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Evaluation of Solar Exposure and Photoprotection of Aesthetic Student

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***Abstract*—** In Brazil, skin cancer is the one with the highest incidence and when an early diagnosis is made it is possible to treat and cure it. Solar radiation is directly linked to the onset of skin cancer. Photoprotection is characterized as the main measure to prevent ultraviolet radiation-related diseases. Therefore, a quantitative, exploratory and cross-sectional research was carried out with the objective of knowing the sun exposure and photoprotection habits of students the Aesthetics course at a university in the interior of Minas Gerais, Brazil. To perform the search was used an online form by Google Docs Forms. Although the risk of exaggerated sun exposure is widely known, as well as the importance of using sunscreen daily, even in a population composed of students of an Aesthetics course, daily adhesion to sunscreen was only reported by a minority of the sample, evidencing the need for awareness about skin cancer prevention.

Keywords— Skin cancer, radiation, ultraviolet rays, photoprotection, cancer prevention

I. INTRODUCTION

Cancer is characterized by loss of control of cell division and the ability to invade other organic structures. The onset of this disease occurs when a normal cell undergoes alteration, not responding to the body's commands, thus altering its activity, being able to migrate to other regions of the body and rapidly divide [1].

Non-melanoma skin cancer is the most common in Brazil and accounts for about 30% of all malignant tumours registered in the country. It has high cure rates if detected and treated early. Among skin tumours, it is the most frequent and has the lowest mortality, but if not treated properly it can leave very significant mutilations [2].

Exposure to ultraviolet (UV) radiation has a cumulative effect. It penetrates deep into the skin, being able to cause various changes, such as tanning and the appearance of spots, freckles, spots, wrinkles and other problems. Excessive sun exposure can also cause benign (noncancerous) or cancerous tumours such as basal cell carcinoma, squamous cell carcinoma and melanoma. Most skin cancers are related to sun exposure [3].

As ozone levels are depleted, the atmosphere increasingly loses its protective filter function and more solar UV radiation hits the Earth's surface. It is estimated that a 10% reduction in ozone levels will result in an additional 300,000 cases of non-melanoma skin cancer and 4,500 melanoma cases [4].

It is estimated that 90% of non-melanoma skin cancers and 65% of melanoma incidence can be attributed to sun exposure. Non-melanoma cancer is more associated with cumulative sun action, while melanoma is associated with intense episodes of acute sun exposure that result in sunburn. In addition, other risk factors for developing skin cancer have been described, such as phenotypic factors (skin type, eye and hair colour, tendency to tan and burn, freckles) and personal or family history of skin cancer [5].

As prevention there is the need to avoid sunlight for long periods as well as to wear light clothes with sleeves and hat when exposed to sunlight. The use of sunscreens is essential to prevent skin cancer, as it is an effective means against sun damage to the skin [6].

In addition to skin self-examination and periodic visits to the dermatologist, skin cancer prevention is quite simple: care for excessive sun exposure and the use of photoprotector [2]. Photoprotection is the main measure to prevent and prevent UVR-related skin diseases thus promoting skin health and beauty. It is necessary to apply sunscreens half an hour before sun exposure, and reapply whenever necessary [7].

II. RELATED WORK

In Brazil, skin cancer is the one with the highest incidence and when an early diagnosis is made it is possible to treat and cure it. Knowing that this type of cancer is directly related to the effect of solar radiation, the study becomes

important to warn about the importance of photoprotection, and thus encourage adhesion to preventives measures. The present study aimed to know aspects related to sun exposure and photoprotection of students entering and finishing the Aesthetics course.

III. METHODOLOGY

A quantitative, exploratory and cross-sectional research was conducted. A sample was convenient, including all students who were entering or completing the course of Aesthetics and Cosmetics in 2019 in Araxá - Brazil, which can voluntarily dismiss a researcher on the days of data collection.

A form with closed questions, covering habits of sun exposure and photoprotection, was elaborated by the authors. The option was for online data collection (Google Docs Forms). The search for practical methods and instruments and the collection of information collected is constant in the area of epidemiology. The advancement of technologies and media has been an important contribution, an internet in recent times has also become a data collection tool [8].

The traditional methods of applying questionnaires are modified with less efficiency, constituting a limiting factor of broad colours, mainly by the logistics involved. The use of the Internet has the following advantages: cost reduction, faster and broader research, no interference by the researcher in the answers and lower risk of data transcription errors [9].
An initial tabulation of the data was performed automatically by the Google Docs Form, followed by descriptive statistics, with numbers and percentages for each evaluated parameter.
A research followed by Resolution 466/2012 of the National Health Council of Brazil, which regulates research with human beings, and, for studies, this project was sent to the College of Ethics and Research of the Centro Universitário do Planalto de Araxá (Protocol 3080/56).

IV. RESULTS AND DISCUSSION

The present study was conducted with 21 new students and 22 concluding students of Aesthetics and Cosmetics course, a predominantly young sample, aged between 18 and 27 years.
According to Table 1, the sun exposure time most referred by the sample was one to two hours of daily exposure and the time of highest exposure between 10 and 16 hours. Although the risk of exaggerated sun exposure is widely known, as well as the importance of using sunscreen daily, even in a population of students taking an Aesthetics course, daily adhesion to sunscreen was only reported by a minority of the sample. This data is worrying, and considering the failures of reapplication of the product and poor adhesion to measures of physical barriers, such as caps, hats and glasses, the relevance of these results is even greater.

When researching the subject in the scientific literature we notice similarities of data. A multicenter study conducted in European countries regarding sun exposure of children during summer holidays was conducted from 1995 to 1997, a total of 631 children were recruited from Belgium, Germany, France and Italy. According to the study only 25% of children always used sunscreen [10].

In Lima, Peru, a study of 364 outpatients treated at dermatological clinics, considering only sunscreen users, 38.4% used these products daily [11].

The southern region of Brazil has been prominent in the country for conducting photoprotection studies, because there are more people with light skin and increased risk for skin cancer. There are also worrying data, as the study conducted in Pelotas (RS) with adolescents and young people between 10 and 29 years showed at least one episode of sunburn in 48.7% of participants [12]. In Porto Alegre (RS) [13] evaluating young individuals in the average age of 22.7 years, found sun exposure between 10 and 15 hours of 43.7%. In this same group, the use of sunscreen was 85.2%, but only 35% used it during outdoor sports and 17.9% year-round, it was noted the false conception that the sun is intense only in the summer. In Criciúma (SC), a survey showed that gymnastics users with an average age of 27.6 years had information about the harmful effects of sun exposure, however, they did not properly insert photoprotection measures [14].

In São Paulo (SP) 385 university students formed the sample of a survey similar to the present study, most of the sample stated sun exposure between 10 and 16 hours, 29.1% of the youth reported not employing protection, and, among those who use sunscreen, the minority do so regularly [15].

In Araxá (MG) some research on photoprotection was also conducted and scientifically disseminated. One was held in 2010 with parents or guardians of fourth graders, covering sun exposure habits, photoprotection measures, and knowledge of the dangers of sun exposure. The most exposed day period was between 10 and 16 hours with 65.5%. As for the daily sun exposure time, it was noted that three to four hours a day was the most reported time. Regarding the frequent use of other forms of sun protection such as: hat, cap, appropriate t-shirts, glasses, 66.7% said they did not use it. And when approached in relation to the use of sunscreen, 50% of participants reported that children do not use sunscreen even when exposed to intense sun [16].
Nobre, Porto and França-Botelho [17] evaluated the same aspects of the previous study, but with a different target audience: all health agents from Araxá-MG, from May to July 2015, risk group, for working in the sun. Daily use of sunscreen was performed only by 47.9% of the agents.

Among those who apply sunscreen, only 9.6% use the product following the manufacturer's recommendations.
According to Silva and França-Botelho [18] of 389 participants living in Araxá, daily use of sunscreen was performed by only 20.7% of volunteers. The use of hats, caps and other physical protection measures was reported by only 13.9% of the sample.

Table 1. Distribution of respondents regarding sun exposure and photoprotection.

Variable	New students		Concluding	
	N	%	N	%
Daily Exposure Time				
Less than 1 hour	2	9.52	4	18.18
1-2 hours	15	71.42	15	68.18
3 to 4 hours	4	19.04	2	9.09
More than 4 hours	0	0	1	4.54
Highest exposure time				
Before 10 o'clock	3	14.28	5	22.72
10 am to 4 pm	15	71.42	17	77.27
After 16 hours	3	14.28	0	0
Use of sunscreen				
Daily	8	38.09	8	36.36
Eventually in summer in bright sunshine	6	28.57	4	18.18
Eventually all year in bright sun	4	19.04	6	27.27
Rarely or not use sunscreen	3	14.28	4	18.18
Sunscreen reapplication				
According to the manufacturer, usually every two hours	3	14.28	2	9.09
When you feel the need without worrying about the usage time	8	38.09	7	31.81
Rarely or not reapply	10	47.61	13	59.09
Use of other sun protection measures (cap, hat, umbrella):				
Often	1	4.76	1	4.54
Eventually	5	23.8	4	18.18
Rarely or never use	15	71.42	17	77.27
Sunglasses:				
Often	2	9.52	5	22.72
Eventually	7	33.33	8	36.36
Rarely or never use	12	57.14	9	40.9
Total	21	100	22	100

Skin self-examination is highly recommended as it is a simple method for early detection of skin cancer and is an effective strategy that is accessible to all, since only one mirror is needed to perform it and have the proper instruction [7]. Thus, it is important that it is disclosed in association with other preventive measures. It is up to general health professionals, including beauticians, the role of health education, skin cancer prevention awareness and skin self-examination. It is not just the dermatologist who should be aware of such issues.

According to figure 1 most of the participants were advised by professionals regarding the prevention of skin cancer. Among the new students (A) the dermatologist was the most mentioned professional, but among the concluding (B), half of the sample reported to the beautician as a professional who provided the most guidance.

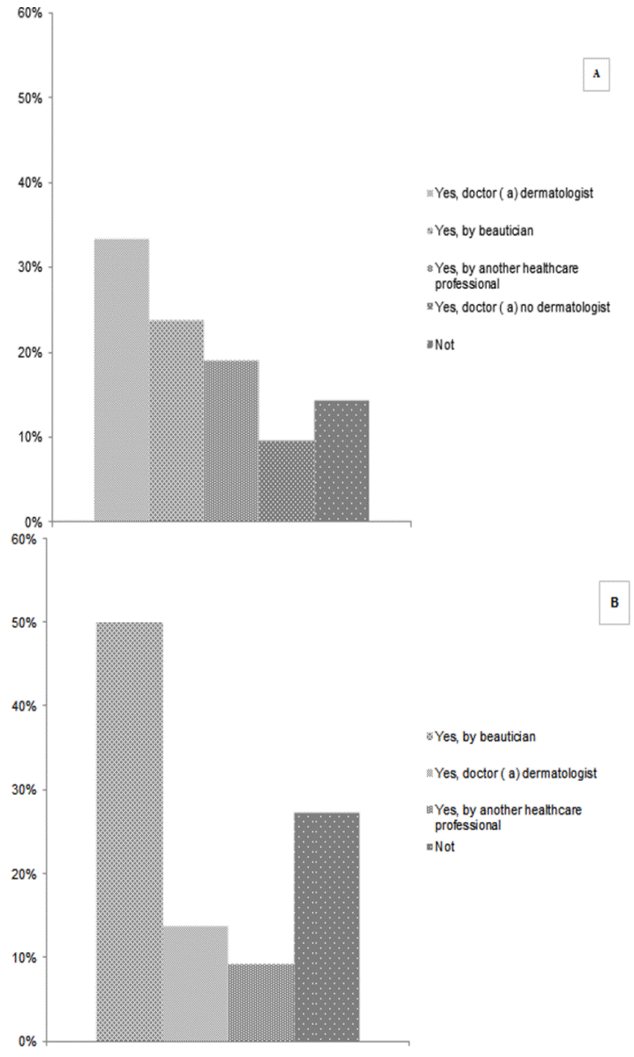

Figure 1. Sample distribution regarding the receipt of guidelines regarding skin cancer prevention. New students (A) e Concluding (B).

However, it is worth considering, since receiving guidance, especially from the graduating students, possibly during the course of the course, was not enough for a postural and self-care change.

According to Table 2, concerning the skin self-examination, most of the students said that they were not guided by professionals regarding the skin self-examination. As for having knowledge of the self-examination through the media or lectures, the results differed between new students and concluding, with 66.66% of respondents saying no to this question and 68.18% of respondents answered yes. This difference may be justified by the fact that concluding students have had more opportunities to participate in lectures, courses and other scientific events where the topic may have been addressed. On the other hand, once again it is noteworthy that having information did not mean a change in habits, since, among both students, the answers were mostly negative regarding the periodic self-examination of the skin.
Another study corroborating these findings, Silva and França-Botelho [18] reported with regard to skin self-examination that 63.8% of the research volunteers stated that they did not know about this exam and only 8% did it regularly.

Table 2. Distribution of respondents regarding skin self-examination.

Variable	New students		Concluding	
	N	%	N	%
Receiving professional guidance on skin self-examination				
Yes, doctor (a) dermatologist	6	28.57	3	13.63
Yes, doctor (a) no dermatologist	0	0	0	0
Yes, nurse (a)	0	0	0	0
Yes, by beautician	0	0	11	50
Yes, by another healthcare professional	1	4.76	2	9.09
Not	14	66.66	6	27.27
Are you aware of skin self-examination through the media?				
Yes	7	33.33	15	68.18
Not	14	66.66	7	31.81
Does skin self-examination				
Yes, often	1	4.76	1	4.54
Eventually	4	19.04	6	27.27
Rarely or never did	16	76.19	15	68.18
Total	21	100	22	100

V. CONCLUSION AND FUTURE SCOPE

From the results, it can be concluded that the sun exposure habits are worrying and the photoprotection is insufficient, there are preventive guidelines reported, but the skin self-examination is still little known, and mainly little practiced by the sample.

After analysing the questionnaires considering the academic level, it is noted that the concluding had greater orientation regarding skin cancer given by beautician, showing that during the course the theme was addressed in class.

Also, regarding the differences between new students and concluding, it was observed that the skin self-examination is better known among the concluding. On the other hand, adhesion to it is low among these students, knowing the preventive measures and skin self-examination was not enough to change posture and self-care.

In addition, knowledge in this area is of utmost importance to the beautician, as she works with several people, and should be properly prepared to be able to guide the patient in case of recognizing a suspicious skin lesion, and in this case, always guide to visit a dermatologist.

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