
RESEARCH COMMUNICATION

Knowledge of the Effects of Sun Exposure of Turkish High School Students and Their Sun Bathing Habits

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Abstract

Cancer, long a serious problem in developed countries, is now becoming a serious health concern throughout the world. There has been an alarming increase in the number of new cases of melanoma each year, this cancer increasing at a faster rate than any other neoplasm in some regions. This may be a result of depletion of the ozone layer. An association between non-melanocytic skin cancer and exposure to the sun appears to have first been suggested in 1894; it was not until about 1952 that it was argued that exposure to the sun also causes melanoma. It is commonly believed that skin cancers develop only after long-term exposure to UVR. At the individual level, people who live in sunnier climates comparatively have a higher risk for skin cancer than do people who live in colder climates. This is particularly the case for migrant populations with a fair skin. The present study was conducted to evaluate the knowledge of the young generation in Turkey related to the side effects of sun exposure, and their sun bathing habits. Sun sensitivity, use of sunscreens, sunbathing habits and protective behaviours were determined for a total of 1244 high school students from the answers to a questionnaire completed by them. Data from 627 (50.4 %) females and 617 (49.6 %) males were evaluated. All were aged between 15 and 18 years. Sunscreen use was found to be higher in female students (59 %) than in their male counterparts (45.8 %). The wearing of sunglasses was reported by 36.7 %, whereas the incidence of hat wear was found to be 55.1% overall. The results of this study indicate that, although most high school students are aware of the side effects of sun exposure, they do not pay sufficient attention to protective behaviour. A further study should now be conducted to evaluate the use of sunscreens in a large group.

Key Words: Sun exposure - sun-bathing habit - skin cancer

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Introduction

Cancer, which has long been a serious problem in the developed world, is now a serious health problem in all countries (Laughlin, 2000; Mahon, 2003; Schober, 2001). Skin cancer is more common than any other type of cancer and its prevalence is on the increase (IARC, 2001). More than one million new skin cancers are diagnosed yearly in the United States (Gruijl, 1999; Humphreys, 2001). In Turkey, the estimated incidence rate for skin cancer is 2.26 %0,00 , accounting for 5.74 % of all cases according to hospital based data for the year 1999, ranking as the fourth common cancer after the lung-breast and stomach cancer (The Ministry of Health of Turkey, Department of Cancer Control, 2002).

Most people are not fully aware that not only can

overexposure to the sun result in painful sunburn, but also can lead to serious health problems, including melanoma. "Melanoma is the deadliest form of skin cancer," (Gruijl , 1999; Humphreys, 2001; Leber et al., 1999). There has been an alarming increase in the number of new cases of melanoma each year in many regions of the world where it is increasing at a faster rate than any other cancer. This may be a result of the depletion of the ozone layer (Laughlin, 2000; Saraiya, 2003).

The sun emits three types of ultraviolet radiation – UVA, UVB and UVC. UVA penetrates deep into the skin causing damage resulting in wrinkles and discolouration. Exposure to UVB causes sunburn, a skin reaction where blood vessels expand and leak fluids, producing inflammation, pain and redness (Hatmaker, 2003; Schober, 2001). Sunburn, whether severe or mild, can cause permanent and irreversible skin

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damage. Cumulative exposure to UV radiation and the number of severe sunburns received, especially during childhood, increases the risk of developing skin cancer (English et al., 1997; Laughlin, 2000; Albert, 2003; Saraiya, 2003).

The ozone layer blocks the sun’s output of UVC and most UVB radiation. The UVB radiation that does reach the earth’s surface poses the greatest danger for sunburn and skin damage. Ozone gas high in the atmosphere is vital in filtering out much of the sun’s UV, making ozone depletion a major environmental issue. Decreasing ozone levels will increase the health risks associated with UV (English et al., 1997; Albert, 2003; Saraiya, 2003).

An association between non-melanocytic skin cancer and exposure to the sun appears to have first been suggested in 1894; it was not until about 1952 that it was argued that exposure to the sun also causes melanoma (Gruijl , 1999; IARC, 2001). It is commonly believed that skin cancers develop only after long-term exposure to UVR. At the individual level, people who live in sunnier climates comparatively have a higher risk for skin cancer than do people who inhabit less sunny regions. In addition, the risk factor increases for those with fairer skin.

However, personal risk can be largely averted by avoiding the sun during the middle of the day, or by covering up with appropriate clothing, headgear and sunglasses, and perhaps by using SPF 30+ sunscreen (Nelson et al., 2001; Albert, 2003). It has been estimated that the regular use of sunscreen during childhood would reduce the lifetime incidence of certain types of skin cancer by 78 % (Sheer, 1999).

Materials and Methods

Study Design:

The study was conducted to evaluate the knowledge of the young generation in Turkey related to the side effects of sun exposure, and their sun bathing habits between May and June 2003.

Participants:

The study was carried out in High Schools of Bornova-Izmir. A total of 1523 9th grade students, aging between 15 and 18 years, were randomly assigned as the study population. A total of 1244 high school students who participated, 627 (50.4 %) females and 617 (49.6 %) males, were evaluated.

Instrument:

Each student completed a 31-item instrument designed by the researchers. Sun sensitivity, use of sunscreens, sunbathing habits and protective behaviours were determined from the answers to a self-administered questionnaire.

Data Collection:

The data was analysed with the statistical test of “Chi-square” and “Fishers Exact Test” using SPSS 10.0 software.

Results

Table 1 shows that 50.4 % of the students were female, and most of both females and males were between 15-16 years old (88.9 %). According to the Fitzpatrick six point scale (IARC, 2001), 31 % students had very sensitive, 43.9 % moderately sensitive and 25.1 % had less sensitive skin . Some 0.9 % stated a history of skin cancer in their family.

Table 2 indicates that 36.7 % of students regularly wore sunglasses, 55.1% wore a hat while 52 % of them used a sunscreen.

Table 3, lists the reasons why students use sunscreens; 32.3 % to protect themselves from the adverse effects of sun exposure, 27.8 % to prevent sunburn, and 23.2 % because of an awareness of relation between skin cancer and sun exposure.

Table 4 shows the associations between use of hat-

Table 1. Distributions of the Research Group According to Sex, Age, Skin Type and History of Skin Cancer in the Family

N:1244	Number	Percentage
Sex		
Female	627	50.4
Male	617	49.6
Age		
15-16	1105	88.9
17-18	139	11.1
Skin Type		
Very Sensitive	378	31.0
Moderately Sensitive	536	43.9
Less sensitive	307	25.1
History of skin cancer in family		
Yes	11	0.9
No	1111	99.0

Table 2. Distribution of Sun Protective Behaviour

N: 1244	Yes		No	
	Number	%	Number	%
Wear sunglasses	456	36.7	788	63.3
Wear a hat	685	55.1	559	44.9
Use a sunscreen	647	52.0	597	48.0

Table 3. The Reasons Given for Using Sunscreens*

	Number	%
Prevention from Sun X-Rays	402	32.3
Prevent Sunburn	346	27.8
Cause of Skin Cancer is Sun Exposure	289	23.2
Have Skin That Is Fair/Burns Easily	281	22.5
Parents Insist On Sunscreen Use	250	20.0
Allows More Burn Free Hours In Sun	141	11.3
Positive Attitude To Sun Protection	120	9.64
Negative Attitude To Tan	102	8.19
Family History Of Skin Cancer	4	0.32

* Some students indicated signed more than one choice

Table 4. Factors Related to Sun Protective Behaviour Such as Wearing Sunglasses or Hats and Using Sunscreens

	SUNGLASSES		P Value	Hat		P Value	SUNSCREEN		P Value
	Wear %	Not wear %		Wear %	Not wear %		Wear %	Not wear %	
SEX									
Boy (n: 612)	29.5	70.5	0.001 *	59.3	40.7	0.006 *	45.8	54.2	0.001 *
Girl (n: 623)	44.3	55.7		51.6	48.4		59.0	41.0	
AGE									
15-16 (n: 1065)	36.7	63.3	0.031*	56.2	43.8	0.25 *	52.7	47.3	0.9 *
17-18 (n: 139)	43.9	56.1		51.1	48.9		53.2	46.8	
SKIN TYPE									
Moderate Sensitive (n: 376)	37.8	62.2	0.9 *	58.5	41.5	0.34 *	55.6	44.4	0.1 *
Very Sensitive (n: 533)	37.0	63.0		53.6	46.4		52.9	47.1	
Less sensitive (n: 307)	36.2	63.8		54.9	45.1		47.9	52.1	
FAMILY HISTORY OF SKIN CANCER									
Yes (n: 11)	60.0	40.0	0.1**	36.4	63.6	0.1 **	36.4	63.6	0.3 *
No (n: 1105)	36.1	63.9		55.8	44.2		49.5	50.5	

* Chi-square test

** Fisher’s exact test

sunglasses-sunscreen and relations with age-sex-skin type-family history of skin cancer.

Wearing sunglasses by females (44.3 %) appeared to be higher by males (29.5 %), this being significant (p<0,05). The rate was highest in 17-18-year-old students (43.9 %), and a statistically significant positive association was observed with age (p<0,05). Skin type and family history of skin cancer did not affect wearing of sunglasses.

Hats were more frequently worn by male (59.3 %) than by female students (51.6%), with statistical significance (p<0,05).

Sunscreen use was found to be higher in female students (59 %) than male students (45.8 %), and this also was significant (p<0,05). No statistically significant associations were observed between wear a hat- sunscreen use and age-skin type- family history of skin cancer.

Table 5, presents the give reasons for not using sunscreens; 11.7 % of students objected because of the expense, while 10.2 % have found it unmasculine, whereas 8.2 % found them non-protective.

Discussion

In this study it was clarified that wearing sunglasses and

use of sunscreen was higher in female students, while wearing a hat was more common in male students, in line with earlier results (Nelson et al., 2001). The significant association between sex and sunscreen use, reflects the importance of physical appearance to girl. Also the second common reason for not using sunscreens among boys, that they are unmasculine, supported this assumption.

It might be expected that students with a family history of skin cancer would be more inclined to use sunscreens than the other students, but our study like two other studies, documented in the IARC Hand Book on Cancer Prevention (Sunscreens, Human use of sunscreens, 2001), did not provide support for this conclusion. It might also be expected that students with high sensitive skin type that require protection from the sun would use sunscreens and other solar protection such as wearing hat and sunglasses. However, there were no differences in following protective behaviour among the students with reference to their skin type.

The results of this study have shown that, although most of the high school students are aware of the negative effects of sun exposure, they do not pay sufficient attention to protective behaviour.

Conclusions

Protection from sun exposure is important all year round, not just during the summer or at the beach. Any time the sun’s ultraviolet (UV) rays are able to reach the earth, there is a need for protection against excessive sun exposure. UV rays can cause skin damage during any season or at any temperature (Albert, 2003; Saraiya, 2003).

“Sun Awareness” programmes should be used as strategies for improving community knowledge about skin cancer and sun protection, making use of mass media, and distribution of educational brochures. Strategies should be designed to influence social norms for sunscreen use among

Table 5. The given Reasons for Not Using Sunscreens

	Number	%
Sunscreens Too Expensive	146	11.7
Not Masculine	128	10.2
Not Believe It’s Protective	102	8.19
Have Skin That Does Not Burn Easily	100	8.03
Forget To Use	94	7.55
Sunscreens Greasy Or Have An Odour	93	7.47
Sunscreens Retards Desired Tan	23	1.84

* Some students have signed more than one choice

children and include peer-led programmes, role modelling and parental involvement or home activities (IARC, 2001).

Medical experts should take the lead in preparing programmes and nurses are ideally suited for provision of information to increase awareness in this regard.

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