JHER Vol. 31, No. 2, December 2024, pp. 46 - 56

Prostate Cancer Media Messages Issues among Male Secondary School Staff in Southeast Nigeria

Ajibo Donatus U
Department of Mass communication,
University of Nigeria, Nsukka
Corresponding Author: *uchenna.ajibo.pg89150@unn.edu.ng*

Abstract

The study focused on prostate cancer in media messages and male secondary school staff in Southeast Nigeria. Specifically, it determined regularity of exposure of men to media messages on prostate cancer; level of awareness of the men to media messages on prostate cancer media messages; knowledge of prostate cancer gained from media messages; attitude of men towards prostate cancer media messages. The study adopted a survey research design. Population was 759 male teaching and non-teaching staff of Federal Government College (30 years and above) in Southeast Nigeria. Data were collected using questionnaire. Findings show various exposure regularity to masses, including on a daily basis ($\overline{X}$=2.97), once a week ($\overline{X}$=2.97), and once a month ($\overline{X}$=2.84). Also, the respondents have a high level of awareness of the six awareness indicators, which include campaigns that help provide information about early detection and prevention ($\overline{X}$=3.01), among others. Furthermore, respondents have high knowledge for each of the seven knowledge indicators, including that prostate cancer is a disease that affects men alone ($\overline{X}$=3.12), among others. Also, respondents have a high level of attitude for each of the five attitude indicators, including that prostate cancer can be averted ($\overline{X}$=3.26), among others. There is a significant relationship at 0.05 level of significant between regular exposure to media messages about prostate cancer and attitude of male secondary school staff in Southeast towards prostate cancer.

Key words: Awareness, Cancer, Prostate, Knowledge, Attitude, Media Messages, Campaign.

Introduction

Cancer is the unchecked growth of malignant cells in any organ system (Selvakumar *et al*., 2012; Abbott & Ustoyev, 2019; Kumari, 2020). These abnormal cells or growth are known as cancer cells, malignant cells, or tumour cells. These cells have the ability to enter normal human tissues (Fadaka, *et al*., 2017; Didiugwu, *et al*., 2018; Kumari, 2020; Alothman *et al*., 2022). Cancer cells, according to Kumari (2020) and Vasantharajan *et al*. (2021), can break free from the initial mass of cells, travel through the blood and lymph systems, and lodge in other organs in order to restart the unrestrained growth phase.

Cancer-related mortality rates in Asia and Africa are much higher than their incident incidence rates (57.3% and 7.3%, respectively). Although the condition can afflict men of various racial origins, research suggests that black men have a greater susceptibility to contracting the disease (Alexis *et al*., 2024). This is because many nations lack the resources to detect

and treat cancer early, and those who are diagnosed often have a far lower chance of survival World Health Organisation (WHO), 2018). Prostate cancer (PCa), the most frequent cancer in males, is diagnosed in about 2000 men every day around the world, with one man dying from the disease every two minutes (Fitzpatrick *et al*., 2009; Gebru *et al*., 2023). It happens when a tumour develops in the prostate gland of the male reproductive system.

Previous prostate cancer studies in Nigeria and Africa found that men in Africa have the highest incidence and mortality rates (Enemugwem *et al.,* 2019; Ugochukwu *et al.,* 2019; Riviere et al., 2020; Aladuwaka *et al.,* 2022). An earlier study by St-Hilaire (2019) and Dozie et al. (2022) found that this disease had a significant morbidity and mortality rate, with a 20,000 annual death rate and a hospital incidence of 127 per 100,000. This rise can be attributed to the nonexistence of in-depth awareness of prostate cancer risk factors, symptoms, and treatment, as well as a negative attitude towards prostate cancer screening (Agbugui, *et al.,* 2014; Liss *et al*., 2020).

In Nigeria, prostate cancer is the most common male cancer, accounting for 28 percent of all new occurrences of male cancer. Media campaigns are one technique to educate the public about the hazards of prostate cancer. The media have a vital role in raising public awareness about health issues. The media acquaint individuals with alternative lifestyles and provide them with knowledge on certain diseases, including their risk factors and strategies for maintaining a life free from such illnesses (Acha *et al.,* 2023). The most proximal endpoint is awareness, which may be an important step towards campaign effectiveness on behavioural outcomes (Bauman & Chau, 2009; den Braver *et al.,* 2022). There is no doubt that the best way to raise awareness is through the media, through which helpful information can be disseminated to thousands of individuals in a specific area from a credible source.

Citizens are taught how to make appropriate health decisions, such as the need for early prostate cancer screening. The media, as an effective means of disseminating information, must be well-equipped to educate and advise men on how to prevent and detect prostate cancer early (Oranusi, *et al*., 2012; Alexander *et al.,* 2021; Ndung & Kahura, 2022). Men will have a greater understanding of prostate cancer and its significance, as well as routine prostate checks, as a result of the widespread media messages on the disease.

Scholarly studies on prostate cancer have revealed a lack of awareness (Ajape, *et al.,* 2010; Okeibunor's 2011; Adibe *et al.,* 2017; Schliemann *et al.,* 2019; Sofija *et al.,* 2023), a lack of knowledge about prostate cancer (Enemugwem *et al.,* 2019; Sakala *et al.,* 2020), and a negative attitude towards prostate cancer (Adibe *et al.,* 2017; Sakala *et al.,* 2020). However, there is evidence to suggest that issues with men's prostate cancer media messages among male secondary school teachers in Southeast Nigeria may impact their decision to seek screening and treatment. Despite the increasing use of media campaigns to promote prostate cancer awareness, little is known about the effectiveness of such messages and their impact on MSSS regularity of exposure, level of awareness of, knowledge on prostate cancer gained from media messages and attitudes towards the diseases.

In spite of prostate cancer awareness campaigns, death rates continue to rise.

Prostate cancer is a key factor in mortality in developing countries such as Nigeria, with men aged 50 and up accounting for the majority of deaths. This high death rate could be attributed to absence of public awareness and information, late confirmation of illness and diagnosis, as well as men's attitudes towards the disease. Some experts believe that efforts to combat prostate cancer must prioritize raising awareness, changing attitudes, and improving the use of screening measures among all groups of men generally. Male secondary school staff (both non-teaching and teaching), constitute a group that needs to be targeted. This because when they are appropriate impacted by awareness programmes, they can impact other men, hence the need for this study.

Objectives of the Study

The major objective of this study was to examine prostate cancer media messages issues among male secondary school staff in Southeast Nigeria. Specifically, the study determined:

1. regularity of exposure of men secondary school staff (MSSS) to media messages on prostate cancer in Southeast Nigeria,
2. level of awareness of MSSS to media messages on prostate cancer in Southeast Nigeria
3. level of knowledge of prostate cancer among MSSS gained from media messages in Southeast Nigeria
4. attitude of MSSS towards prostate cancer media messages in southeast Nigeria

Hypotheses (HOs):

The following hypotheses were tested at a significance level of 0.05.

There is no significant relationship between regular exposure of MSSS to media messages about prostate cancer and:

$H0_1$: attitudes of MMSS in southeast towards prostate cancer.

$H0_2$: level of knowledge about prostate cancer gained from media messages in Southeast Nigeria

Methodology

***Design of the Study*:** The study adopted a survey research design.

***Area of the Study*:** The study was conducted in the five states that make up Southeast Nigeria. The area comprised of Abia, Anambra, Ebonyi, Enugu, and Imo. The study focused on the Federal government colleges (unity secondary schools) in the area of the study. At the time of the study there were 12 such schools in the area (National Education Management Information System (NEMIS) & Federal Ministry of Education (2021) https://nemiserp.com/reports/fucs.pdf.).

***Population for the Study*:** The population was made up of 426 teaching and 323 non-teaching male staff of 12 Federal government colleges (FGC) in southeast Nigeria. The FGC involved male secondary school staff from Abia State (80 teaching staff and 92 non-teaching staff), Anambra State (131 teaching staff and 61 non-teaching staff), Ebonyi State (61 teaching staff and 39 non-teaching staff), Enugu State (98 teaching staff and 73 non-teaching staff), and Imo State (66 teaching staff and 58 non-teaching staff). The male teaching and non-teaching staff, who were all 30 years old or older. The teaching staff predominantly hold advanced academic qualifications (such as bachelor's, master's, or higher degrees) and typically boast substantial teaching expertise, spanning from five to 20 years or beyond. This experience involves direct classroom instruction and educational engagements.

On the other hand, the non-teaching staff possess diverse educational backgrounds, which may include diplomas and related qualifications. They also have three to 15 years of experience in administrative, maintenance, and support duties.

***Sample for the study*:** A total of 385 participants were randomly selected from the population of 759 male secondary school staff in Southeast Nigeria's Federal Government Colleges. The sample was made up of 221 teaching staff and 164 non-teaching staff.

***Instrument for data collection*:** Structured questionnaire was used for data collection. The instrument was developed through literature review based on specific objectives of the study. Three experts in the fields of mass communication and media studies validated the instrument. The instrument had a four point strongly disagree (0.50-1.49); disagree (1.50-2.49); agree (2.50-3.49); strongly agree (3.50-4.00). The reliability of the instrument was tested using Pearson's formula, which yielded 0.91 from the instrument, which suggests a strong positive correlation, which may indicate high reliability for the instrument being tested.

***Method of data collection*:** A total of 385 copies of the questionnaire were administered as follows, 221 for the teaching staff and 164 for the non-teaching staff. Over the course of six weeks all, the 385 copies retrieved giving a 100 percent return rate.

***Method of data Analysis*:** The data was analysed using mean scores and standard deviation. Means were used to answer research questions, and the standard deviation measures how dispersed the data is relative to the mean. A criterion score of 2.50 was adopted for decision-making. Any mean of 2.50 and above ($\bar{X} \geq 2.50$) was regarded as high regularity/ awareness/ knowledge/ attitude. Any item with mean less than 2.50 ($\bar{X} \leq 2.50$) were considered low on the four parameters. Simple linear regression analysis was used to test hypotheses. The hypotheses were tested at the 0.05 level of significance.

Results

Table 1: Mean Responses and Standard Deviation on How Regularly are MSSS Exposed to Media Messages about Prostate Cancer in South East, Nigeria

SN	Regularity exposure Indicators	$\bar{X}_1$	SD_1	$\bar{X}_1$	SD_2	$\bar{X}_g$	SD_g	R
1	Am exposed to prostate cancer campaigns daily	2.55	1.50	2.45	1.45	2.97	0.97	HR
2	Am exposed to prostate cancer campaigns once a week	2.60	1.55	2.40	1.50	2.97	0.91	HR
3	Am exposed to prostate cancer campaigns once a month	2.50	1.60	2.50	1.50	2.84	0.96	HR
	Cluster Mean					**2.92**	**0.83**	**HR**

N_1= Number of Teaching staff (221), N_2= Number of Non-teaching staff (164), $\bar{X}_1$= Mean of Teaching staff, SD_1=Standard deviation of teaching staff; $\bar{X}_2$= Mean of Non-teaching staff, SD_2 =Standard deviation of Non- teaching staff; $\bar{X}_g$ = Grand mean; SD_g= Standard deviation of grand mean; Remark=HR= High Regularity

Table 1 presents the grand mean ratings and standard deviations of respondents' exposure to media messages about prostate cancer in Southeast Nigeria. The findings indicate that the respondents agree on three items: daily, weekly, and

monthly exposure to media messages about prostate cancer, with mean values ranging from 2.84 to 2.97, all exceeding the mean of 2.50 and above ($\bar{X} \geq 2.50$) overall mean of 2.92 and a standard deviation of 0.83. These all show that regularity of exposure of MSSS to media messages on prostate cancer is high regularity.

Table 2: Mean Responses and Standard Deviation on the Level of Awareness among MSSS Regarding Media Messages on Prostate Cancer in South East, Nigeria

SN	Awareness Indicators	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	SD_g	R
1	The campaign helps to provide information about early detection and prevention	2.60	1.50	2.42	1.45	3.01	0.95	HA
2	The media campaigns detailed the lifestyles that predispose men to prostate cancer	2.55	1.55	2.33	1.50	2.94	0.92	HA
3	The media campaign showcased the genetic factors that predispose men to prostate cancer	2.60	1.60	2.28	1.55	2.94	0.94	HA
4	The preventive measures were also incorporated in the media messages	2.52	1.55	2.30	1.50	2.91	0.91	HA
5	The media messages explained the treatment options available in the hospitals	2.48	1.50	2.22	1.45	2.85	0.93	HA
6	The Media messages educated men on the different kind of screening regarding prostate cancer	2.50	1.55	2.20	1.50	2.85	0.94	HA
	Cluster Mean					**2.91**	**0.78**	**HA**

N_1= Number of Teaching staff (221), N_2= Number of Non-teaching staff (16) 4$\bar{X}_1$= Mean of Teaching staff, SD_1=Standard deviation of teaching staff; $\bar{X}_2$= Mean of Non-teaching staff, SD_2=Standard deviation of Non- teaching staff; $\bar{X}_g$=Grand mean; SD_g = Standard deviation of grand mean; Remark =HA= High Awareness

Table 2 presents the mean ratings and standard deviation of respondents on six (6) identified items related to respondent's level of awareness regarding media messages on prostate cancer. The grand mean values ranged from 2.85 to 3.01, all of which exceeded the acceptable mean limit of 2.50. The overall mean is 2.91, with a standard deviation of 0.78. This indicates that respondents agreed that items 1, 2, 3, 4,5, and 6 have a high level of awareness regarding media messages concerning prostate cancer. This implies that the respondents have high awareness of the six awareness indicators.

Table 3: Mean Responses and Standard Deviation on Knowledge about Prostate Cancer Gained from Media Messages among MMSS in South East, Nigeria

SN	Knowledge Indicators	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	SD_g	R
1	Prostate cancer is a disease that affect men alone	3.15	1.10	3.09	1.05	3.12	0.86	HK
2	Painful ejaculation is attributable to prostate cancer	2.95	1.00	2.89	0.95	2.92	0.85	HK
3	Prostate cancer is a growth of tumour in prostate gland	2.98	1.05	2.92	1.00	2.95	0.88	HK

Table 3 contd.

4	Most prostate cancer cases affect men from 40 years and above	2.90	1.10	2.84	1.05	2.87	0.92	HK
5	Genetic factors also predispose men to prostate cancer	2.87	1.10	2.81	1.05	2.84	0.91	HK
6	Blood in the urine or ejaculation is one of the symptoms of prostate cancer	2.92	1.10	2.86	1.05	2.89	0.92	HK
7	Prostate Specific Antigen (PSA) is test that helps to detect prostate cancer	2.85	1.15	2.77	1.10	2.81	1.01	HK
	Cluster Mean					**2.91**	**0.72**	**HK**

N_1= Number of Teaching staff (221), N_2= Number of Non-teaching staff (164), $\bar{X}_1$ = Mean of Teaching staff, SD_1=Standard deviation of teaching staff; $\bar{X}_2$ = Mean of Non-teaching staff, SD_2 = Standard deviation of Non- teaching staff; $\bar{X}_g$ = Grand mean; SD_g= Standard deviation of grand mean; Remark= HK= High knowledge

Table 3 shows the mean ratings and standard deviation of respondents on the seven (7) identified items pertaining to the level of knowledge about prostate cancer gained from media messages. The grand mean values ranged from 2.81 to 3.12, all of which exceeded the acceptable mean limit of 2.5. This indicates that respondents agreed that items 1, 2, 3, 4, 5, 6, and 7 have an overall mean of 2.91 with a standard deviation of 0.72, which means the respondents have high knowledge for each of the seven knowledge indicators.

Table 4: Mean Responses and Standard Deviation on the Attitudes of MSSS towards Prostate Cancer Media Messages in South East, Nigeria

SN	Attitude Indicators	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_2$	SD_g	R
1	Prostate cancer can be averted	3.30	1.10	3.22	1.05	3.26	0.84	HAT
2	Prostate cancer can be treated	3.15	1.05	3.11	1.00	3.13	0.77	HAT
3	The disease is treatable in its earliest stages.	3.25	1.10	3.17	1.05	3.21	0.79	HAT
4	I am willing to undergo any treatment recommended by my doctor to manage prostate cancer, regardless of any potential adverse effects.	2.90	1.15	2.76	1.10	2.83	1.00	HAT
5	I will promote and advocate for the screening and treatment of prostate cancer among my friends and family.	3.10	1.20	3.02	0.15	3.06	0.98	HAT
	Cluster Mean					**3.10**	**0.64**	**HAT**

N_1= Number of Teaching staff (221), N^2= Number of Non-teaching staff (164); $\bar{X}_1$ = Mean of Teaching staff, SD_1=Standard deviation of teaching staff; $\bar{X}_2$ = Mean of Non-teaching staff, SD_1=Standard deviation of Non- teaching staff; $\bar{X}_g$ =Grand mean; SD_g= Standard deviation of grand mean; Remark= HAT=High Attitude

Table 4 presents the mean ratings and standard deviation of respondents on the five (5) identified items related to MSSS attitudes towards prostate cancer media messages in Southeast Nigeria. The grand mean values of these items ranged from

2.83 to 3.26, all of which exceeded the acceptable mean limit of 2.50. This shows that the respondents have high level of attitude for each of the five attitude indicators.

Table 5: Regression Analysis of the Relationship between Exposure to Media Messages about Prostate Cancer and the Attitudes of MSSS Towards Prostate Cancer

Model		Sum of Squares	Df	Mean Square	F	Sig.	Dec.
1	Regression	37.193	1	37.193	114.567	0.00	S
	Residual	124.337	383	.325			
	Total	161.530	384				

Note: S = Significant, α = 0.05

Table 5 presents a linear regression analysis examining the relationship between regular exposure to media messages about prostate cancer and MSSS attitudes toward the disease. The results indicate a significant relationship, with an F-ratio of (F(1, 383) = 114.567, p = 0.00). Since the p-value is less than the 0.05 significance level, the null hypothesis is rejected. This confirms that regular exposure to media messages significantly predicts MSSS high attitudes towards prostate cancer in Southeast Nigeria.

Table 6: Regression Analysis of the Relationship between Exposure to Media Messages about Prostate Cancer and Level of Knowledge of MSSS about Prostate Cancer Gained from Media Messages

Model		Sum of Squares	Df	Mean Square	F	Sig.	Dec.
1	Regression	73.586	1	73.586	223.284	0.00	S
	Residual	126.222	383	.330			
	Total	199.807	384				

Note: S = Significant, α = 0.05

Table 6 presents a linear regression analysis that examines the relationship between exposure to media messages about prostate cancer and the level of knowledge MSSS gained from these messages. The analysis yielded an F-ratio of (F(1, 383) = 223.284, p = 0.00). Since the p-value is below the 0.05 significance level, the null hypothesis is rejected. This indicates a statistically significant relationship, suggesting that the level of knowledge MSSS in Southeast Nigeria gains about prostate cancer is significantly influenced by media messages.

Discussion of Findings

The findings indicate that the respondents, with an overall mean of 2.92 and a standard deviation of 0.83, show that MSSS in southeast Nigeria are regularly exposed to media messages about prostate cancer. This implies that prostate cancer messages are broadcast to men in the Southeast through campaigns and other forms of media. The study's findings align with Okeibunor's (2011) study on the assessment of breast cancer media campaigns in Edo State, which showed high exposure and awareness among women. This indicates that similar public health campaigns have been effective in both regions in increasing breast cancer awareness and promoting

early detection. The findings are in line with Julin *et al.* (2012), who found evidence that dietary cadmium exposure might have played a significant role in prostate cancer development. This implies that there is a need for regulatory measures to limit cadmium levels in food and increase public awareness about the risks associated with cadmium consumption.

The study's findings revealed that MSSS have a high level of awareness about prostate cancer media messages, with a mean of 2.91 and a standard deviation of 0.78. This means that respondents were taught about the various types of prostate cancer preventive care through media messages. The study's findings contrast with Ajape *et al*. (2010) and Gebru *et al*. (2023), which reported limited awareness of prostate cancer among urban Nigerians and male patients, respectively. However, they align with Oranusi and Nwofor (2012), Wogu et al., (2019) and Assefa *et al*. (2022), showing high awareness and symptom recognition among surveyed individuals, underscoring the need for further efforts to enhance prostate cancer understanding.

The study's findings indicate that the respondents that the knowledge of prostate cancer gained from media messages in Southeast Nigeria is high, with 2.91 as the overall mean and a standard deviation of 0.72. This means that males in the Southeast have a high level of knowledge about prostate cancer, which is a positive indicator of public health initiatives in the states and could lead to early detection and treatment. The findings support Adibe e*t al*. (2017), showing useful knowledge and a positive attitude towards prostate cancer among University of Nigeria staff, but differ from Enemugwem *et al*. (2019) and Sakala et al. (2020), who found lower awareness and screening willingness. They also contrast with Acha *et al*. (2023), indicating limited pre-campaign knowledge, but align with Alexis *et al*. (2024), suggesting that awareness campaigns effectively enhance knowledge of prostate cancer risk factors among black men and can improve prevention and early detection.

The findings of the study show that the respondent's attitude towards prostate cancer media messages is high, with a cluster mean of 3.10 and a standard deviation of 0.64. This indicates that the attitude of men in the Southeast towards prostate cancer media messages can aid in encouraging friends and family to embrace prostate cancer screening and treatment. This finding aligns with the findings of Ugochukwu et al. (2019), who found that fear of a positive result, ignorance, and financial constraints hindered men in Lagos, Nigeria from screening for prostate cancer, despite their willingness to do so. The results are in opposition to the findings of Adibe *et al.* (2017) research, which showed a notable number of employees had inadequate understanding and unfavourable attitudes and perceptions towards prostate cancer screening and treatment. The study aligns with the health belief model, which suggests that individual perceptions of susceptibility and severity influence health behaviours, such as attitudes towards prostate cancer. However, it contrasts with Alothman *et al*. (2022), who found a lack of information and negative attitudes toward screening in Saudi Arabia, and Didiugwu *et al*. (2018), highlighting the need for clear communication of risks to address negative attitudes and improve awareness and engagement.

Conclusion

The media significantly influences public awareness and attitudes toward prostate cancer, frequently acting as a principal information source for the public. Evidence suggests that increased exposure to media campaigns improves understanding of prostate cancer by helping individuals recognize the significance of early detection and treatment alternatives. Respondents from MSSS in Southeast Nigeria exhibited a particularly favourable reaction to prostate cancer messages in the media, indicating elevated levels of engagement with the information provided. The respondents express feeling well informed about the disease, crediting their knowledge to the accessible and thorough information disseminated through numerous media platforms. These findings highlight the importance of targeted media campaigns for public health education and have considerable implications for developing effective outreach tactics to promote proactive and preventive health behaviors among diverse populations.

Recommendation

This study aims to provide recommendations for improving knowledge, attitudes, and practices towards prostate cancer media messages among MSSS in Southeast Nigeria.

1. The public health sector should make more efforts to increase prostate cancer awareness and education in Southeast Nigeria through inclusive campaigns utilizing television, radio, and social media.
2. Community leaders should use local languages and culturally tailored media messages to ensure relevance, engagement, and understanding of the importance of prostate cancer screening.
3. Men should be encouraged to visit hospitals on routine visits for regular prostate cancer screening, including prostate-specific antigen (PSA) blood tests and digital rectal exams (DREs).
4. The Healthcare providers should use the media to clear factual information that addresses misconceptions and increase knowledge about prostate cancer screening and treatment.

References

Abbott, M., & Ustoyev, Y. (2019) Cancer and the immune system: the history and background of immunotherapy. In *Seminars in oncology nursing* 35 (5). 150923. WB Saunders.

Acha, O. V., Olley, W. O., & Ewomazino, D. (2023). Assessment of the effectiveness of broadcast media campaign messages on men's knowledge of prostate cancer in Etsako West Local Government Area. *International Journal of Advanced Mass Communication and Journalism* 4(1): 35-43

Adibe, M. O., Aluh, D. O., Isah, A., & Anosike, C. (2017). Knowledge, attitudes and perceptions of prostate cancer among male staff of the University of Nigeria. *Asian Pacific Journal of Cancer Prevention,* 18(7), 1961-1966

Agbugui,J. O., Obarisiagbon, E. O., Osaigbovo, E. O., Osime, C. O., & Akumabor, P.(2014). Antibiotic prophylaxis for transrectal prostate biopsy: a comparison ofone-day and five-day regimen. *The Nigerian Postgraduate Medical Journal*, *21*(3) 213-217.

Ajape,A. A., Babata, A., & Abiola, O. O. (2010). Knowledge of prostate cancer screening among native African urban population in Nigeria. *public health*, *1*(2). 94-96

Aladuwaka, S., Alagan, R., Singh, R., & Mishra, M. (2022). Health burdens and SES in Alabama: using geographic information system to examine prostate cancer health disparity. *Cancers*, *14*(19), 4824.

Alexander, S. E., Booth, L., Delacroix, L., Gordon, A., Kirkpatrick, N., & Tree, A. C.

(2021). Evaluation of a urology specialist therapeutic radiographer implemented radiotherapy pathway for prostate cancer patients. *Radiography*, *27*(2), 430-436.

Alexis, O., Mansbridge, S., &Garbrah, W. (2024). Raising awareness of prostate cancer amongst black communities in the South of England. *Ethnicity & Health*, 328-342

Alothman, A. M., Altamimi, A. F., Alhenaki, A. W., Almansour, N. M., Alhusaini, A. K., &Alateeq, F. (2022). The knowledge and attitude towards prostate cancer and screening practices among males in Saudi Arabia. *Journal of Family Medicine and Primary Care*, 11(6), 2637-2642.

Assefa, A., Germossa, G. N., Ayenew, M., &Bedada, G. B. (2022). Awareness of prostate cancer and its associated factors among men 40 years of age and older in MizanAman town, Bench Sheko zone, Southern Nations, Nationalities, and Peoples' Region, South West Ethiopia, 2019. *Frontiers in Oncology*, 12, 976810.

Bauman, A., & Chau, J.(2009). The role of media in promoting physical activity. *Journal of Physical Activity and Health*, *6*(2), 196-210.

Croager, E. J., Gray, V., Pratt, I. S., Slevin, T., Pettigrew, S., Holman, C. D. A., ...& Emery, J. (2018). Find Cancer Early: Evaluation of a community education campaign to increase awareness of cancer signs and symptoms in people in regional Western Australians. *Frontiers in Public Health*, *6*,22. doi.org/10.3389/fpubh.2018.00022

den Braver, N. R., Garcia Bengoechea, E., Messing, S., Kelly, L., Schoonmade, L. J., Volf, K., ... & Lakerveld, J. (2022). The impact of mass-media campaigns on physical activity: a review of reviews through a policy lens. *European Journal of Public Health*, *32*(Supplement_4), iv71-iv83.

Didiugwu, I. F., Eze, E. O. & Apeh, A. C., (2018). The Influence of Prostate Cancer Awareness Campaigns on the Knowledge, Attitude and Practices of Men in South-Eastern Nigeria *Saudi Journal of Humanities and Social Sciences* 3 (11),1281-1292

Dozie, U. W., Agoha, M. C., Innocent, D. C., Dozie, K. C. N., Chukwuocha, U. M., Chukwu, R. O., ... & Uzowuihe, P. N. (2022). D sceries i v. *Publication of the Faculty of Public Health*, *1*, 77-90.

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), 1-4.

Fadaka, A., Ajiboye, B., Ojo, O., Adewale, O., Olayide, I., & Emuofwhochere, R. (2017). Biology of glucose metabolization in cancer cells. *Journal of Oncological Sciences*, *3*(2), 45-51.

National Education Management Information System (NEMIS) & Federal Ministry of Education (2021), Statistics of Federal Unity Colleges in Nigeria (2020/2021). Retrieved September 5, 2024, from https://nemiserp.com/reports/fucs.pdf.

Fitzpatrick, J. M., Kirby, R. S., Brough, C. L., & Saggerson, A. L. (2009). Awareness of prostate cancer among patients and the general public: results of an international survey. *Prostate cancer and prostatic diseases*, *12*(4), 347-354.

Gebru, T., Mekonnen, H., Getahun, N., Meseret, F., Masrie, A., Mandefro, M., ... &Birhanu, A. (2023). Awareness of prostate cancer and its associated factors among male patients attending care in the urology unit at TikurAnbessa Specialized Hospital, Addis Ababa, Ethiopia. *BMJ open*, *13*(8), e073602.

Julin, B., Wolk, A., Johansson, J. E., Andersson, S. O., Andrén, O., &Åkesson, A. (2012). Dietary cadmium exposure and prostate cancer incidence: a population-based prospective cohort study. *British journal of cancer*, *107*(5), 895-900.

Kumari, M. (2020). *Cancer notes*. Nutrition in Cancer From: https://www.researchgate.net/publication/338685874_Cancer_notes [Accessed 10th December 2022]

Liss, M. A., Leach, R. J., Sanda, M. G., & Semmes, O. J. (2020). Prostate cancer biomarker development: National Cancer Institute's early detection research network

prostate cancer collaborative group review. *Cancer Epidemiology, Biomarkers & Prevention*, *29*(12), 2454-2462.

Ndung, U., & Kahura, S. (2022). Behaviour Change Communication Strategies and Men's Response to Prostrate Cancer Screening in Central Kenya (Doctoral dissertation, Karatina University). Retrieved on October 2022 from https://karuspace.karu.ac.ke/handle/20.500.12092/2768

Okeibunor, N. B. (2012). Evaluation of the Media Campaign on Breast Cancer in Edo State. (Research Project, University of Nigeria, Nsukka)

Oranusi,C. K., Mbieri, U. T., Oranusi, I. O., & Nwofor, A. M. E. (2012). Prostate cancer awareness and screening among male public servants in Anambra State, Nigeria. *African Journal of Urology*, *18*(2),72-74.

Riviere, P., Luterstein, E., Kumar, A., Vitzthum, L. K., Deka, R., Sarkar, R. R., ... & Rose, B. S. (2020). Survival of African American and non-Hispanic white men with prostate cancer in an equal-access health care system. *Cancer*, *126*(8), 1683-1690.

Sakala,G., Kasongo, N., & Mwanakasale. V., (2020). Assessment of knowledge,practice and attitude towards prostate cancer screening among male patients aged40 years and above at Kitwe Teaching Hospital, Zambia. *Afr J Urol* ,26(70)

Schliemann, D., Su, T. T., Paramasivam, D., Treanor, C., Dahlui, M., Loh, S. Y., & Donnelly, M. (2019). Effectiveness of mass and small media campaigns to improve cancer awareness and screening rates in Asia: a systematic review. *Journal of global oncology*, *5*, 1-20.

Selvakumar, J., Lakshmi, A., & Arivoli, T. (2012). Brain tumor segmentation and its area calculation in brain MR images using K-mean clustering and Fuzzy C-mean algorithm. In *IEEE-international conference on advances in engineering, science and management (ICAESM-2012)* 186-190. IEEE.

Sofija, E., Harris, N., Cuesta-Briand, B., Spratling, T., & Burich, S. (2023). The Vave campaign: impact evaluation of a cancer awareness raising multi-media campaign in Samoa. *Health Promotion International*, *38*(3), daac021.

St-Hilaire, W. (2019). Prostate Cancer Screening Rates for Haitian Men Based on Demographic Characteristics (Doctoral dissertation, Walden University).

Ugochukwu, U. V., Odukoya, O. O., Ajogwu, A., & Ojewola, R. W. (2019) Prostate cancer screening: what do men know, think and do about their risk? Exploring the opinions of men in an urbanarea in Lagos State, Nigeria: A mixed methods survey. The *Pan Africa Medical Journal, 34,* 168

Vasantharajan, S. S., Eccles, M. R., Rodger, E. J., Pattison, S., McCall, J. L., Gray, E. S., ... & Chatterjee, A. (2021). The epigenetic landscape of circulating tumour cells. *Biochimica et Biophysica Acta (BBA)-Reviews on Cancer*, *1875*(2), 188514.

Wogu, J. O., Chukwu, C. O., Ugwuoke, J. C., Ugwulor-Onyinyechi, C. C., & Nwankiti, C. O. (2019). Impact of media breast cancer awareness campaign on the health behaviour of women in southeast Nigeria. *Global Journal of Health Science, 11(5), 79-86*