ISSN 2304-2354
Number 2, Volume 44, 2013

KNOWLEDGE, ATTITUDE AND BEHAVIORS OF TIRANA POPULATION TOWARD SUN PROTECTION AND THEIR PERCEPTION ABOUT MELANOMA

Ermira VASILI[1], Entela SHKODRANI[1], Loreta KUNESHKA[2], Iris HOXHA[1], Sidita BORIÇI[1], Elna ÇANO[1], Brikena BEZATI[1]

[1] Infective-Dermatology Department, University Hospital Center "Mother Teresa",
[2] Department of Statistics, University of Tirana, Faculty of Public Health

Abstract

Objective: The aim of this study is to determine the knowledge and attitudes of Albanian population toward sun protection, their sun behavior patterns and also their knowledge about melanoma.

Methods: The study was conducted in the time period January- June 2012. Participants were asked to fill in an anonymous and self- administered questionnaire composed of 22 questions on the basic socio-demographic data, age, gender, profession, place of residence (urban/rural area), education, skin/ hair/eye color, sunburns during childhood, presence and the number of moles, sunscreen use, SPF (Sun Protection Factor), artificial tanning lamps/ beds/ cabins attendance, knowledge about melanoma and its risk factors, the source of information about it, family history of melanoma, protective measures taken when staying in the sun and their relationship with sunbathing. SPSS 17.0 was used for data analysis.

Results: The study included a total of 2035 subjects: 61.9% females and 38.1% males. A considerable percentage of subjects had no knowledge about melanoma (59.5%) and those claiming to know about it based their knowledge on TV, internet and school as the main sources of information. 38.9% of subjects had no knowledge on Sun Protective Factors (SPF) on sunscreens; 33.9% of them used sunscreens with a maximum SPF of 20 and only 27.2% used sunscreens with a SPF greater than 20.

Conclusions: The results of this study show that the knowledge, attitude and behaviors of Albanian population to sun protection and melanoma are insufficient.

Key words: attitudes of Albanian population, melanoma, sun protection.

Introduction

Epidemiological studies have shown that sunlight is the most important environmental factor responsible for the development of cutaneous melanoma, the other types of skin cancer and many other skin diseases (1). It is estimated that 80% of total lifetime exposure of an individual is received during the first 20 years of life (2). Cutaneous melanoma is the most serious oncological problem in dermatology with its incidence and mortality having been increased in the last decades. Unlike other types of skin cancer, melanoma affects relatively the young and it has the tendency to metastasize at an early stage (3). Although melanoma makes only 3% of all skin cancers, it is responsible for more than 75% of deaths occurring from it (4). In Albania, skin cancer ranks as the first in mortality in males and the second after breast cancer in females (5). Excessive sunlight exposure and ultraviolet radiation (UV) are the most important avoidable risk factors for skin cancer, including melanoma (6). Awareness of individuals on sun protection is the first preventive measure that should be taken to decrease the incidence of these diseases (7). The aim of this study is to determine the knowledge and attitudes of Albanian population, their sun behavior patterns and also their knowledge regarding melanoma.

Materials and methods

This quantitative cross- sectional KAP (Knowledge, Attitude, Practice) survey was designed to investigate the knowledge, attitudes and behaviors related to sun protection and other factors related to melanoma risk increase in Tirana inhabitants. The target population was the urban and rural population of Tirana City and its suburbs, students of "Petro Nini Luarasi", "Cajupi" and "Harry Fultz" high schools, students of Tirana University and randomly selected adults. The participation criteria included the age above 17 years old, Albanian citizenship and willingness to participate in the study. Individuals not fitting these criteria were

excluded.

Sampling was based on calculations of WINPEPI ver. 11.0 statistical program. Tirana inhabitants and students of the above- mentioned institutions were among the participants, due to their ready accessibility to the area. Approximately 2100 individuals were calculated to participate from which only 2035 could be reached resulting in a *Reponse Rate* of 96.9% indicating a very good sampling strategy.

The study was conducted in the time period January- June 2012 by a formerly trained team of residents at the Dermatology Clinic in "Mother Teresa" University Hospital. Data were gathered via an anonymous and self-administered questionnaire composed of 22 questions on the basic socio- demographic data, age, gender, profession, place of residence (urban/ rural area), education, skin/ hair/ eye color, sunburns during childhood, presence and the number of moles, sunscreen use, SPF (Sun Protection Factor), artificial tanning lamps/beds/cabins attendance, knowledge about melanoma and its risk factors, the source of information about it, family history of melanoma, protective measures taken when staying in the sun and the relationship with sunbathing.

Data were processed via SPSS 17.0 statistical program. They were corrected for logical or mechanical inconsistencies that might have resulted during their entry. Frequencies, percentages, medians and standard deviations were calculated for every variable (in those variables offering this possibility). Statistical tests and Kendalltau- b correlations were performed to observe the relationship between different variables.

Ethical approval

The study protocol was approved by Ethics Committee in "Mother Teresa" University Hospital, Ministry of Health and the Institute of Public Health. Every participant was given a case number.

Results

The study included a total of 2035 subjects: 61.9% females and 38.1% males. The age distribution consisted

Table nr.1 Socio- demographic data distribution

	Frequency	Percentage	CI 95%
Age (years)			
N/A*	4	0.2	-
17-30	1061	52.1	49.97%- 54.30%
31-50	551	27.1	25.19%-29.05%
51-65	259	12.7	11.35%-14.25%
> 65	160	7.9	6.77%-9.11%
Total	2035	100.0	-
Gender			
Male	776	38.1	36.05%-40.26%
Female	1259	61.9	59.74%- 63.95%
Total	2035	100.0	-
Employment			
N/A*	4	0.2	-
High school student	363	17.8	16.24%-19.56%
University student	339	16.7	15.10%-18.34%
Employee	602	29.6	27.64%-31.60%
Worker	387	19.0	17.37%-20.78%
Farmer	177	8.7	7.55%-10.00%
Retired	163	8.0	6.91%-9.27%
Total	2035	100.0	-
Place of living			
City	1738	85.4	83.80%-86.87%
Village	297	14.6	13.13%-16.20%
Total	2035	100.0	-
Education			
N/A	1	~0.01	-
Secondary school	322	15.8	14.30%-17.47%
High school	770	37.8	35.76%-39.97%
University	762	37.4	35.37%-39.57%
Postgraduate studies	180	8.8	7.69%-10.16%
Total	2035	100.0	-
*No Answer			
Abbreviation: CI = Confidence Interval			

ISSN 2304-2354
Number 2, Volume 44, 2013

of 4 groups [17-30 years old (52.1%), 31-50 years old (27.1%), 51-65 years old (12.7%) and above 65 years old (7.9%)]. (Table nr.1) Skin color distribution varied from *"very light"* (8.6%), *"light"* (61.7%), *"dark"* (27.0%), *"very dark"* (1.5%). Most of subjects in the study had brown hair (57.9%) and brown eye color (60.5%).

The use of sunglasses resulted to be 53.6%, with 44. 3 % of participants using hats and 48% of them utilize umbrellas when staying in the sun.

91.7% of subjects in our study reported of having never attended solariums, 3.5 % reported of having frequented them 3-4 times a year and 1.8% claimed attendance 1- 2 times a month or once a week.

A considerable percentage of subjects had no knowledge about melanoma (59.5%) and those claiming to know about it based their knowledge on TV as the main source of information. When asked about their relationship with sunbathing 56.6% of subjects claimed that they partially or markedly liked sunbathing and tanning. 38.9% of subjects had no knowledge on Sun Protective Factors (SPF) on sunscreens; 33.9% of them used sunscreens with a maximum SPF of 20 and only 27.2% used sunscreens with a SPF greater than 20.

The percentages of risk factors like family history of melanoma or sunburns during childhood were low, 2.9% and 40.6% (26.0% of which had been sunburned more than twice), respectively. 59.8% had 10 to 50 moles in their skin, 6.8% had 50 to 100 moles while 2.1% claimed to have more than 100 moles. A significant relationship was noted when testing the knowledge about melanoma in relation to gender, age and education level (*$p<0,05, OR=5.7833$ – CI 95%: 5.1167 - 6.5369*). The participating subjects were not aware of having a visit at the physician for their moles despite of their age (Figure nr.1). The NO answer resulted to be significant ($p < 0.01$) when compared to the answer YES. A tendency of not going to the physician for a mole check is noted in the young ages. Despite of the profession, the culture of mole checks is inexistent ($p< 0.01$) (Figure nr.2).

The comparison of the knowledge about melanoma and the educational level resulted to be significant ($p<0.05$) for those having completed high school, university or postgraduate studies. But the analysis of their knowledge about melanoma risk factors was significant for only two factors: genetic predisposition and dysplastic moles, despite of the educational level (Figure nr.3).

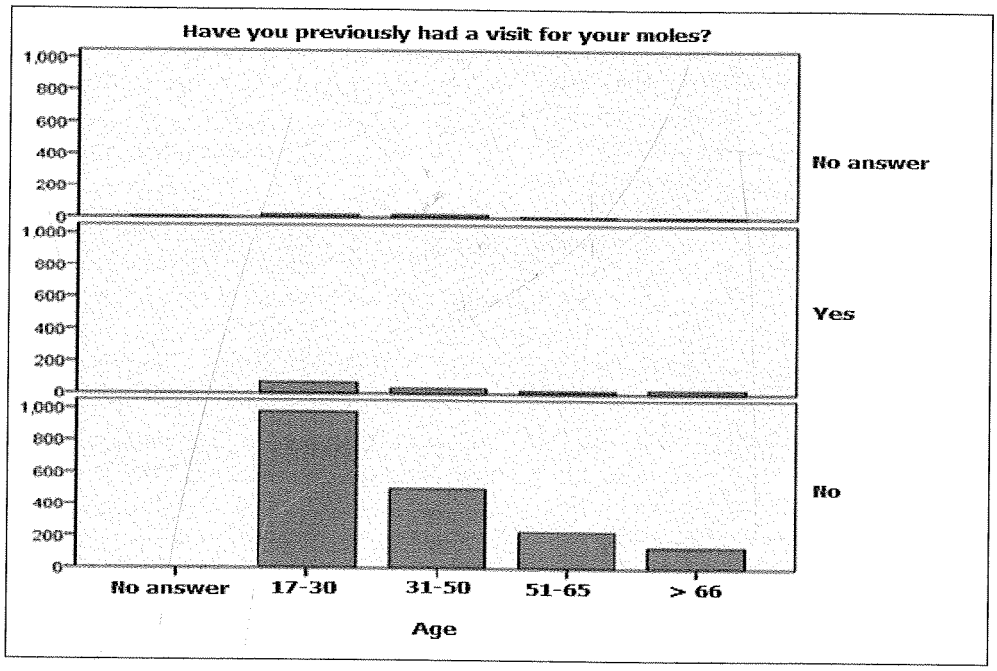

Figure nr.1. The relationship between age and the habit of having moles checked

The absence of sunscreen daily use and their use during summer time at the beach resulted to be significant ($p < 0.05$), despite the skin color of the participating subjects (Figure nr.4) The use of SPF 10- 20 sunscreen was significant in high school and university students, who had declared the use of sunscreen at the beach, while SPF 21-30 sunscreen use was significant for employees only (Figure nr.5).

The correlation analysis showed that sun protection measure use and the risk for melanoma development are closely related to the age, gender, profession, the living place and the educational level. The use of sunglasses, hats and umbrellas as sun protection devices was found to be statistically significant ($p<0.05$).

ISSN 2304-2354
Number 2, Volume 44, 2013

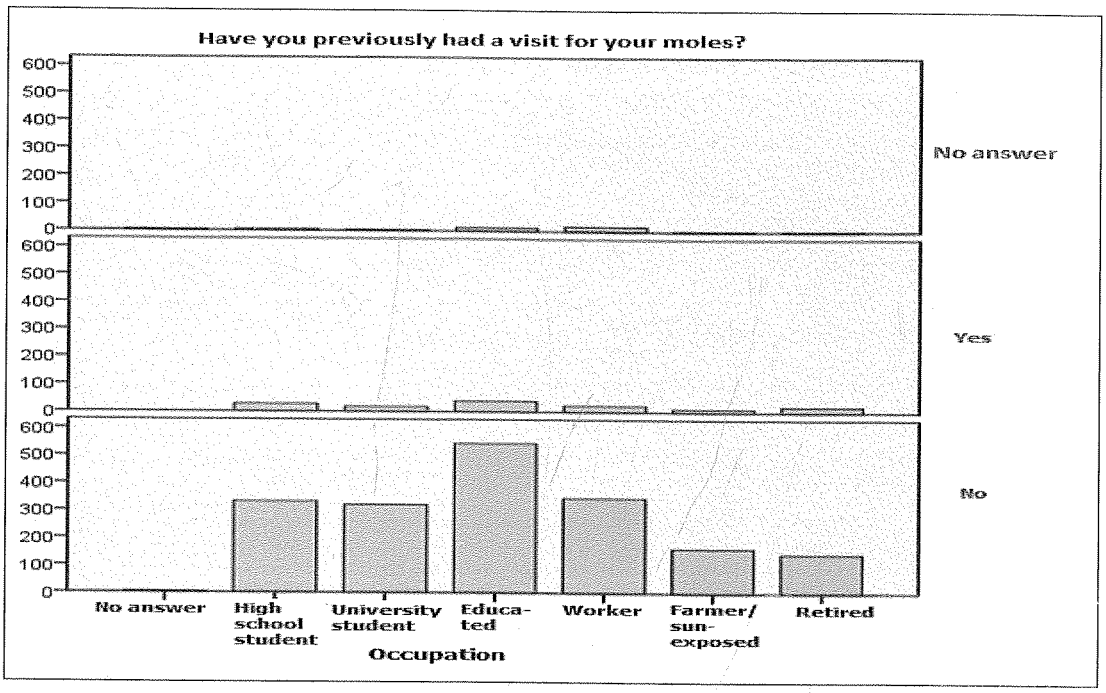

Figure nr.2. The relationship between profession and the habit of having moles checked

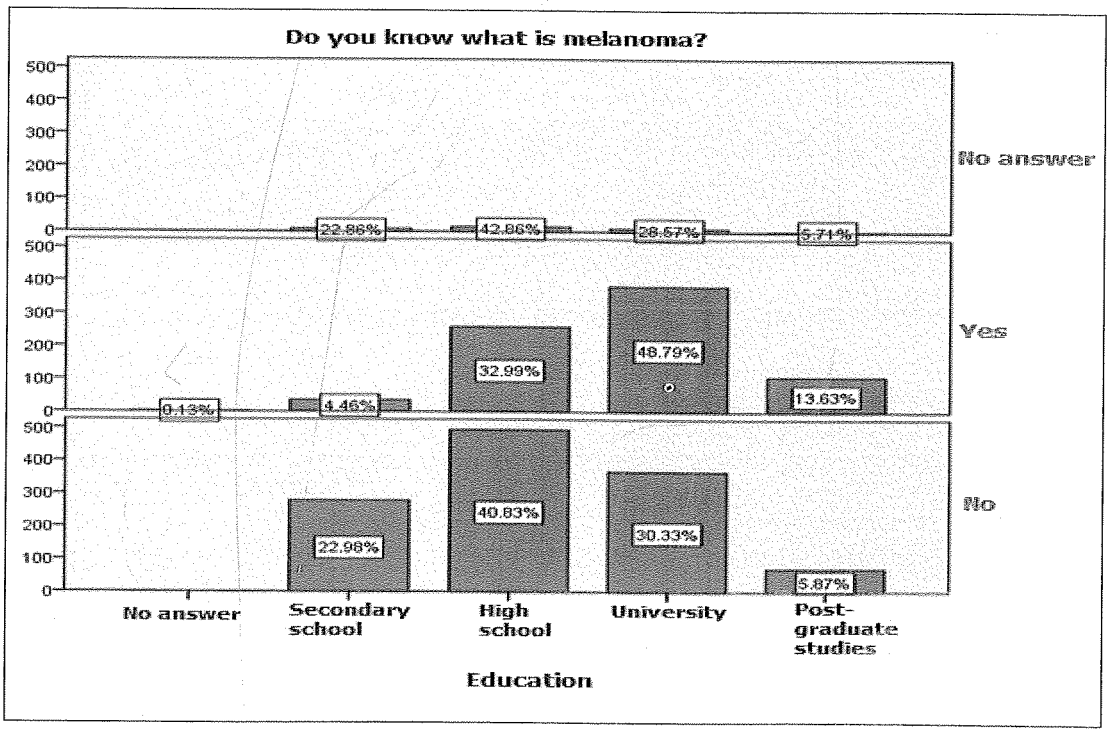

Figure nr.3. The relationship between education level and melanoma knowledge

ISSN 2304-2354
Number 2, Volume 44, 2013

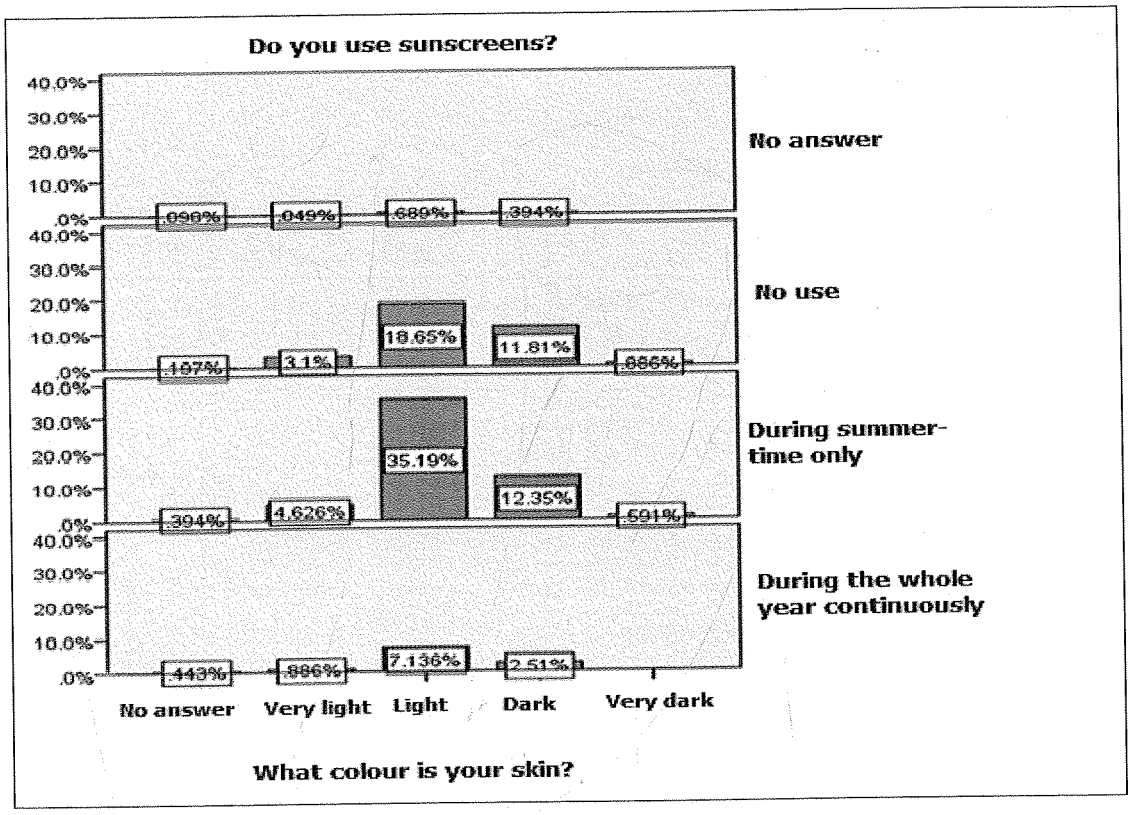

Figure nr.4. The relationship between skin color and sunscreen use

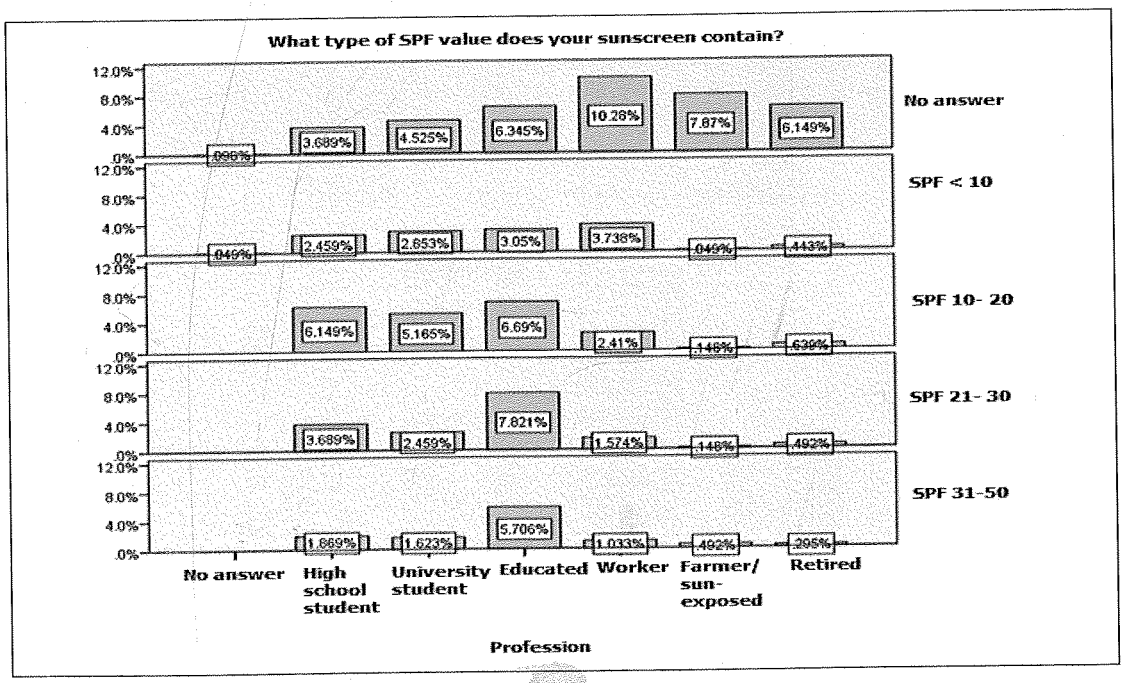

Figure nr.5. The relationship between profession and sunscreen SPF value

Table nr.2. Correlation between sun protective measures, sunburns, mole checks, artificial tanning and melanoma knowledge with socio- demographic data

Kendall tau-b Correlation		Age	Gender	Profession	Place of living	Education
Sunglasses	*Coeff.*	-0.047*	0.031	-0.114**	-0.154**	0.121**
	p	0.025	0.161	<0.001	<0.001	<0.001
	No.	2035	2035	2035	2035	2035
Hats	*Coeff.*	0.141**	0.020	0.076**	-<0.001	-0.002
	p	<0.001	0.379	<0.001	0.950	0.915
	No.	2035	2035	2035	2035	2035
Umbrella	*Coeff.*	0.071**	0.179**	-0.027	-0.110**	0.143**
	p	<0.001	<0.001	0.175	<0.001	<0.001
	No.	2035	2035	2035	2035	2035
Sunscreen	*Coeff.*	-0.254**	0.320**	-0.285**	-0.263**	0.292**
	p	<0.001	<0.001	<0.001	<0.001	<0.001
	No.	2035	2035	2035	2035	2035
Sunburns during childhood	*Coeff.*	0.027	-0.160**	-0.026	-0.050*	0.082**
	p	0.170	<0.001	0.153	0.015	<0.001
	No.	2035	2035	2035	2035	2035
Visits for moles	*Coeff.*	-0.057**	-0.050*	-0.039*	-0.004	0.030
	p	0.005	0.024	0.045	0.865	0.136
	No.	2035	2035	2035	2035	2035
Artificial tanning beds	*Coeff.*	0.101**	0.035	0.074**	0.055*	0.009
	p	<0.001	0.111	<0.001	0.012	0.644
	No.	2035	2035	2035	2035	2035
Do you know what is melanoma?	*Coeff.*	0.092**	-0.180**	0.165**	0.184**	-0.252**
	p	<0.001	<0.001	<0.001	<0.001	<0.001
	No.	2035	2035	2035	2035	2035

* *Significance greater than 95% ($\alpha \leq 0.05$)*
** *Significance greater than 99% ($\alpha \leq 0.01$)*

Discussion

The results of this study show that the knowledge, attitudes and behaviors of Albanian population about sun protection and melanoma are inadequate. Staying in the sun in dangerous hours from 10^{00}-16^{00} when UV rays are the strongest (8), not seeking shades, irregular and improper use of sunscreens during summer months and everyday life are identified as risky behaviors.

It should be noted that the majority of subjects in our study were females 61.9% (Table nr.1). Women have the tendency to care more about their skin and outer appearance and they are more prone to read beauty magazines which show tanned women as being beautiful and healthy, on the other side providing information about sun protection and skin cancer. This fact already confirmed in previous studies, leads to modifications in their sun- protective behavior (9).

Most of the participating subjects claimed that they attend beaches during their summer holidays and this is not astonishing, since Albania is a Mediterranean country with a coast line of 316 kilometers (10). Their attitude toward sunbathing is improper since the majority of them (56.6%) partially or totally like sunbathing and tanning with a minor part (9%) not going to the beach since they think sunbathing is dangerous for their health. We share the idea that this last category that does not frequent beaches on their summer holidays also includes individuals with low socio- economic status who cannot afford going to the beach.

The use of sunglasses, hats and umbrellas was relatively high (53.6%, 44.3% and 48%, respectively), unlike the results of similar studies in French population, where women neglected hats or protective clothing but not sunscreens or studies in Greece, Malta and Australia in which adolescents only were the target population and the use of sunglasses or hats was very

ISSN 2304-2354
Number 2, Volume 44, 2013

low; sunglasses and protective clothing were not among the favorite precautions taken by the subjects in Lithuania too (11,12,13,14,15). We think that these protective measures are closely related to the inherited and acquired Albanian culture over the years but on the other side it can also be linked to the restriction of sunscreen use due to financial reasons.

Since the majority of subjects (35.19%) (Figure nr.4) use sunscreen during summer-time only and neglecting its use during everyday life, we think that this is related to the poor knowledge of our population in sunscreen use, low socio- economic conditions and relatively late emerging of these products in our market. Despite the skin phototype or educational level, the use of sunscreen in the dailiness of Albanian population is not adequate.

47.4% of subjects reported that they have had no sunburns during their childhood, while 50.6% declared of having had sunburns at least once. Our result is not different from that of similar studies in other countries like Turkey (47.3% reported sunburns at least once) (16). Sunburns during childhood markedly increase the risk for melanoma development in the coming years. This risk is increased by 3.6 in cases reporting severe sunburns before the age of 12 (17, 18, 19). The risk for melanoma development is strongly related to the intermittent and intensive sun- exposure such as sunbathing, water sport practicing or vacations where sunlight is intense, says a meta- analysis performed by Gandini *et al* (20). Intermittent sun exposure is linked to a 60% increase in melanoma risk, despite that this effect was small and insignificant in studies conducted in UK, USA, Canada or Australia (20). Intermittent sun exposure results in sunburns (20) and a history of sunburns doubles the risk for melanoma (20,21). Results from an analysis show that having had at least 26 episodes of severe or painful sunburns increases melanoma lifetime risk by 2-3 times in women (22). The risk for melanoma development from sunburns is increased in childhood and later years also (20, 23).

8.9% of the subjects in our study reported of having over 50 moles in their skin. People with a great number of moles in their bodies are nearly seven times more risked when compared to individuals with a small number of nevi (0-15) (24), and any extra nevus increases the melanoma risk by 2% (25).

The majority of participants (91.3%) reported of having never had a visit at the physician for their moles. Despite of the age-group they are not aware of the necessity of mole check (Figure nr.1).

The desire to tan for fashion or cosmetic purposes has led to a considerable increase in artificial tanning bed use, in developed countries mostly. Their popularity continues to rise, in young women especially (26).

Unlike developed countries, the attendance of solariums or tanning beds is not a frequent practice of the Albanian population. 91.7% of subjects in our study reported of having never attended solariums, while a part of them reported of having frequented them 3-4 times a year, 1-2 times a month or once a week (3.5%, 0.9% and 1.8%, respectively). Studies in Croatia also reported a similar percentage (85.7% have never frequented solariums, 1.3% once a week) to our study (9).

Literature is full of adequate evidences showing that artificial tanning beds are a cause of melanoma (27). As long as tanning beds are available to the public, there is a need for guidelines or legislation to reduce the risks associated with their use (26). WHO encourages governments to formulate and enforce effective laws in tanning bed use administration (26).

The low socio- economic status could have been of influence in our country, but we think that the situation will not be the same in the near future. Changes in legislation for their banning in individuals fewer than 18 can also be helpful, together with the promotion of the fact that untanned individuals are more attractive and healthier.

Different from other countries 38.7% of the subjects in our study reported of knowing what melanoma is. In Lithuania 55% knew this (15), while in Australia, New Zealand, USA percentages such as 66%, 75% and 80%, respectively, were noted (28, 29, 30).

A considerable percentage had no knowledge of melanoma (59.5%) and those claiming to know this referred to TV, internet and school as the main sources of information. Although these were among the most frequent ways used, all other sources available such as magazines, newspapers, physicians, friends, partners, radio, leaflets etc. can be utilized to achieve population awareness.

We also tested the knowledge of participants about melanoma risk factors. Females resulted to be more informed about melanoma than males. But they stated genetic predisposition and the presence of nevi as its main causes. This shows that women also have inadequate knowledge about its risk factors, despite of declaring that they know about it. The education level resulted to be directly related to the knowledge about melanoma, but still those with high school and university education could only state genetic predisposition and dysplastic moles as risk factors.

Other risk factors like sunlight, tanning beds, sunburns during childhood, the number of moles and dysplastic nevi were unknown for our population. In a similar study UV Radiation and genetic predisposition were among the risk factors stated by the respondents, who had a lack of knowledge about the other above mentioned factors (9). To be noted is the fact that our population does not know UVR as a risk factor for melanoma development, may be because they still mythify sunlight and are not aware of the dark side of the sun. Further efforts should be made to change the attitudes and sun behavior patterns of our population. Children, adolescents and young adults should be the target of educational programs together with their

parents in order to minimize sunburns during childhood and enhance their appropriate behavior. People should be encouraged in sunscreen use and other preventive measures as should limitations on sunbed/ sunlamp use get adapted. Association of tanning with beauty is another challenge we should go through. Families, media, school and reliable internet sources are among the best vehicles that should be utilized to raise the awareness of the individuals, with a special attention to children and the young.

Acknowledgements

The authors would like to thank the residents of Dermatology and Venerology Department in "Mother Teresa" University Hospital for their precious help in data gathering.

References

1. Filiz TM, Cinar N., Topsever P., Ucar F.: Tanning youth: knowledge, behaviors and attitudes toward sun protection of high school students in Sakarya, Turkey. Journal of Adolescent Health 2006; 38: 469- 71.
2. Kalayciyan A., Serdaroglu S.: Gunesten koruma: Toplum bilinci, yaklasim ve egilimler. Dermatose 2003; 3: 159-62.
3. Braun- Falco O., Burgdorf W.H.C, Plewig G., Wolff H. H., Landthaler M.: Braun Falco's Dermatology: Springer 2009; 3rd edition: 1416.
4. Trask PC, Paterson AG, Hayasaka S., Dunn RL, Riba M., Johnson T.: Psychological characteristics of individuals with non- stage IV melanoma. J of Clin Oncology 2001; 19 (11): 2844- 2850.
5. Cancer Control in Albania. The First National Conference about Health Policies in Albania: 11 May 2012.
6. Santmyire BR, Feldman SR, Fleischer AB Jr: Lifestyle high- risk behaviors and demographics may predict the level of participation in sun- protection behaviors and skin care primary prevention in the United States: results of the 1998 National Health Interview Survey. Cancer 2001 Sep 1; 92 (5): 1315- 24.
7. Kokturk A., Baz K., Bugdayci R., Kaya TI, Koca A., Ikizoglu G.: Dermatoloji polikliniginе basvuran hastalarin gunese korunma bilinci ve aliskanliklari. T Klin Dermatoloji 2002; 12: 198- 203.
8. http://www.who.int/uv/sun_protection/en/
9. Situm M., Zivkovic MV, Dediol I. et al: Knowledge and attitudes towards sun protection in Croatia. Coll Antropol. 2010 Mar;34 Suppl 1:141-6.
10. Gjeografia e Shqiperise, Wikipedia http://sq.wikipedia.org/wiki/Gjeografia_e_Shqip%C3%ABris%C3%AB
11. **Stoebner-Delbarre A., Thezenas S., Kuntz C., Nguyen C., Giordanella JP, Sancho-Garnier H., Guillot B.**: Groupe EPI-CES: Sun exposure and sun protection behavior and attitudes among the French population. Ann Dermatol Venereol. 2005 Aug-Sep;132(8-9 Pt 1):652-7.
12. Aquilina S., Gauci A., Scerri ME: Sun awareness in Maltese secondary school students. Journal of the European Academy of Dermatology and Venereology 2004; 18: 670-675.
13. Livingston PM, White VM, Ugoni AM, Borland R.: Knowledge, attitudes and self-care practices related to sun protection among secondary students in Australia. Health Education Research 2001;16: 269-278.
14. Lowe JB, Borland R., Stanton WR, Baade P., White V., Balanda KP: Sun-safe behavior among secondary school students in Australia. Health Education Research 2000; 11: 271-281.
15. Laniauskait I., Ozalinskait A., Strupait R., Bylait M.: Skin cancer knowledge, attitude and behavior towards sun exposure among young adults in Lithuania. Our Dermatol Online 2011; 2(4): 188-194.
16. Kaymak Y., Tekbas OF, Simsel I.: Knowledge, attitudes and behaviours of university students related to sun protection. Turkderm 2009; 43 (3): 155- 159.
17. **Langley RGB, Barnhill RL, Mihm MC, Fitzpatrick TB, Sober AJ:** Neoplasms: Cutaneous melanoma. Fitzpatrick's Dermatology in General Medicine'de. 6.ed. Freedberg IM, Eisen AZ, Wolf K et al . New York, McGraw-Hill Inc 2001; 917-48.
18. **Nestle FO, Kerl H.:** Melanoma. Dermatology. **Bolognia JL, Jorizzo JL, Rapini RP** et al. Edinburgh, Mosby 2003; 1789-816.
19. **Pfahlberg A., Kolmel KF, Gefeller O., Febim Study Group:** Timing of excessive ultraviolet radiation and melanoma: epidemiology does not support the existence of a critical period of high susceptibility to solar ultraviolet radiation- induced melanoma. Br J Dermatol 2001;144:471-5.
20. Gandini S., Sera F., Cattaruzza MS, et al.: Meta-analysis of risk factors for cutaneous melanoma: II. Sun exposure. European Journal of Cancer 2005;41:45-60.
21. Elwood JM, Jopson J.: Melanoma and sun exposure: an overview of published studies. Int J Cancer 1997 Oct 9; 73 (2): 198- 203.
22. Olsen CM, Zens MS, Green AC, et al.: Biologic markers of sun exposure and melanoma risk in women: Pooled case–control analysis. Int J Cancer 2011;129:713-23.
23. Dennis LK, Vanbeek MJ, Beane Freeman LE, Smith BJ, Dawson DV, Coughlin JA: Sunburns and risk of cutaneous melanoma: does age matter? A comprehensive meta-analysis. Ann Epidemiol 2008; 18:614-27.
24. Gandini S., Sera F., Cattaruzza MS, et al.: Meta-analysis of risk factors for cutaneous melanoma: I. Common and atypical naevi. European Journal of Cancer 2005;41:28-44.
25. Olsen CM, Carroll HJ, Whiteman DC: Estimating the attributable fraction for cancer: A meta-analysis of nevi and melanoma. Cancer Prev Res (Phila) 2010;3:233-45.
26. World Health Organisation; Sunbeds, tanning and UV exposure http://www.who.int/mediacentre/factsheets/fs287/en/
27. Cogliano VJ, Baan R., Straif K, et al.: Preventable exposures associated with human cancers. J Natl Cancer Inst 2011;103:1827-39.
28. McDermott LJ, Lowe JB, Stanton W., Clavarino AM: Suntans and sun protection in Australian teen media: 1999 to 2000. Health Educ Res 2005; 32: 504-513.
29. Jacobsen S., Owen J.: Ultraviolet radiation and the risks of cutaneous malignant melanoma and non-melanoma skin cancer: perceptions and behaviors of Danish and American adolescents. Eur J Cancer Prev 2005; 14: 57-62.
30. Cokkinides V., Weinstock M., Glanz K., Albano J., Ward E., Thun M.: Trends in sunburns, sun protection practices, and attitudes toward sun exposure protection and tanning among US adolescents, 1998-2004. Pediatrics 2006; 118: 853-864.