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Assessment of Prostate Cancer Screening: Survey Conducted among Patients of the Cocody University Hospital Center

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Abstract

Introduction: The aim of our study is to determine the factors associated with the late diagnosis of prostate cancer in our country such as Côte d'Ivoire. **Patients and methods:** Between 1 March 2022, and 31 July 2022, we questioned 400 men selected by random sampling regarding prostate cancer screening. These men were between 45 and 75 years old and had come for consultations at the Cocody University Hospital. We assessed their knowledge of screening and their social vulnerability status using the EPICES score. **Results:** 39.2% of patients had a bachelor's degree or higher. 45.54% had a monthly income between 100,000 FCFA and 300,000 FCFA. 42% of patients had never heard of prostate cancer screening. 64.3% had never undergone prostate cancer screening. The EPICES score indicated that 76,76% of participants lived in precarious circumstances. A positive correlation was found between participants' education level and knowledge of prostate cancer screening (p = 0.01). **Conclusion:** Prostate cancer is most often discovered at an advanced stage due to a lack of awareness about prostate cancer screening, which is why screening is rarely performed. This is correlated with socioeconomic status and education level.

Keywords

Cancer, Prostate, Screening, EPICES Score

1. Introduction

Prostate cancer is the most common cancer in men and the second leading cause of

cancer death worldwide after lung cancer [1]. Its incidence has increased in recent years due to increased life expectancy and, above all, improved screening techniques [2]. Prostate cancer screening in Africa, and particularly in Ivory Coast, relies primarily on blood tests for Prostate-Specific Antigen (PSA). Combined with a digital rectal examination, the PSA blood test is considered the screening technique that allows for the early detection of prostate cancer. In Côte d'Ivoire, prostate cancer is discovered at an advanced stage of the disease, with a hospital prevalence of metastatic forms estimated at 70% at the time of diagnosis [3]. Therefore, we conducted this study, the objective of which was to assess the population's knowledge regarding prostate cancer screening in order to identify factors delaying its early diagnosis.

2. Patients and Method

Between 1 March 2022, and 31 July 2022, we interviewed 400 men selected through a random sample by offering the questionnaire to patients consulting the various services of the consultation unit regarding prostate cancer screening. These men were between 45 and 75 years old and had consulted at the Cocody University Hospital Center (Abidjan, Ivory Coast). They had no personal history of prostate cancer. The interviews were conducted using a questionnaire distributed to the participants. The questionnaire had three parts:

- The first part related to questions concerning the socio-demographic and economic characteristics of the participants (age, marital status, level of education and monthly income);
- The second part was devoted to assessing knowledge of screening based on the following questions: "Did you know that prostate cancer can be screened for? Have you ever been screened for prostate cancer?" and finally;
- The third part of the assessment of social precarity status is the EPICES score.

The EPICES score was established using an 11-question questionnaire relating to various social aspects (income, education level, socio-professional category, housing, family composition, social ties, financial difficulties, life events, etc.). It ranges from 0 (no precariousness) to 100 (maximum precariousness). A score of 30 is considered the threshold for precariousness according to EPICES.

Participants answered the questions anonymously on the survey form. Of the 400 questionnaires distributed, we excluded 30 (the questionnaires were not fully completed and therefore unusable).

We used SPSS software for data analysis. The Pearson correlation test was used for quantitative variables and the Spearman correlation test for qualitative variables. Differences were considered statistically significant when the p-value was less than 0.05.

3. Results

3.1. The Demographic and Socio-Economic Characteristics of the Patients Surveyed (Table 1)

The men interviewed had a mean age of 56.46 ± 8.67 years (range: 40 and 75

years), 59.46% were married and 22.16% had a family history of prostate cancer. The majority (84.32%) of the men in our survey had a secondary or higher education. Almost all (94.05%) of our participants lived on a monthly income of less than 500,000 FCFA (US$826).

Table 1. Demographic and socio-economic characteristics of the patients surveyed.

Age (years)	56.46 ± 8.67
Age categories (years)	
40 - 44	7 (1.89%)
45 - 49	94 (25.41%)
50 - 54	71 (19.19%)
55 - 59	67 (18.11%)
60 - 64	47 (12.70%)
65 - 69	44 (11.89%)
70 - 75	40 (10.81%)
Marital Status	
Single	30 (8.11%)
Cohabitation	80 (21.62%)
Married	220 (59.46%)
Widower	40 (10.81%)
Level of education	
No Diploma	58 (15.68%)
BEPC	52 (14.05%)
BAC	44 (11.89%)
BTS	70 (18.92%)
Bachelor	146 (39.46%)
Monthly income (in FCFA)	
[60,000 - 100,000[	70 (18.92%)
[100,000 - 300,000[	168 (45.41%)
[300,000 - 500,000[	110 (29.73%)
[500,000 - 1,000,000[	18 (4.86%)
[1,000,000 and more[	4 (1.08%)
EPICES Score	
Score < 30.17	86 (23.24%)
Score ≥ 30.17	284 (76.76%)

Quantitative values are expressed as average plus or minus the standard deviation; qualitative values are expressed as a percentage.

The EPICES score of precarity in our study varied between 3.9 and 80.87 with an average of 41.41 ± 8.67. Seventy-six point forty-nine percent (76.76%) of our participants lived in precarious circumstances.

3.2. Prostate Cancer Screening (Table 2)

More than half (57.84%, n = 214) of our participants knew that prostate cancer can be screened for, and the secondary and higher education level categories were the most numerous among the participants who were aware of prostate cancer screening.

Individuals who reported having undergone prostate cancer screening at least once in their lifetime represented 35.68% (n = 132) of our participants, and the oldest age group (60 - 64 years, 65 - 69 years and 70 - 75 years) was the largest.

Table 2. Predictive factors for late diagnosis of prostate cancer: comparative study.

	Never been screened	At least once screened	p-value
Age categories			0.000
40 - 44	7 (1.89%)	0 (0.00%)	
45 - 49	85 (22.97%)	9 (2.43%)	
50 - 54	54 (14.59%)	17 (4.59%)	
55 - 59	38 (10.27%)	29 (7.84%)	
60 - 64	23 (6.22%)	24 (6.48%)	
65 - 69	18 (4.86%)	26 (7.03%)	
70 - 75	13 (3.51%)	27 (7.29%)	
Education level			0.001
No Diploma	46 (12.43%)	12 (3.24%)	
BEPC	37 (10.00%)	15 (4.05%)	
BAC	34 (9.19%)	10 (2.71%)	
BTS	44 (11.90%)	26 (7.03%)	
Bachelor	77 (20.81%)	69 (18.65%)	
Monthly income			0.000
[60,000 - 100,000]	61 (16.48%)	9 (2.43%)	
[100,000 - 300,000]	103 (27.84%)	65 (17.57%)	
[300,000 - 500,000]	62 (16.76%)	48 (12.97%)	
[500,000 - 1,000,000]	10 (2.71%)	8 (2.16%)	
[1,000,000 and more]	2 (0.54%)	2 (0.54%)	
EPICES Score			0.172
Score < 30	50 (13.52%)	36 (9.73%)	
Score ≥ 30	188 (50.81%)	96 (25.95%)	

Continued

	No knowledge of screening	Knowledge of screening	p-value
Age categories			0.000
40 - 44	7 (1.89%)	0 (0.00%)	
45 - 49	64 (17.30%)	30 (8.11%)	
50 - 54	30 (8.11%)	41 (11.08%)	
55 - 59	23 (6.22%)	44 (11.90%)	
60 - 64	14 (3.78%)	33 (8.92%)	
65 - 69	12 (3.24%)	32 (8.65%)	
70 - 75	6 (1.62%)	34 (9.19%)	
Education level			0.000
No Diploma	35 (9.46%)	23 (6.22%)	
BEPC	21 (5.67%)	31 (8.38%)	
BAC	22 (5.95%)	22 (5.95%)	
BTS	35 (9.46%)	35 (9.46%)	
Bachelor	43 (11.62%)	103 (27.84%)	
EPICES Score			0.12
Score < 30	30 (8.11%)	56 (15.14%)	
Score ≥ 30	126 (34.05%)	158 (42.71%)	

We found a correlation between the participants' level of education and their knowledge of prostate cancer screening, which proved positive, with a p = 0.01. The higher the level of education, the greater the knowledge of screening (Table 3).

Table 3. Comparative analysis between level of education and knowledge of screening.

		Knowledge of screening		**Total**
		NO	**YES**	
Level of education	BEPC	21	31	52
	BAC	20	24	44
	BTS	33	38	71
	LICENSE	34	112	146
	WITHOUT D.	34	25	59
Total		**142**	**230**	**372**

We also conducted a cross-analysis between data on family history of prostate cancer and the level of knowledge about prostate cancer screening. We found that

of 67 participants with a family history of prostate cancer, 98.5% had some knowledge about screening for this cancer. Participants with a family history of prostate cancer had more knowledge about screening compared to those without, but the difference was not statistically significant (**Table 4**).

Table 4. Comparative analysis of history of cancer family history/knowledge of screening.

Family history of cancer	Knowledge of screening		Total
	NO	**YES**	
NO	159	146	305
YES	1	66	67
Total	**160**	**212**	**372**

We performed a cross-analysis between a family history of prostate cancer and prior prostate cancer screening. This correlation was not significant. However, we noted in this analysis that 87.7% (n=85) of participants with a family history of prostate cancer had previously undergone prostate cancer screening (**Table 5**).

Table 5. Comparative analysis of history of cancer family history/previous screening.

Family history of cancer	Previous screening		Total
	NO	**YES**	
NO	216	71	287
YES	13	72	85
Total	**229**	**143**	**372**

4. Discussion

The overall objective of our study was to identify the factors determining the late diagnosis of prostate cancer in our setting.

In our study population, the mean age was 57.6 years. This mean age was comparable to that of the study by Kaninjing E. *et al.* in Cameroon, with a mean age of 59.2 years [4]. Yeboah-Asiamah B. *et al.* had worked with a younger population of teachers, between 45 and 50 years old (68.1%), with a mean age of 49.52 years [5].

In our sample, 70% had a level of education higher than the Baccalaureate, compared to 40% in Kaninjing E. *et al.* [4]. This difference can be explained by the fact that our study was conducted in the capital city and theirs in a remote area.

We observed that 64.4% of participants had a monthly income of less than 300,000 FCFA ($495) and 29.6% had less than 100,000 FCFA ($165) per month. This represented a barrier to prostate cancer screening. Kaninjing E. *et al.* had 60% of their study population earning less than 50,000 FCFA ($82.50) per month [4]. This income difference is explained by the fact that the Guaranteed Minimum Interprofessional Wage (SMIG) in Côte d'Ivoire is 75,000 FCFA ($123.50) per

month, and the standard of living is significantly higher than in Cameroon (SMIG: 36,270 FCFA ($60) per month).

Participants who were aware of prostate cancer screening represented 58%. This result was similar to that of Sikpa K. H. *et al.* in Togo, who found in their study that 61.7% had already heard of prostate cancer and screening [6]. This similarity can be explained by the fact that Sikpa K. H. *et al.* conducted their study exclusively on university students. Kaninjing E. *et al.*, on the other hand, had 84% of participants who had never heard of prostate cancer, let alone screening [4]. This significant difference is explained by the fact that our study was conducted in the Ivorian capital, where communication resources and the level of education are higher.

We found a family history of prostate cancer in 21.8% of participants. Bisselou N. *et al.* found a family history of cancer in 17.7% of patients in their series [7]. Their data are essentially similar to Ours. His figures are justified because heredity is an unmodifiable risk factor.

The majority of participants, 64.3% (n = 372), had never been screened for prostate cancer. This can be explained, firstly, by the negligence of our patients, who only consult a doctor as a last resort, after exhausting all traditional treatment options. Secondly, it is due to the natural history of this cancer, which extends over 10 to 15 years, and its development in the periphery of the prostate gland, making it a disease that is often asymptomatic for a long time.

The EPICES score used in our study allowed us to determine that 77% of our participants were living in precarious circumstances. Fofana A. *et al.* reported in their study at the Cocody University Hospital that no patient with metastatic prostate cancer had health insurance [8]. The lack of health insurance covering chronic conditions such as prostate cancer meant there was no security for the management of these diseases, including metastatic prostate cancer [8].

Moreover, Morère JF in his study found that individuals in precarious situations were less likely to be screened than wealthier social classes [9].

We conducted a comparative analysis between participants' education level and their knowledge of prostate cancer screening, which proved significant with a p-value of 0.01. The higher the level of education, the greater the knowledge about prostate cancer screening, as they have easier access to education and information.

We also conducted a cross-analysis between data on family history of prostate cancer and the level of knowledge about prostate cancer screening. This analysis was not significant. However, we observed that of the 67 participants with a family history of prostate cancer, 98.5% had some knowledge about prostate cancer screening. This can be explained by the fact that, in our setting, consultations with elderly patients generally involve family members; these consultations often also serve as opportunities for raising awareness.

We performed a cross-analysis between a family history of prostate cancer and prior prostate cancer screening. This correlation was not significant. However, we note in this analysis that 72 participants, or 87.7%, with a family history of prostate

cancer had already undergone prostate cancer screening. This is because they had already been made aware of the issue. During the care of their parents, they are therefore more aware of the benefits of early detection of prostate cancer.

5. Conclusions

Metastatic prostate cancer is frequently encountered in our daily practice. We undertook this study to determine the factors associated with the late diagnosis of prostate cancer in our setting. Our findings indicate that prostate cancer remains a poorly understood disease in our society. Knowledge of prostate cancer screening remains limited among the vast majority of the population. It is therefore urgent to organize information sessions on prostate cancer and its screening methods in order to improve early diagnosis and appropriate treatment. In our context, the majority of the population lives in unfavorable socio-economic conditions and in precarious situations.

The prospects remain: better organization of the health system, with the commitment and awareness of all partners involved in health, in our southern countries and in Côte d'Ivoire, and in particular for equality of health care. To achieve this, universal health coverage must be made effective by covering chronic pathologies such as prostate cancer.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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