A STUDY ON SUN EXPOSURE AND PHOTO-PROTECTION BEHAVIOR OF MEDICAL STUDENTS IN A WESTERN ROMANIAN UNIVERSITY CENTER

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Abstract

A strong association between a nice tanned body and attractiveness has been proven among studies, especially since it has been promoted in an aggressive way in the media. Intermittent sun exposure, artificial or not, sunburn history and sun protection methods are all important factors in the etiology of photo-aging and skin cancers. This study was done in order to observe how medical students protect themselves from the potentially harmful effects of UV rays and explore their tanning habits.

Method: A survey on sun behavior among 335 medical students was conducted. Questions about sunburns, tanning methods, and sun behavior and protection measures were asked. Data was collected directly from the students and then analyzed through the IBM SPSS statistics software.

Conclusion: An inadequate participants’ knowledge and behavior of sun exposure and UV radiation is observed in this study, with the exception of those subjects who required a dermatologist consult. Thus, more aggressive and/or more interactive campaigns to inform and emphasize the importance of protection against UV rays and reduction of the prevalence of sunburn is necessary especially young age groups.

Introduction

Sun exposure has both positive and negative health effects. Tanning is the adaptive feedback reaction to UVA and UVB exposure by increasing melanocytes production in order to protect the skin from its harmful effects (1). Even though this process appear to give some protection against sun damage, this defense is not possible without injuring the skin (2). Repeated, cumulative UV radiation over a lifespan leads to cutaneous cancers and photo-aging (3).

Since tanning is a voluntary controllable behavior, prevention can be simply done by intentionally avoidance of sun exposure. If avoiding the sun is not attainable, other appropriate UV rays protections are available. Adequate protective clothing, including hats and sunglasses, and sunscreen with a suitable SPF (sun protection factor) plus substance which confer protection against UVA is suggested to shelter the body against UVA and UVB radiation that can cause reversible and irreversible damage (4, 5).
Benefitting the sun without its negative effects is possible through physical and biological protection. Physical protection is done through chemical or mineral filters which are found in cosmetic sun care products that stop the ultraviolet rays at the surface of the skin, though the efficacy depends on the sun protection factor (SPF) of the product. Biological protection is done through different antioxidant mechanisms that counteract and/or repair the UV damage of the DNA (6, 7).

Since a strong association between tanning and attractiveness has been aggressively promoted in the media, it is safe to assume that the desire to tan is more related to an individual’s concern with his/her own appearance and social judgements rather than health concerns. A simple decision about tanning or not tanning is a controllable behavior (8).

**Aim of study**

The main intent of the study was to examine the characteristic tanning manner and UV protection pattern in medical students, which have a supposedly higher educational level. Their approach, awareness and knowledge of UV radiation and effectiveness of sunscreens protection were also tested. At the same time, analysis between students from rural area versus students from urban regions on their understanding about the matter was observed.

**Material and Method**

The study was done using a questionnaire method during the months of September through December 2016, among a sample of 335 males and females, 18 years or older, medical students of “Victor Babes” University of Medicine and Pharmacy Timisoara, Romania. An informed consent was obtained from all of the participating students. The questionnaire included questions about skin photo-type (Fitzpatrick’s scale), sunburns, tanning methods, and sun behavior and protection measures (9). Students were asked about their age, skin color and native geographical region (urban or rural area). The term “sunburn” was defined as any painful or blistering, erythematous lesion that developed during sun exposure and lasted more than 12 hours. Questions about sun burns were concerned on how many sunburns (between 1-3 sunburns, 4-5 or over 5 sunburns) a volunteer had, if any, as a child and as an adult.

Tanning methods refer to the way patients expose themselves to the sun, either directly through sun bathing or artificially using tanning beds, or both. “Do you expose yourself to artificial tanning?”; if so, “How much in the summer and how much in the winter months?”; “How many minutes and how many times per week/month do you expose yourself to artificial tanning?”; “How much do you willfully expose yourself to the sun in the summer?”; “How many hours do you sunbathe in critical hours, between 11 and 16 o’clock, and how many hours you sunbathe in non-critical hours, before 11 o’clock and after 16 o’clock?” These were questions about the ways a person tans.

Questions about protective measures were also requested. “During the summer months, how often do you seek shade?”; “Do you cover yourself with clothing?”; “How often do you wear a hat?”; “How often do you wear sunglasses?”; “How often do you use sunscreen?” (all the time, often, sometimes, rarely, never), “What kind of sunscreen protection do you use?” (SPF10, SPF15, SPF20, SPF30, SPF50, I don’t use) and “How often do you apply the sunscreen?” (never, only when sunbathing - just before, when sunbathing I apply it every few hours, I use sunscreen everyday). Question about seeing a dermatologist concerning sun protection was also asked.

Data was collected directly from the medical student through a “face to face” interview and through distribution of paper forms questionnaires among students. Data were analyzed through the IBM SPSS statistics software and the approach was through descriptive and comparison statistics.

**Results and discussion**

**Descriptive Statistics**

Upon examination of descriptive statistics, the following characteristics of the sample group were noticed. A total of 335 questioners were obtained (N=335), from which 73.5% were females and 76.2% came from an urban area. It was observed that 47.2% (Table 1) of the study participants had a skin photo-type III, medium white skin, dark eye color that tans uniformly and sometimes have mild burns, and 22% had a skin photo-type II, fair skin that usually burns and tans minimally. At least one sunburn episode was noticed in 26.6% of the participants before the age of 15. From the study lot, 11.67% used artificial tanning methods one time per month (45.5%), with a 5-10 minutes exposure. Females with a photo-type IV and V were more inclined to engage in intentional artificially tanning to stay in the sun for a longer time and not use sunscreen. Participants with a lighter skin color were more likely to use sunscreen protection, likewise more likely to stay away from the sun in critical hours and protect themselves more frequently from the sun.

The response sequence for sun exposure in critical and non-critical hours displayed skewness, an asymmetry of data distribution. Protective methods were sometimes obtained by seeking shade (27.7%), wearing protective clothing (25.5%), using sun screen protection (21.6%) and wearing sunglasses (21.8%). This might suggest that subjects
with a fair skin type, who are more likely to burn, are probably more prone to protect themselves from the sun to a greater extent than those with a higher skin photo-type.

Only 6% of the study lot asked for a dermatologist consult about sun protection and cutaneous cancers and most of them used sun protection filter SPF 10 when going to the beach (41%). This low percent can mean that people are not aware or not educated enough about the risk factors of sun exposure, or that they simply, consciously, do not care. But we should not avoid or overlook the fact that subjects could get some sunscreen protection information directly form a pharmacist; some studies show that patients are more prone to ask a pharmacist about sunscreen protection than to discuss their own protection from the sun to a greater extent than those who did not seek a dermatologist consultation regarding their own protection from the sun (t (330) = 1.98, p = .04), (M= 9.25, SD=1.97 vs M= 8.30, SD= 2.08). Thus, it can be safe to speculate that patients who are more informed about the harmful effects of ultraviolet radiation are more likely to protect themselves. Thus reaching out, promoting and providing health education on severity and susceptibility of cutaneous neoplasms could be a way to encourage and alert people about the dangerous effects of ultraviolet rays (14).

Conclusion

A lacking knowledge on sun exposure and protection among university students from Timisoara is noticed. Even though sunscreen was the preferred protective method, only participants with...
lighter skin color and frequent sunburns showed an increased use of sunscreen protection, while females with a photo-type IV and V were more inclined to engage in intentional artificially tanning, stay in the sun for a longer time and not use sunscreen.

Thus, people in this area need to be more educated on risk factors and sun protection methods. Systemized educational campaigns should be promoted in order to emphasize the importance of sun protective ways in order to change and improve people’s quality of life, especially for those who are at a higher risk, women and lighter skin photo-type.

In the end, based on the evidence, one can assume that common sense is the most important tool when it comes to sun exposure and sun protection. The impact of regular sunscreen use and other sun protective measures use on cutaneous cancers and skin aging prevention is certainly clear.

Conflicts of interest: none declared.
Financial disclosure: none declared.
Patient informed consent obtained.


Table 2. Adult and childhood sun exposure of rural and urban subjects

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