

Education

Knowledge, attitude, and performance of students toward skin cancer in Yazd, 2009

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Abstract**Background** Cancer is increasingly recognized as a major and growing health concern in the Eastern Mediterranean Region (EMR), and skin cancers are the most prevalent cancers. The purpose of this study was to evaluate the knowledge, attitude, and performance of university students regarding skin cancer.**Methods** This cross-sectional study included 230 samples selected randomly from the students of Yazd universities. The reliability of the questionnaire was certified by specialists, validated by a pilot study, and confirmed by Alpha Cronbachs test ($\alpha = 0.8$). SPSS software was used for data entry, manipulation, and analysis.**Results** The students studied had medium knowledge level related to skin cancer. Their attitude towards skin cancer was relatively good. The performance level of the population under study was moderate. Non-medical students had more poor knowledge, attitude, and performance than medical students. Overall results show a significant relationship between knowledge, attitude, and performance level of the population under study.**Conclusion** Skin cancers are the most common form of cancers in our state, but my students do not have appropriate knowledge and performance levels about this disease. It is therefore proposed that related information should be given to them during continuous and regular educational programs.**Introduction**

Cancers are second only to cardiovascular diseases as the leading cause of death worldwide.¹ They are the second most leading cause of death in developed countries and the third most leading cause of death in developing countries. This is true when approximately one-third of the estimated 10 million new cancer cases per year are preventable and considering early diagnostic procedures, another one-third of them are treatable. Skin cancers are rising in developed countries.² According to WHO reports, it is estimated that the death rate due to cancers in east Mediterranean countries will increase by 80–100% over the next 15 years. In addition, one of the strategies of WHO (May 2005) for controlling cancers is to increase knowledge levels of people regarding cancer.³ With a change in disease pattern, most infectious diseases once considered as the leading cause of mortality in Iran have been relatively controlled, and the latest statistical and epidemiological studies show that cancers rank second only to cardiovascular diseases.⁴ Recent reports

demonstrate that skin cancers are more prevalent in men but rank second in women of Yazd. Yazd is a state with dry environmental conditions, and universities have been reported to be the axis of civic development. Unfortunately, one of the problems is that students from other cities studying in Yazd do not follow appropriate preventive practices regarding skin cancer.⁴ Of all the cancers, skin cancers are the most prevalent (20% of the total).⁵ In addition, because dissemination of information about basic diseases is considered as health education, changing attitudes and practices are its main aims.⁶

An important point to note is that by applying simple changes in day-to-day behavior such as abstinence from direct sunlight (10 AM–4 PM), wearing multilayered thick clothing when outdoors, applying sunscreen lotions and creams with appropriate SPFs, and avoiding contact with artificial sources of ultraviolet radiation, it is possible to prevent this problem.^{7,8} The researchers therefore decided to study knowledge, attitude, and performance levels in order to design appropriate interventional measures for the purpose.

Materials and methods

This was a cross-sectional study performed on Yazd University students. The volume sample of 330 cases was determined with a $P = 0.3$ and $d = 0.05$. A cluster sampling method was used to select subjects. Data were gathered by a researcher-made questionnaire comprised of demographic characteristics and questions related to knowledge, attitude, and performance. The reliability of the questionnaire was tested by a dermatologist and health education specialist, validated by a pilot study, and confirmed by Cronbach alpha test ($\alpha = 0.812$). The questionnaire comprised of 47 questions and demographic characteristics, including gender, age, marital status, educational status, and field of study (five questions). The knowledge section included knowledge of causes, signs and symptoms, treatment, and methods of prevention (22 questions); the attitude section consisted of 13 questions; and the performance section consisted of actions and implementation of methods of preventing skin cancer (seven questions). The variables were graded as follows: *Knowledge variables*: The questions were designed as multiple choice with four answers, and some had more than one correct answer. Questions of this type were awarded one point for each correct answer. Each case was evaluated by a score ranging from 0 to 49. (Score 0–16 was considered poor, 17–33 moderate, and 34–49 good.)

Attitude variables: The attitude variables were compiled on the basis of a three-response (agree–no idea–disagree) Likert scale, and in order to prevent leading effects, certain expressions were directed negatively. Considering this spectrum for grading, each score (agree to disagree) was between 1 and 3, and subjects scored between 13 and 39. (Score 0–13 was considered poor, 14–26 moderate, and 27–39 good.)

Performance variables: Taking into consideration the views of students participating in the study, the answers to the questions of this section were either positive or negative, and each correct response was awarded one point. The score of each subject was between 0 and 16. (Score 0–5 was considered poor, 6–10 moderate, and 11–16 good.)

After completion of the questionnaires, data were entered into a computer using SPSS software program and evaluated using ANOVA, *t*-test, and χ^2 statistical tests.

Results

Of the total, 72.2% were female and 27.8% were male, with a mean age of 21 ± 2.6 years, and 87.7% were single, while 11.3% were married. Regarding their educational status, 20.4% were diploma students, 59.6% bachelor students, and 20% doctorate students. The fields of education were as follows: 20.4% laboratory science, 24.3% general health, 10.9% mining, 10.4% dentistry, 9.6% medicine, 9.6% nursing, 8.7% training science, 8.3% resources engineering, and 7.8% biology.

The mean knowledge level in male students was 27.65 ± 5.51 , while that in the opposite sex was 25.72 ± 6.22 (of the total of 49). The mean knowledge level of the medical students was 27.70 ± 5.58 , while that for non-medical students was 21.89 ± 5.60 ; differences in knowledge levels between non-medical and medical students was significant (0.001) (Table 1). Age was directly related to knowledge. On the whole, the mean knowledge level of the population under study was moderate.

The mean attitude level of the medical students was 31.38 ± 5.06 , while that of non-medical students was 28.85 ± 5.80 (of the total of 39). This difference was significant statistically (0.047) (Table 1). The mean attitude level of males was 30.31 ± 5.30 , while that of females was 29.04 ± 5.41 . It can therefore be said that the attitude level of the students was relatively good.

The mean performance score of the medical students was 8.06 ± 3.32 , while that of non-medical students was 6.06 ± 3.40 (Table 1). The mean performance score of males was 8 ± 3.28 , while that of females was 6.31 ± 3.28 (of the total of 16). Males had a significantly better performance than females ($P = 0.001$). Only 27.8% believed that they needed to gain information about skin cancer. Of the total, 77.8% had attempted to organize their day-to-day activities in such a manner so as to be less in direct contact with sunlight; 60% used sunscreen ointments, 19.6% sunglasses, 9.6% gloves, 13% masked hats, and 40.4% wore clothing covering most of the parts of their body, and 28.3% reapplied the ointments after washing their hands and face.

The results showed a significant relationship between knowledge, attitude, and performance levels ($P = 0.0001$). There was direct relationship between age and attitude,

Table 1 Comparison of the mean and deviation criteria for medical and non-medical students

University	Medical		Non-medical		Total		P value
	Mean	SD	Mean	SD	Mean	SD	
Knowledge	27.70	5.58	21.89	5.60	25.98	6.04	0.000
Attitude	31.38	5.06	29.85	5.80	30.83	5.38	0.047
Performance	8.06	3.32	6.96	3.40	7.67	3.39	0.019

Table 2 Relative distribution of correct answers to specific knowledge questions regarding skin cancer in students of Yazd City, 2006–2007

Questions	Relative distribution of correct answers (%)			
	Medical students		Non-medical students	
	Mean	SD	Mean	SD
Name the radiation which is present in addition to the visible light in sunlight?	1.11	0.63	0.87	0.59
Which radiations are cancerous to humans?	1.26	0.51	1.08	0.63
Which of the following sources radiate cancerous radiations?	1.06	0.47	0.84	0.45
What happens to the cancerous effects of harmful sunlight radiation when it passes through glass?	1.29	0.65	1.37	0.64
What is the relation of prevalence of skin cancer due to sunlight and skin color?	1.52	0.75	1.10	0.76
What is the difference in the harmful radiations on cloudy winter days and sunny days?	1.54	1.2	1.60	1.2
What is the effect of direct perpendicular sunlight on the percentage of ultraviolet radiation?	1.57	0.72	1.46	0.77
Name the areas where ultraviolet radiation is more in the surroundings?	0.93	0.65	0.63	0.51
During which hour of the day is ultraviolet radiation more severe?	0.80	0.39	0.63	0.48
Does shade, buildings... (absence of direct sunlight) have an effect on the cancerous effects of sunlight?	2.5	0.79	2.57	0.81
Which of the following can play a role in incidence of skin cancer?	0.90	0.72	0.75	0.61
Which viruses can cause skin cancer?	0.86	0.80	0.45	0.61
Which moles are more prone to develop into skin cancer?	0.30	0.18	0.00	0.00
Which changes in moles are signs of development of skin cancer?	1.52	1.01	0.82	0.95
Which changes in the lips (especially the lower lips) are early signs of skin cancer?	0.72	0.60	0.43	0.56
Can insignificant but continuous exposure to sunlight be responsible for skin cancer?	1.39	0.83	0.95	0.83
Is skin cancer related to a positive family history?	1.45	0.81	1.07	0.74
Is skin cancer treatable?	1.19	0.83	1.31	0.75
Which of the following methods are useful in skin cancer prevention?	1.61	0.83	1.23	0.77

such that attitude levels increased with increasing age ($P = 0.002$). The knowledge level was directly related to the number of terms passed in the university, such that the knowledge level was higher in those who had attended a greater number of academic terms at the university ($P = 0.01$). There was a significant difference between the knowledge and attitude level of the boys and girls, and boys had a better performance score than the girls ($P = 0.001$). Similarly, students doing their doctorate courses had higher knowledge levels than other students ($P = 0.001$). The field of study (medical students or non-medical students) had a significant relationship with knowledge ($P = 0.001$), attitude ($P = 0.004$), and performance ($P = 0.006$) (Table 2). Nursing students had a higher knowledge level, while dental students had a higher performance level than other students. On the whole, the medical college students had a higher knowledge, attitude, and performance level than other students ($P = 0.001$, $P = 0.03$, and $P = 0.01$).

Discussion

In Yazd, the most prevalent cancer in men and the second most prevalent in women is skin cancer.² Considering the fact that one of the WHO strategies (May 2005) for controlling cancers is increasing the knowledge of the people

for cancer⁵ and as dissemination of information about basic diseases is considered as health education, changing attitudes and performances are considered as the main aims of health education.³

The general knowledge of the students about skin cancers was moderate in the study, which is similar to other studies;⁹ however, the general knowledge of non-medical students needs to be raised, especially regarding moles and areas with more ultraviolet radiation, as during cloudy days, the ultraviolet radiation of the sun is diminished but not absent completely. Compared with girls, boys had higher knowledge scores, which is similar to other studies.¹⁰ It is proposed that health education instructors should hold private sessions for class representatives in order to impart information about these diseases and encourage them to discuss these details with their classmates. Appropriate pamphlets and student publications can be printed and distributed by class representatives in order to increase the knowledge level of students regarding skin cancers.

The overall attitude level of the students was relatively good in the study, but the attitude level of non-medical students was low. As age increased, attitude and knowledge of skin cancer and sun protection also increased, both of which are consistent with the observations of other studies.^{11–14} Regarding change in attitude, it is proposed that

class representatives should get involved in group discussions during their spare time and get more acquainted with skin cancers. Similarly, posters with headings such as "Skin cancers are preventable" should be put up in appropriate places, such as dormitories and college notice boards, especially on non-medical campuses.

The performance level of the population under study was moderate. Sixty percent used sunscreen ointments, and 20.7% used physical protectors. In a similar study by Furghani and Halakuyee¹⁵ on housewives, 53% of them applied time restrictions to their outdoor activities, 15.8% used sunscreen creams, 11.6% used sunglasses, and 3.4% used physical protectors. In the Benvenuto-Andrade study¹⁶, about 47% reported sunscreen use in summer, and only 3% reported using it during winter.

Boys had a better performance than girls in the present study, which is also in agreement with other reports.¹⁷⁻¹⁹ The reasons for inadequate use of personal protective equipment by girls should be evaluated. It is also proposed that university professors and physical education instructors should follow appropriate practices and conduct in order to be ideal models for their students.

There was a significant relationship between knowledge, attitude, and performance level of students of different academic levels. In the Alberg *et al.* study²⁰, there was also a significant relationship between attitude and performance.

Finally, considering the importance of preventive behaviors in respect of cancers, it is proposed that officials of student cultural activities in universities should plan classes with health topics like prevention of cancers.

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