

**Original Article**

## Awareness of Testicular Cancer and Healthy Lifestyle Behaviours in Male University Students

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**Abstract**

**Aim:** This study was conducted to evaluate male students' knowledge and attitudes about the self-testicular examination and healthy lifestyle behaviours.

**Methodology:** The sample of the study consisted of male students studying in health related departments. Data were collected with questions about socio-demographic characteristics and testicular cancer, and with the Healthy Lifestyle Behavior Scale-II questionnaire.

**Results:** The mean age of the students is  $20.94 \pm 2.39$  (Min=18, Max=35). "Early diagnosis and treatment of testicular cancer are very important" and "Testicular cancer can be treated" was the most accurate statement in the study. The rate of those who say "Self-examination of the testicle should be performed at least once a month" is 25.6%. Total score of the healthy lifestyle behaviours was determined as  $128.20 \pm 21.23$ , spiritual development ( $25.56 \pm 4.49$ ) and interpersonal relationships ( $24.33 \pm 4.43$ ) were determined as the highest score. stress management ( $19.02 \pm 3.70$ ) and physical activity ( $18.44 \pm 5.03$ ) was determined as the lowest score.

**Conclusion:** Training programs should be organized by health professionals to inform university students about TC and TSE and gain the necessary healthy lifestyle behaviour attitudes.

**Key words :** Awareness, healthy lifestyle behaviours, male student, testicular cancer

**Introduction**

Testicular cancer (TC) is one of the most common solid malignancies among men in the 15-34 age group (Aberger et al., 2014). Although the incidence of TC is low all over the world, it is estimated to have doubled in the past 40 years (Roy and Casson, 2017). Especially in industrialized countries, the incidence is increasing (Albers et al., 2015). It constitutes 1-1.5% of all malignant neoplasm in men (Kuzgunbay, 2014). According to the American Cancer Society, 1 in 263 men will be diagnosed with TC (Aberger et al., 2014; Thornton, 2016). In Turkey, the TC is seen among the 15-24 age group with the percentage of 24.8 and it is the most common cancer type among the males (Cancer Statistics in Turkey, 2017).

Although the cause of TC is not known, risk factors include; cryptorchidism, hypospadias, reduction in spermatogenesis or infertility, Klinefelter syndrome, familial testicular tumor history among first-degree relatives and contralateral tumor or testicular intra-epithelial neoplasia (Albers et al., 2015). The most common symptom of TC is a unilateral painless mass in the scrotum (Asgar Pour and Çam, 2014; Kuzgunbay, 2014). 1-2% of the cases are bilateral during the time of diagnosis (Albers et al., 2015).

Healing rates are very high with modern multidisciplinary treatment (Casey et al., 2010). The highest survival rate (99%) is obtained by early diagnosis and early treatment (Thornton, 2016). In metastatic disease, the 5-year survival

rate is reduced to 74% (Aberger et al., 2014). The symptomatic delay has been shown to have a negative impact on the disease stage, treatment outcome and mortality (Casey, 2010). In addition, an average cost-benefit rate of 2.4 to 1 was demonstrated for early stage TC versus metastatic disease (Aberger et al., 2014). The lack of public awareness and testicular self-examination (TSE) are considered to be the causes of delay in treatment (Casey, 2010).

The Society for Adolescent Health and Medicine recommends regular testicular self-examination (TSE) as a means of detecting TC and abnormalities that may predispose men to cancer and infertility development (Thornton, 2016). The American Medical Association and the American Urological Association also promote and support public awareness and training on TSE for early detection of TC (Kuzgunbay, 2014). However, there are uncertainties about TSE suggestion. The US Preventive Task Force does not support the TSE because it poses a potential concern and may lead to false positive test results (Evans et al., 2010). Although there is very few evidence that routine testicular self-examination is beneficial in society, early diagnosis definitely results in better outcomes (Casey, 2010). Treatment of advanced diseases is always more costly in medical, psychological and financial terms (Aberger et al., 2014).

The literature shows that many men are unaware of testicular cancer, disease symptoms, and TSE in order to diagnose symptoms or early diagnosis (Altinel and Aydin Avci, 2013; Roy and Casson, 2017). TSE is a physical examination made by using both hands in order to investigate the mass of the testicle in front of the mirror at least once a month (Göçgeldi and Koçak, 2010). TSE is useful in early detection of changes in testicular tissue when performed regularly (AsgarPour and Çam, 2014; Kuzgunbay, 2014).

Nowadays, there is a rapid change in the world and the health and quality life expectancy of individual's increases (Duran and Sümer, 2014). In order to reduce the morbidity and mortality rates associated with different lifestyles, individuals should gain healthy lifestyle behaviors. (Aksoy and Uçar, 2014). Unhealthy lifestyle behaviours and habits, which often shaped in youth or young adulthood, can be altered. Young adults, especially a significant number of university students, continue to live an unhealthy life (Al-Nakeeb et al., 2015). The

development of positive health behaviours of the individuals will also increase the public health (İlhan et al., 2010). Performing TSE could help men make health-related decisions and feel more relaxed with their bodies. Encouraging TSE practice is effective in ensuring overall testicular health, self-awareness, and well-being among men (Thornton, 2016). Therefore, the study was conducted to evaluate TSE knowledge, attitudes, and healthy lifestyle behaviours in male students.

## Methodology

**Date and sample:** The universe of the study was composed of male students studying in the health-related departments of two state universities in the Marmara region. The number of male students was 798 and 410 students accepted to participate in the sampling study. The response rate of the questionnaire was 51.37%. Local ethics committee and institution approval were obtained for the study. Data were collected with questions about socio-demographic characteristics and testicular cancer, and with the Healthy Lifestyle Behavior Scale II questionnaire between 27 February - 30 March 2018.

## Instrument:

**Socio-Demographic Questionnaire:** A personal characteristics form included questions regarding age, height, weight, working status of idle times, smoking, knowledge of testicular cancer, presence of testicular cancer in the family, whether they want to get information on this subject or not.

**Questions About Testicular Cancer:** 18 questions containing information/risk factors related to testicular cancer. The participants have marked the answers of the questions as yes, no and do not know.

**Healthy Lifestyle Behaviour Scale- II:** The Scale (HLBS) was developed by Walker in 1987 and revised in 1996 (Walker et al., 1987; Walker and Hill-Polerecky, 1996). The Healthy Lifestyle Behaviour Scale (HLBS) II consists of 52 items and six sub-factors. These are; spiritual development, interpersonal relationships, nutrition, physical activity, health responsibility, and stress management. HLBS were scored as Likert type four options: 1 = never, 2 = sometimes, 3 = frequently and 4 = regular. For the whole scale; the lowest score is 52, the highest score is 208. As the overall score of the scale increases, healthy lifestyle behaviours are higher. Alpha reliability coefficient of the scale

is 0.94 (Bahar et al. 2008). High scores indicate positive health behaviours.

**Statistical analysis:** Statistical Package for Social Sciences (SPSS) for Windows 23.0 was used for statistical analysis. In the analysis of the data, number, percentage, mean, standard deviation as well as Kruskall Wallis and Mann Whitney U test was used. The results were evaluated with a confidence interval of 95% and a significance level of 0.05 was accepted.

## Results

A total of 410 male students studying in health sciences related departments were included in the study. The mean age was  $20.94 \pm 2.39$  (Min= 18, Max= 35). "TC early diagnosis and treatment is very important (66.1%)" and "TC can be treated (46.6%)" was the most accurate statement in the study. The rate of those who say "Self-examination of the testicle should be performed at least once a month" is 25.6% (Table 1). Total score of the healthy lifestyle behaviours was determined as  $128.20 \pm 21.23$ , spiritual development ( $25.56 \pm 4.49$ ) and interpersonal relationships ( $24.33 \pm 4.43$ ) were determined as the highest score, stress management ( $19.02 \pm 3.70$ ) and physical activity ( $18.44 \pm 5.03$ ) was determined as the lowest score (Table 2). Body mass index (BMI) of 72% of the group is between 18.5-24.9 kg. Individuals' whose BMI is below 18.49 kg, total score of Healthy Lifestyle Behaviour Scale were significantly lower. The score of non-smokers was  $130.56 \pm 20.58$ , and those who had knowledge about TC was  $132.65 \pm 21.18$ . The score of those who wanted to get knowledge about TC ( $128.73 \pm 20.44$ ) was higher than those who did not want to receive knowledge ( $126.30 \pm 23.91$ ) but there was no statistically significant difference (Table 3).

## Discussion

This study was carried out in order to evaluate TSE knowledge and attitudes and healthy lifestyle behaviours of male university students. The concept of health is complex and cannot be easily identified. Within the scope of gender-specific health

promotion, the focus has been on women's health problems however; the health of men has been ignored (Roy and Casson, 2017). In this study, the students answered the majority of questions related to knowledge, attitudes, and behaviours connected to TC as "I do not know". Only the expression "Early diagnosis and treatment are very important in testicular cancer" was considered as the most accurate by the students. However, less than half of the male confirmed that "It is important to perform regular self-testicular examination for early diagnosis of testicular cancer". Many men are unaware of testicular cancer, disease symptoms, and testicular self-examination in order to diagnose symptoms or early diagnosis (Roy and Casson, 2017). In a study among the female and male university students in Portugal, approximately half of the male participants (48.9%) did not correctly answer the question about the most common symptom of TC (Braga et al., 2017). In another study, 80% of the group stated that they did not know when TSE needed to be done (Asgar Pour and Çam, 2014). Studies on the subject show that the knowledge and practices of the youth on TSE are not enough and they do not have any awareness (Shallwani et al., 2010; Hachfeld et al., 2016; Sadeghi et al., 2016; Braga et al., 2017; Saab et al., 2018). In this study, similar to other studies, students have insufficient knowledge about TC. It is important to reduce costs, morbidity, and mortality by early diagnosis and treatment (Albers et al., 2015). To raise awareness on this issue and encouraging the individuals to make TSE may be an opportunity to diagnose TC at an early stage. Training on TC not only helps in early detection of the disease but also provides the basis for the development of health and health-promoting behaviours (Thortton, 2016). If young men are trained in TSE, this will raise awareness about the early diagnosis of TC.

**Table 1. Male students' responses about the testicular cancer**

<b>Item description</b>	<b>Yes</b>	<b>No</b>	<b>Do not know</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>
Testicular cancer is one of the most common cancers in men aged 15-35 years	126 (30.7)	27 (6.6)	257 (62.7)
The symptom of testicular cancer is unilateral painless swelling and mass in the scrotum	100 (24.4)	42 (10.2)	268 (65.4)
Approximately 90% complete recovery is seen in early diagnosis of testicular cancer	160 (39.0)	25 (6.1)	225 (54.9)
Early diagnosis and treatment are very important in testicular cancer	271 (66.1)	19 (4.6)	120 (29.3)
Testicular cancer is a fast-spreading cancer	104 (25.4)	41 (10.0)	265 (64.6)
It is important to perform regular self-testicular examination for early diagnosis of testicular cancer	167 (40.7)	23 (5.6)	220 (53.7)
Cancer is recognized at an early stage by self-testicular examination	183 (44.6)	28 (6.8)	199 (48.5)
Self-testicular examination is easy to apply	103 (25.1)	25 (6.1)	282 (68.8)
Increased risk of testicular cancer in children with cryptorchidism in childhood	78 (19.0)	35 (8.5)	297 (72.4)
Testicular cancer in first-degree relative (father, brother) increases the risk of testicular cancer	130 (31.7)	23 (5.6)	257 (62.7)
Testicular cancer can be treated	191 (46.6)	22 (5.4)	197 (48.0)
A testicular trauma increases the risk of testicular cancer	109 (26.6)	36 (8.8)	265 (64.6)
Cancer in one of the testicles increases the risk of cancer in other testis	113 (27.6)	32 (7.8)	265 (64.6)
Self-examination of the testicle should be performed at least once a month	105 (25.6)	24 (5.9)	281(68.5)
Self-testicular examination can be better after a warm bath or shower	77 (18.8)	24 (5.9)	309 (75.4)
It is recommended that the self-testicular examination be performed in front of the mirror.	59 (14.4)	30 (7.3)	321(78.3)
Self-testicular examination is performed using the fingers of both hands	56 (13.7)	32 (7.8)	322 (78.5)
Middle fingers under the testicle, the thumb must be on the testicle	57 (13.9)	19 (4.6)	334 (81.5)

**Table 2. Mean scores of the healthy lifestyle behaviors scale of male students**

<b>Healthy lifestyle behavior scale sub-dimension</b>	$\bar{x} \pm SD$	<b>Min</b>	<b>Max</b>
Spiritual development	25.56±4.49	14	36
Health responsibility	20.39±4.58	9	36
Physical activity	18.44±5.03	8	32
Nutrition	20.45±4.18	10	36
Interpersonal relationships	24.33±4.43	11	36
Stress management	19.02±3.70	9	32
<b>Total Score</b>	<b>128.20±21.23</b>	<b>75</b>	<b>205</b>

**Table 3. Healthy lifestyle behaviors score of male students according to some characteristics**

<b>Variables</b>	<b>n</b>	<b>%</b>	$\bar{x} \pm SD$	<b>Statistics</b>	<b>p</b>
<b>BMI</b>					
≤18.49	12	2.9	111.00±19.06		
18.5-24.9	295	72.0	129.70±22.32	K-W =9.003	.011
≥25	103	25.1	125.93±16.92		
<b>Smoking</b>					
Smoker	167	40.7	124.77±21.76	M-W U=16799.5	.003
Non-smoker	243	59.3	130.56±20.58		
<b>Knowing about testicular cancer</b>					
He knows	97	23.7	132.65±21.18		
He does not know	313	76.3	126.82±21.09	M-W U=12996.5	.032
<b>Self-testicular examination</b>					
He is doing	53	12.9	131.66±18.72		
He is not doing	357	87.1	127.69±21.56	M-W U=8178.5	.111
<b>Symptoms of testicular cancer</b>					
He knows	48	11.7	133.10±21.50		
He does not know	362	88.3	127.55±21.14	M-W U=7487.0	.119
<b>Get knowledge about testicular cancer</b>					
Yes	321	78.3	128.73±20.44		
No	89	21.7	126.30±23.91	M-W U=13099.5	.231

The health of the individual; affects genetics, culture, socio-economic and environmental conditions and lifestyle (Roy and Casson, 2017). In the current study, the scores obtained from the Healthy Lifestyle Behaviour Scale were moderate. The studies evaluating male students' healthy lifestyle behaviour are inadequate. The mean score of the studies which measured SYBD in the university students was found to be between 124.11 - 130.43 ± 17.19 (Kocaakman et al., 2010; Beydağ et al., 2014; İlhan et al., 2014; Kostak et al., 2014). The results obtained from the study are similar to previous studies. In the study, the students had the lowest score in the physical activity. Physical activity is one of healthy lifestyle behaviours (Bozhüyük et al., 2012). When similar studies were examined, the lowest scores were obtained in the physical activities. (Cihangiroğlu and Deveci, 2011; Kostak et al., 2014; Şener et al., 2018;). It is seen that university students do not adopt exercising as a behavioural way in their lives. Beydağ et al., (2014) found that the Healthy Lifestyle Behaviour Scale score was significantly higher in university students who did sports than those who did not. Physical activity is shown as a risk factor in the development of TC however, its relationship is controversial (Huang et al., 2018). But the introduction of courses and activities for physical activity in curriculum programs will have a positive effect on the change of young people's life behaviours. In present study, the highest scores in HLBS were taken in the sub-dimension of spiritual development. Spirituality is the force beyond the individual himself and his existence (Bozhüyük et al., 2012). In other studies, spiritual development score is high (Cihangiroğlu and Deveci, 2011; Aksoy and Uçar, 2014; Şener et al., 2018). Individuals will measure health according to their social and cultural norms (Roy and Casson, 2017). The importance of spirituality in the cultural norms of Turkish society may have an impact on these results.

The total scale score of the individuals whose body mass index below 18.49 kg were low. Şener et al. (2018) did not find a statistically significant relationship between healthy lifestyle behaviours and BMI of paramedic students. BMI is an important criterion for the protection and maintenance of health and is thought to be directly related to the HLBS. Preclinical and observational data indicated that diet, exercise and other alterable behaviours affect significantly

the incidence of urological cancer, progression, metastasis and death risk (Parsons 2019). In our study, the non-smokers had higher HLBS scores than the smokers. In a study carried out among the university students, the non-smokers had a high total score of HLBS (Cihangiroğlu and Deveci, 2011). In another study, the students who quitted smoking got a higher total score average HLBS in terms of health responsibility and nutrition (Kostak et al., 2014). Healthy eating, exercise, weight loss and quitting smoking constitute the basis of healthy lifestyle behaviours.

In the study, who have knowledge about TC have a higher total score of HLBS than the ones without knowledge. However, there is no difference between the total scale scores of those who make TSE and those who do not. A small number of students reported that they do TSE every month. When individuals perform a self-testicular examination, they also carry out a health-promoting behaviour (Aydin Avcı and Altinel, 2018). In a study, 23% of the medical students do monthly TSE (Ugwumba et al., 2017). Casey et al. (2010) reported that the higher the level of awareness and knowledge of the society, the higher the rate of testicular self-examination. The training on TSE can provide self-diagnosis (Casey et al., 2010). In the systematic review by Thorton (2016), more than 80% of the participants did not receive any training on TSE. Kuzgunbay (2014)'s study, 11.1% of the 1299 medical school first class students had knowledge of TC and only 1% made TSE every month. In another study, students who thought that TSE and TC were important to want to get more information about this issue. (Altinel and Aydin Avcı, 2013). Training on TC not only helps in early detection of the disease but also provides a basis for the development of health and health-promoting behaviours (Thorton, 2016). Therefore, as university students are in the TC risk group, training for TSE is extremely important in terms of protection and development of health.

### Limitations

There may be some possible limitations in this study. The first; the study was carried out only in male students in two state universities. The second is that the results evaluated according to the participants' responses to the questionnaire. The current study cannot be generalized to the

population of the male university students in Turkey.

## Conclusion

There is no known way to prevent testicular cancer. Health care professionals should promote awareness and early diagnosis to reduce the risk of testicular cancer. Training programs should be organized by health professionals to inform university students about TC and TSE and gain the necessary healthy lifestyle behaviour attitudes.

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