RESEARCH ARTICLE

Skin cancer knowledge and prevention practices among Turkish bus drivers

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Abstract

Objective: To determine skin cancer knowledge levels and prevention practices among bus drivers.

Methods: The cross sectional study was conducted in Aydin province, western Turkey, from April to June 2018, and comprised bus drivers who came to the primary health centre. Data was collected using a predesigned questionnaire based on sociodemographic characteristics and the Skin Cancer and Sun Knowledge Scale. Data was analysed using SPSS 16.

Results: There were 125 male bus drivers with a mean age of 42.0±9.1 years. There was a significant relationship between history of skin cancer in the family and the presence of freckles ($p<0.05$). Those who were exposed to the sun for one or two hours a day scored higher on the knowledge scale than those with a sun exposure of >2 hours a day ($p<0.05$).

Conclusion: The bus drivers did not have enough knowledge about the critical significance of skin cancer.

Keywords: Sun protection, Drivers, Skin, Cancer, Turkey. (JPMA 71: 267; 2021)

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Introduction

Skin cancer is a global health issue. The incidence of skin cancer has increased in recent years, parallel with higher exposure to the sun.[1] Chronic exposure to ultraviolet (UV) light leads to damaging effects to the skin. It causes sunburn which is a major factor for malignant melanoma. Chronic sun exposure causes squamous cell and basal carcinomas which shows damaging effects on the skin. Acute exposure to sun rays leads to redness and pigmentation which may further aggravate to erythema and sunburn. It is known that exposure to UV light causes melanoma and non-melanoma skin cancer. High exposure to UV light has been shown to increase the risk for all skin cancer types, and around 65-90% of melanomas are caused by exposure to UV light.[2]

The annual incidence of melanoma is 2-3 million, and it is known that there are at least 132,000 melanoma cases around the world. More than half of the cases of this cancer type are observed in low and middle income countries (LMICs), and two-thirds of these cancers end in death. According to the United Nations Environment Programme (UNEP) estimates, skin cancer incidences will not begin to fall until 2060, at which point researchers estimate that there will be 300,000 non-melanoma and 4,500 melanoma skin cancer cases added at a global scale.[3]

During the last 20 years, the prevalence of skin cancer in Turkey has increased by 4% each year. According to 2014 cancer data published by the Turkish Ministry of Health, the incidence of skin cancer in Turkey is 28.3 in men and 18 in women per 100.000 people. Skin cancer has the third rank among the most common cancer types in men.[4] The Turkish Ministry of Health Cancer Control Department reported 4,019 skin cancer cases in 2009.[4]

While skin cancer may be developed by all individuals, people who have a light skin and a lot of moles, are exposed to sunshine for long periods of time and have a history of sunburn from childhood have a higher risk. Outdoor workers are exposed to the UV rays about eight times more than those working indoors.[5] Previous studies have indicated that the risk of skin cancer increases in direct proportion to the number of hours a person works under the sun.[6-8] Proper sun protection behaviour and awareness of how to decrease UV exposure are the most significant public health factors for decreasing skin cancer.

Although research involving different groups has been conducted on this subject in Turkey and other countries, there is no study specifically conducted with bus drivers who are known to have high sun exposure.[6-8] Either right or left side is more affected by the sun depending on where the driver's seat is located. The left sides of the bus drivers in Turkey are exposed to more sun. As a sub-group of outdoor workers, bus drivers are exposed to high levels of sun and are therefore at greater risk of developing skin cancer. The Aydin province in Turkey is situated on the western side of the Aegean region, which is known for its longer summer months. The city has 305 days of sunshine per year, and the

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average temperature can reach up to 44.8°C in summer months. Having awareness about skin cancer plays a critical role in sun-protection and disease prevention. The current study was planned to determine skin cancer knowledge levels and prevention practices of the bus drivers.

Subjects and Methods

The cross sectional study was conducted in Aydin province, western Turkey, from April to June 2018, and comprised bus drivers registered with the Chamber of Drivers.

After approval from the ethics review committee (ERC) of the Faculty of Health Sciences, Adnan Menderes University, Aydin, Turkey, and permission from the Aydin Chamber of Drivers, the sample size was calculated on the basis of the known elements of the universe using the formula:[9] n = N x t2 x (pxq)/ d2 x (N-1) + t 2 x (pxq) where p (probability) = 0.5; q = frequency of non-occurrence (1 - p = 0.5); d (standard error) = 0.05; t (the theoretical value in the t table at a certain degree of freedom and at a determined level of error) = 1.96; N (universe) = 186. Attempt was made to reach the entire universe without any sampling technique. After taking informed consent, data was collected through face-to-face interviews conducted at bus terminals during the time the bus drivers were on break.

The interview were conducted with the use of a sociodemographic characteristics form in the Turkish language and the Skin Cancer and Sun Knowledge (SCSK) scale.[10] The sociodemographic characteristics form was prepared in the light of literature[2,5-8,11-13] and consisted of 20 questions exploring sociodemographic traits as well as risk factors the bus drivers had at an individual level. It also collected dats about age, gender, marital status, education level, income, number of children, if any, length of time driving, sunglasses-wearing behaviour, sun-cream use, use of hat, hair and eye colours, having freckles or moles, history of sunburn within the preceding year, history of skin cancer in the family, the duration of being exposed to the sun on sunny days, the resources to learn about sun and skin cancer, and knowledge about the ways to develop skin cancer by exposure to the sun.

The SCSK scale is a 25-item tool to assess the knowledge level of adults on skin cancer and sun health.[10] The Turkish version of the scale with validity and reliability was conducted by Öztürk Haney et al.[14] Written permission was obtained from the relevant authors via e-mail for the use of the scale. For the Turkish version of the scale, the content validity index (CVI) was 93.71%. The total score ranges 0-25, and individuals with higher scores are considered more informed.[14]

Data was analysed using SPSS 16. P<0.05 was considered statistically significant. Comparisons of family history of cancer and age groups were made using chi-square test. Independent samples t-test and analysis of variance (ANOVA) were applied for the comparison of the bus drivers' level of information on risk factors.

Results

There were 125 male bus drivers with a mean age of

Table-1: Characteristics of bus drivers.

	N	%
Age (Mean±SD) (min-max)	42.0±9.1 years (23-64 years)	
Marital status		
Married	112	89.6
Single	13	10.4
Education		
Primary School	77	58
High School	36	28.8
Graduate	12	9.6
Income		
Less than expenses	26	20.8
Equal to expenses	77	61.6
More than expenses	22	17.6
Years of driving		
5 years and ↓	30	24
6-10 years	24	19.2
11 years and ↑	71	56.8
Previous skin cancer diagnosis in family members		
Yes	3	2.4
No	122	97.6
Any experience of sunburn in the past year		
Yes	6	4.8
No	119	95.2
Being exposed to the sun on sunny days (hour/ day)		
<1h	24	19.2
1-2h	20	16.0
>2h	81	64.8
Hair colour		
Fair	30	24
Dark	95	76
Eye colour		
Light	27	21.6
Dark	98	78.4
Skin tone		
Fair	34	27.2
Dark	91	72.8
Wear sunglasses		
Yes	91	72.8
No	34	27.2
Wear hat		
Yes	36	28.8
No	89	71.2
Use sunscreen cream		
Yes	37	29.6
No	88	70.4

SD: Standard deviation.

Table-2: Distribution of the bus drivers' risk factors by age and any previous diagnosis of skin cancer in family members.

Factors	Skin cancer		No skin cancer		p	≤40y		≥41y		p
	n	%	n	%		n	%	n	%	
Hair colour										
Fair	2	66.7	28	23	0.08	9	17	21	29.2	0.115
Dark	1	33.3	94	77		44	83	51	70.8	
Eye colour										
Light	2	66.7	25	20.5	0.055	11	20.8	16	22.2	0.844
Dark	1	33.3	97	79.5		42	79.2	56	77.8	
Presence of freckles										
Yes	2	66.7	7	5.7	0.000*	2	3.8	7	9.7	0.204
No	1	33.3	115	94.3		51	96.2	65	90.3	
Having any moles on upper limbs or face										
Yes	1	33.3	35	28.7	0.861	15	28.3	21	29.2	0.916
No	2	66.7	87	71.3		38	71.7	51	70.8	
Any experience of sunburn in the past year										
Yes	0	0	6	4.9	0.694	3	5.7	3	4.2	0.699
No	3	100	116	95.1		50	94.3	69	95.8	
Sun exposure on sunny days (hour/ day)										
<1h	0	0	24	19.7		7	13.2	17	23.6	
1-2h	0	0	20	16.4	0.434	6	11.3	14	19.4	0.1
>2h	3	100	78	63.9		40	75.5	41	56.9	
Is being exposed to sun a reason for skin cancer?										
Yes	3	100	57	46.7	0.068	23	43.4	37	51.4	0.204
No	0	0	65	53.3		30	56.6	35	48.6	

*p<0.05.

Table-3: Bus drivers' knowledge about skin cancer and the sun-based on risk factors.

Variables	n	Mean±SD	t/F	p	Variables	n	Mean±SD	t/F	p
Age					**Having any moles on the upper limbs or face**				
40 years and ↓	53	10.26±3.25	-0.604	0.547	Yes	36	11.44±3.62	1.853	0.066
41 years and ↑	72	10.66±3.69			No	89	10.11±3.64		
Years of driving					**Any experience of sunburn in the past year**				
5 years and ↓	30	10.46±2.78			Yes	6	10.00±3.22	-0.338	0.736
6-10 years	24	10.62±2.49	0.247	0.068	No	119	10.52±3.70		
11 years and ↑	71	10.46±4.31			**Any previous diagnosis of skin cancer in family members**				
Hair					Yes	3	8.66±7.50	-0.872	0.385
Light	30	10.76±3.88	0.461	0.645	No	122	10.54±3.58		
Dark	95	10.41±3.62			**Sun exposure on sunny days (hour/ day)**				
Eye					<1h	24	11.20±3.59		
Light	27	10.70±3.36	0.33	0.742	1-2h	20	12.0±3.27	-0.177	0.049*
Dark	98	10.43±3.77			>2h	81	9.91±3.68		
Presence of freckles					**Is being exposed to sun a reason for skin cancer?**				
Yes	9	10.55±5.36	0.05	0.96	Yes	60	11.46±3.46		
No	116	10.49±3.54			No	65	9.60±3.66	2.922	0.004*

*p<0.05

42.0±9.1 years. The details of the characteristics of the study population is shown in Table-1.

There was a significant relationship between drivers with skin cancer diagnosis in the family and those with freckles (p<0.05). The majority of the individuals who had skin cancer history in their families were fair-haired and had light eye colours, moles (upper limbs or face), a previous sunburn, and exposure to sun for >2 hours per day, but these differences were not statistically significant (p>0.05) (Table-2).

Subjects who were exposed to the sun for 1-2 hours a day obtained a mean score on the knowledge scale of 12.0±3.27 compared to 9.91±3.68 by those with a sun exposure of >2 hours a day (p=0.04). The association between previous skin cancer diagnosis among family members and age, hair and eye colours, having any freckles or moles on upper limbs or face, and sunburn experience in the preceding year was not significant (Table-3).

Discussion

Skin cancer may develop in any individual regardless of their skin pigments. Individuals who have fair hair, red hair, freckles, and blue eyes, green eyes and hazel eyes are included in the group with the greatest risk.[15] Freckles and tendency to tan when exposed to the sun are among potential risk factors of skin cancer, while the risk factors of malignant melanoma include the number of dysplastic nevus and typical nevus (over 50).[15,16] Although the bus drivers who had fair hair and coloured eyes were not the majority in the study, the literature on the subject reports that outdoor workers with these features have a higher skin cancer risk compared to other outdoor workers.[15,16] The risk factors of bus drivers according to history of skin cancer in the family and age were examined in this study. The results showed that there was an association between having a previous skin cancer diagnosis in family members and having freckles in the participating bus drivers. Consistent with previously published data, the current study's findings had similar rates (70%) to the sun-sensitive cases based on structural factors related with having a previous skin cancer diagnosis in family members.[9,17-19] The risk evaluation of the sample based on their distribution by age indicated that there was no age-related significant change in the variables. Similarly, Haney et al. stated that the age of participants did not significantly affect the same variables as tested in the present study.[14]

It was found that the drivers who reported that they were exposed to sunlight for 1-2 hours a day and who knew that the sun causes skin cancer were more informed about skin cancer. It was further observed that the skin cancer mean score was low. In one study carried out with labourers, it was found that although 94.3% of the labourers were outside and exposed to sunlight, 70.3% had no knowledge about skin cancer and sun protection.[20] Burke and Griffith reported that compared to the general public, fishermen and farmers in the state of North Carolina wore long-sleeve shirts more often to protect themselves from sun exposure.[21] In an extensive evaluation of exposure to UV light among outdoor workers, Glanz et al. investigated sun exposure and sun protection in a limited number of professionals and found that the studies conducted in the United States and Australia largely focussed on the outdoor recreation sector.[6] In other studies conducted with professional groups, the evaluations conducted on the sun protection behaviours of construction workers, postal couriers and transportation-sector workers yielded conflicting results. One study reported that although Ontario farmers felt that sun protection was important, it was nonetheless not a well-known health issue among the farmers. In another study involving Michigan farmers, though only 10% participated in the study, their spouses stated that they were more likely to get skin cancer.[22]

The low score obtained by the bus drivers on the SCSK scale in the current study can be attributed to the fact that all the bus drivers were male. To explain, a number of studies have examined gender-specific differences regarding sun protection information, and in one involving California farmers, it was reported that basic prevention strategies were more extensive in single women than in married men and that women in general tended to be more interested with skin problems.[23] Moreover, it was indicated in another study that male farmers in Michigan were less interested than women in skin protection. In Eastern Europe and Malta, male outside workers were reported to use less amounts of sun cream.[24] Lastly, one study found that among outdoor workers, female farmers used a larger amount of sun cream than males.[24]

A number of studies have also presented data on outdoor workers.[8,25,26] These results indicate that bus drivers do not have sufficient knowledge on sun exposure and skin cancer. However, only a few studies have been carried out to compare the risks of different outdoor workers. Although the outdoor workforce includes various professions, the studies conducted on sun exposure and sun protection have only focussed on a limited number of professions. The most studied professions have been outdoor recreation industry workers, farmers, construction workers, road workers, and other outdoor workers. The literature included no studies on the knowledge levels and behaviours of bus drivers for sun protection and skin cancer. The excessive sun exposure that bus drivers must endure and their limited protection levels are concerning, considering that skin cancer risk increases in parallel with longer durations of sun exposure.

The current findings confirm that bus drivers need to exercise certain strategies to decrease the amount of time they spend under the sun, both at work and in their leisure times.

Conclusion

A majority of the bus drivers had no concern for skin cancer and they did not have any awareness about the significance of using sun-protection products.

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