

Exploring the Knowledge, Perception and Uptake of Prostate Cancer Screening among Men Aged 40 Years and above in Owerri West, Imo State, South Eastern Nigeria

***Ugonma Winnie Dozie¹, Michael Chimereze Agoha¹, David Chinaecherem Innocent¹, Kelechukwu Celestine Nosike Dozie², Uchechukwu Madukaku Chukwuocha¹, Rita Ogechi Chukwu¹, Nkechi Joy Osuoji¹, Promise Nwanyinma Uzowuihe³, and Ikechukwu Nosike Simplicius Dozie¹**

¹Department of Public Health, Federal University of Technology Owerri

²Department of Statistics Imo state University, Owerri Imo State, Nigeria

³Department of Prosthetics and Orthotics, Federal University of Technology Owerri

* Corresponding Author Email: ugonmadozie@gmail.com

Abstract

Prostate cancer is a major public health issue associated with a significant increase in morbidity and mortality among adults. Despite earlier research indicating limited community uptake of prostate cancer screening, no studies on male population above 40 years in Imo State have been conducted. This study aimed to assess the knowledge, perception and uptake of prostate cancer screening among men aged 40 years and above in Owerri West. A cross-sectional study design was employed for the study. A structured questionnaire was used for data collection. Multistage sampling technique was adopted for this study in recruiting 439 men aged 40 years and above in Owerri West LGA who participated in the study. Statistical Package for the Social Sciences (SPSS) version 22 was used in the analysis of the data. Results from the study showed that 257(58.5%) of the respondents were between the age of 55 and 69 years. From the study, 305(69.5%) of the respondents have never heard about prostate cancer screening. Also, 165(37.6%) of adult men believed it is right to go for prostate screening irrespective of the symptoms. The study revealed that 289(65.8%) of the respondents have never screened for prostate cancer prior this study. Age ($p < 0.001$), marital status ($p = 0.001$), parity ($p < 0.001$), health plan ($p = 0.001$), occupation ($p < 0.001$) and level of income ($p < 0.001$) were significantly associated with uptake of prostate cancer screening among men. The study concluded that the level of knowledge about prostate cancer and screening services is low among men in Owerri Municipal LGA. Utilization of screening services for prostate cancer are rare in this population. This is associated with poor perceived disease risk. It is advocated that relevant stakeholders should ensure that proper and consistent health education is provided.

Keywords:
Knowledge,
Perception,
Prostate,
Cancer, Men.

L'Exploration des connaissances, de la perception et de l'adoption du dépistage du cancer de la prostate chez les hommes âgés de 40 ans et plus à l'ouest d'Owerri, dans l'État d'Imo, au sud-est du Nigeria

Résumé

Le cancer de la prostate est un problème majeur de santé publique associé à une augmentation significative de la morbidité et de la mortalité chez les adultes. Malgré des recherches antérieures indiquant une utilisation communautaire limitée du dépistage du cancer de la prostate, aucune étude sur la population masculine de plus de 40 ans dans l'État d'Imo n'a été menée. Le but de cette étude était d'évaluer les connaissances, la perception et l'adoption du dépistage du cancer de la prostate chez les hommes âgés de 40 ans et plus à l'ouest d'Owerri. Une conception d'étude transversale a été utilisée pour l'étude. Un questionnaire structuré a été utilisé pour la collecte des données. La technique d'échantillonnage à plusieurs étapes a été adoptée pour cette étude lors du recrutement de 439 hommes âgés de 40 ans et plus à l'ouest d'Owerri qui ont participé à l'étude. Le logiciel statistique pour les sciences sociales (le SPSS)

Mots-clés:

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Hommes

version 22 a été utilisé dans l'analyse des données. Les résultats de l'étude ont montré que 257 (58,5%) des répondants avaient entre 55 et 69 ans. D'après l'étude, 305 (69,5%) des répondants ont déjà entendu parler du dépistage du cancer de la prostate. De plus, 165 (37,6%) des hommes adultes pensaient qu'il était juste de se faire dépister de la prostate, quels que soient les symptômes. L'étude a révélé que 289 (65,8%) des répondants n'avaient jamais fait de dépistage du cancer de la prostate avant cette étude. L'âge ($p < 0,001$), l'état matrimonial ($p = 0,001$), la parité ($p < 0,001$), le plan de santé ($p = 0,001$), la profession ($p < 0,001$) et le niveau de revenu ($p < 0,001$) étaient significativement associés à l'adoption de dépistage du cancer de la prostate chez les hommes. L'étude a conclu que le niveau de connaissances sur le cancer de la prostate et les services de dépistage est faible chez les hommes du gouvernement municipal d'Owerri et que l'utilisation des services de dépistage du cancer de la prostate est rare dans cette population. Ceci est associé à un risque de maladie perçu faible. Il est préconisé que les parties prenantes concernées veillent à ce qu'une éducation sanitaire appropriée et cohérente soit dispensée.

Introduction

With eight million fatalities and fourteen million new cases recorded in 2014, cancer is the world's leading cause of death and illness (1). By 2030, this figure is expected to increase by at least 70% (1, 2). Prostate cancer is a kind of cancer that affects the prostate gland (3, 4, 5). The prostate is a gland that surrounds the urethra, just below the urinary bladder, in the male reproductive system. Prostate cancers, for the most part, develop slowly (6, 7). Prostate cancer has an overall pooled incidence rate of 21.95 per 100,000 people in Africa, according to estimates (8). Prostate cancer usually starts as a collection of malignant cells in the outer area of the prostate, according to a 2013 publication by the American Society of Clinical Oncology. Early prostate cancer normally has no symptoms, but if left untreated, it can spread to neighbouring lymph nodes, bones, or other organs, causing aches and pains in the bones, pelvis, hips, ribs, and back (9, 10). Even though the specific etiology of prostate cancer is uncertain, it has been linked to a variety of risk factors (3).

Old age is one of the risk factors. Active surveillance or careful waiting can be used to treat prostate cancer. Surgery, radiation therapy, hormone therapy, or chemotherapy are all options for treatment (3). Prostate cancer is a problem of public health relevance in Nigeria (11).

According to a recent research, prostate cancer is the most frequent disease among Nigerian males, accounting for 11 percent of all male malignancies evaluated (12). This conclusion backs up a previous research conducted in Enugu that identified the condition as the most frequent among the urinary tract malignancies evaluated (13). This illness has a significant morbidity and mortality rate, with an annual death rate of 20,000 and a hospital incidence of 127/100,000 (12, 14, 15).

A research in northern Nigeria found that prostate cancer and benign prostate hyperplasia were responsible for a large amount of morbidity and death in Nigerian males (16). Prostate cancer had the highest frequency rate of 46.7 percent among all the urological malignancies

evaluated, according to (10). From the records obtained from Nigerian Cancer Registry (from 2001 to 2017), (13) stated that prostate cancer presently accounts for 11% of all male malignancies, according to a more recent research examination of information.

A variety of public programmes to raise prostate cancer awareness in Nigeria have been launched, according to the Federal Ministry of Health (17). One of the most effective intervention techniques for prostate cancer prevention and control is screening and early detection. The situation, however, continues to worsen due to a lack of understanding of the illness and a low rate of regular screening among men mostly at risk of prostate cancer (18, 19). According to a research conducted in Nigeria, 65 percent of men are aware of prostate cancer, yet just 3% had undergone prostate cancer screening (13). Fatalistic beliefs, which have been found to be more prevalent among underserved populations and black males, are a major barrier to screening uptake. Studies have found that low knowledge about the disease and prostate cancer screening methods play an important role in cancer screening utilization (20, 21, 22, 19, 12, 15). Knowledge and comprehension of an illness are often linked to a more proactive attitude and conduct when seeking medical help.

In Nigeria, few research on prostate cancer, particularly among adults, have been conducted. A lack of understanding and awareness of these screening programmes has been linked to an increase in prostate cancer mortality (12, 15, 11, 23). Despite the fact that early identification is a critical component of effective prostate cancer therapy, the majority of patients in Nigeria (87.5 percent) present in hospitals with advanced illness due to a lack of knowledge and screening facilities for early detection.

The disparities between underserved low-socioeconomic-status communities may be even greater. Despite earlier research indicating limited community uptake of prostate cancer screening, no studies on male population above 40 years in Imo State, particularly those living in slums, have been conducted. This clearly

demonstrates the aim of this study to explore adult men's knowledge, perception, and uptake of prostate cancer screening in Owerri West LGA.

Methods

Study Design

This is a descriptive cross-sectional study on the knowledge, perception and uptake of prostate cancer screening among men aged 40 years and above in Owerri West LGA, Imo State. Adult males at Owerri West LGA has an estimated population of 29,711 (Nigerian Population Commission, 2016).

Sample Size and Sample Techniques

Sample Size Determination

The sample size was determined using the Yamene formula for minimum sample size determination [27]

$$a. \quad \frac{n = N}{1 + Ne^2}$$

Where:

- n is the desired sample size
- N is the population size (29,711)
- e is margin of error (0.05)

Therefore,

$$\frac{n = N}{1 + Ne^2}$$

$$i. \quad \frac{29,711}{1 + 29711 * (0.05)^2}$$

$$i. \quad \frac{29,711}{75.2775}$$

$$n = 394.686327 \dots \dots \dots, 395$$

Furthermore, to account for 10% Non-Response Rate, (i.e. 90% response rate)

$$n = n / \text{expected response rate}$$

$$a. \quad \frac{395}{0.90}$$

$$n = 438.8888889 \dots \dots \dots 439.$$

i.e., the total sample size for the study would be 439.

Sampling Technique

A multistage sampling technique was adopted for this study on the knowledge, perception and uptake of prostate cancer screening among men aged 40 years and above in Owerri West LGA. The first stage involved the selection of communities, where three (3) out of the fifteen (15) communities in Owerri West were selected by the researcher using simple random sampling via balloting. The three communities selected are Ihiagwa, Obinze and Eziobodo. The second stage was the selection of villages, where two (2) villages each, out of the total number of 8, 5 and 4 villages in Ihiagwa, Obinze and Eziobodo community were selected respectively via simple random sampling using balloting. The third stage involved the selection of households, in which a systematic probability sampling method was used to select each household in the selected villages. This gave each household an equal chance of selection. The fourth stage was the selection of respondents, where the researcher selected any male adult of the age group in each household or any one present at the time of study. They were selected until the minimum sample size was obtained to ensure the selection of appropriate number of respondents.

Instrument for Data Collection

A semi structured questionnaire was used for the study on the knowledge, perception and uptake of prostate cancer screening among men aged 40 years and above in Owerri West LGA.

Validity of the Instrument

The research instrument, a questionnaire, was used for data collection. It was developed by the researcher based on previous literatures. The same was submitted to the project supervisor as well as two experts from Department of Public Health, School of Health Technology, Federal University of Technology, Owerri for face validity and proper scrutiny in order to ensure that the questionnaire met the objectives of study.

Reliability of Instrument

Reliability of the instrument was determined using the test retest method. Cronbach alpha test was used to test for the reliability coefficient of the questionnaire and a coefficient of 0.87 was obtained.

Method of Data Collection

Data were obtained using a self-administered semi-structured questionnaire. This was done with the aid of two research assistants who were hired and trained to aid the researcher in the data collection process. The purpose of the research was explained to the respondents before administration of the copies of questionnaires to them.

Method of Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 22 was used in the analysis of the data collected from the study. Results were expressed in percentages, frequencies, tables and charts (Descriptive Statistics). Chi square test was used to test the hypothesis of the study.

Ethical Consideration

Ethical clearance was received from the Department of Public Health and Ethical Review Committee of School of Health Technology, Owerri, Federal University of Technology Owerri. Before being included in the study, the goal of the research was described to each respondent, and verbal informed consent was obtained from them. In addition, the respondents' anonymity were guaranteed.

The confidentiality of the information provided was assured.

Results

Socio-demographic Characteristics of Respondents

From Table 1, respondents who were between the age of 40 and 54 years were 65 (14.8%), 55-69 years were 257 (58.5%), and 68 years and above were 117(26.7%). In

Table 1: Socio-demographic characteristics of the respondents

Variables	Frequency (N=439)	Percentage (%)
Age (years)		
40-54 years	65	14.8
55-69 years	257	58.5
70 & above	117	26.7
Total	439	100
Religion		
Christianity	405	92.3
Muslim	15	3.4
Traditionalist	10	2.3
Other	9	2.1
Total	439	100
Ethnicity		
Igbo	380	86.6
Hausa	17	3.9
Yoruba	11	2.5
Fulani	11	2.5
Others	20	4.6
Total	439	100
Marital status		
Married	315	71.8
Single	50	11.4
Others	74	16.8
Total	439	100
Educational level		
Non formal	107	24.4
primary	150	34.2
secondary	126	28.7
tertiary	56	12.8
Total	439	100
Health insurance plan		
Yes	165	37.6
No	274	62.4
Total	439	100

regards to religion, 405(92.3%) were Christians, 15(3.4%) were Muslims, 10(2.3%) were traditionalists and 9(2.1%) belong to other religion. Out of the 439 respondents, 380(86.6%) are Igbo, 17(3.9%) are Hausa, 11(2.5%) Yoruba and Fulani 11(2.5%), while 20(4.6%) belong to other ethnic group. Most of them, 315(71.8%) were married, 50(11.4%) were single, 40(9.1%) were separated, 34(7.7%) were widowed. As regards educational level, 107(24.4%) had non-formal education, 150(34.2%) had primary education, 126(28.7%) had secondary education, and 56(12.8%) had tertiary education. It was also shown that majority of them 274(62.4%) do not have health insurance, whereas 165(37.6%) had. Figure 1 shows the occupation of respondents where 150(34.2%) were artisans, 100(22.8%) were civil servants, 52(11.8%) were self-employed, 80(18.2%) were unemployed, and 57(13.0%) were professionals. Figure 2 demonstrates the monthly income level of respondents, 59(13.4%) of the respondents earned 1- ₦1,000, while 100(22.8%) earned 2,000- ₦10,000, 85(19.4%) of them earned 11,000- ₦30,000, 62(14.1%) earned 31,000- ₦60,000, 46(10.9%) earned 61,000- ₦100,000 and 32(7.3%) earned above ₦100,000, while 55(12.5%) of them earned unspecified amount.

Figure 3 shows the number of children that the respondents had, majority of the participants had no children 158(36.0%), 96(21.9%) had 1, 41(9.3%) had 2, 81(18.5%) had 3 and 63(14.4%) had 4 and above. As depicted in Figure 4, greater proportions of the participants 299(68.1%) smoke or take alcohol whereas 140(31.9%) don't.

Knowledge of Prostate Cancer Screening among Respondents

Table 2 shows that less than half 134(30.5%) of the respondents reported they have heard about screening for prostate cancer and 305(69.5%) said they were unaware. When asked about source of information, 184(41.9%) said school, 46(10.5%) said parents/family, 89(20.3%) said social media, 65(14.8%) said TV/radio programme, while 29(6.6%) said health practitioner and 26(5.9%) said newspaper/magazines. On the knowledge of risk



Figure 1: Occupation of Respondents

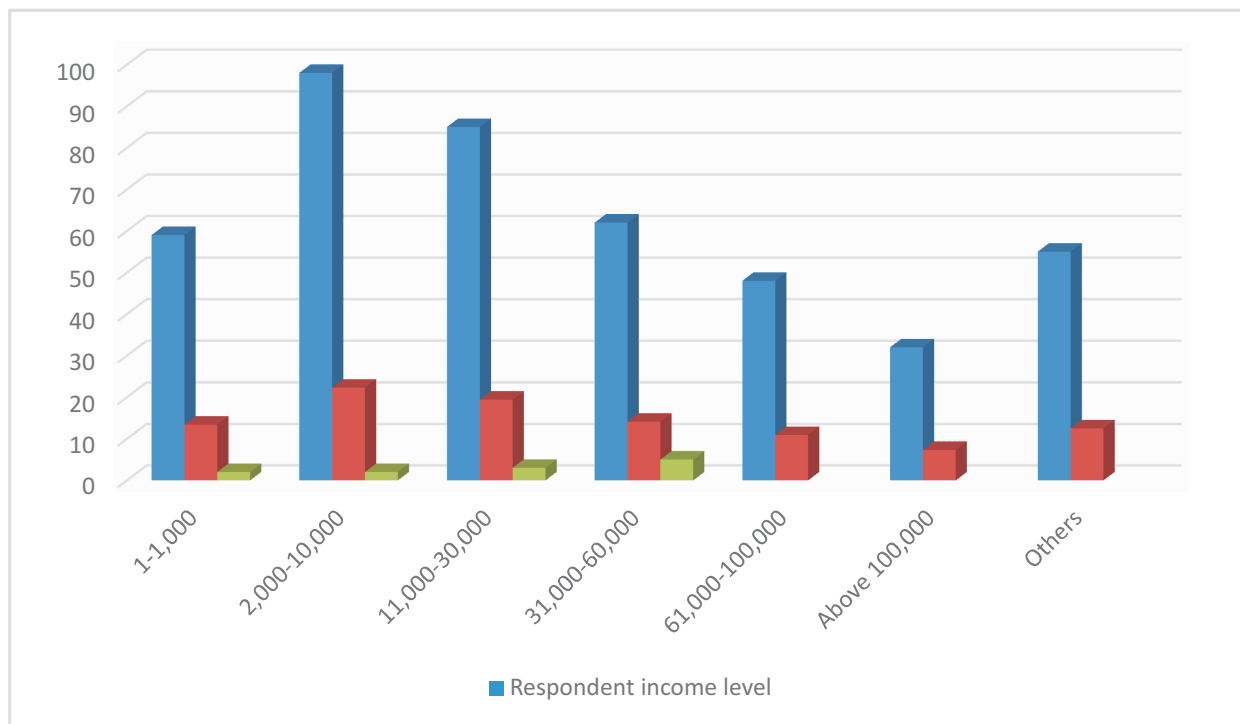


Figure 2: Income level of respondents

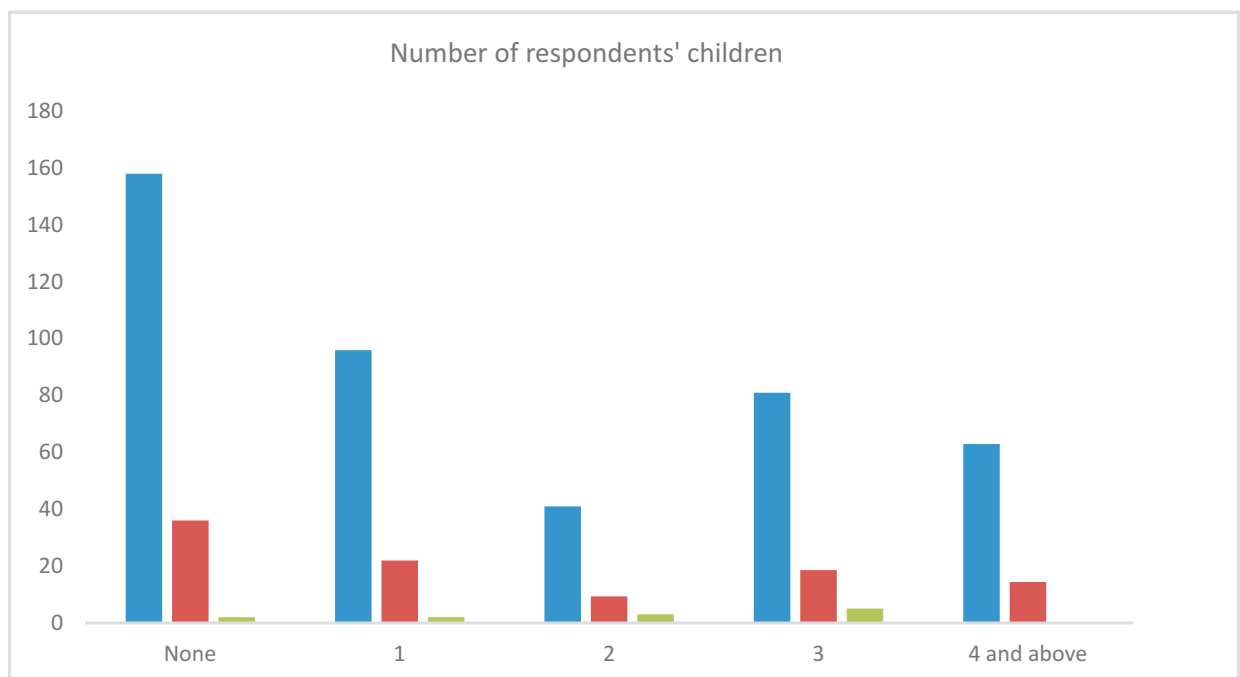


Figure 3: Number of children by respondents

factors associated with prostate cancer, majority of them, 180(41.0%) were of the opinion that prostate cancer is mainly caused by intake of alcohol and tobacco followed by family history, 128(29.2%) identified radiation exposure and age, 69(15.7%) noted lack of physical activities as cause of prostate cancer and 62(14.1%) identified that all

the options provided cause prostate cancer. Majority of the respondents were of the opinion that Prostate Specific Antigen (PSA) test is used to measure the amount of prostate specific antigen in the Blood, 157(35.8%), 128 (29.2%) identified urine, 95(21.6%) identified faeces and 59(13.4%) said none of the above. As regards the symptom

of prostate cancer, 42(9.6%) of them said it manifest when there is problem with urinating, 85(19.4%) said decreased force in the stream of urine, 78(17.8%) said erectile dysfunction, 132(30.1%) said it was blood in the urine and semen, and 102(23.2%) said all of the above. Figure 5 shows that most of the participants, 32(77.9%) were not aware that digital rectal examination is used for prostate cancer as compared to few that were aware, 97(22.15).

Perception of Men in Owerri Municipal LGA towards Prostate Cancer Screening

More than half of the respondents, 233(53.1%) were in support of screening for prostate cancer; 68(15.5%) strongly agreed, and 165 (37.6%) agreed that it was right to screen for prostate cancer. The rest of the respondents

were of contrary opinion. A similar view was reported on the need for every health centre to provide prostate cancer services; 198 (45.1%) strongly agreed, and 94(21.4%) agreed. When asked if a man should go for screening once a year, 153(34.9%) strongly agreed, 56(12.8%) agreed, 110(25.1%) were undecided, 58(13.2%) disagreed, 62(14.1%) strongly disagreed. Finally, when asked if early screening for prostate cancer is likely to increase chances of living a healthier life, 180 (41.0%) strongly agreed, 70(15.9%) agreed, 90(20.5%) were undecided, 68(15.5%) disagreed, and 31(7.1%) strongly disagree. Figure 6 shows responses as regards consent of the family before going for prostate cancer screening, 39(8.9%) strongly agreed, 44(10.0%) agreed, 169(38.5%) were undecided, 80(18.2%) disagreed, and 107(24.4%) strongly disagreed.

Table 2: Knowledge of prostate cancer screening among men in Owerri Municipal LGA

Variables	Frequency(N=439)	Percentage (%)
Ever heard about prostate cancer screening		
Yes	134	30.5
No	305	69.5
Total	439	100
Source of information		
School	184	41.9
Parents/family	46	10.5
Social media	89	20.3
TV/radio programmes	65	14.8
Health practitioner	29	6.6
Newspaper/ magazines	26	5.9
Total	439	100
Knowledge of risk factors with prostate cancer		
Family history, radiation exposure and age	128	29.2
Alcohol and tobacco	180	41
Lack of physical activities	69	15.7
All of the above	62	14.1
Total	439	100
Knowledge of use of the Prostate Specific Antigen(PSA) Test		
Blood	157	35.8
Urine	128	29.2
Faece	95	21.6
None of the above	59	13.4
Total	439	100
Symptoms of prostate cancer		
Trouble urinating	42	9.6
Decreased force in the stream of urine	85	19.4
Erectile dysfunction	78	17.8
Blood in the urine and semen	132	30.1
All of the above	102	23.2
Total	439	100

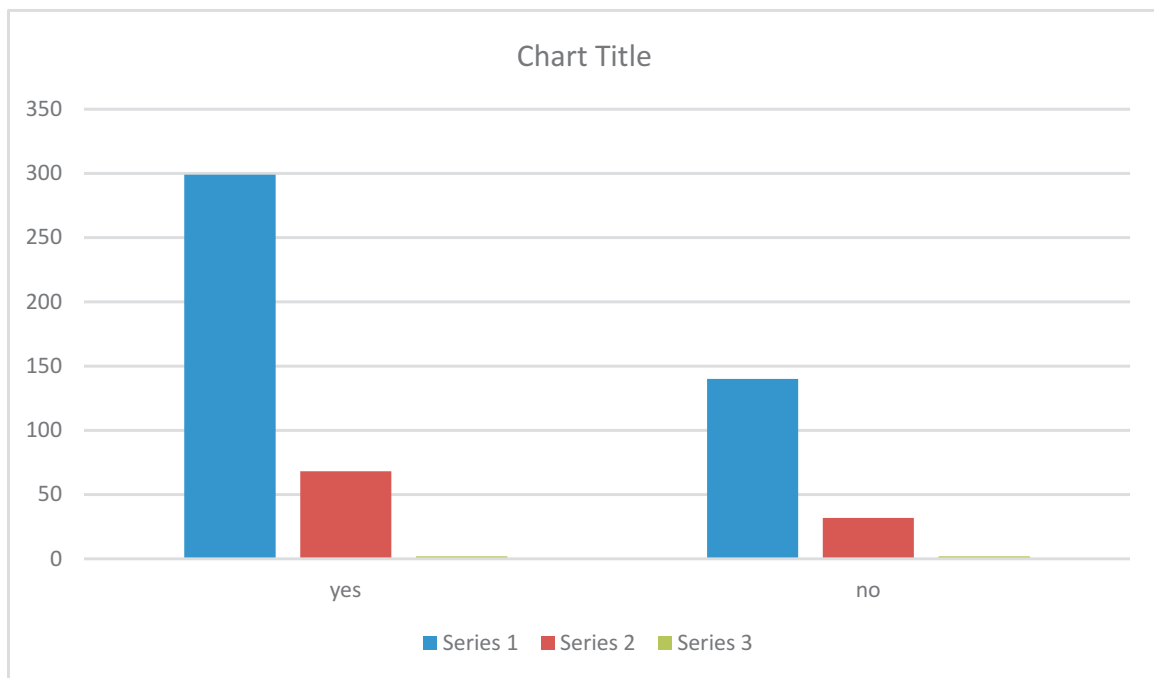


Figure 4: Smoking or Taking Alcohol

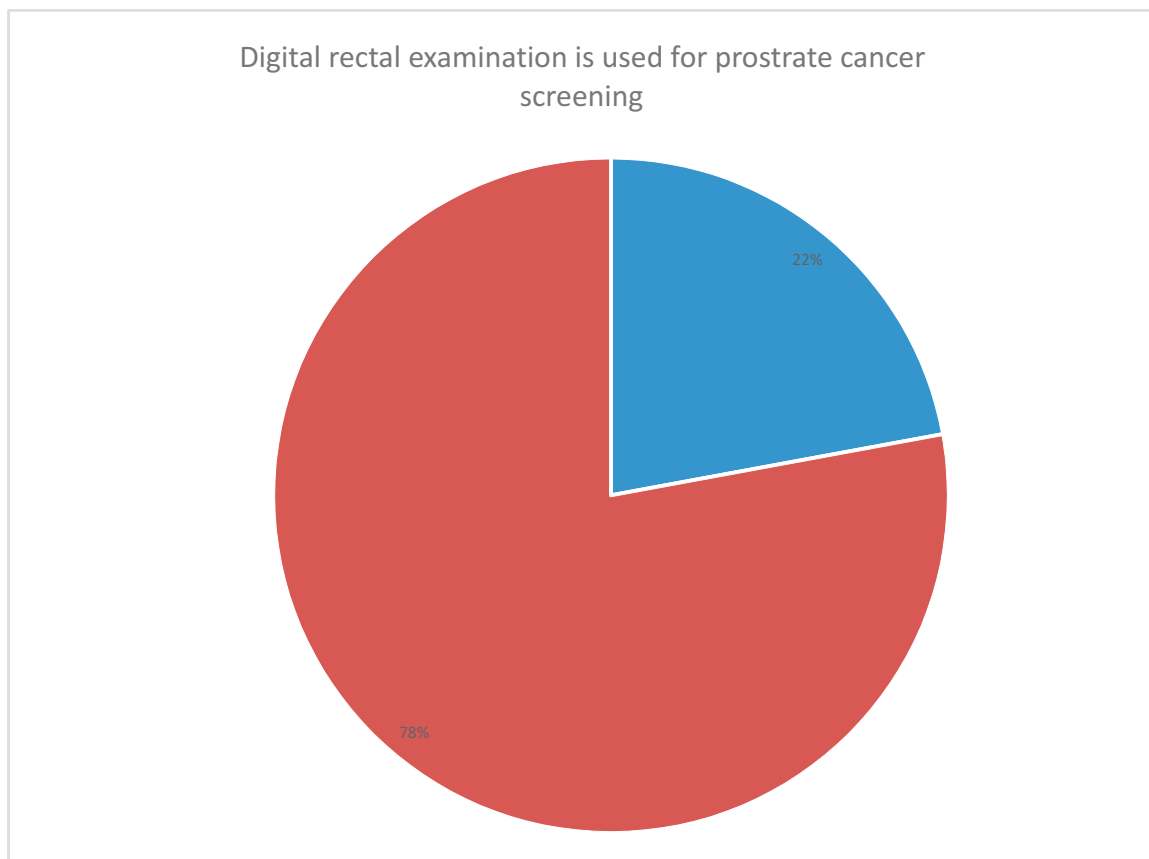


Figure 5: Use of digital rectal examination

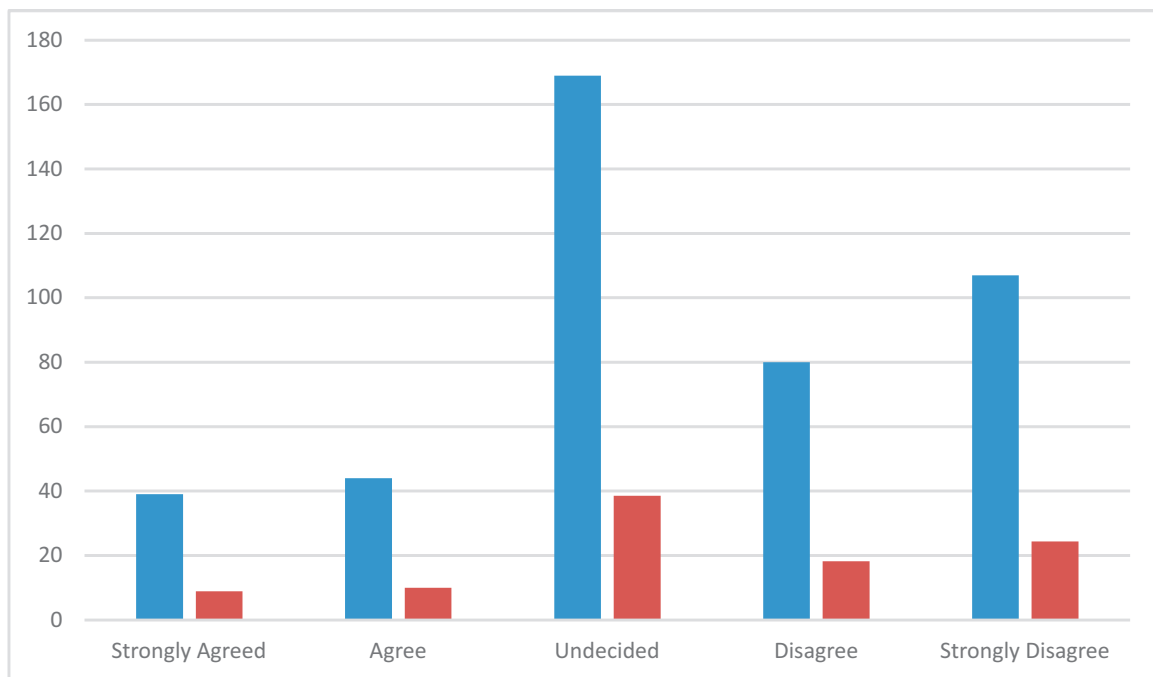


Figure 6: Consent of the family for prostate screening

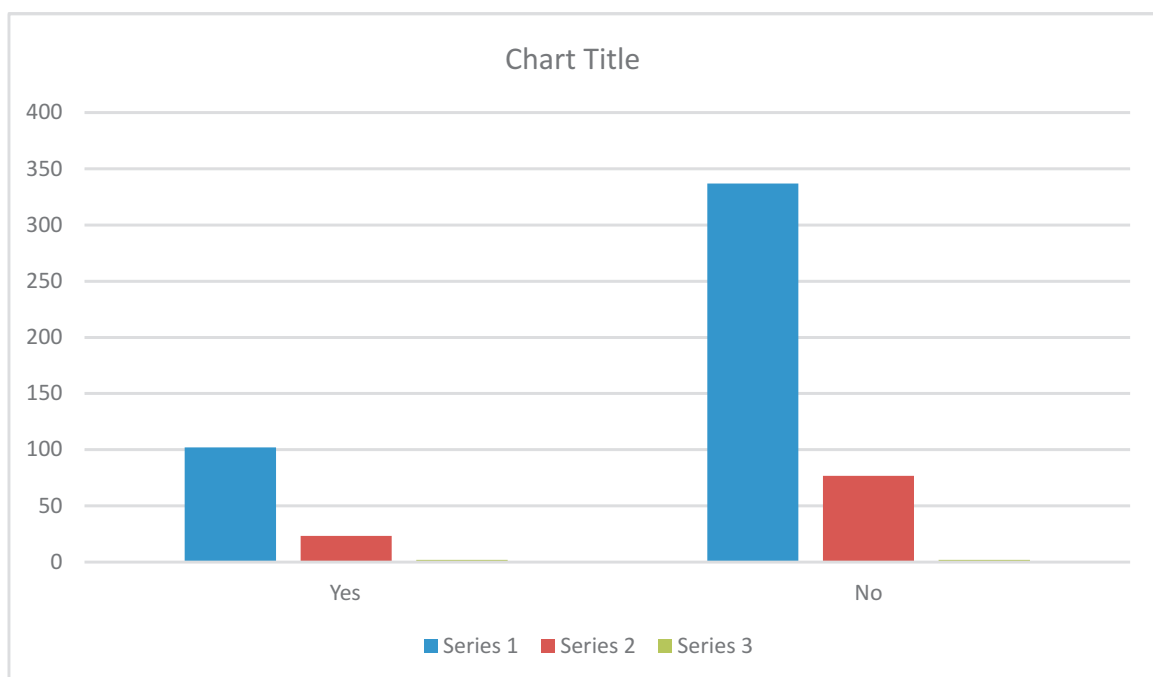


Figure 7: Ever had abnormal test result

Table 3: Perception of respondents

Variables	Frequency(N=439)	Percentage (%)
It is right to go for prostate screening irrespective of the symptoms		
Strongly agree	68	15.5
Agree	165	37.6
Undecided	69	15.7
Disagree	71	16.2
Strongly Disagree	66	15
Total	439	100
Prostate cancer services should be provided by every health centre		
Strongly agree	198	45.1
Agree	94	21.4
Undecided	35	8
Disagree	82	18.7
Strongly Disagree	30	6.8
Total	439	100
A man should go for screening once a year		
Strongly Agree	153	34.9
Agree	56	12.8
Undecided	110	25.1
Disagree	58	13.2
Strongly Disagree	62	14.1
Total	439	100
Early screening for prostate cancer is likely to increase chances of living a healthier life		
Strongly Agree	180	41
Agree	70	15.9
Undecided	90	20.5
Disagree	68	15.5
Strongly Disagree	31	7.1
Total	439	100

Uptake of Prostate Cancer Screening Among Men in Owerri Municipal

From Table 4, it was shown that very few, 40(9.1%) of the participants have been advised by physician on the need to go for prostate cancer screening. While majority 377 (85.9%) of them have not been advised, 22(5.0%) of them cannot remember. As regards the available prostate cancer service known to the participants, 112(25.5%) answered Digital Rectal Examination, 128(29.2%) responded PSA blood test, 44(10.0%) responded prostate biopsy, and others 155(35.3%). It was also indicated that minority 95(21.6%) of them have been screened for prostate cancer. While most of the participants 289(65.8%) have not, 55(12.5%) said they cannot remember. Major reason given for not taking prostate cancer screening was distance of the facility, 108(24.6%), 85(19.4%) said cost of screening, 49(11.2%) said attitude of healthcare providers, and 47(10.7%) said it was because of other reasons. For those who have gone for screening, most of

them did that for six months to a year, 27(6.2%), followed by those who did longer than a year ago 22(5.0%), 4-6months, 21(4.8%), 2-3months, 17(3.9%) and less than a month ago 8(1.8%).

Association between Socio-demographic Characteristics and Uptake of Prostate Cancer Screening

Table 5 shows the association between socio-demographic characteristics and uptake of prostate cancer screening. It was revealed that all the socio-demographic attributes had significant ($p < 0.05$) influence on uptake of prostate cancer screening with the exception of religion, ethnicity, educational level and intake of smoking/alcohol. Uptake of screening was significantly higher in participants that are 70 years and above, 41(35%) and those that are married 83(26%). Also, uptake was significantly higher in respondents who had three children, 36(44%). Equally, professionals 20(35%) who earned above ₦100,000 Naira,

Table 4: Uptake of prostate cancer screening among men aged 40 years and above in Owerri Municipal LGA

Variables	Frequency(N=439)	Percentage (%)
Ever advised by physician to go for prostate cancer screening before		
Yes	40	9.1
No	377	85.9
Cannot Remember	22	5
Total	439	100
Available prostate cancer services		
Digital Rectal Examination	112	25.5
PSA Blood test	128	29.2
Prostrate Biopsy	44	10
Others	155	35.3
Total	439	100
Ever screened for prostate cancer before		
Yes	95	21.6
No	289	65.8
Cannot Remember	55	12.5
Total	439	100
Reason for not screening		
Distance of the facility	108	24.6
Cost of screening	85	19.4
Attitude of healthcare providers	49	11.2
Others	47	10.7
Total	289	65.8
Reason for screening		
Less than a month	8	1.8
2-3 months	17	3.9
4-6 months	21	4.8
6 months to a year	27	6.2
Longer than a year	22	5
Total	95	21.6

Table 5: Association between socio-demographic characteristics and uptake of prostate cancer screening

Variables	Yes	No	Total	X ²	D.F	P value	Decision
Age (years)							
40-54 years	19(29%)	46(71%)	65				
55-69 years	35(14%)	222(86%)	257				
70 & above	41(35%)	76(65%)	117				
Total	95(22%)	344(78%)	439	24.35	2	< 0.001	S
Religion							
Christianity	91(22%)	321(78%)	405				
Muslim	2(13%)	13(87%)	15				
Traditionalist	1(10%)	9(90%)	10				
Other	1(11%)	1(89%)	9				
Total	95(22%)	344(78%)	439(100%)	2.41	3	0.492	NS
Ethnicity							
Igbo	88(77%)	292(77%)	380				
Hausa	1(6%)	16(94%)	17				
Yoruba	2(18%)	9(82%)	11				
Fulani	0(0%)	11(100%)	11				
Others	4(20%)	16(80%)	20				
Total	95(22%)	344(78%)	439(100%)	6.15	4	0.188	NS
Marital status							
Married	83(26%)	232(74%)	315				
Single	3(6%)	47(94%)	50				
Others	9(12%)	65(88%)	74				
Total	95(22%)	344(78%)	439(100%)	15.25	2	0.001	S
Parity							
None	12(8%)	146(92%)	158				
1	29(30%)	67(70%)	96				
2	15(37%)	26(63%)	41				
3	36(44%)	45(56%)	81				
4 and above	3(5%)	60(95%)	63				
Total	95(22%)	344(78%)	439(100%)	63.36	4	< 0.001	S
Educational level							
Non formal	19(18%)	88(82%)	107				
Primary	28(19%)	122(81%)	150				
Secondary	36(29%)	90(71%)	126				
Tertiary	12(21%)	44(79%)	56				
Total	95(22%)	344(78%)	439(100%)	5.30	3	0.051	S
Health insurance plan							
Yes	22(13%)	143(87%)	165				
No	73(27%)	201(73%)	274				
Total	95(22%)	344(78%)	439(100%)	11	1	0.001	S
Occupation							
Artisan	29(19%)	121(81%)	150				
Civil servant	39(39%)	61(61%)	100				
Self-employed	5(10%)	47(90%)	52				
Unemployed	2(3%)	78(98%)	80				
Professional	20(35%)	37(65%)	57				
Total	95(22%)	344(78%)	439(100%)	46.04	4	< 0.001	S
Level of income							
1- N1,000	0(0%)	59(100%)	59				
2,000-N10,000	10(10%)	90(90%)	100				
11,000-N30,000	14(16%)	71(84%)	85				
31,000-N60,000	21(34%)	41(66%)	62				
61,000-N100,000	14(30%)	32(70%)	46				
Above N100,000	22(69%)	10(31%)	32				
Others	14(25%)	41(75%)	55				
Total	95(22%)	344(78%)	439(100%)	75.54	6	< 0.001	S
Smoke or intake of alcohol							
Yes	69(23%)	230(77%)	299				
No	26(19%)	114(81%)	140				
Total	95(22%)	344(78%)	439(100%)	1.14	1	0.285	NS

and 22(69%) who had no health insurance plan. 73(27%) of the respondents utilized prostate cancer screening more than others with significant association.

Discussion

Socio-demographic Characteristics of Respondents

Based on the findings of this study on the socio-demographic characteristics of the respondents, majority 257(58.5%) were between the age of 55 and 69 years. This is consistent with a statement made by (6), in a study that majority (61.5%) of adult men were mainly 47-67 years. The study revealed that 92.3% of the respondents were Christians and most of them are from Igbo (86.6%) ethnic group. This is due to the fact that the study was conducted in the Southeastern part of Nigeria where majority are Christians and Igbo.

Awareness of Prostate Cancer Screening among Respondents

Considering the findings of this study, it was revealed that based on the awareness of prostate cancer screening among men in Owerri Municipal LGA, 69.5% have never heard about prostate cancer screening. This is due to the information obtained about prostate cancer among the respondents. This finding goes in contrast with a study conducted among men attending Mathare North Health Centre by (24), that 85.4% of men have heard about prostate cancer screening. The findings of this study revealed that 30.5% of the respondents demonstrated that they have heard about it from school. This is consistent with a study by (25) that 46.9% of the respondents have heard about prostate cancer screening through school. This shows that the level of education among the adult men at Owerri West LGA played a major role in their enlightenment towards prostate cancer screening.

Perception of Respondents toward Prostate Cancer Screening

This study based on the perception of respondents towards prostate cancer screening revealed that 37.6% of the adults believed it is right to go for prostate screening irrespective of the symptoms. This statement goes in contrast with a publication by (18), among men at Teran Community that 76.8% believed it is right to go for prostate screening irrespective of the symptoms. This is hugely determined by the level of education and enlightenment of the men. The study also revealed based on perception that 41.0% of the respondents totally agreed that early screening for prostate cancer is likely to increase chances of living a healthier life. This is due to the information they possess and men would be willing to participate and put such information to practice. This

finding corroborates with an earlier finding among adult men at Sakar, Tanzania by (14) that 52.6% agreed that early screening is essential for increasing chances of healthy living among respondents.

Uptake of Prostate Cancer Screening Services among Respondents

Considering the findings on the uptake of prostate cancer screening, findings showed that 85.9% said that no physician has advised them to screen for prostate cancer. This is in line with a previous publication by (19), noted that 72.5% of adult men said that no physician had advised them to screen for prostate cancer. The study also illustrated that 65.8% have not screened for prostate cancer before. This could be due to several factors such as income and other socio-demographic characteristics. This finding is in contrast with a study by (25) that 56.9% of adult men have screened for prostate cancer in a community.

Association between Socio-demographic Characteristics and Uptake of Prostate Cancer Screening

The findings of this study based on the association between socio-demographic characteristics and uptake of prostate cancer screening revealed that age is significantly associated with uptake of prostate cancer screening ($P < 0.001$). This means that while they age, there is increased risk of prostate cancer among men at Owerri Municipal LGA. This corroborates the finding by (21) that the age of rural men at Iseyin, Oyo State was significantly associated with uptake of prostate cancer screening ($P = 0.0023$). The study further revealed that marital status and parity are significantly associated with uptake of prostate cancer screening in line with a study by Farazi *et al* (15) ($p = 0.0021$). It means that married men with three or more children are more likely to uptake prostate cancer screening more than singles and those with less than or more than three children. The findings of this study also showed that the level of income and health plan are associated with uptake of prostate cancer screening. This means that uptake of services at the community healthcare by adult men is associated with their subscription towards health plans like NHIS, etc. This goes against the finding of (26), that found that health plan subscription among adults seeking healthcare is not associated with screening for prostate cancer ($p = 0.6222$).

Conclusion

According to the findings of this study, males in Owerri Municipal LGA have an unacceptably low level of knowledge regarding prostate cancer and screening

facilities. Screening for prostate cancer is uncommon in this demography, and it is connected with a low perceived disease risk, low income, a lack of awareness, and being younger. Also, professionals who are married with at least three children are more willing to screen. Therefore, intervention strategies aimed at boosting information about prostate cancer and screening services, as well as ensuring that screening services are readily available, must be enhanced.

Recommendation

Based on the findings and conclusion of the study, the researcher came up with the following recommendations: Since the exact cause of prostate cancer is not known, just a range of potential risk factors that could pre-dispose someone to the disease, and for the fact that someone can be exposed to the risk factors and still not develop the disease, the government should implement policies to improve prostate cancer screening to determine an individual's susceptibility to the disease.

Individuals who have a relative (father, brother, uncle) who have prostate cancer should go for screening more often to know their health status and choose a healthy lifestyle that will help prevent them from developing the disease.

The government should also ensure that proper and consistent health education is provided to enable people to be aware and have the knowledge of different lifestyles that could prevent the disease from developing. Continuous health education on chronic non communicable diseases such as prostate cancer should be advocated for while regular annual medical check-up should continue to be encouraged for those who are not diagnosed for prostate.

Limitation of the Study

The major challenge encountered by the researcher is communication barrier. Majority of respondents were uneducated. Hence, engaging in effective communication posed a major limitation to the study. Thus, convincing the respondents of the confidentiality of the information given was another challenge.

However, the time allotted to this research was short and this prevented the researcher from reaching all the respondents who would have participated in the exercise.

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