

## The Knowledge, Attitudes and Behaviors of University Students Regarding Testicular Cancer and Testicular Self-examination: A descriptive study from Turkey

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### Abstract:

**Introduction:** Testicular cancer (TC) is one of the most common cancers among young adult males but can be diagnosed in the early stages through periodic testicular self-examinations (TSE). Early diagnosis opportunities may be missed due to the lack of knowledge on TC and TSE. Nurses play an important role in informing individuals about early signs and symptoms of cancer as well as practices to identify these signs and symptoms. The knowledge, attitudes and behaviors of individuals should be determined in order to effectively target and teach these practices. **Material and methods:** This study aims to determine the knowledge, attitudes and behaviors of university students regarding TC and TSE. The study sample consisted of 353 volunteer university students. The data was collected using a questionnaire form and the Turkish version of the Champion's Health Belief Model Scale (CHBMS). **Results:** The majority of the students had inadequate knowledge about TC and TSE, as well as a low level of perceived sensitivity, self-efficacy/confidence and barriers, a medium level of perceived benefits, and a high level of perceived susceptibility/seriousness regarding TC and TSE. **Conclusion:** In line with the study results, it may be suggested that nurses, who are key health professionals in developing positive health behavior, should use reminders and cues to action, in order to make students develop health behaviors regarding TC, TSE and diagnosis of TC. **Keywords:** Testicular Cancer, Testicular Self-Examination, Knowledge, Attitudes, Behaviors

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### INTRODUCTION:

TC constitutes 5.5% of male cancers in the United States<sup>(1)</sup>. Its incidence has doubled in the world over the past 40 years. It is the most common cancer across males aged 15-35 years old. It accounts for 20% of cancers diagnosed and 14% of mortality rate of all cancers at this age<sup>(2)</sup>. 9310 new TC cases are reported in the US in 2018<sup>(1)</sup>. The incidence of TC in Turkey is 1.3%<sup>(3)</sup>. TC can be treated diagnosed early<sup>(2)</sup>.

Approximately 85-90% of patients with TC fully recover in cases of early diagnosis<sup>(4)</sup>. Due to the increase in early diagnosis and treatment possibilities, the rate of mortality from TC has decreased by 2% between 1950 and 2000<sup>(5)</sup>.

One method used for early diagnosis of TC is TSE<sup>(6,7)</sup>. Although TC can be treated, the inadequacy of public knowledge about TC and TSE can be contributing factor leading to deaths

from TC<sup>(8)</sup>. It is suggested that men should start TSE by 15 years old. Studies report that men in the age range of TC risk are not aware of TC or how to perform TSE<sup>(9,10)</sup>.

The Health Belief Model (HBM) emphasizes the importance of engagement in preventive health behaviors. HBM states that a high level of perceived sensitivity and seriousness for TC increases the likelihood of performing TSE. Likewise, if the perceived TSE benefit of men outweighs their perceived TSE barriers, their TSE rate increases<sup>(6,7)</sup>. Therefore, negative attitudes of men in the TC risk group towards TSE can be addressed when their attitudes regarding health behavior are defined.

Nurses play an important role in informing individuals about early signs and symptoms of cancer as well as practices used to identify these signs and symptoms. The knowledge, attitudes and behaviors of individuals should be determined in order to effectively target and teach these practices. This study aims to determine the knowledge, attitudes and behaviors of university students regarding TC and TSE.

#### **The questions of this research are as follows;**

1. What are the students' knowledge regarding TC and TSE?
2. What are the levels of students' perceived sensitivity, seriousness, benefits, barriers and self-efficacy towards TC and TSE?

## **METHODS**

### **Study Design and Setting**

This study was conducted to determine the knowledge, attitudes and behaviors of university students regarding TC and TSE. The study was carried out in a state hospital. The study universe consisted of 618 male students studying at the university's central campus during the 2013-2014

academic years, and the study sample consisted of 353 students who accepted to participate in the study. The inclusion criteria for students participating in the study were: (1) literate, (2) aged 18 and older, (3) able to speak, understand, and communicate verbally in Turkish, and (4) agreed to participate in the study. The data were collected between January 2014 and March 2015.

### **Instruments and Data Collection**

The data was collected using a questionnaire form prepared through literature review<sup>(3,6)</sup> and the CHBMS of which the Turkish reliability and validity study was performed by Pinar et al.<sup>(6)</sup>. The questionnaire consists of 14 questions about participants' age, faculty, marital status, place of residence, knowledge and behaviors about TC and TSE, and knowledge sources. It was piloted with twenty students to judge the time needed for administration and to test for clarity and logical flow.

The Turkish version of CHBMS is a five-point Likert type scale, consisting of 26 items and five subscales. The subscale of perceived sensitivity consists of five items and refers to the perceived personal risks of getting TC. The subscale of perceived susceptibility/seriousness consists of seven items and refers to the degree of perceived individual threat by TC. The subscale of perceived benefits consists of three items and represents the perceived benefits associated with the TSE. The subscale of perceived barriers consists of fifteen items and represents the perceived barriers associated with the TSE. The subscale of perceived self-efficacy/confidence consists of six items and refers to the individual adequacy and capability perceived in performing TSE. The relevant subscale mean scores were taken into consideration for the calculation of subscale scores. The minimum and maximum scores to be obtained on the subscales are as follows: perceived sensitivity 5-25, perceived

susceptibility/seriousness 7-35, perceived benefits 3-15, perceived barriers 5-25, and perceived self-efficacy/confidence 6-30. The minimum and maximum scores to be obtained on the entire scale are 26 and 130<sup>(6)</sup>.

After the students were informed about the study purpose in classrooms, the questionnaire form and the Turkish version of CHBMS were distributed. After the students completed the questionnaire form and the Turkish version of CHBMS, they were collected.

**Data Analysis**

The data were statistically analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows 16.0, and were evaluated using number, percentage, arithmetic mean, standard deviation.

**Ethical Consideration**

An approval of the Ethics Committee of Niğde University (No: 86837521/050.99/582), a written institutional permission (No: 52107213.051-195 / 2027) from the university where the study was conducted and written consents of the participants were obtained in order to conduct the study.

**RESULTS**

Of the participant students, 59.5% were in the 17-20 age group, 30.9% were vocational school students, 97.7% were single, and 58.5% were staying in dormitory (Table 1). In addition, 4.2% (15 students) previously had testicular health problem, 66.3% had never heard of TC, 10.2% had previously received information about TC, 92.4% had never heard of TSE, 6.2% had previously received information about TSE, 92.6% did not know how to perform TSE, 93.8% did not perform TSE, 61.0% did not perform TSE because they did not care about the examination, and 59.5% wanted to receive information about TC and TSE (Table 2).

The first three information sources of the students who stated that they had knowledge about TC were media (69.4%), health personnel (41.6%) and friends (16.6%), respectively. The first three information sources of the students who stated that they had knowledge about TSE were health personnel (59.1%), media (27.2%) and seminars/conferences organized by the university (18.1%), respectively (Table 3). The CHBMS total mean score of the students was 70.33 ± 18.13, and their mean scores on the subscales of perceived sensitivity, susceptibility/seriousness, benefits, barriers, and self-efficacy/confidence were 12.46 ± 4.69, 19.79 ± 6.39, 8.74 ± 2.75, 13.16 ± 4.24 and 16.17 ± 5.63, respectively (Table 4).

*Table 1. Demographic characteristics of students*

Characteristics	n	%
<b>Age categories</b>		
17- 20	210	59.5
21-23	116	32.9
>24	27	7.6
<b>Fakülte</b>		
Education faculty	10	2.8
Faculty of Science and Literature	72	20.4
Faculty of Economics and Administrative Sciences	97	27.5
Vocational school	109	30.9
Vocational school	12	3.4
Faculty of Engineering and Architecture	42	11.9
Architecture	11	5.8
Tourism Faculty		
Faculty of Theology		
<b>Marital status</b>		
Married	345	97.7
Not married	8	2.3
<b>Land of residence</b>		
At home together with the family	42	11.9
At home together with friends	114	32.3
Dormitory	197	58.5

**Table 2. TC and TSE characteristics of students**

TC and TSE characteristics	n	%
<b>Previously had testicular health problem</b>		
Yes	15	4.2
No	338	95.8
<b>Had heard of TC</b>		
Yes	119	33.7
No	234	66.3
<b>Had previously received information about TC</b>		
Yes	36	10.2
No	317	89.8
<b>Had heard of TSE</b>		
Yes	27	7.6
No	326	92.4
<b>Had previously received information about TSE</b>		
Yes	22	6.2
No	331	93.8
<b>Knowing how to perform TSE</b>		
Yes	26	7.4
No	327	92.6
<b>Performing TSE</b>		
Yes	22	6.2
No	331	93.8
<b>Reasons for not doing TSE</b>		
Not knowing TSE	31	9.4
Not caring the examination	202	61.0
Fear of worse result after examination	98	29.6
<b>Request to get information about TC and TSE</b>		
Yes	210	59.5
No	143	40.5

**Table 3. Information sources of the students who stated that they had knowledge about TC and TSE**

Source of information*	TC (n:36)		TSE (n:22)	
	n	%	n	%
Media	25	69.4	6	27.2
Relatives	2	5.5	2	9.0
Health personnel	15	41.6	13	59.1
Friends	6	16.6	3	13.6
Cancer Associations	2	5.5	0	0
Seminars/conferences organized by the university	5	13.8	4	18.1

\* Respondents were able to select more than one option

**Table 4. The CHBMS total and subscale mean scores of the students**

CHBMS subscales	Mean ± SD
Sensitiveness	12.46±4.69
Caring/seriousness	19.79±6.39
Benefits	8.74±2.75
Obstacles	13.16±4.24
Self-effectiveness	16.17±5.63
Scale total score	70.33±18.13

M=Mean; SD=Standard Deviation

## DISCUSSION

Studies conducted in Turkey report that the majority of men do not have knowledge about TC and do not receive any training on TSE<sup>(3,4,6,11-14)</sup>. In addition, studies report that the rate of performing TSE is very low and the majority of men do not know how to perform TSE<sup>(4,6,9,11,15)</sup>. The present study determined that most of the students did not have knowledge of TC and had not received information about TSE (Table 2). These results indicate an inadequacy of efforts in protecting and improving health associated with TC in Turkey. In addition, more than half of the students did not perform TSE because they did not care about the examination (Table 2). This result suggests that students do not perceive TC as a threat to their health. Moreover, more than half of the students wanted to receive information about TC and TSE, which indicates that they are eager to protect their health and develop early diagnosis behavior (Table 2). It is important to raise awareness of students who want to be informed about TC and TSE, for their health.

It is very important for individuals to be conscious of TC and TSE, in order to diagnose TC as early as possible<sup>(16)</sup>. Studies conducted in Turkey list the main source of information on TC and TSE as follows; media, health care personnel and friends<sup>(4,6,9,11)</sup>. In this study, the most commonly used information source by students was media for TC and health personnel for TSE (Table 3). These results suggest that Turkish

people do not reach a sufficiently reliable source of information about TC. Therefore, nurses should plan and implement trainings on TC.

The level of perceived sensitivity regarding an existing problematic situation should be high in order to change and maintain relevant behaviors to fix it<sup>(6)</sup>. Two studies conducted in Turkey reported that students had a low level of perceived sensitivity<sup>(6,14)</sup>. This result is consistent with the above-mentioned results in the present study (Table 4). The levels of students' perceived sensitivity need to be developed in order to make them perform TSE. Brochures on TSE can be periodically distributed to university students for sensitivity.

The perceived susceptibility/seriousness refers to the perceived personal risks of getting TC. Pinar et al.<sup>(6)</sup> and Pour et al.<sup>(14)</sup> identified that students had a high level of perceived seriousness. The present study also reported that students had a high level of perceived susceptibility/seriousness (Table 4). This result identifies that the level of students' individual perceived threat of TC is above the average, indicating that they can develop behaviors for avoiding from TC. As a result, students can develop behaviors for avoiding from TC through knowledge on TSE.

The perceived benefit refers to the perceived benefits associated with TSE<sup>(6)</sup>. HBM indicates that a high level of perceived benefits from a situation increases the likelihood of starting and maintaining the relevant health behavior<sup>(13)</sup>. Studies reported that students had a high level of perceived benefits<sup>(6,14)</sup>; however, the present study reported a medium level of perceived benefits in participant students (Table 4). According to the present study results, it is obvious that the students have hesitations on the benefits of TSE, therefore they need to be informed about the importance of TSE in the early diagnosis of TC.

The perceived barrier refers to the perceived barriers regarding TSE. Studies reported that students had low level of perceived barriers<sup>(6,14)</sup>. The present study also identified that students had a low level of perceived barriers (Table 4). Accordingly, due to the students' low level of perceived barriers, they may participate in activities and trainings on TSE and early recognition of TC. In addition, the present study identified that students had a higher level of perceived benefits than the level of perceived barriers. As the level of perceived benefits predominates the level of perceived barriers, then the possibility of having positive health behaviors increases<sup>(17)</sup>. It may be advisable to conduct and maintain relevant training, counseling, reminders, and practices that facilitate access to health so that the perceived barriers to TSE can be reduced. Thus, as the level of students' perceived barriers decreases, the level of their perceived benefits increases.

The perceived self-efficacy/confidence refers to the perceived individual competence of performing TSE<sup>(6)</sup> and the belief of an individual in being successful when he/she attempts to engage in a behavior<sup>(18)</sup>. Self-efficacy/confidence includes self-confidence, determination and willingness to engage in a specific behavior in order to achieve expected results. Therefore, self-efficacy/confidence plays an important role in initiating a behavior change and maintaining a behavior<sup>(17)</sup>. A high level of self-efficacy/confidence has a motivating effect for engaging in a health behavior<sup>(18)</sup>. Studies reported that students had high level of perceived self-efficacy/confidence<sup>(6,14)</sup>; however, the present study identified that students had a low level of self-efficacy/confidence (Table 4). This result suggests that students' motivation for performing TSE is low and therefore they have inadequate motivation for engaging in TSE behaviors. It may be suggested that cues to action such as books, magazine articles, health

training materials, radio, television and advice from healthcare personnel should be used to make students initiate behavioral changes and maintain the desired behavior.

## LIMITATIONS

This study included only 353 students. More students could not be reached due to time limitation. Therefore, the results may be generalized only for the sample group. Findings of this study not generalize to other populations. Despite this limitation, this study contributes to the literature on the knowledge, attitudes and behaviors of university students regarding TC and TSE.

## CONCLUSION

As a result of this study, the majority of the students were reported to have inadequate knowledge about TC and TSE, a low level of perceived sensitivity, self-efficacy/confidence and barriers, a medium level of perceived benefits, and a high level of perceived susceptibility/seriousness. In line with the study results, it may be suggested that nurses, who are key health professionals in developing positive health behavior, should use reminders (reminder phone, reminder mail, informational brochures, home visits, combined interventions, media etc.) and cues to action such as training, in order to make students develop health behaviors regarding TC, TSE and diagnosis of TC.

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