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KNOWLEDGE ABOUT RISK OF TANNING ON INCIDENCE OF SKIN CANCER AMONG SAUDI UNIVERSITY STUDENTS

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ABSTRACT

Introduction: The evaluation of the knowledge gaps and attitudes towards protection measures against unnecessary sun exposure, including tanning, can act as guidance for planning of the prevention programs. This study aimed to assess knowledge, attitudes, and practices of Saudi university students towards practicing of tanning. **Methods:** This is a cross sectional study included 316 university students where 204 students were selected from King Abdulaziz University, 62 from King Saud University and 50 students were selected from Albaha University. The data were collected through personal interviews using a structured questionnaire, which consisted of four main sections investigated, demographical variables, knowledge of risky sun exposure on skin cancer, attitudes towards tanning, and practices of tanning and sunbathing. The data analyzed using descriptive and inferential statistics. **Results:** This study showed relatively a low level of knowledge about risk of sun radiation on skin cancer, especially, regarding factors such as duration of risky exposure, effect of skin type, and wearing of protective hat and clothes. However, university students showed moderate level of knowledge in relation to factors such as timing of exposure, protective use of sunscreen, and the risk of tanning bed on skin cancer. There was a low to moderate use of tanning bed and sunbathing, which could be attributed to the negative attitude towards tanned skin among Saudi students. **Conclusion**: Saudi University students showed low to moderate level of knowledge regarding the relation between tanning and skin cancer and only the minority of them has considered tanned skin as healthy and attractive.

KEYWORDS: Tanning, cancer, sunbathing, students, Knowledge, attitudes, practices Saudi.

INTRODUCTION

Sun exposure is a risk factor of many skin problems, ranging from mild pigmented lesions to aging changes of skin and finally skin cancer.[1] The incidence of skin cancer have been increased in the last decades, and individual risk of skin cancer was strongly related to the type of skin.[2] The skin cancer was found less prevalent among people with colored-skin that can tan easily.[3]

The Ultra-Violet (UV) radiation either intentionally or unintentionally was found strongly associated with skin cancer, especially, malignant melanoma.[4,5] Tanning is the acquisition of tan color (yellow-brown color) by intentional exposure to sunlight or artificial ultraviolet lighting, which becomes popular due to tourism and commercial promotion. There is an evidence of increased incidence of melanoma among people practicing tanning.[4] The children and adolescents are at a higher risk of hazardous sun exposure because they usually involved in outdoor activities. In addition, young women are practicing tanning more than men, apparently for cosmetic causes.[6]

The underlying causes of high prevalence of tanning particularly among young people included social and cultural factors. Lack of knowledge about the hazards of excessive exposure to UV radiation, risk-taking life style, and fatalism were found related to tanning.[7] However, knowledge alone is not enough to avoid the risky sun exposure, attitudes have also a great influence in this behavior.[8,9]

Studies in the western communities showed that tan reflects a conceptual image of good physical and emotional health, active attractive personality, and positive life style[10] A model with medium tan was considered by adolescents to be healthier and more attractive than non-tan model.[11] The positive attitude towards tanning and low perceived risk of skin cancer are main predictors for practicing of tanning.[12] In Europe and US, there are legislations restricted the use of tanning facilities by children and young adolescence.[13] The awareness about preventive measures such as avoiding sun exposure in (10:00 to 02:00 pm) period, use of sunscreens and wearing protective clothing are important to reduce the risk of skin cancer.[14] Sunscreen use was found mainly associated with gender, perceived

risk of skin cancer, and knowing person with skin cancer.[15] The evaluation of the knowledge gaps and attitudes towards protection measures against unnecessary sun exposure, including tanning, can act as guidance for planning of prevention programs.

In Saudi Arabia, although few studies have explored the knowledge, attitudes, and practices in regards to risk of sun exposure or tanning practices[16,17] no previous study have focused in risk of tanning. This study aimed to assess knowledge, attitudes, and practices of Saudi university students towards practicing of tanning.

METHODS

This is a cross sectional study included 316 university students. The sample was divided into three parts drawn from two sampling site with different climate conditions. The first city was Jeddah city which characterized by high temperature and humidity during most of the year, where 204 subjects were selected randomly from King Abdulaziz University. The second part were 62 students selected from King Saud University, which located in Riyadh city with hot and dry climate most of the year. The third part of the sample was drawn from Albaha city, which characterized by relatively colder and less humid weather, where 50 were selected from Albaha University. The number of subjects selected from Jeddah city was higher since sunbathing usually occur in coastal cities.

The data were collected through personal interviews using a structured questionnaire, which consisted of four main domains. The first domain investigated the demographic variables such as age, sex, and smoking. The second domain contained question for assessment of knowledge about risk of tanning on skin cancer, while the third and fourth domains contained questions about attitudes and practices of tanning respectively. Concerning knowledge, nine questions addressed knowledge about risk factors of skin cancer, knowledge about risk of UV radiation, and knowledge of protective measures. About attitude, tow question investigated the attitude of University student towards tanning. In addition, two questions explored the practices of tanning and sunbathing.

The informed consents were obtained from all study participants during personal interviews and before data collection. Data were coded and introduced into the Statistical Package for Social Sciences (SPSS). The frequency and percentages were used to describe the responses of the questions. The chi-square was used to identify significant differences in the contingency table. P values less than 0.05 were considered statistically significant.

RESULTS

A total sample of 316 study participants was included in this study, where 42.1% were males and 57.9% were females. About 65% of them were selected from King Abdulaziz University, while 19.6% and 15.8% were from King Saud University and Albaha University respectively. The proportion of smokers among selected university students was 20.6% (table 1).

In regards to questions of knowledge about risk of tanning on skin cancer, about 67% of university students thought that 30 minutes in the sun in the middle of the day in summer is not risky. A majority of the study participants (76.3%) thought that between (10 am - 2pm), they should stay out of the sun to prevent skin damage. A slightly less than half of them (44.6%) knew that tanning beds might cause skin cancer, while only 28.5% thought that fair skin or skin which burns easily, has more risk to get skin cancer. Only 37.3% of the university students knew that people with familial history of skin cancer have more risk to get skin cancer, and just 21.5% of the students thought that wearing a hat (including Tarha and Shimagh) is protective against skin cancer. More than half of the students (55.4%) knew that using of sunscreen is protective against skin cancer. In addition, about a quarter of the university students knew that wearing protective cloths is protective against skin cancer (table 2).

Concerning questions about attitudes towards tanning among university students, only 46.8% of them believed suntans look healthy, and 39.9% believed suntanned skin is more attractive than non-tanned skin. About practices of tanning among university students, only 13.3% of them have never ever practiced sunbathing for more than 30 minutes during summer, while 22.4% are always sunbathed. About using of tanning bed, the majority of university students (86.4%) have never ever used tanning bed, while only 1.9% of them always use tanning bed (table 2). In regards to the effect of certain factors on this knowledge, female students have significantly more knowledge about risk of tanning bed on skin cancer than male students (P = 0.009). There was no significant difference in the knowledge about risk of tanning bed on skin cancer between smokers and non-smokers students (table 3).

Table (1): Distribution of university students according to the demographic characteristics

Students' characteristics	Frequency	Percentage
Male	133	42.1%
Females	183	57.9%
Educational level		
First year	87	27.5%
Second year	95	30.1%
Third year	64	20.3%

Fourth year	70	22.1%
University		
King Abdulaziz University	204	64.6%
King Saud University	62	19.6%
Albah University	50	15.8%
Smokers	65	20.6%
Non-smokers	251	79.4%
Total	**316**	**100.0%**

Table (2): Distribution of the study participants according to questions about knowledge, attitudes, and practices of tanning on skin cancer

Questions of knowledge about risk of tanning on skin cancer	**Yes (%)**		**No (%)**	
Imagine 30 minutes in the sun in the middle of the day in summer. If you were not wearing sunscreen, do you think it is risky?	105 (33.2%)		211 (66.8%)	
Do you think between (10 am - 2pm), should you stay out of the sun to prevent skin damage?	241 (76.3%)		75 (23.7%)	
Do you think that tanning beds might cause skin cancer?	141 (44.6%)		175 (55.4%)	
Do you think that fair skin / skin which burns easily, has more risk to get skin cancer?	90 (28.5%)		226 (71.5%)	
Do you think those who have many moles, have more risk to get skin cancer?	56 (17.7%)		260 (82.3%)	
Do you think those with familial history of skin cancer; have more risk to get skin cancer?	118 (37.3%)		198 (62.7%)	
Do you think wearing a hat (including Tarha and Shimagh) is protective against skin cancer?	68 (21.5%)		248 (78.5%)	
Do you think using of sunscreen is protective against skin cancer?	175 (55.4%)		141 (44.6%)	
Do you think using of protective cloths is protective against skin cancer?	82 (25.9%)		234 (74.1%)	
Questions about attitudes towards tanning	Yes (%)		No (%)	
Suntans look healthy	148 (46.8%)		168 (53.2%)	
Suntanned skin is more attractive than non-tanned skin	126 (39.9%)		190 (60.1%)	
Questions about practices of tanning	**Never**	**Sometimes**	**Usually**	**always**
How do common you do sunbathing for more than 30 min during the summer?	42 (13.3%)	115 (36.4%)	88 (27.9%)	71 (22.4%)
How do common you use a tanning bed?	273 (86.4%)	25 (7.9%)	12 (3.8%)	6 (1.9%)

Table (3): Effect of certain factors on knowledge about risk of tanning bed on skin cancer

Knowledge		**Do you think that tanning beds might cause skin cancer**		**P value**
		Yes	**No**	
Gender	Male	48 (36.1%)	85 (63.9%)	0.009*
	Female	93 (50.8%)	90 (49.2%)	
Smoking	Yes	27 (49.1%)	28 (50.9%)	0.621
	No	114 (45.4%)	137 (54.6%)	

DISCUSSION

This study showed relatively a low level of knowledge about risk of sun radiation on skin cancer, especially, regarding factors such as duration of risky exposure, effect of skin type, and wearing of protective hat and clothes. However, university students showed moderate level of knowledge in relation to factors such as timing of exposure, protective use of sunscreen, and the risk of tanning bed on skin cancer. This is different from finding among Swedish adolescents where a good level of knowledge was found, however this knowledge among Swedish students did not influence sunbathing behavior and nor increased the use of sunscreen.[18]

In Saudi Arabia, few studies in the literature explored the knowledge, attitudes and practices regarding tanning and skin cancer.[17] The variations in climate and latitudes with different life styles and behavior are present in this country. Thus, in the present study, university students from three different regions with different climatic conditions were surveyed. Jeddah city represented a hot and humid climate of western coast, Riyadh city with hot and dry climate, and Albaha city represented the cold

with low humidity and high altitude. A large scale Saudi study conducted in the five geographical regions of Saudi Arabia (central, eastern, northern, southern, and western), found that more than half of the participants were aware about risk of sun exposure on skin cancer.[17] These findings were consistent with the findings of this study, and also consistent with the results of a study conducted in Qassim Province.[16] However, this level of knowledge was much lower than that found in the western countries where The relation between sun tanning and skin cancer was identified by 90% of study subjects in Australia and 92% in United states.[19]

Numerous studies reported that a good level of knowledge about risk of sun exposure on the skin was not ultimately result in change of risky behavior.[20-22] In this study, female students have significantly more knowledge about risk of tanning bed on skin cancer than male students. These findings were in agreement with the findings of Alghamdi *et al.* where women were more familiar with about the risk factors of sun exposure on the skin cancer. In addition, numerous studies, which conducted in Saudi Arabia and abroad, found a similar positive association between knowledge about risk of sun exposure with skin cancer.[16,19,23,24]

The present study found, generally, a moderate to low level of knowledge about risk of tanning on skin cancer. Concerning practices, this study found a low to moderate use of tanning bed and sunbathing. This reflected that tanning or sunbathing were not popular practices among Saudi university students, which could be attributed to the negative attitude they had towards tanned skin. The motive of beauty depends on cultural norms of the perception of attractiveness. The results showed that most of Saudi young people prescribed tan as unattractive. This is in disagreement with other modern communities especially Western communities, where tanned skin is considered as healthy and attractive.[7,18] or some of them believed tanned people are more healthy and active than untanned people.[7]

In the present study, only 13.3% of them have never ever practiced sunbathing for more than 30 minutes during summer, while 22.4% are always sunbathed. This is much less than findings among Swedish adolescents where more than half of the females and 26% of the males answered that they often use sunbathing.[18]

In this study, more than half of the students knew that using of sunscreen is protective against skin cancer, while only a quarter of them knew that wearing protective cloths could protect against skin cancer. An Australian study found a good level of knowledge among frequent tanners about protective behavior in regard to sun exposure and skin cancer.[7] In a study of Alghamdi et al., they found 95% of respondents regularly wearing long-sleeved clothes, 90% of them said they used head cover (Tarha for women or Ghotra for men).[17] This high use of these protective cloths could not be attributed to the knowledge about protective effect of these behaviors against skin cancer. However, this finding might be attributed to the traditional cloths usually used in Saudi community.

The limitations of this study included the lack of standardized questionnaire in the literature in regards to knowledge, attitudes, and practices about risk of tanning and sunbathing on the incidence of skin cancer. In addition, the reporting of knowledge of the relation between tanning and sunbathing does not necessarily result in behavioral change. Thus, prevention campaigns of skin cancer in Saudi Arabia should increase in behavioral change model especially among young people who are at a higher risk of excessive sun exposure either intentionally or unintentionally.

CONCLUSION

In conclusion, Saudi University students showed low to moderate level of knowledge regarding the relation between tanning and skin cancer. Only the minority of them have considered tanned skin healthy and attractive. In addition, a small percentage of the Saudi university students said they always sunbaths or uses tanning beds.

CONFLICT OF INTEREST

The authors declared no financial conflict of interest in this study.

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