

Original Article

## Nursing Student's Awareness on Skin Cancer

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### Abstract

**Background:** Skin cancer is increasing all over the world. In order to reduce the incidence of skin cancer and to prevent the negative effects of the sun, it is important to increase individual awareness.

**Aim:** The aim of this study was to determine the awareness of nursing students about skin cancer.

**Methods:** A sample of this descriptive and cross-sectional study; Between November 2018 and January 2019 there were 302 students studying in the nursing department of a university in the middle of the country. The data were collected by using the "Individual Information Form" and "Skin Cancer and Sun Knowledge Scale (SCSKS)". To evaluate the data frequency, percentage, average, Mann-Whitney and Kruskal-Wallis tests were used.

**Results:** The mean age of the students was  $20.52 \pm 2.42$  and 67.9% were female. 30.5% of the students are second year students. Approximately half (52.6%) of the students in the Fitzpatrick scale had type III skin type. The mean total score of SCSKS was  $13.64 \pm 2.91$ . Sun protection subscale score was  $3.84 \pm 1.22$ ; Tanning subscale score  $6.39 \pm 2.01$ ; Skin Cancer Risk Factors subscale score was  $1.81 \pm 0.89$ ; Prevalence of skin cancer subscale score was  $1.06 \pm 0.22$ ; Signs of skin cancer subscale score was  $0.45 \pm 0.49$ . There was a significant difference between the total score of the students and the gender, father's educational status, place of residence, frequency of being sunburned, getting sun protection information and protection source ( $p < 0.05$ ). No difference was found in terms of grade, mother education status, hair, eye and skin color ( $p > 0.05$ ).

**Conclusions:** It can be said that nursing students have a moderate level of awareness of skin cancer and solar knowledge.

**Keywords:** Skin cancer, Sun, Knowledge, Nursing Student

### Introduction

Epidemiology of sun-induced ultraviolet rays (UV) plays an important role in skin cancer, is increasing all over the World (Sumen and Oncel, 2018). Skin cancer is usually seen in the most exposed parts of the body, such as the head, neck and hands. Although each individual has a risk of developing skin cancer, people with a fair complexion, large number of large moles and freckles, prolonged sun exposure, and a history of childhood sunburn are more at risk of developing skin cancer (Kahraman et al., 2018; Sumen and Oncel, 2018).

Epidemiological research shows that provide positive benefits for prevention of behavior in the period before the age of 20 (Sumen and Oncel, 2018). However, in a study conducted by Ozuguz et al. (2014), only 52.5% of medical students swam, 17.5% of them stated that they used sunscreen all summer and 3.3% of them always use sunscreen while 26.7% said they did not use any sunscreen. In the same study, more than half of the students (61.7%) reported that they had the habit of using sunscreen in their family, but 38.3% said that their family never used sunscreen. (Ozuguz et al., 2014). It is important to increase the awareness of individuals in order

to reduce the incidence of skin cancer in society and to prevent the negative effects of sun on the skin and to promote protective behaviors (Çınar, Çetin, Kalender & Bağcivan 2015). Health personnel have important responsibilities in gaining this awareness (Sumen and Oncel, 2018).

Both nurses and nursing students can increase the awareness of individuals by fulfilling their training and counseling roles. In order to increase the awareness of society, nursing students should have sufficient knowledge about the subject and use this information correctly.

### **Aims of the study**

To evaluate the awareness of nursing students about skin cancer.

### **Research questions**

1. Are nursing students' awareness of skin cancer adequate?
2. Are the students' demographic characteristics effective for the awareness of nursing students about skin cancer?
3. Are the students' knowledge of the sun effective on the awareness of the students about skin cancer?

### **Material and Method**

**Study Type:** This work is descriptive and cross-sectional.

**Study Population:** The sample of the study consists of 302 nursing students studying at a university in the country's interior regions between November 2018 and January 2019.

**Data Collection:** Data collection forms were completed by a single researcher by face-to-face interview. The data were obtained with a "Individual Information Form" and "Skin Cancer and Sun Knowledge Scale (SCSKS)".

**Individual Information Form:** The individual identification form was created by the researchers in the light of information collected from the literature. This form consists of questions that ask about sun protection behavior such as age, gender, class, education level of mother, father, occupation, income level, protection information, hair, eye, skin color and skin type.

**Skin Cancer and Sun Knowledge Scale (SCSKS):** The participants' knowledge of skin

cancer and sun health were assessed with the SCSKS, which was developed by Day et al. (Day, Wilson, Roberts & Hutchinson 2014). Participants answered questions related to skin cancer and sun health in five domains (sun protection, tanning, skin cancer risk factors, prevalence of skin cancer, signs of skin cancer). The scale, which has the one-factor structure, contains 15 true/ false questions and 10 multiple-choice questions. The correct option is scored 1 for each item, and the wrong option is scored 0. The total score obtained by adding up the item scores varies between 0 and 25 points. A high score indicates a participant's high level of knowledge. Ozturk Haney et al. performed the validity and reliability of the Turkish version of the scale. The content validity index (CVI), internal consistency reliability index (KR20), and test-retest reliability coefficient (n=34) values of the Turkish version of the SCSK were 93.71%, 0.51, and 0.52, respectively ( $p < 0.001$ ) (Haney et al., 2016).

**Statistical analysis :** The data obtained from the research were analyzed using the program SPSS 22.0. Kolmogorov Smirnov was used to check whether the numerical variables had normal distribution. Normally distributed variables were shown as mean  $\pm$  standard deviation (SD) and non-normal distributed variables as median values. Statistical significance was accepted as  $p < 0.05$ . In the analysis of the data, descriptive statistics were shown as numbers and percentages, means and standard deviation values of the measurement data. T test, one-way analysis of variance and chi-square, Kruskal Wallis, Wilcoxon, Friedman and Mann Whitney U tests were used in independent samples.

### **Ethical Considerations:**

Ethics committee approval (2018-206) was obtained from Aksaray University Ethics Committee of Human Studies, Faculty from the application permit and permission to use the scale were taken.

### **Results**

The mean age of the students was  $20.52 \pm 2.42$  and 67.9% were female. 30.5% of the students are second year students. Approximately half (52.6%) of the students in the Fitzpatrick scale had skin type III (Table 1).

**Table 1. Skin types according to students' Fitzpatrick Scale (n = 302)**

Phototype	Characteristic	n	%
Type I and II	Burns easily, never tans/tans minimally with difficulty	56	18.5
Type III	Burns moderately, tans moderately and uniformly	159	52.6
Type IV	Burns minimally, tans moderately and easily	70	23.2
Type V	Rarely burns, tans profusely	13	4.3
Type IV	Never burns, tans profusely	4	1.4

Adapted from Fitzpatrick's Dermatology in General Medicine. McGraw-Hill Professional; 5th edition.[Pathak MA. In memory of Thomas Bernhard Fitzpatrick. J Invest Dermatol 2004;122:20-1.]

**Table 2. Skin Cancer and Sun Knowledge Scale (SCSKS) Total and Sub Dimensions (n = 302)**

SCSKS Sub Dimensions	$\bar{X} \pm SD$	Min-Max
Sun protection	3.84±1.22	1-7
Tanning	6.39±2.01	1-13
Skin cancer risk factors	1.81±0.89	0-3
Prevalence of skin cancer	1.06±0.22	0-5
Signs of skin cancer	0.45±0.49	0-1
<b>SCSKS Total</b>	<b>13.64±2.91</b>	<b>6-23</b>

**Table 3. Comparison of Socio-Demographic Characteristics of the Students and the Skin Cancer Sun Information Scale and Sub-scales (n = 302)**

Features	n	%	Sun protection	Tanning	Skin cancer risk factors	Prevalence of skin cancer	Signs of skin cancer	SCSKS*** Total
			$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
<b>Gender</b>								
Female	205	67.9	3.92±1.18	6.62±2.02	1.88±0.90	1.04±0.49	0.46±0.49	13.94±2.86
Male	97	32.1	3.69±1.29	5.90±1.93	1.65±0.86	1.09±0.56	0.44±0.49	13.00±2.91
			*p= .174	*p= .004	*p= .034	*p=.283	*p=.744	*p= .014
<b>Year of nursing school</b>								
First	70	23.2	3.72±1.28	6.41±2.16	1.85±0.78	1.05±0.44	0.41±0.49	13.47±2.87
Second	92	30.5	3.86±1.20	6.35±1.84	1.82±1.00	1.02±0.46	0.40±0.49	13.58±2.70
Third	69	22.8	4.00±1.23	6.40±2.05	1.82±0.83	1.10±0.64	0.57±0.49	13.91±2.85
Fourth	71	23.5	3.78±1.18	6.40±2.09	1.74±0.93	1.08±0.49	0.45±0.50	13.64±2.91
			**p=.764	**p=.986	** p=.925	** p=.857	** p=.121	**p=.938
<b>Mother education</b>								
Literate	37	12.3	3.67±1.29	6.21±1.63	1.59±0.92	1.05±0.46	0.51±0.50	13.59±2.66
Primary school	176	58.3	3.84±1.25	6.47±1.97	1.75±0.93	1.09±0.55	0.40±0.49	13.56±2.86
Middle School	42	13.9	3.76±1.05	6.26±2.50	1.73±0.79	1.00±0.49	0.40±0.49	13.16±3.34
High school	32	10.6	3.84±1.50	6.40±1.94	2.26±0.68	1.09±0.39	0.62±0.49	14.25±2.68
University	15	4.9	4.60±1.35	6.20±2.27	2.28±0.70	0.86±0.35	0.73±0.45	14.66±3.17
			**p=.196	**p=.918	**p=.003	**p=.460	**p=.013	**p=.256
<b>Father education</b>								
Literate	12	4.0	3.75±0.96	5.66±1.15	1.66±0.88	0.91±0.66	0.58±0.51	12.58±1.88
Primary school	138	45.7	3.70±1.28	6.53±2.07	1.72±0.97	1.07±0.54	0.44±0.49	13.63±3.11
Middle School	39	12.9	3.74±1.01	5.76±1.91	1.71±0.79	1.07±0.48	0.48±0.50	12.79±2.48
High school	56	18.5	4.05±1.15	6.62±1.82	1.85±0.77	1.00±0.46	0.37±0.48	13.91±2.51
University	57	18.9	4.08±1.28	6.40±2.21	2.08±0.87	1.10±0.48	0.50±0.50	14.19±3.10
			**p=.281	**p=.128	**p=.126	**p=.644	**p=.546	**p=.022

<b>Place of residence</b>									
With family	48	15.9	4.12±1.12	6.89±1.80	2.06±0.69	1.20±0.74	0.64±0.48	14.93±2.51	
At home with friends	32	10.6	4.25±1.19	6.96±2.63	1.90±0.85	1.06±0.43	0.53±0.50	14.71±3.82	
The dormitory	222	73.5	3.72±1.23	6.20±1.93	1.74±0.93	1.03±0.46	0.40±0.19	13.20±2.72	
			<b>**p=.036</b>	<b>**p=.022</b>	<b>**p=.091</b>	<b>**p=.278</b>	<b>**p=.007</b>	<b>**p=.000</b>	

\* Mann Whitney -U test, \*\* Kruskal Wallis test \*\*\* SCSKS: Skin Cancer and Sun Knowledge Scale

**Table 4. Comparison of the Student Applications and Features With the Scale of Some points against the Sun (n = 302)**

Features	n	%	Sun protection	Tanning	Skin cancer risk factors	Prevalence of skin cancer	Signs of skin cancer	SCSKS*** Total
			$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$	$\bar{X} \pm SD$
<b>Sunburn frequency (years)</b>								
No	191	63.2	3.81±1.14	6.21±1.96	1.77±0.90	1.05±0.55	0.47±0.50	12.43±2.76
One time	48	15.9	3.54±1.55	6.50±1.76	1.85±0.87	1.06±0.38	0.35±0.48	13.31±2.61
Twice	42	13.9	4.14±1.04	7.02±2.32	1.85±0.92	1.14±0.47	0.50±0.50	13.81±4.35
Three times	11	3.6	4.27±1.48	6.27±2.68	1.81±0.87	1.00±0.44	0.45±0.52	13.91±2.51
Four and above	10	3.3	4.44±1.01	7.55±2.00	2.22±0.83	1.00±0.50	0.44±0.52	14.66±3.16
			<b>**p=.188</b>	<b>**p=.344</b>	<b>**p=.709</b>	<b>**p=.732</b>	<b>**p=.619</b>	<b>**p=.049</b>
<b>Protection of information</b>								
Yes	241	79.8	3.90±1.19	6.42±2.11	1.86±0.89	1.07±0.52	0.48±0.50	13.75±2.91
No	61	20.2	3.60±1.32	6.27±1.62	1.62±0.91	1.00±0.48	0.34±0.47	13.18±2.86
			<b>*p=.219</b>	<b>*p=.683</b>	<b>*p=.071</b>	<b>*p=.322</b>	<b>*p=.048</b>	<b>*p=.044</b>
<b>Source information</b>								
Teacher	13	4.3	3.38±1.32	5.61±1.96	1.30±0.85	1.23±0.59	0.53±0.51	12.07±2.75
Doctor	45	14.9	4.00±1.16	6.26±2.29	1.88±0.77	0.88±0.57	0.57±0.49	13.62±2.90
Internet	133	44.0	3.91±1.17	6.51±2.15	1.94±0.92	1.12±0.55	0.48±0.50	13.98±2.90
TV/Radio	28	9.3	3.50±1.07	6.57±1.97	1.60±0.78	1.00±0.00	0.28±0.46	12.96±2.53
Family, neighbor	27	8.9	4.22±1.39	6.40±1.88	1.96±0.85	1.07±0.54	0.48±0.50	14.14±3.23
			<b>**p=.219</b>	<b>**p=.683</b>	<b>**p=.071</b>	<b>**p=.322</b>	<b>**p=.048</b>	<b>**p=.044</b>
<b>Hair color</b>								
Red	3	1.0	3.33±1.52	7.00±1.00	1.66±0.57	2.00±2.64	0.33±0.57	14.33±2.51
Blonde	20	6.6	3.75±1.06	7.05±2.25	1.60±0.99	1.20±0.41	0.40±0.50	14.00±3.53
Light coffee	53	17.5	3.60±1.02	6.24±1.83	2.05±0.88	0.90±0.44	0.43±0.50	13.24±2.47
Brown	109	36.1	4.08±1.28	6.81±2.18	1.84±0.90	1.11±0.52	0.46±0.50	14.24±3.09
Black	117	38.7	3.76±1.24	5.94±1.82	1.71±0.87	1.06±0.51	0.47±0.50	13.17±2.73
			<b>**p=.091</b>	<b>**p=.009</b>	<b>**p=.163</b>	<b>**p=.055</b>	<b>**p=.952</b>	<b>**p=.094</b>
<b>Skin color</b>								
Freckled-light yellow	7	2.3	4.28±0.95	6.71±1.38	1.85±0.37	1.00±0.00	0.42±0.53	14.28±2.56
Light-skinned	92	30.5	3.56±1.09	6.38±1.92	1.83±0.89	1.04±0.46	0.46±0.50	13.51±2.92
Brown-brown coffee	114	37.7	3.93±1.29	6.37±2.07	1.77±0.88	1.05±0.47	0.42±0.49	13.56±2.80
Brown	22	7.3	4.13±1.12	7.13±2.12	2.04±0.89	1.14±0.63	0.54±0.50	14.81±2.32
Brunette	67	22.2	3.94±1.27	6.16±2.07	1.77±0.98	1.06±0.51	0.47±0.50	13.50±3.24
			<b>**p=.050</b>	<b>**p=.513</b>	<b>**p=.754</b>	<b>**p=.750</b>	<b>**p=.834</b>	<b>**p=.321</b>

\* Mann Whitney -U test, \*\* Kruskal Wallis test \*\*\* SCSKS: Skin Cancer and Sun Knowledge Scale

The mean total score of SCSKS was  $13.64 \pm 2.91$ . Sun protection subscale score was  $3.84 \pm 1.22$ ; Tanning subscale score  $6.39 \pm 2.01$ ; Skin Cancer Risk Factors subscale score was  $1.81 \pm 0.89$ ; Prevalence of skin cancer subscale score was  $1.06 \pm 0.22$ ; Signs of skin cancer subscale score was  $0.45 \pm 0.49$  (Table 2).

There was a significant difference between the total score of the students and the gender, father's educational status, place of residence, frequency of being sunburned, getting sun protection information and protection source ( $p < 0.05$ ) (Table 3,4). No difference was found in terms of grade, mother education status, hair, eye and skin color ( $p > 0.05$ ) (Table 3,4).

Students are right on the wrong questions; 89.7% of "People with dark skin cannot get skin cancer" and 82.5% of "Solariums/sun beds are a safe way to get a tan" the wrong answer to the questions given the most correct answer.

## **Discussion**

The mean age of the students was  $20.52 \pm 2.42$  and 67.9% were female. 30.5% of the students are second year students. Approximately half (52.6%) of the students in the Fitzpatrick scale had type III skin type. The results were found to be similar to other studies with skin cancer and sun protection (Koçak, 2018; Çınar et al., 2015). Çınar et al. (2015), 59.4% of the students were found to have Type III skin type (Çınar et al., 2015). 37.7% of the students stated that their skin color was brown-light brown, 38.7% had black hair color, 74.2% had brown eyes and 63.2% had no sunburn in the last 12 months. Similarly, in Tufekci (2017), 36.3% of the students stated that the skin type was brown, 38.6% had black hair and 67.7% had brown eyes and 58.2% had no sunburn in the last 12 months (Tufekci, 2017).

When the total score is between 0-25 and the score obtained from the scale increases, it can be said that the level of knowledge is at a moderate level considering that the level of knowledge increases. In the literature, only one study was conducted with the same scale and this study could not be compared with the differences in the calculation (Koçak, 2018). Çelik et al. (2018) in nursing students; the aim of the study was to determine the knowledge of skin cancer and protective behaviors of the students. In a study conducted in medical students, it is stated that knowledge of skin cancer is moderate / high but low levels of both sunscreen and ultraviolet light

information (Nahar et al., 2018). Results reflect the field of education is very important for nursing students in the Central Anatolia region of Turkey.

Female students were significantly higher than male students. Haney et al. (2016) found that the average score of female students was higher than that of male students in different studies about sun protection and skin cancer. Patel et al. (2010), in order to investigate the knowledge, attitudes and behaviors of sun and solarium with respect to the harmful effects of sun and solarium and their protection from sun and skin cancer, it was found that the knowledge points of women were higher than men (Patel et al., 2010). According to our findings, it can be said that female students have higher levels of skin cancer and their knowledge about sun than male students.

There were no significant differences between classes of students. Çelik et al. (2018) and Yilmaz et al. (2015), it was found that the knowledge levels of the first year students were lower than those in the other classroom (Çelik, İlce & Andsoy 2018). Although it is thought that the education and practice made a positive change in the attitudes of the students, women are more concerned with bronzing, it is thought that women are more sensitive and aware of this subject.

The education level of the students' parents was higher in university. Koçak (2018); Kaptanoğlu et al. (2011); In the studies of Sumen (2018) and Tufekci (2017), it is stated that knowledge, attitudes and behaviors increase positively. However, Kaptanoğlu et al. (2011) did not find a significant difference between the educational level of fathers. Although the difference between studies is thought to be caused by different sociocultural environment and age group, the difference between parental education level and knowledge points can be explained more easily considering that sun protection knowledge and behavior is first introduced in the family at a young age.

In the study, it was found that the information areas for protection were higher in the scale score and about half of them provided this information from the internet (44%). Ugurlu et al. (2016) stated that students mostly provide information about skin cancer through internet (24.5%) and media (24.1%) (Ugurlu et al., 2014). Hartnett and O'Keefe (2016) report that after the training

program for nurses, they can increase skin cancer information and skin lesion definitions (Hartnett and O'Keefe C, 2016). Based on these findings, it is thought to be important to obtain information about skin cancer and sun protection. Students' hair color was higher than the blond ones. Unlike Koçak's (2018) study, the scores of the blond and red haired students were lower. According to the hair color of the students, it is seen that the level of skin cancer and solar knowledge is different.

There was no difference according to the skin color of the students. Koçak (2018) and Ergin et al. (2011) reported that there was no significant difference between the skin color and knowledge levels (Koçak, 2018; Ergin, Bozkurt, Bostancı & Onal 2011). In the study by Sumen (2018), it was found that the average of skin cancer and sun protection knowledge scores were higher than those with open skin color. Yılmaz et al. (2015) found that the level of knowledge of light-skinned students was higher in their study with university students (Yılmaz et al., 2015). Although our expectation is likely to have more knowledge of sun protection for students with clear skin color, the majority of students do not have sunburn and the geographical region where they live is considered to be effective in this situation.

### **Conclusion**

It was determined that nursing students had moderate awareness of skin cancer and sun knowledge, and that the students' gender, father's educational status, place of residence, frequency of sunburn, sun protection status, and protection information were affected by this situation. In this case, skin cancer nursing education and training to provide more comprehensive protection from the sun and provide important data on the creation of awareness in this regard. In addition, the fact that parenting education is an important factor on the students' level of knowledge suggests that it should be organized for families. In this area, new studies should be done with this scale and students studying in different regions.

### **Study Limitations**

The sample was limited to only one region of the country, and therefore the findings may not be generalizable to other parts of Turkey.

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