ORIGINAL

Investigation of Knowledge, Attitudes, and Healthy Lifestyle Behaviors on Bladder Cancer in Turkey

Zekeriya Temircan

Kapadokya University, Department of Psychology, Ürgüp/Nevsehir-Turkey

Abstract : Background : The prevalence of bladder cancer increases rapidly among individuals. The knowledge, attitude, and healthy lifestyle behaviors of individuals in Turkey regarding bladder cancer are unknown. The present study aim was to examine the knowledge and attitudes of the participants about bladder cancer and healthy lifestyle behaviors. Methods : This cross-sectional study was conducted with 400 participants from outpatient clinic at Erciyes University. Data were collected by using a socio-demographic form and Healthy Lifestyle Behaviors Scale. Results : Findings revealed that 55% of the participants were aware of bladder cancer risks ; smoking 55.5%, older ages 67%, synthetic dyes and some chemicals 43.7%, and overweight 34.5% increases the risk of bladder cancer. The findings showed that economic status and education effect on the Healthy Lifestyle Behaviors Scale scores. The positive relationship was found between self-realization, exercise, and interpersonal subscale in those with high-income participants. It is found that exercise, nutrition, and stress management that have a positive attitude among non-smokers toward the risk factors of bladder cancer. Conclusion : The information obtained from the study can be used to inform patients about bladder cancer, risk factors, and cancer prevention. In this regard, healthcare professionals can increase patients' knowledge and create awareness by preparing informative brochures, giving information during the examination, or making presentations. J. Med. Invest. 71 : 40-46, February, 2024

Keywords **:** *Bladder cancer, Behaviors, Attitudes, Healthy Lifestyle*

INTRODUCTION

Bladder cancer is the 10th most common cancer among males and females in the world and the number of bladder cancer has been on increase among males and females in the world (1). The interaction of many genetic, carcinogenic factors, lack of knowledge, risk factors, unhealthy lifestyles, and poor attitude toward treatment is an important factor in the etiology of bladder cancer (2). The highest prevalence of bladder cancer is seen in North America and the European Union countries, and it is approximately 6 times higher compared to developing countries (3). In Turkey, it is the fourth most common cancer in men after prostate, lung, and colorectal cancers. It ranks eighth among cancers in women in terms of frequency. It can be seen at any age, including children (4). However, the incidence is high in middle age and older ages. The average age at the time of diagnosis is approximately 65. It ranks fifth among the causes of cancer-related death in men. Death rate from bladder cancer is higher in the elderly (5). Being aware of diseases, taking precautions against diseases and acting in preventive behaviors form the basis of this process (6). Implementation of healthy protective behaviors constitutes the basis for prevention from diseases, early diagnosis, and treatment (7).

The study done by Morgan *et al*. (8) reported the findings about knowledge, attitude, and practice toward prostate cancer screening in the African community. The study findings revealed that low knowledge of prostate cancer screening resulted in a negative attitude of seeking treatment and visiting healthcare professionals. Similarly, it is noted that many of the older adults have erroneous beliefs about the cancer due to lack of knowledge and information which caused a negative attitude seeking treatment. The study findings revealed that 94% of the participants were unaware of the symptoms and risk factors and 34.2% indicated that they would prefer to receive no treatment because they believed the cancer is incurable (9). Bladder cancer is one of the types of cancer that causes death in male and females in Turkey, and it is important to emphasize the knowledge, attitude, and healthy lifestyle behaviors toward bladder cancer. Especially since most of the male population suffers from bladder cancer in Turkey, no studies pay attention to knowledge, attitude, and healthy lifestyle behaviors toward bladder cancer. Therefore, this study sought to address the gap and try to improve public understanding and increase awareness of the risk factors and symptoms of bladder cancer among the individuals. The aims of the study were to determine the knowledge, attitude, and healthy lifestyle behaviors toward bladder cancer at one of the Turkish hospitals in Turkey.

MATERIALS AND METHODS

This cross-sectional study was conducted in a urology outpatient's clinic at a research hospital in Kayseri. All participants were from the urology outpatient clinic department and the study was completely voluntary based. The survey was administered to a total 425 participants, but the data analysis was done over 400 participants. A convenience sampling method was adopted in the study and the inclusion criteria were included for the patients who were aged 18 years and older, and to read and understand the questions. Patients who are illiterates and under 18 years old were excluded. Demographic and clinic information pertaining gender, age, marital status, education level, income, BMI, smoking, alcohol, types of comorbidities, knowledge, and

Received for publication July 13, 2023 ; accepted September 2, 2023.

Address correspondence and reprint requests to Zekeriya Temircan, Kapadokya University, Department of Psychology, Ürgüp/Nevsehir-Turkey 50420. E-mail : drzekeriyatemircan@gmail.com

attitudes about bladder cancer were assessed.

Sample Size Calculation

This study was conducted at one of the Turkish hospitals. The sample size calculation was done from the estimated population of over one million individuals aged 50 and older. The 95% confidence interval at P = .5, the estimated proportion was d = 4%, and a minimum sample was 400.

Statistical Analysis

The data were analyzed using the SPSS 25 package program. Descriptive statistics including mean, standard deviation, and frequency were used to summarize socio-demographic and clinical data for the variables collected from the participants. Independent t-test and ANOVA were used to test mean differences of the socio-demographic characteristics of the study. In addition, Pearson's chi-square test and Fisher's exact test was used to compare the participants' knowledge about bladder cancer with characteristics and attitudes. Kruskal–Wallis test was used to compare the average Healthy Lifestyle Behaviors Scale (HLBS) total score of the participants and attitudes and behaviors toward bladder cancer. At 95% confidence interval, P < .05 level was considered statistically significant.

Research Instruments
Socio-Demographic and Clinical Data Form

The sociodemographic profile of the participants including gender, age, marital status, education level, and income were collected and assessed. Similarly, clinical data including BMI, smoking, alcohol, types of comorbidities, knowledge, and attitudes about bladder cancer were also collected and assessed. The demographic data form was prepared by the researchers according to the literature information as the clinical data prepared to measure knowledge and attitudes about bladder cancer of the participants.

The Healthy Lifestyle Behaviors Scale II

The Healthy Lifestyle Behavior Scale (II) prepared by Walker *et al*. (10) and Esin (11) adopted it in Turkish in 1999. The scale measures health-promoting behaviors in relation to an individual's healthy lifestyle. The scale consists of 52 items and 6 subfactors. Subgroups ; spiritual development, health responsibility, physical activity, nutrition, interpersonal relationships, and stress management. The overall score of the scale gives the score for healthy lifestyle behaviors. The Cronbach Alpha coefficient of the scale was found .92 and it has a high degree of reliability for use. The reliability coefficients of the subdimensions of the scale are ; Health responsibility .77, Physical Activity .79, Nutrition .68, Spiritual Development .79, Interpersonal Relations .80, Stress Management .64. For this reason, it is recommended that the scale be used to evaluate the healthy lifestyle behaviors of Turkish society.

Ethical Consideration

Ethical approval for this study was obtained from the Kapadokya University and Helsinki Declaration protocol was followed during the study. The participants' privacy and confidentiality protected as ethical consideration. This study received Ethical approval from Kapadokya University Ethics Committee with the protocol number of 29533901-050.99-14648.

RESULTS

The age, gender, education level, marital status, income status, BMI, and other socio-demographic characteristics are summarized from the socio-demographic from. Statistical analyzes were calculated based on the answers of 400 (94.1%) participants. Most of the respondents (94.5%) are male and the average age of the individuals participating in the study is 57.72 ± 6.16 and the median is 57 (min-max : 50-84). Majority of the respondents (90.7%) are married, followed by widowers (6.2%), and single (3.1%). Educational background showed that most of the respondents (39.2%) completed primary school as many of them had low income 66.5% (n = 266).

Almost half of the participants reported to have chronic illnesses 39.5% (n = 158) and the more than half of the participants were either overweight (58.5%) or obese (17%). It was determined that urinary problem (36.7%) was the most common reason for the participants to apply to the outpatient clinic (Table 1). However, kidney problems, erectile problems, bladder, and prostate problems were among the most frequently observed admission problems to the outpatient clinic department. Among the total participants, 124 (31%) of them applied to the clinic because of bladder problems, while 276 (69%) applied for other reasons.

Table 1. The Descriptive Information of Reasons for Applying to the Urology Polyclinic

	n	%
Kidney Problems		
Pain	22	22.9
Stone	53	55.2
Cyst	5	5.2
Tumor	16	16.7
Total	96	24
Problems with erection		
Sexuality	5	21.7
Erection	18	78.3
Total	23	5.7
Problems with urination		
Blood from urine	46	31.2
Frequent urination	28	19
Burning in urine	31	21
Difficulty urinating	26	17.6
Infection	5	3.4
Urethral stricture	11	7.8
Total	147	36.7
Problems with Bladder		
Tumor	14	22.5
Control	48	77.5
Total	62	15.5
Problems with Prostate		
PSA follow up	50	69.4
Prostate	22	30.6
Total	72	18.1

Knowledge about bladder cancer

The distribution of the participants' information about bladder and bladder cancer is given in Table 2. The answers given by the participants to each question differed. It was determined that most of the participants did not know that excess weight is a risk factor for bladder cancer (53.5%) and they did not have any knowledge about bladder cancer that can cause loss of kidney function (56.2%). In addition, it was determined that almost half

of the participants did not have any knowledge about synthetic dyes and some chemicals being a factor that increases the risk of bladder cancer (44.7%) and that bladder cancer can cause urination problems (39.7%) (Table 2). Findings revealed that 55% of the participants had knowledge about bladder cancer and its risk factors (Table 2). Since the male participant number is higher than female in the study, the results showed that male participants are seemed to be knowledgeable than female participants in general. It was determined that participants with bladder problems (66.8%) was more knowledgeable about bladder cancer and risk problems than those with other health problems.

A Statistical Results of Information Status on Bladder Cancer

Also, among the participants, 47% (n = 112) were in the age group of 50–59 years old. Gender and age distribution was not associated with knowledge about bladder cancer ($p > .05$) (Table 3). As shown, most of the respondents who do not have any knowledge about bladder cancer 73.2% (n = 115) completed primary school. A statistical significance was found between educational level of the participants and information status on bladder cancer ($P = .000^*$). The groups and primary school graduates had less knowledge about bladder cancer. Although the respondents' income level was not distributed homogeneously, and the statistical significance was found between the income groups and information status on bladder cancer ($P = .000^*$). The result showed that the lowest income group had have less knowledge and information about bladder cancer. It may suggest that having the low-income status may associated with risk of bladder cancer due to lack of knowledge and information. In addition, the result showed that knowing the symptoms of bladder cancer between groups were not distributed homogeneously. A statistical significance was found between the groups for knowing the symptoms of bladder cancer ($P = .000^*$), having bladder cancer in first degree relatives, and information status on bladder cancer ($P = .022$) (Table 3).

A Statistical Results of Healthy Lifestyle Behaviors Towards Bladder Cancer

The mean score of the healthy lifestyle behaviors scale (HLBS) of the individuals participating in the study was 124.92 ± 25.98. The lowest point was 61 and the highest was 201 on the scale. The comparison of the HLBS total score average of the individuals participating in the study regarding the attitudes and behaviors against cancer is given in Table 4. The participants most attributed to "synthetic dyes and some chemicals increase the risk of bladder cancer" and its average HLBS score is 134.48 ± 25.52. The participants less attributed to "smoking increases the risk factor of bladder cancer" and its average HLBS score is 122.90 ± 31.39. In addition, statistical significance was found between gender and knowing the symptoms of bladder cancer ($P = .000^*$), gender and smoking increases the risk of bladder cancer ($P = .000^*$), gender and synthetic dyes, and some chemicals increase the risk of bladder cancer ($P = .000^*$), respectively (Table 4).

A Statistical Results of Healthy Lifestyle Behaviors Scale Sub-dimensions

A statistical significance was shown between healthy lifestyle behaviors sub-dimensions and other variables in Table 5. A statistical significance was found between self-realization sub-dimension and education level ($P = .000^*$) and income status ($P = .000^*$) among the participants. Also, the statistical significance was found between the information status of knowing the symptoms of bladder cancer and self-realization sub-dimension of HLBS among the participants ($P = .000^*$). Other variables did not show a statistical significance ($P > .05$).

Age ($P = .013^*$), marital status ($P = .025^*$), income status ($P = .010^*$), and smoking ($P = .023^*$) were shown statistical significance with stress management sub-dimension of HLBS. In addition, the statistical significance was found between the information status of knowing the symptoms of bladder cancer and stress-management sub-dimension of HLBS among the participants ($P = .000^*$). Other variables did not show a statistical significance ($P > .05$).

Although socio-demographic variables did not show any statistical significance with health responsibility sub-dimension of HLBS, a statistical significance was found between the information status of knowing the symptoms of bladder cancer and health responsibility among the participants ($P = .000^*$).

Exercise is another sub-dimension of HLBS and that showed the statistical significance between education ($P = .027^*$), marital status ($P = .001^*$), income status ($P = .002^*$), and smoking ($P = .021^*$). Also, the statistical significance was found between

Table 2. The Descriptive Information of the Participants on Bladder Cancer

	Yes		No		I do not know	
	n	%	n	%	n	%
Bladder is only found in men	312	78	20	5	68	17
Blood in the urine may be a sign of bladder cancer	286	71.5	12	3	102	25.5
Bladder is part of the urinary tract system	260	65	16	4	124	31
Bladder cancer can cause urination problems	212	53	29	7.3	159	39.7
Bladder cancer can cause kidney failure	129	32.2	46	11.6	225	56.2
Cancer may occur in the bladder	346	86.5	18	4.5	36	9
Bladder cancer only occurs in older people	187	46.7	112	28	101	25.3
Bladder cancer can genetically pass	126	31.5	98	24.5	176	44
Having bladder cancer in first degree relatives increases the risk of cancer	180	45	155	38.7	65	16.3
Bladder cancer can be cured	324	81	14	3.5	62	15.5
Older age increases the risk of bladder cancer	268	67	21	5.3	111	27.7
Smoking increases the risk of bladder cancer	222	55.5	34	8.5	144	36
Synthetic dyes and some chemicals increase the risk of bladder cancer	175	43.7	46	11.6	179	44.7
Physical activity reduces the risk of bladder cancer	168	42	84	21	148	37
Overweight increases the risk of bladder cancer	138	34.5	48	12	214	53.5

Table 3. The Participants' Knowledge About Bladder Cancer Pearson's Chi-square and Fisher's exact test Results

	Information status on bladder cancer				
	Yes		No		P value
	n	%	n	%	
Gender					
Male	214	56.6	164	43.4	0.476
Female	9	41	13	59	
Age					
50-59	112	47	126	53	
60-69	56	43	74	57	0.514
70 and over	14	43.7	18	56.3	
Education					
Primary education	42	26.8	115	73.2	
Secondary education	39	41.5	55	58.5	0.000*
High School	58	63.7	33	36.3	
University and Above	32	55.1	26	44.9	
Marital status					
Single	7	58.3	5	41.7	
Married	174	47.9	189	52.1	0.712
Widowed	10	40	15	60	
Income status					
Below 2000 TL	88	33.1	178	66.9	
2001-5000 TL	61	58	44	42	0.000*
Over 5000 TL	16	55.1	13	44.9	
Chronic Illness					
Yes	68	43.1	90	56.9	0.508
No	108	44.7	134	55.3	
Knowing the symptoms of bladder cancer					
Yes	74	86	12	14	0.000*
No	42	13.4	272	86.6	
Having bladder cancer in first degree relatives					
Yes	39	58.2	28	41.8	0.022*
No	136	40.9	197	59.1	

Pearson's chi-square test, Fisher's exact test*

Table 4. The Participant Healthy-Lifestyle Behavioral Total Scores by Gender

Gender	Healthy Lifestyle Behavioral Items	$\bar{x} \pm Sd$	t-test / Kruskal Wallis	p value
Female Male	Knowing the symptoms of bladder cancer	132.12 ± 24.71	5421	0.000*
Female Male	Having bladder cancer in first degree relatives	124.43 ± 19.62	1464	0.134
Female Male	Bladder cancer can cause urination problems	133.66 ± 62.45	4182	0.236
Female Male	Blood in the urine may be a sign of bladder cancer	128.80 ± 29.56	2886	0.944
Female Male	Synthetic dyes and some chemicals increase the risk of bladder cancer	134.48 ± 25.52	5532	0.000*
Female Male	Smoking increases the risk of bladder cancer	122.90 ± 31.39	4776	0.000*
Female Male	Physical activity reduces the risk of bladder cancer	127.32 ± 63.60	3754	0.357

p < 0,001

Table 5. The Sub-Dimensions of Healthy Lifestyle Behaviors Scale t-test Results

		x̄	Sd	t	p
Self-Realization	Female	22.23	4.11	0.216	0.310
	Male	21.35	3.85	0.461	0.346
	Age	24.17	5.28	2.167	0.718
	Education	23.78	5.68	3.118	0.000*
	Marital status	25.44	6.26	-0.581	0.455
	Income status	25.60	4.93	8.310	0.000*
	Smoking	28.17	6.35	1.487	0.228
	Knowing the symptoms of bladder cancer	23.67	4.83	5.914	0.000*
	Having bladder cancer in first degree relatives	24.97	5.03	-0.467	0.634
Stress Management	Female	24.12	5.96	2.854	0.842
	Male	23.45	4.85	1.475	0.672
	Age	20.23	6.12	1.817	0.013*
	Education	23.66	4.15	1.590	0.280
	Marital status	26.18	5.18	3.276	0.025*
	Income status	22.78	5.21	1.245	0.010*
	Smoking	21.90	5.88	2.810	0.023*
	Knowing the symptoms of bladder cancer	24.82	4.98	1.356	0.000*
	Having bladder cancer in first degree relatives	18.36	4.20	4.210	0.212
Health Responsibility	Female	21.39	4.33	-1.873	0.641
	Male	23.77	3.98	1.452	0.304
	Age	25.37	5.67	1.355	0.618
	Education	26.26	4.77	-1.520	0.813
	Marital status	25.87	4.83	-1.919	0.728
	Income status	20.25	5.38	2.366	0.365
	Smoking	27.10	4.26	1.277	0.248
	Knowing the symptoms of bladder cancer	24.24	5.02	-0.501	0.000*
	Having bladder cancer in first degree relatives	20.72	4.99	0.819	0.766
Exercise	Female	24.52	5.17	-1.171	0.406
	Male	19.47	4.93	2.487	0.508
	Age	14.95	4.59	-1.344	0.812
	Education	20.61	5.42	1.118	0.027*
	Marital status	21.49	4.61	2.177	0.001*
	Income status	23.61	4.99	2.102	0.002*
	Smoking	24.88	5.08	1.780	0.021*
	Knowing the symptoms of bladder cancer	24.82	4.66	-2.177	0.000*
	Having bladder cancer in first degree relatives	26.85	4.11	1.233	0.015*
Nutrition	Female	21.04	5.02	4.608	0.107
	Male	19.68	4.08	3.842	0.238
	Age	20.69	5.51	5.347	0.032*
	Education	22.24	4.68	3.867	0.516
	Marital status	21.56	4.81	5.122	0.678
	Income status	23.87	4.32	3.977	0.275
	Smoking	23.69	5.09	4.776	0.001*
	Knowing the symptoms of bladder cancer	23.37	5.76	4.349	0.000*
	Having bladder cancer in first degree relatives	22.76	4.87	4.735	0.019*
Interpersonal support	Female	20.83	4.11	1.308	0.301
	Male	21.44	3.72	1.212	0.653
	Age	20.32	4.88	1.306	0.819
	Education	24.57	5.23	1.678	0.015*
	Marital status	23.98	4.39	1.424	0.376
	Income status	24.00	4.87	2.855	0.002*
	Smoking	18.98	5.12	2.454	0.644
	Knowing the symptoms of bladder cancer	23.64	5.66	1.986	0.000*
	Having bladder cancer in first degree relatives	22.88	4.80	2.102	0.633

the information status of knowing the symptoms of bladder cancer (P = .000*), having bladder cancer in first degree relatives (P = .015*) and exercise among the participants. Other variables did not show a statistical significance with exercise sub-dimension of HLBS (P > .05).

When nutrition sub-dimension of HLBS was analyzed with variables, the statistical significance was found between nutrition, age (P = .032*) and smoking (P = .001*). Also, the statistical significance was found between the information status of knowing the symptoms of bladder cancer (P = .000*), having bladder cancer in first degree relatives (P = .019*) and exercise among the participants. Lastly, sub-dimension interpersonal support of HLBS showed a statistical significance with education level (P = .015*) and income status (P = .002*) among the participants. Also, the statistical significance was found between the information status of knowing the symptoms of bladder cancer and interpersonal support sub-dimension of HLBS among the participants (P = .000*). Other variables did not show a statistical significance (P > .05) (Table 5).

DISCUSSION

In this cross-sectional study, the participants' knowledge, attitude, and healthy lifestyle behaviors (HLBS) were evaluated on bladder cancer in Turkey. The findings of the study revealed that healthy lifestyle behaviors were significantly affected by age, smoking, income status, marital status, knowing the symptoms of bladder cancer, and having cancer in the first-degree relatives. To the best of my knowledge, this is the first study to report healthy lifestyle behaviors on bladder cancer in Turkey as it relates to the patients' knowledge and attitudes. Also, there have been many systematic review and retrospective studies conducted about health-related quality of life and bladder cancer, but it has been limited to focus on knowledge and attitudes about healthy lifestyle behaviors on bladder cancer in Turkey.

The findings of the study reported that sub-dimensions of HLBS self-realization, stress management, health responsibility, exercise, nutrition, and interpersonal support are associated with the patients' knowledge and attitude on bladder cancer. Results were similar in previous studies, having knowledge shows positive attributes to healthy lifestyle behaviors as HLBS is negatively associated with lower income status as well as lower educational level (12). This study reported that 55% of the participants showed some knowledge about the risk factors and symptoms of bladder cancer, which is important to prevent bladder cancer. Previous studies concluded that there was a positive association between higher knowledge and prevention, in which higher knowledge and attitude scores are related to better healthy lifestyle behaviors (13).

Although the previous study reported that females had higher odds of scoring well about knowledge and attitude on cancer than their male counterparts, this study found different results. However, due to most of the participants being male in this study, this may not be representative of the whole population of males/females. The studies also reported that poor knowledge and attitude towards cancer is leading to poorer health-related quality of life (14). Therefore, this study results may help to increase the awareness of the symptoms and the risk factors of bladder cancer and bring attention to the importance of HLBS sub-dimensions on bladder cancer.

The study (15) reported that shyness is the major attitude that causes delay in seeking information as well as treatment in cancer cases. The patients are attracted to obtain information mostly from media television and cinema instead of healthcare professionals (16). This study result showed that the health responsibility subdimension of HLBS is significantly associated with knowledge of the symptoms. This study results are consistent with the studies in the literature.

Another study (17) concluded that knowledge, perception, and attitudes of cancer patients play an important role for cancer care. The study results revealed that almost half of the participants (42.2%) believed that the evil eye was the cause of their cancers (18). This situation poses more challenges and difficulties for health professionals to provide cure to the patients. Although this result contrasts with this study findings, these results support the importance of this study that knowing the symptoms of bladder cancer is significantly associated with self-realization, stress management, health responsibility, interpersonal support, nutrition, and exercise of HLBS subdimensions (P = 000*).

According to the health promotion model, it has been reported that health-enhancing behaviors increase as age increases (19). In this study, when age groups were analyzed, the HLBS nutrition and stress management subgroup scores were higher for individuals aged 70 years old and over compared to those aged of 50-59 years. A healthy diet and lifestyle reduce health problems and increase quality of life. It should not be forgotten that the correct management of stress might increase compliance with all kinds of health-protective behaviors (20). In this study, physical activity, nutrition, and stress management subscale scores of non-smokers were higher than smokers. In my country, while bladder cancer is seen 4 times more in men than women, it is the sixth among cancer types seen (21). According to the statements of the World Cancer Research Fund, bladder cancer is among the types of cancer that cause the most deaths.

A report from the World cancer research fund stated that bladder cancer accounts for 2.9% of cancer deaths in men and 1.5% of those in women, it is the 13th most common cause of death in the world (22). It is known that bladder cancer has a strong relationship with age and its incidence increases in older age along with age, family history and race are among the few known risk factors for bladder cancer (23). It has been reported that smoking increases the risk of bladder cancer, especially in women, and exercise provides protection against bladder cancer. Due to differences in cancer distribution around the world, it has been suggested that factors such as certain food habits, lifestyle behaviors and nutrition may be responsible for cancer development. Therefore, determining risk factors is particularly important for establishing specific cancer prevention actions.

Studies on the knowledge of prevention options for bladder cancer showed that less smoking, healthy lifestyle, and physical exercise reduced 40% of the risk of bladder cancer (24). A limited number of studies have been conducted on bladder cancer in Turkey investigating the knowledge, attitudes, and healthy lifestyle behaviors of individuals. The result of the study is a first because it knows the risk factors related to bladder cancer and determines the healthy behavior patterns and the results are important for healthcare professionals and individuals. The present study was able to address this problem and investigated the knowledge, attitude, and healthy lifestyle behaviors on bladder cancer, which presented a comprehensive evaluation of HLBS.

However, some limitations should be noted. Although the study contributes valuable information and findings to close a gap in the literature regarding this subject, there are several limitations in the study. First, the study was limited by the small convenience sample of individuals who applied to urology outpatient clinics with different reasons that could bias the findings of the study. Conducting the research in a center is one of its limitations. The results can only be generalized to the group in which the research was conducted and could limit the study's generalizability. There were imbalanced gender and education

levels in this study, which could have an impact on the results. Lastly, the use of survey questionnaires may result in response bias. Participants may not respond to the questions correctly due to their lower educational level. Despite the limitations of the study, there are valuable findings that contribute to the literature about this subject.

CONCLUSION

The present study findings show that there is a significant gap in the knowledge between male and female about the risk factors of bladder cancer. Lower income and educational background are negatively associated with lack of knowledge, attitudes, and healthy lifestyle behaviors on bladder cancer. Healthcare practitioners, researchers, and policy makers can use the findings to inform individuals about the risk factors of bladder cancer. Informing individuals about healthy lifestyle behaviors can play an important role in reducing the risk factors.

The information obtained from the study can be used to inform patients about bladder cancer, risk factors, and cancer prevention. In this regard, healthcare professionals can increase patients' knowledge and create awareness by preparing informative brochures, giving information during the examination, or making presentations. This study finding may also help healthcare centers and institutions to change policy to improve the participants' knowledge. Since this study was conducted in an institution, the result cannot be generalized, it is recommended to conduct studies with larger groups and data collected from different institutions.

FINANCIAL DECLARATION

The study received no funds or financial support.

CONFLICT OF INTEREST

The author declared that there is no conflict of interest.

REFERENCES

1. Butt SU, Malik L : Role of immunotherapy in bladder cancer : past, present and future. Cancer Chemother Pharmacol 81(4) : 629-645, 2018
2. Demirtaş A, Tombul ŞT, Sönmez G, Demirleğen A, Demirtaş T, Tatlışen A : Intravesical Mitomycin-C with Bladder Wall Hyperthermia in Intermediate and High-risk Non-muscle Invasive Bladder Cancers : Prospective Clinical Trial with a Single-treatment Arm. Bull Urooncol 19(4) : 182-185, 2020
3. Dobruch J, Daneshmand S, Fisch M, Lotan Y, Noon AP, Resnick MJ, Shariat SF, Zlotta AR, Boorjian SA : Gender and Bladder Cancer : A Collaborative Review of Etiology, Biology, and Outcomes. Eur Urol 69(2) : 300-10, 2016
4. Fankhauser CD, Mostafid H : Prevention of bladder cancer incidence and recurrence : nutrition and lifestyle. Curr Opin Urol 28(1) : 88-92, 2018
5. Farling KB : Bladder cancer : Risk factors, diagnosis, and management. Nurse Pract 42(3) : 26-33, 2017
6. Hektoen HH, Robsahm TE, Andreassen BK, Stenehjem JS, Axcrona K, Mondul A, Gislefoss RE : Lifestyle associated factors and risk of urinary bladder cancer : A prospective cohort study from Norway. Cancer Med 9(12) : 4420-4432, 2020
7. Kwan ML, Garren B, Nielsen ME, Tang L : Lifestyle and nutritional modifiable factors in the prevention and treatment of bladder cancer. Urol Oncol 37(6) : 380-386, 2019
8. Morgan TM, Keegan KA, Clark PE : Bladder cancer. Curr Opin Oncol 23(3) : 275-82, 2011
9. McTiernan A, Friedenreich CM, Katzmarzyk PT, Powell KE, Macko R, Buchner D, Pescatello LS, Bloodgood B, Tennant B, Vaux-Bjerke A, George SM, Troiano RP, Piercy Kl, 2018 Physical Activity Guidelines Advisory Committee : Physical Activity in Cancer Prevention and Survival : A Systematic Review. Med Sci Sports Exerc 51(6) : 1252-1261, 2019
10. Walker SN, Volkan K, Sechrist KR, Pender NJ : Health-promoting life styles of older adults : comparisons with young and middle-aged adults, correlates and patterns. ANS Adv Nurs Sci 11(1) : 76-90, 1998
11. Esin MN : Sağlıklı Yaşam Biçimi Davranışları Ölçeği'nin Türkçe'ye uyarlanması. Hemşirelik Bülteni 12(45) : 87-96, 1999
12. Skeldon SC, Larry Goldenberg S : Bladder cancer : a portal into men's health. Urol Oncol 33(1) : 40-44, 2015
13. Smith AB, Jaeger B, Pinheiro LC, Edwards LJ, Tan HJ, Nielsen ME, Reeve BB : Impact of bladder cancer on health-related quality of life. BJU Int 121(4) : 549-557, 2018
14. Sonmez G, Tombul ST, Golbasi A, Demirtas T, Akgun H, Demirtas A : Symptomatic paraganglioma of the urinary bladder : A rare case treated with a combined surgical approach. Urology Case Reports, 2020
15. Wang M, Yang Y, Liao Z : Diabetes and cancer : Epidemiological and biological links. World Diabetes 11(6) : 227-238, 2020
16. Al-Zalabani AH, Stewart KF, Wesselius A, Schols AM, Zeegers MP : Modifiable risk factors for the prevention of bladder cancer : a systematic review of meta-analyses. Eur J Epidemiol 31(9) : 811-51, 2016
17. Blanchard CM, Courneya KS, Stein K : Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life : results from the American Cancer Society's SCS-II. J Clin Oncol 26(13) : 2198-204, 2008
18. Butt SU, Malik L : Role of immunotherapy in bladder cancer : past, present and future. Cancer Chemother Pharmacol 81(4) : 629-645, 2018
19. Demark-Wahnefried W, Rogers LQ, Alfano CM, Thomson CA, Courneya KS, Meyerhardt JA, Stout NL, Kvale E, Ganzer H, Ligibel JA : Practical clinical interventions for diet, physical activity, and weight control in cancer survivors. CA Cancer J Clin 65(3) : 167-89, 2015
20. Dobruch J, Daneshmand S, Fisch M, Lotan Y, Noon AP, Resnick MJ, Shariat SF, Zlotta AR, Boorjian SA : Gender and Bladder Cancer : A Collaborative Review of Etiology, Biology, and Outcomes. Eur Urol 69(2) : 300-10, 2016
21. Karvinen KH, Courneya KS, North S, Venner P : Associations between exercise and quality of life in bladder cancer survivors : a population-based study. Cancer Epidemiol Biomarkers Prev 16(5) : 984-90, 2007
22. Keimling M, Behrens G, Schmid D, Jochem C, Leitzmann MF : The association between physical activity and bladder cancer : systematic review and meta-analysis. Br J Cancer 110(7) : 1862-70, 2014
23. Liu H, Wang XC, Hu GH, Guo ZF, Lai P, Xu L, Huang TB, Xu YF : Fruit and vegetable consumption and risk of bladder cancer : an updated meta-analysis of observational studies. Eur J Cancer Prev 24(6) : 508-16, 2015
24. Noguchi JL, Liss MA, Parsons JK : Obesity, Physical Activity and Bladder Cancer. Curr Urol Rep 16(10) : 74, 2015