated factors among patients who attended cancer screening center at Gahandi Memorial Hospital, Ethiopia. *Cancer Information*, <http://doi.org/10.1177/11769351211068431>.
- Mirzaei-Alavijeh, M., Ahmadi-Jouybari, T., Vaezi, M., & Jalilian, F., (2018). Prevalence, cognitive and socio-demographic determinants of prostate cancer screening. *Asian Pacific Journal of Cancer Prevention*, 19(4), 1041–1046.
- Mofolo, N., Betshu, O., & Kenna, O. (2015). Knowledge of prostate cancer among males attending a urology clinic, a South African study. *Springer plus* 4, 67, doi.10.1186.
- Morlando, M., Pelullo, C. P., & Di Giuseppe, G. (2017). Prostate cancer screening: Knowledge, attitudes and practices in a sample of men in Italy. A survey. *PloS One*, 12(10), e0186332.
- Moyer, V.A. (2012). Screening for prostate cancer: U.S. preventive services Task Force Recommendation Statement. *Annals of Internal Medicine*, 157, 120 - 134.

- Nakandi, H., Kirabo, M., Semugabo, C., Kittengo, A., Kitayimbwa, P., & Kalungi, S. (2013). Knowledge, attitudes and practices of Ugandan men regarding prostate cancer. *African Journal of Urology*, 19(4), 165-70
- National Cancer Institute (2015). *Prostate cancer treatment*. National Cancer Institute.
- Ogunsanya, M.E., Brown, C.M., Folakemi, T.O., Barner, J.C., Adedipe, T.B. & Corbell, B. (2017). Knowledge of prostate cancer and screening among young multiethnic black men. *American Journal of Men's Health*, <https://doi.org/10.1177/1557988316689497>.
- Ojewola, R. W., Oridota, E. S., Balogun, O. S., Ogundare, E. O., Alabi, T. O., Banjo, O. O., Laoye, A., Adetunmbi, B., Adebayo, B. O., & Oluyombo, R. (2017). Knowledge, attitudes and screening practices regarding prostatic diseases among men older than 40 years: a population-based study in Southwest Nigeria. *The Pan African Medical Journal*, 27, 151158.
- Olarewaju, S., Akinola, A.D., Oyekunle, E.O., & Adeyemo, S.C. (2020). Factors influencing uptake of prostate cancer screening among adult males in Iseyin LGA, Oyo State. *Research Journal of Health Sciences*, 8, 243-252.
- Ooms, G. I., Kibira, D., Reed, T., van den Ham, H. A., Mantel-Teeuwisse, A. K., & BucklandMerrett, G. (2020). Access to sexual and reproductive health commodities in East and Southern Africa: a cross-country comparison of availability, affordability and stock-outs in Kenya, Tanzania, Uganda and Zambia. *BioMedical Central Public Health*, 20(1), 10531059.
- Pakzad, R., Rafiemanesh, H., Ghoncheh, M., Sarmad, A., Salehiniya, H., Hosseini, S., Sepehri, Z., & Afshari-Moghadam, A. (2016). Prostate cancer in iran: trends in incidence and morphological and epidemiological characteristics. *Asian Pacific Journal of Cancer Prevention*, 17(2), 839-843.
- Panigrahi, G.K., Praharaj, P.P., Kittaka, H., Mridha, A.R., Black, O.M., Singh, R.K., Mercer, R.S., van Bokhoven, A., Torkko, K.C., Agarwal, C., Agarwal, R., Abd Elmageed, Z.Y., Yadav, H., Mishra, S.K., & Deep, G. (2019). Exosome proteomic analyses identify inflammatory phenotype and novel biomarkers in African American prostate cancer patients. *Cancer Medicine*, 8, 1110 - 1123.

- Peisch, S.F., Blarigan, E.L., Chan, J.M., Stampfer, M.J., & Kenfield, S.A. (2016). Prostate cancer progression and mortality: a review of diet and lifestyle factors. *World Journal of Urology*, 35, 867-874.
- Petricca, K., Kambugu, J., Githang'a, J., Macharia, W. M., Njuguna, F., McLigeyo, A., Nyangasi, M., Orem, J., Kanyamuhunga, A., Laiti, R., Katabalo, D., Schroeder, K., Rogo, K., Maguire, B., Wambui, L., Nkurunziza, J. N., Wong, B., Neposlan, J., Kilawe, L., Gupta, S., & Denburg, A. E. (2023). Access to essential cancer medicines for children: a comparative mixed-methods analysis of availability, price, and health-system determinants in east Africa. *The Lancet Oncology*, 24(5), 563–576.
- Siegel, L., Miller, D. & Jemal, A. (2018). Cancer statistics, 2018. *CA Cancer Journal of Clinicians*, 68(1), 7-30.
- Shafi, H., Mooudi, E., Abolfazli, M., Zarghami, A., Mohamadpoumr, M., Firoozjai, A. R., & Rahimi, M. (2013). Screening of prostate cancer in individuals older than 40 years of age with positive heredity. *Journal of Mazandaran University of Medical Sciences*, 22(97), 159- 164.
- Steinmetz, H., Knappstein, M., Ajzen, I., Schmidt, P., & Kabst, R. (2016). How effective are behavior change interventions based on the theory of planned behavior? A three-level meta- analysis. *Zeitschrift für Psychologie*, 224(3), 216-219.
- Stewart, B.W., & C.P., Wild (2014). *World cancer report*. International Agency for Research on Cance.
- World Health Organization (2021). *Cancer report*. WHO.
- Young, B., Bedford, L., Kendrick, D., Vedhara, K., Robertson, J. F.R., & Das Nair, R. (2018). Factors influencing the decision to attend screening for cancer in the UK: a metaethnography of qualitative research. *Journal of Public Health*, 40(2), 315–339.