The level of knowledge and awareness about prostate cancer in the Turkish male and the relevant effective factors

Sadi Turkan¹, Faruk Doğan², Ozan Ekmekçioğlu¹, Aslıhan Çolak³, Mehmet Kalkan², Çoşkun Şahin²

ABSTRACT

Objective: Our aim was to determine the general knowledge and awareness levels, information sources, and the state of medical check-up for prostate cancer (PCa) and relevant effective factors.

Material and methods: The participants were asked to answer to 14 questions of a questionnaire about age, education, economic and social condition, knowledge about PCa, state of being examined and their related factors. According to demographic characteristics of the participants, levels of awareness about PCa, sources of information, affecting factors and their interrelationships were examined. Two groups were formed according to age (<60 years, >60 years) and variations according to ages were investigated.

Results: Two hundred and ninety-three men with an average age of 57 years (range 40-85) were included in the study. Our findings showed that 68.3% of the participants were thinking that PCa is a frequently seen disease, 88.4% were thinking that it can be treated and 62.8% of men specified that their information sources are doctors. We also found that 60.8% of the participants had not undergone prostate examination and prostate specific antigen (PSA) control. The most reason for not having annual examinations was (44.4%) "negligence". Significantly greater number of men with higher education (high school/university) were highly informed about PCa ($p=0.037$). Check-up rates were statistically significantly higher among men with intermediate income ($p=0.041$). Curability of PCa diagnosed at an early stage was acknowledged by statistically higher number of individuals under the age 60 ($p<0.05$). Health control, prostate examination and/or PSA control rates were higher in men with a family history of PCa and in the group of >60 years.

Conclusion: Although PCa has a high prevalence and mortality rates, personal and social information and sensitivity levels must be increased as it can be treated if diagnosed at an early stage. We think that social and medical impact of the disease can be decreased with the planning of effective methods based on sociocultural and economic factors.

Keywords: Awareness; male; prostate cancer.

¹Clinic of Urology, Kastamonu Anadolu Hospital, Kastamonu, Turkey

²Department of Urology, Fatih University School of Medicine, Istanbul, Turkey

³Department of Internal Diseases, Fatih University School of Medicine, Istanbul, Turkey

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Correspondence:
Sadi Turkan
E-mail:
sadiurkan@hotmail.com

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Introduction

Prostate cancer (PCa) is the second most frequently seen cancer type (25.3/100.000), and it creates remarkable problems as for health, economical, and social aspects.^[1,2] In the whole world every year nearly one million new cases emerge, and one third of them result in death.^[3] PCa mostly affects elder male people, and it is diagnosed at an average age of 66 years.^[4] PCa is also among the most frequently seen cancers. In Turkey is seen with an incidence rate of 35/100.000, and overall survival rate has been reported as 83 percent.^[5] In the early stage PCa, postoperative 10 year-survival rate is 83%^[6], and the importance of early diagnosis as for prognosis is already known. However the viewpoints, general knowledge level, and sources of information of Turkish men are not known exactly.

In this study, we investigated general knowledge level, degree of awareness, sources of information, and medical check-up for the purpose of screening, and effective factors of PCa.

Material and methods

A questionnaire form namely "Raising Awareness about Prostate Cancer" was prepared by the authors. This questionnaire form contained a total of 14 questions evaluating age, education, economical, and social status, information about PCa, examination findings, and effective factors. This form is seen in Table 1.

The questionnaire was performed not by a healthcare professional who in case of need explained the questions to the patients who applied to urology outpatient clinics, but it is in the form of home screening tests. Healthy

men over 40 years of age without any known urological disease were requested to complete questionnaire forms. The questionnaire forms were read to the participants who couldn't complete the forms, and the alternatives selected by the participant were marked. All conditions, and phases of our study were conducted in accordance with Helsinki Declaration.

According to demographic characteristics of the participants, level of awareness about PCa, sources of information, and the impact of this level of knowledge on PCa were investigated. Besides, according to the age of the study population, the participants were divided into 2 subgroups of individuals aged less or above 60 years of age. Two subgroups were compared with respect to the level of awareness, and state of health examination.

Statistical analysis

In the evaluation of statistical analysis Statistical Package for Social Sciences version 15 (SPSS Inc; Chicago, IL, USA), and *chi-square* test were used.

Results

The questionnaire forms were completed by 293 volunteered male individuals with a median age of 57 (range, 40-85 years). Distribution of demographic data of the participants is seen in Table 2.

The responses demonstrating the knowledge level of the participants about PCa, sources of information, and the state of medical check-up are seen in Table 3. The responses to the questions revealed that participants (68.3%) had stated that PCa is a frequently seen disease, and 88.4% of them expressed that they had known that PCa was a treatable disease if diagnosed at an early stage. More than half of them said that most frequently (62.8%) "physicians" were the source of their knowledge.

It was seen that 37.5% of the participants had not received any medical check-up, and 60.8% of them had not undergone physical examination or PSA tests related to prostatic disease within the previous 2 years. The reasons of not undergoing annual check-ups were evaluated by 44.4% of the participants as "negligence". None of the participants stated financial difficulties, religious beliefs or lack of confidence in examination, and test results as the reasons for not undergoing annual check-ups (Table 4).

The participants who thought that PCa is a treatable disease when diagnosed at an early stage were also evaluated based on their educational status, and lycée graduate, undergraduate, and postgraduate participants had statistically significantly higher knowledge levels versus other groups ($p=0.037$). A significant intergroup difference was not seen when distribution of participants who had had evaluated their prostates (PSA and/or physical examination) within the previous 2 years was investigated ($p>0.05$). The state of being subjected to medical examinations based on monthly income demonstrated that groups with middle income level had undergone medical examinations statistically significantly more frequent within the previous 2 years when compared with other

Table 1. Prostate cancer awareness questionnaire form

Prostat cancer awareness questionnaire			
Age			
What is the incidence of prostate cancer in men?			
☐ Rare	☐ Frequent		
Have anyone of your close relative (father, uncle, sibling) prostate cancer?			
☐ Yes	☐ No		
In case of early diagnosis can prostate cancer be treated?			
☐ Yes	☐ No		
What is the source of information about curability of prostate cancer if diagnosed at an early stage?			
☐ Television	☐ Radio		
☐ Friend/relative	☐ Physician		
☐ Newspaper/journal	☐ Pamphlet/poster		
How can prostate cancer be diagnosed at an early stage?			
☐ Physical examination	☐ Blood analysis		
☐ Imaging modality (X-ray, ultrasound etc.)	☐ Biopsy		
Have you had any medical check-up within the last 2 years?			
☐ Yes	☐ No		
Have you had any medical tests for prostate within the last 2 years?			
☐ PSA control	☐ Physical examination		
What is your reason for not taking annual tests?			
☐ I did not know whether they were necessary?	☐ I underwent these tests previously.		
☐ I have financial difficulties	☐ They give appointment at a very late date.		
☐ It does not suit my religious beliefs	☐ I am embarrassed		
☐ I fear from being diagnosed as prostate cancer	☐ I have no time		
Educational status			
☐ Illiterate	☐ Literate/Primary school		
☐ Lycee/High school	☐ Undergraduate/Postgraduate		
Marital status			
☐ Single /divorced	☐ Married		
Average monthly income (TL)			
☐ ≤2000	☐ 2001-5000	☐ ≥5001	
Social security			
☐ None or possessor of a green card	☐ SSI	☐ Private Insurance	
Habit of reading newspapers			
☐ Never	☐ Once in a while	☐ At least one day a week	☐ Every day

groups ($p=0.041$). A statistically significant difference was not seen between groups with different monthly incomes regarding curability of PCa when diagnosed at an early stage (Table 5).

The knowledge about curability of PCa when diagnosed at an early stage was statistically significantly more prevalent among male population below 60 years of age ($p<0.05$). In statistically significantly higher number of men less than 60 years of age, newspaper, internet, physician, and television were reported as the sources of information when compared with those older than 60 years of age. However a significant difference was not detected between groups which indicated physicians as their source of information. The group aged older than 60, had significantly more frequently undergone medical check-ups, prostate tests, examinations, and PSA control within the previous 2 years ($p=0.044$, and $p=0.028$, respectively) (Table 6).

Eighty-one participants whose relative (s) had PCa, had undergone medical check-up (67.9%) or prostate examinations, and PSA control (54.3%). These respective percentages were significantly higher when compared with the group of patients whose relative(s) had not PCa or PCa status was not known (Table 6).

Fifty-five (63.6%) of 88 individuals who read newspapers every day had undergone medical examinations, and 36.4% of them had had prostate examinations within the previous 2 years. Average rates of medical check-up (62.5%), and prostate control (30.2%) of all participants within the previous 2 years did not differ statistically significantly ($p>0.05$).

Discussion

Prostate cancer incurs heavy social, and economic burden on patients, and social security institutes both in Turkey, and in the world.^[4,5] Since PCa has a higher incidence, and prominent importance in the prognosis, every study aiming at increasing individual, and social awareness has a precious value. Ceber et al.^[7] compared Turkey with Western countries, and indicated that rates of early diagnosis, and awareness about PCa were relatively lower among Turkish male population. In our study, percentages of correct responses to questions about incidence of PCa which reflect knowledge level about PCa, curability of PCa in case of early diagnosis, and the method of early diagnosis were detected to be 68.3, 88.4, and 68%, respectively. These results support the assertions of Ceber et al.^[7]

In various studies, a direct correlation has been indicated between educational and knowledge levels of the patients about PCa.^[8] Besides, it has been asserted that training programs organized for male individuals over 40 years of age so as to increase awareness about PCa may also enhance rates of early diagnosis with resultant decrease in PCa mortality rates.^[10] However for the monitorization of effectiveness, and organization of training programs, it is necessary to know levels of awareness, and knowledge about PCa beforehand. In our study, as a result of as-

Table 2. Demographic distribution of the participants

Number of participants, n:293		
Age/year (Mean: 57)		
Educational status, n (%)	Illiterate	(4)
	Literate/Primary school	(38)
	Secondary school	(32)
	Lycée/high school	(27)
	Undergraduate/Postgraduate	(9)
Marital status, n (%)	Single/Divorced	(16)
	Married	(84)
Average monthly income, n (%)	≤2000 TL (low)	(54)
	2001-5000 TL (middle)	(38)
	≥5001 TL (high)	(8)
Social security, n (%)	None or possessor of green card	(4)
	SSI	(95)
	Private insurance	(1)
Habit of reading newspapers, n (%)	None	(42)
	Once in a while	(47)
	At least one day a week	(4)
	Every day	(7)
Have anyone of your close relatives (father, uncle, sibling) had prostate cancer? n (%)	Yes	(18)
	No	(79)
	Unknown	(3)

sessments based on age groups, the knowledge level of the group aged less than 60 years about curability of PCa if diagnosed at an early stage was higher when compared with older individuals. This phenomenon suggests that in our country young males are more knowledgeable about PCa than older males. Casey et al.^[9] reported that people with private health insurance was more knowledgeable about PCa. Only 5.4% of our study participants were under the coverage of private health insurance, and 56.2% of this group had undergone prostate controls within the previous 2 years which suggests that in our country private health insurance is far behind that of western countries. However for definitive evaluations studies should be performed on higher number of participants under the coverage of health insurance.

Table 3. Knowledge level, and sources of information of the participants about prostate cancer

What is the incidence of prostate cancer in men? n (%)	Rare	56 (19.1)
	Frequent	200 (68.3)
	Very frequent	37 (12.6)
How can prostate cancer be diagnosed at an early stage? n (%)	Physical examination	135 (46.1)
	Blood analysis	48 (16.4)
	Imaging modality (X-ray, ultrasound, etc)	9 (3.1)
	Biopsy	68 (23.2)
	Physical examination followed by blood analysis	18 (6.1)
	Tests, and biopsy	15 (5.1)
If diagnosed at an early stage, can prostate cancer be treated? n (%)	Yes	259 (88.4)
	No	3 (1)
	Unknown	31 (10.6)
What is the source of information about curability of prostate cancer if diagnosed at an early stage? n (%)	Television	35 (11.9)
	Radio	1 (0.3)
	Newspaper/journal	2 (0.7)
	Internet	9 (3.1)
	Books	3 (1)
	Pamphlets/poster	3 (1)
	Friends/relatives	9 (3.1)
	Physician	184 (62.8)
	Nurse	-
	Television, newspaper, journal	13 (4.4)
	Newspaper, internet, physician	34 (11.6)

Diagnosis of PCa has been established based on the results of serum PSA tests, digital rectal examinations, and transrectal prostate biopsies in case of need.^[4] In Turkey, and in many other countries these tests are not used as routine screening tests. In-

Table 4. General, and prostate-related medical check-up status of the participants

Have you had medical check-ups within the last 2 years? n (%)	Yes	183 (62.5)
	No	110 (37.5)
Have you had medical check-up for prostate cancer within the last 2 years? n (%)	PSA control	42 (14.3)
	Physical examination	73 (24.9)
	No	178 (60.8)
What is your reason for not taking annual tests? n (%)	I did not know whether it was necessary	54 (18.4)
	I had it previously	72 (24.6)
	I neglected	130 (44.4)
	I fear from being diagnosed as PCa	4 (1.4)
	I have no time	3 (1)
	They give appointment at a very late date.	2 (0.7)
	I don't like to consult a physician	22 (7.5)
	I am embarrassed	6 (2)
	I have financial difficulties	-
	It is not suitable to my religious beliefs	-
	I don't trust examination, and test results	-

stead, individual applications, and evaluations have been made. In EAU guidelines, detection of baseline serum PSA levels is recommended for patients between 40, and 45 years of age. However a consensus does not exist as for intervals between follow-up visits. Follow-up intervals based on baseline risk level, and life-expectancy of 10 years are recommended.^[11] Majority (62.5%) of our study participants underwent a medical examination within the previous 2 years, while 60.8% of them had not undergone PCa screening tests. This outcome demonstrates participants' lower level of knowledge about PCa, and inadequate

Table 5. Distribution of participants based on their educational level who thought that PCa could be treated if diagnosed at an early stage, and also those underwent tests for prostate cancer within the last 2 years

		PCa can be treated if diagnosed at an early stage n (%)	p	Participants who have been examined for prostate disease within the last 2 years n (%)
Educational status	Illiterate	5 (83.3)	0.037	2 (33.3)
	Literate/Primary school	102 (84.3)		53 (43.8)
	Secondary school	49 (83.1)		18 (30.5)
	Lycée/High school	82 (96.4)		35 (41.2)
	Undergraduate/Postgraduate	21 (95.5)		7 (31.8)
Monthly income	≤2000 TL (low)	177 (89.8)	0.062	115 (58.4)
	2001-5000 TL (middle)	68 (86.1)		61 (77.2)
	≥5001 TL (high)	14/17 (82.4)		7 (41.2)

number of screening tests or examinations they had undergone related to PCa.

A strong correlation has been demonstrated between family history, and increased risk of PCa.^[12] In various studies, authors indicated 2-3 times higher risk of developing PCa in male individuals whose first-degree close relative(s) had PCa.^[13] We investigated the impact of family history of PCa on the levels of knowledge, and sensitivity about PCa, and detected that 81 (27.6%) participants had a family history of PCa, and 54.3% of them had undergone prostate tests, and examinations within the previous 2 years. In the group without family history of PCa, PCa detection rate was only 33.5 percent ($p<0.05$). This result demonstrates that family history of PCa increases levels of knowledge, and awareness of the male individuals about PCa.

Obana et al.^[14] have demonstrated that individuals with a higher level of training, and income had more knowledgeable about PSA tests, and they had routinely undergone their annual examinations. However, interestingly, in our study male participants with a middle income level had applied to the physicians significantly more frequently within the last 2 years relative to those with higher and lower income levels. Any intergroup difference was not seen regarding curability of prostate cancer when diagnosed at an early stage. In our country we think that knowledge, and awareness about the disease are effected by factors other than income levels. In a chemoprevention study participants' sources of information about PCa, namely written media (72%), family, and friends (23%), and physicians (10%) were found to be effective factors in respective percentages of patients.^[15] We detected that only 36.4% of the 88 participants who read newspapers every day had undergone prostate examinations within

Table 6. Distribution of participants aged ≥60 years whose relatives were or were not PCa patients

		<60 years (n=168)	≥60 years (n=125)	p	Relative with PCa (n=81)	Individuals whose relative (s) was/were not PCa patients or PCa status is unknown (n=212)	p
If diagnosed at an early stage, can prostate cancer be treated?	Yes	154 (91.7)	105 (84)	0.042	81 (100)	178 (84)	0.036
	No	3 (1.8)	-(0)		- (0)	3 (1.4)	
	Unknown	11 (6.5)	20 (16)		- (0)	31 (14.6)	
Source of information	Physician	99 (58.9)	85 (68)	0.061	54 (66.7)	130 (61.3)	0.075
	Newspaper internet TV-medical channel	26 (15.5)	8 (6.4)		5 (6.1)	29 (13.7)	
The number of individuals who underwent medical check-up within the last 2 years		94 (55.9)	89 (71.2)	0.044	55 (67.9)	128 (60.4)	
The number of individuals who underwent medical check-up for prostate (PSA analysis or physical examination) within the last 2 years		51 (30.4)	64 (51.2)	0.028	44 (54.3)	71 (33.5)	

the previous 2 years. This outcome demonstrates that written media failed to raise awareness, and sensitivity about the issue of prostate cancer. In our study we observed that the physicians are the most frequently (62.8%) consulted source of information without any significant difference between groups of participants aged less, and more than 60 years.

In a study where the obstacles encountered during screening for PCa with the aim of making an early diagnosis were evaluated, Weinrich et al.^[16] asserted the feeling of embarrassment, post-operative loss of sexual function, lack of knowledge about PCa, habit of consulting one's physician on a regular basis, and cultural sensitivity, and in addition to faith in fatalism as main problems. In our study inadequacy of annual check-ups was evaluated by the participants as "negligence". This can be thought as an individual problem rather than an issue relating to healthcare system. We think that "negligence" which refrains the individual from undergoing prostate tests, and examinations is a sociocultural problem which can be solved by goal-targeted training.

Limitations of our study can be enumerated as lower number of participants, inability of screening different, and larger geographic regions, and also inability to inquire some educational, economic, and sociocultural factors. However when we consider scarce number of studies in our country, our study is worth-mentioning in that it can aid in planning the education, community screening studies, and investigations, and guide future studies.

In conclusion, as is the case with all the world, PCa especially effects male population over certain age with higher prevalence, and mortality rates. Since PCa is a treatable disease if diagnosed earlier, individuals, and community should increase their levels of awareness, and knowledge. To this end, we think that knowledge of effective sociocultural, and economical factors, and planning effective methods will decrease social, and medical burden incurred by PCa.

Ethics Committee Approval: Authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects", (amended in October 2013).

Informed Consent: Due to the methodology of this study informed consent didn't obtained from participants.

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