● **Original article**

PROSTATE CANCER RISK FACTORS: POPULATION FROM A BASIC HEALTH UNIT*

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ABSTRACT: The present investigation aimed to identify prostate cancer risk factors in men assisted in a basic health unit in the state of São Paulo in November 2015. It was a descriptive, cross-sectional and quantitative study, with a sample of 150 male users that went to the unit for a medical appointment and/or nursing care. The most relevant risk factors were age, level of education, sedentary lifestyle, consumption of alcohol, red meat, milk and fat and a high body mass index. The most used screening test was the prostate-specific antigen exam, followed by a rectal examination. The number of participants that presented at least one prostate cancer risk factor was high and that family history prompted men to seek prevention measures, such as appointments with urologists and screening exams.
DESCRIPTORS: Men's health; Prostatic neoplasms; Risk factors; Primary health care.

FATORES DE RISCO PARA O CÂNCER DE PRÓSTATA: POPULAÇÃO DE UMA UNIDADE BÁSICA DE SAÚDE

RESUMO: O estudo objetivou identificar os fatores de risco para o câncer de próstata entre homens atendidos durante o mês de novembro de 2015, em uma Unidade Básica de Saúde do estado de São Paulo. Estudo descritivo, transversal e de abordagem quantitativa, composta por 150 usuários homens que compareceram na unidade para realização de consulta e/ou acolhimento de enfermagem. Os fatores de risco com maior relevância foram idade, nível de escolaridade, sedentarismo, uso de bebida alcoólica, ingestão de carne vermelha, leite e gorduras e Índice de Massa Corporal aumentado. O exame de rastreio mais realizado foi o Antígeno Prostático Específico, seguido do toque retal. O número de participantes que apresentou algum fator de risco para o câncer de próstata foi elevado, observou-se que a história familiar da doença motiva os homens a procurarem por medidas de prevenção, com a realização de consulta com o urologista e exames de rastreio.
DESCRITORES: Saúde do homem; Neoplasias da próstata; Fatores de risco; Atenção primária à saúde.

FACTORES DE RIESGO DE CÁNCER DE PRÓSTATA: POBLACIÓN DE UN CENTRO DE SALUD

RESUMEN: El estudio apuntó a identificar los factores de riesgo de cáncer de próstata entre hombres atendidos durante noviembre de 2015 en un Centro de Salud del Estado de São Paulo. Estudio descriptivo, transversal, de abordaje cuantitativo. Muestra integrada por 150 usuarios masculinos, que comparecieron en la unidad para realización de consulta y/o acogimiento de enfermería. Los factores de riesgo de mayor relevancia resultaron: edad, nivel de escolarización, sedentarismo, abuso de bebidas alcohólicas, ingesta de carnes rojas, leche y grasas, e Índice de Masa Corporal elevado. El examen de rastreo más realizado fue el de Antígeno Prostático Específico, seguido del tacto rectal. El número de participantes que presentó factores de riesgo de cáncer de próstata fue elevado. Se observó que la historia familiar de la enfermedad motiva a los hombres a buscar medidas preventivas, realizando consultas con el urólogo y análisis de rastreo.
DESCRIPTORES: Salud del Hombre; Neoplasias de la Próstata; Factores de Riesgo; Atención Primaria de Salud.

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● INTRODUCTION

The world has experienced significant demographic changes, especially ageing of the population, as a consequence of decreasing birth rates, urbanization, industrialization and technological advances. Because of health promotion and recovery actions, the epidemiological profile of the population has evolved, and chronic degenerative conditions currently surpass infectious diseases in incidence and mortality worldwide[1]. Among the main chronic illnesses, prostate cancer (PC) stands out as one of the most common.

Prostate cancer has been an object of discussion among experts and reference institutions in the past years. The main risk factors of this pathology are being 65 years old or older – 62% of the diagnosed cases worldwide occur in this age group –, family history, black skin color and lifestyle, given that some food items have been associated with protection or risk. There have been efforts to elucidate PC protection and risk factors and to determine the best tools to investigate the development of the disease, which can help implement effective measures in the field of men's health[2].

The difficulty of men to reach primary health care, for lack of knowledge, prejudice or absence of local medical resources, impairs PC screening and consequently the detection of tumors in their early stage, preventing early treatment[3].

Brazil has one of the lowest mortality rates by PC in Latin America, but studies show a tendency for the disease to grow[4]. It is currently the second most common condition among men, with roughly 1,112,000 new cases worldwide, and an important mortality cause, with around 307,000 deaths in 2012. Estimates show that 1.7 million new cases are expected for 2030[3].

According to the Brazilian National Cancer Institute, an organization from the Ministry of Health responsible for cancer prevention and control in Brazil, 295,200 new cases of cancer may be diagnosed in 2017, of which 61,200 may be in the prostate. This makes PC the most common tumor in the proportional distribution that includes the ten most frequent types of cancer in men, except nonmelanoma skin cancer, which is responsible for 80,850 new cases[5].

Estimates for the number of new PC cases in Brazilian regions are 25,800 in the Southeast, 14,290 in the Northeast, 13,590 in the South, 5,050 in the Center-West, 2,470 in the North and 840 in the Federal District[5].

On September 20th, 2001, the Brazilian Program for Prostate Cancer Control was launched. It aims to develop the following activities, among others:

> I – institutional campaign in means of communication, with messages about what PC is and prevention measures; II – association with state and municipal health secretariats, making PC prevention tests available to the male population older than 40 years old; III – collaboration with universities, organized civil societies and syndicates to organize discussions and lectures about the disease and ways to combat and prevent it; IV – other acts of licit and useful procedures to meet the goals of this institution; V – raising awareness of healthcare professionals, with training and retraining courses about advances in PC prevention and early detection. In 2014 the II paragraph of Article 4 of this law was changed because of technical-scientific needs[6:1].

In 2009 the Ministry of Health instituted the National Policy of Comprehensive Care to Men's Health (PNAISH, as per its acronym in Portuguese) to promote actions oriented to the male population, seeking to improve their conditions and increase their access to primary care[7].

Taking into account this scenario and the Blue November campaign, the present study aimed to identify PC risk factors in men assisted in a basic health unit in the interior of the state of São Paulo in November 2015.

● METHOD

The present investigation was descriptive, cross-sectional and quantitative. It was carried out in a basic health unit in the interior of the state of São Paulo, which belongs to the service network of the

Unified Health System (SUS, as per its acronym in Portuguese). There are five units that are considered reference centers in men's health in the city where the study was conducted. The unit where data were collected assists about 190 men every month in nursing appointments.

The study sample consisted of 150 men that visited the unit for an appointment or nursing care. Their needs included getting new prescriptions of medication for hypertension or diabetes, family planning, interviews, specimen collection and guidance on exams to detect sexually transmitted diseases, bandage evaluation, and guidance on sexual and reproductive health.

Data collection took place in November 2015, the month dedicated to the Blue November campaign, focused on the promotion of men's health to encourage them to do PC prevention exams.

Inclusion criteria were patients aged 18 years old or older, who were conscious and oriented. Exclusion criteria were patients younger than 18 years old and/or with mental disorders that could hinder an interview.

Data were collected through an interview in the nursing office, according to an instrument designed by the authors, which encompassed the following variables: sociodemographic profile (age, self-declared skin color, level of education, and monthly income), PC family history (father or brother), annual appointment with an urologist and execution of PC screening tests (rectal examination, quantification of prostate-specific antigen (PSA), transrectal ultrasound, biopsy), lifestyle - including dietary habits, consumption of alcohol, tobacco and other inhalation drugs, level of physical activity, anthropometric evaluation, and determination and classification of body mass index (BMI), in accordance with the guidelines of the World Health Organization (WHO)[8].

Data from the participants' reports were kept in Microsoft Excel® worksheets to enable a statistical analysis. All variables were treated and presented as absolute and relative (percentage) frequencies.

The research proposal was approved by the Research Ethics Committee of the School of Medicine of São José do Rio Preto, under the report 978942, issued on March 10th 2015.

● RESULTS

Tables 1 and 2 present sociodemographic characteristics and PC risk factors of the investigated male population.

Table 1 – Sociodemographic characteristics of a male population that visited a basic health unit in November 2015. São José do Rio Preto, SP, Brazil, 2015.

Variables	n	%
Age	150	100
18 to 29 years	22	14.67
30 to 40 years	20	13.33
41 to 49 years	16	10.67
50 to 60 years	36	24
61 to 80 years	48	32
Over 80 years	8	5.33
Self-declared skin color	150	100
Yellow	3	2
White	91	60.67
Brown	42	28
Black	14	9.33
Level of education	150	100
None	9	6

Primary school	75	50
High school	48	32
College degree	18	12
Monthly income* (minimum wage)	150	100
Less than 1	7	4.66
1 to 2	54	36
2 to 3	55	36.67
More than 3	34	22.67

*Minimum wage value: R$ 788, according to decree 8381/2014 issued in the Brazilian Official Gazette on December 30th, 2014.

Table 2 – Lifestyle characteristics and hereditary and risk factors related to prostate cancer. São José do Rio Preto, SP, Brazil, 2015.

Variables	n	%
Sedentary lifestyle	150	100
No	36	24
Yes	114	76
Alcohol consumption	150	100
No	66	44
Yes	84	56
Frequency of alcohol consumption (per week)	84	100
Up to 2 times	53	63.10
More than 2 times	31	36.90
Smoking and/or inhalation drugs (cannabis, cocaine, and crack)	150	100
No	113	75.33
Yes	37	24.67
Red meat ingestion (five or more times per week)	150	100
No	17	11.33
Yes	133	88.67
Dairy ingestion (five or more times per week)	150	100
No	54	36
Yes	96	64
Fat ingestion (five or more times per week)	150	100
No	74	49.33
Yes	76	50.67
Body mass index	150	100
Low weight	5	3.33
Eutrophic	49	32.67
Overweight	66	44
Obese I	23	15.33
Obese II	7	4.67
PC family history	35	100
Father	25	71.43
Brother	10	28.57

The results in Table 1 reveal that most affected patients were 61 to 80 years old (32%, n = 48), considered themselves white (60.67%, n = 91), completed primary school (50%, n = 75) and presented a monthly income of two to three minimum wages (36.67%, n = 55).

Data in Table 2 show that the participants can be classified as sedentary (76%, n = 114), ingest alcohol (56%, n = 84) up to twice a week (63.10%, n = 53) and do not smoke or use inhalation drugs (75.33%, n = 113). As for dietary habits, there was a predominance of reports of consumption of red meat (88.67%, n = 133), milk (64%, n = 96) and fat (50.67%, n = 76) five times a week or more. The prevalent BMI was overweight (44%, n = 66), followed by normal (32.67%, n = 49). Thirty-five patients reported PC family history, with 25 cases (71.43%) involving their father and 10 (28.57%) affecting a brother.

Most participants had already had an appointment with a urologist (52%, n = 78). Among PC screening tests, PSA was the most common one (56%, n = 84); other exams, such as ultrasound (10.67%, n = 16), rectal examination (32%, n = 48) and biopsy (8%, n = 12) were significantly less frequent. Most patients had fruits (76.67%, n = 115), vegetables (82%, n = 123) and legume (86%, n = 129) regularly (Table 3).

Table 3 – Variables associated with prostate cancer prevention. São José do Rio Preto, SP, Brazil, 2015.

Variables	n	%
Having annual appointments with a urologist	150	100
No	72	48
Yes	78	52
Doing a PSA test annually	150	100
No	66	44
Yes	84	56
Having already done an abdominal/transrectal ultrasound exam	150	100
No	134	89.33
Yes	16	10.67
Doing rectal examination annually	150	100
No	102	68
Yes	48	32
Having already done a prostate biopsy	150	100
No	138	92
Yes	12	8
Fruit ingestion (five or more times per week)	150	100
No	35	23.33
Yes	115	76.67
Vegetable ingestion (five or more times per week)	150	100
No	27	18
Yes	123	82
Legume ingestion (five or more times per week)	150	100
No	21	14
Yes	129	86

● DISCUSSION

Several risk factors have been pointed out as a reason for the increasing incidence of PC. According to the Brazilian Society of Urology, men should start the screening test routine at the age of 50 years, except those with black skin and family history, who should start five years before. An individual

approach can be useful to determine the ideal age to introduce the screening process[9].

The outcomes of the present study demonstrated that most participants were in the age group to which PC screening tests are recommended. Sociodemographic characteristics such as skin color and income were not concerning factors in the studied sample, since it was predominantly white and statistics show that black men are more prone to develop the disease[10].

The monthly income between two to three minimum wages and the predominance of a low level of education suggest that healthcare professionals should be careful when giving health instructions to these users. A study emphasized that few years of formal education can be related to lower levels of healthcare measures, late cancer diagnoses and higher mortality rates[11]. Other investigations stress that low and intermediate income countries have the highest rates of nontransmissible chronic diseases and that people with the lowest level of education and income are the most vulnerable to this type of pathology for being more exposed to risk factors and having less information and access to healthcare services[12-13].

A cohort study that evaluated the relationship between physical activity, BMI and PC incidence in 13,109 Swedish men reported that physical activity tends to be associated with a lower risk to develop this type of cancer and can be considered a protection factor[14]. Adherence to a healthier lifestyle, defined as the execution of at least three hours of physical exercises a week, nonsmoking and healthy dietary habits, can be a strategy to significantly reduce mortality rates caused by PC and decrease the morbimortality of other diseases with similar risk factors[15].

Two-thirds of deaths of adults correspond to men. Usually they live seven years less than women and are more affected by heart diseases, diabetes, cancer, hypercholesterolemia, and arterial hypertension[16].

Taking into account this context, it is important that healthcare professionals be alert to general and specific problems that can afflict male populations and their care needs, following the guidelines of national policies in their professional activity.

Prostate cancer and cardiovascular diseases share several risk factors: obesity, insufficient physical activity, unhealthy food, and calorie excess can set off these and many other nontransmissible chronic conditions. In addition, obesity has been associated with a higher risk of PC recurrence in the post-treatment phase[17].

Some authors believe that obesity can help explain the disparity in the incidence of PC in black and non-Hispanic white men. It is also considered a PC risk factor as relevant as a genetic influence and environment[18].

The PC etiology has not been fully unraveled. Many studies have searched for evidence of the relationship between prostate carcinogenesis and environmental factors, such as exposure to pesticides, lifestyle and sedentary habits, and genetics[3].

Family history – father or a brother that developed PC younger than 60 years old – can cause a three to tenfold increase in the probability to have the disease in comparison with the general male population. Shared unhealthy habits and inherited physical characteristics may make men more likely to grow this type of tumor[16].

Family history was mentioned by 23.33% of the participants, which suggests it is a factor that encourages men to do prevention exams that can diagnose the disease early and increase the chances of cure when performed in time. Just like other factors, the use of alcohol and tobacco, and milk and fat ingestion can be also associated with this neoplasm[16].

The interviews revealed that most participants did not exercise regularly, had overweight, class I or II obesity, and ingested red meat, dairy products, fat, and alcohol. These findings suggest the need to implement health promotion actions to encourage the users to improve their dietary routine according to their financial conditions and practice physical activities regularly. These measures can result in a reduction in their BMI and an improvement in their quality of life.

A literature review carried out in 2012 with data from PubMed emphasizes the efforts to understand

how diet affects the incidence of PC. Despite some advances in this field, the ideal diet to avoid the condition remains to be determined. Investigations that relate nutrients to PC are infrequent; however, there is a tendency in the published data indicating that consumption of carbohydrates, saturated fat, omega-6 and some vitamin supplements can increase the probability to develop the tumor or stimulate its progression once the disease is installed[19].

Ingestion of vegetables and omega-3 seems to have the opposite effect on the illness. The heterogeneity of the studies makes it difficult to conclude if a specific nutrient can be labeled good or bad in terms of PC prevention and control. Nevertheless, there are instructions that can be used in the guidance of patients with PC or prone to develop it, such as having more fruits and vegetables, drinking juices with fibers to slow sugar absorption, minimizing the amount of vitamin and mineral supplements and keeping a moderate calorie consumption[19].

The same review cites other studies that report that PC survivors who are more active and ingest significant amounts of fruits and vegetables and low quantities of fat and refined carbohydrates have a better quality of life in comparison with survivors that do not exercise[19]. The average participant of the present study ate fruits and vegetables but was sedentary.

Some exams are fundamental to help detect alterations in the prostate. Rectal examination is an inexpensive and fast procedure, which allows to evaluate the size, shape, and consistency of some areas of the organ, but not its totality[20].

The prostate-specific antigen test quantifies a protein produced by prostate cells and present in blood; the value is presented as nanograms per milliliter (ng/mL). Many investigations sustain the clinical utility of this prognostic factor[21]. The Gleason score, based on the histological differentiation of biopsied tumor fragments, together with the PSA outcome, gives a measurement of PC risk and progression[2].

Transrectal ultrasound has allowed a better anatomical definition of the prostate and is currently used to determine the organ's volume and guide biopsies[22].

The results of the present study were similar to the findings of an investigation carried out with non-professor employees in a public university in the state of Minas Gerais. Most participants were over 50 years old and declared to be white; a small fraction of the sample had PC family history and smoked. As for prevention habits, 48.9% said they had annual medical appointments for periodic check-ups, 84.80% declared to do the PSA exam once a year and only 26.1% did a rectal examination with the same periodicity[23].

The present study showed that the number of rectal examinations is low in comparison with the number of annual visits to urologists, an evidence that this procedure is not always performed during appointments.

A paper describing PC mortality trends in the Center-West region of Brazil concluded that improvements in the disease diagnosis are related to a higher offer of medical care and availability of diagnostic resources. But health care, especially in public services, needs access and structure upgrades, so that diagnosis and treatment of this tumor can be performed properly and in time[18].

An American study reported that the distance to a basic health unit with access to appointments with urologists can be a barrier to early detection of PC[24].

The basic health unit where the study was developed does not offer appointments with urologists, so users that need this type of care have to resort to other units in the city. The outcomes of the research suggested that the absence of this medical specialty did not impair the prevention of the disease, because 84.78% of the men in the age group to which the screening tests are recommended reported paying an annual visit to an urologist.

The main limitations of the present investigation were the impossibility to compare people with and without a PC diagnosis and with a family history and the study design – a cohort survey could monitor if patients with family history would develop the disease.

● CONCLUSION

The main risk factors for PC identified in the reports of the participants were age, level of education, sedentary lifestyle, consumption of alcohol, red meat, dairy and fat, and increased BMI.

Most interviewees that belonged to the age group to which prevention tests are proposed had appointments with an urologist; rectal examination and transrectal ultrasound were less frequent. Fruits, vegetables, and legume were common items in the diet of most studied men. Family history encouraged patients to seek prevention actions, including visits to urologists and screening methods.

It is important to stress that nurses play a key role in health prevention and promotion in primary health care and are the only category of health professionals to execute nursing appointments. This moment is dedicated to orientations, early identification of problems, and advising about risk factors and prevention measures of PC and other illnesses.

The present findings contribute to the debate and future studies on the role of nursing in health education and other actions focused on men's health that may help prevent PC and decrease the high costs of the treatment of the tumor in late stages.

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