Skin Cancer Knowledge, Attitudes, and Practices

Among Residents of Yerevan, Armenia

Master of Public Health Integrating Experience Project

Professional Publication Framework

by

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Abbreviation List

IARC   The international Agency for Research on Cancer

IRB   Institutional Review Board

KAP   Knowledge, Attitude, Practices

MPH   Master of Public Health

NGO   Non-Governmental Organization

NMSC   Non-Melanoma Skin Cancer

RDD   Random Digit Dialing

SPF   Sun protection Factor

UNCED   Nations Conference on Environment and Development

UV   Ultraviolet

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Abstract

Background: Skin cancer is a worldwide public health problem that differentially affects residents of geographic regions where ultraviolet radiation (UV) has greater penetration. The incidence of cutaneous malignant melanoma and non-melanoma skin cancer has increased sharply worldwide with increased UV exposure to solar and artificial sources. However, skin cancer is considered an almost entirely preventable disease. Prevention can be achieved through applying knowledge in attitudes and practices that result in protective behaviors, such as seeking shade, wearing a hat, avoiding sun during pick hours, wearing clothing, and applying sunscreens.

Objective: This study evaluated the knowledge, attitudes, and practices (KAP) related to skin cancer among residents of Yerevan, Armenia and assessed relationships with demographic characteristics.

Methods: A cross-sectional design using a telephone survey where adults 18 and over was used to address three research questions: 1.Is knowledge of the of sun exposure associated with demographic characteristics (e.g. age, gender, educational level)? 2. Are use of protective practices for sun exposure associated with skin type, gender and age? And 3. Is sunbed use associated with, gender and age? Random digit dialing was used to recruit the sample of 96 Yerevan residents. This sample size was calculated as sufficient to provide power to detect differences at the 0.05 level. The survey instrument was adapted from instruments used in other published work that addressed similar research questions.

Results: Mean age of the participants was 34±15 years and 53% had high level of education (university or postgraduate). Most of respondents were women (75%). In bivariate simple linear regression analysis, gender and education were associated with knowledge ($p < 0.05$). Logistic regression showed statistically significant association between protective practices and gender. Sunbed use was not associated with age and gender.

Conclusions: This is the first study conducted in Armenia that assesses knowledge, attitudes, and practices for skin cancer prevention. This sample lacked sufficient knowledge of the problem of skin cancer and did not practice protective behaviors. More sophisticated research is needed to identify barriers to adopting protective behaviors and to identifying those at particularly high risk. Our findings suggest all groups, and especially men, should be targeted in future research and health promotion programs devoted to skin cancer.

1. Introduction

1.1 Background/ Literature Review

Skin cancer is a worldwide public health problem that differentially affects residents of geographic regions where ultraviolet radiation has greater penetration. Globally, annual incidence is about 2 to 3 million non-melanoma skin cancers and at least 132000 malignant melanomas occur (1). Recent increases in skin cancer are due both to overexposure to naturally occurring UV and from use of sunbeds as tanning devices (2; 3). For example, from 1970 until 1997 a 2.5-fold increase in melanoma incidence was observed in Finland (4) and a 3.6-fold increase in US (5). From 1979 until 1998 a 2.4-fold increase was estimated in Scotland (6) and a 2.8-fold increase registered in France from 1980 to 2000 (7).

Skin cancers are divided into two classes: non-melanoma skin cancer (NMSC) and melanoma (8). Non-melanoma skin cancer includes basal cell carcinoma, which accounts for 70-80% of NMSCs, squamous cell carcinoma accounting for 20% of NMSCs. Other NMSCs include Merkel cell, carcinoma, dermatofibromasarcoma protuberans, Pagets disease and cutaneous T-cell lymphoma (8). Basal cell carcinoma and squamous cell carcinoma are rarely lethal, nevertheless, they can present chronically in individuals at high risk and often entail sometimes painful and disfiguring surgical treatment in these individuals. Melanoma is the most lethal form of skin cancer because of high metastatic potential and rapid often unpredictable spread to viscera in advanced disease (9). Though only responsible for only 4% of skin cancers, it accounts for 75% of all skin cancer deaths (9).

Skin cancer can develop in any individual regardless of baseline skin pigment. It is, however, more likely to occur in those who have fair skin, light colored eyes, blonde or red hair.

People with fair or freckled skin, fair or red hair, blue, green and hazel eyes belong to the highest risk group (skin type I 'Always burns, never tans ', type II 'Always burns, sometimes tans'); people with dark hair and eyes are at medium risk of developing skin cancer (skin type III 'Sometimes burns, always tans", type IV 'Never burns, always tans') (1). Risk factors for skin cancer include dysplastic nevi and many ordinary nevi (more than 50) for melanoma as well as the tendency to burn, develop freckles with sun exposure for NMSC (9). Genetic predisposition plays an important role in development of melanoma. Some studies suggest that about 5-10% of melanoma patients had a family history of melanoma (8). The risk of melanoma also is higher in people with a history of non-melanoma skin cancers and of solar keratoses (1).

Ultraviolet radiation (UV) is the single most significant cause of skin cancer. A great deal of evidence suggests that ultraviolet radiation (UV) is largely responsible for DNA damage in the skin that results in carcinogenesis (9). Increased solar UV is a consequence of ozone layer depletion. Since stratospheric ozone is a filter for UV radiation, thinner, ozone leads to higher exposure of UV radiation (1). The UVR-related (ultraviolet radiation) disease burden levels are influenced by altitude and latitude: The closer to equatorial regions, the higher the UVR and the higher the altitude the thinner the atmosphere, resulting in high levels of UVR (1).

Computational models, predicted that an additional 300,000 non-melanoma and 4500 melanoma skin cancers could occur because of a 10 % decrease in stratospheric ozone (1). The WHO in cooperation with IARC (The International Agency for Research on Cancer) added sunbeds to the IARC's "Group One" list of the most dangerous form of "carcinogenic" radiation (10). Use of sunbeds began in the 1980s in northern Europe and has since become popular in

southern Europe as well (11). Some studies suggest risk of skin cancer rises by as much as 75% with sunbeds use before age 30 (10; 11).

Skin cancer is an almost entirely preventable disease (1). Primary prevention reduces the number of cases by avoiding risky exposures. These include minimizing sun exposure by changing sunbathing habits, avoiding artificial tanning devices, using sunscreen, seeking shade, wearing sunglasses, and wearing protective clothing (1). According to WHO, the most important messages for sun-protection are: limit time in the midday sun (11am to 4pm), seek shade, wear protective clothing, wear a hat, use sunscreen with SPF (sun protection factor) more than 15, use sunglasses (1). Secondary prevention is based on early detection of skin cancer. Early detection involves regular skin examinations for high-risk individuals, screening programs to identify those at high risk for follow up, and educational programs (1). Early detection is essential for melanoma given its high metastatic potential (9).

Several global programs focus on primary prevention for the purpose of which public awareness campaigns, such as INTERSUN, the Global UV Project, are typically implemented. In 1992 at the United Nations Conference on Environment and Development (UNCED), WHO in collaboration with the United Nations Programme, the World Meteorological Organization, IARC and the International Commission on Non-Ionizing Radiation Protection set up INTERSUN (1). This Global UV Project developed the Global Solar UV Index (UVI), a simple measure of UV radiation levels at the Earth's surface with five categories (low, moderate, high, very high, extreme) and colors (green, yellow, orange, red, purple), which indicates the potential for skin damage and alerts people to take appropriate protective actions (1). The reason for developing such a measure was to ensure uniformity of protection messages, facilitate delivery of the messages, and to improve its use as an educational tool (1). Many countries use UVI to

promote sun protection along with the weather forecast in TV, radio, and newspapers. INTERSUN encourages countries to make efforts to reduce health risks induced by UV radiation, provides guidance to national authorities and other agencies about effective sun awareness programs facilitates research activities to fill gaps in knowledge, develops reliable predictions of health and environmental changes, and focuses on sun protection and education in schools (1).

Knowledge, attitude and practice (KAP) surveys related to skin cancer and sun protection have been conducted in many countries to obtain locally relevant information about primary and secondary prevention, identify populations at high risk, and evaluate educational programs (12; 13; 14; 15; 16). Some of these studies indicate that knowledge related to skin cancer risk factors is associated with gender, age and educational level (17; 18). Their findings specifically suggest that women are more aware of skin cancer risk factors than men and that younger, more educated individuals have higher levels of knowledge (17; 18; 19). Studies indicate that not only knowledge but also protective behavior against skin cancer is different regarding gender, age and skin type according to which, protective behavior is more common for females than for males (17; 18; 19; 20; 21). Several studies found that the younger generation is more insistent in taking protective behavior compared to the older generation, while other studies show opposite results (19; 18). Several studies showed that people with sensitive skin were more inclined to use protective practices (22; 23). As it was mentioned earlier, sunbed use is among the list of risky behavior for skin cancer, and huge number of studies was conducted to reveal people at risk for skin cancer development (24; 25; 26; 27). Several studies have found an association between sunbed use, gender, and age. These studies evidence that the risk of skin cancer is high for women of age less than 30 (24; 25; 26; 27).

1.2 Skin Cancer in Armenia

While skin cancer is a global public health problem, the extent of the threat it presents to Armenia is virtually unknown. No officially published data exists on skin cancer in Armenia despite the apparent geographical risk profile for UV exposure (28). According to the Armenian State Hydrometeorology and Monitoring Service, most of the Armenian population lives in areas with high UV exposure. Data abstracted from the Republican Oncological Dispensary archives indicates incidence rates for melanoma and non-melanoma skin cancer were 8.7 cases and 1.1 cases per 100000 persons respectively in 2000. More recently, the sunbed industry has entered the Armenian market, though the influence of their use is unknown. Slightly different incidence patterns have been reported in recent years. Rate for melanoma and NMSC were 5.9 and 1.2 cases per 100000 respectively in 2007. However, these unofficial statistics likely underestimate the problem of skin cancer, as Armenia is a developing country where self-treatment is common and people delay seeking medical care (29). Several books intended to increase awareness of the issue the ozone layer and UV exposure were published in Armenian after Armenia ratified the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer that require public awareness. These books included information on skin cancer and means of protection. Awareness seminars were also held across Armenia to disseminate this information (28). Nevertheless, there were no efforts that to assess the effectiveness of these materials or gauge the impact on attitudes and practices. Thus, given both geographic and lifestyle related risks in Armenia, assessment of knowledge, attitudes, and practices related to skin cancer is needed to guide future primary and secondary prevention efforts.

1.3 Study Aims

This study assessed the current knowledge related to skin cancer, revealed attitudes towards sun exposure, and current protective practices.

The research questions explored in this study were:

- Is knowledge of the of sun exposure associated with demographic characteristics (e.g. age, gender, educational level)?

- Is use of protective practices for sun exposure associated with skin type, gender and age?

- Is sunbed use associated with, gender and age?

The dependent variables in this study are:

- Knowledge about risk factors of skin cancer

- Protective practices

- Sunbed use

Independent variables are the following

- Gender

- Age

- Educational level

- Skin type

2. Methodology

2.1 Study Design

A knowledge, attitude, and practice (KAP) cross-sectional study design was used to investigate general knowledge, attitudes, and practices related to skin cancer and factors associated with its development among residents of Yerevan, Armenia. This design offers the advantages of a single group sample and is amenable to telephone interviewing.

2.2 Study Population

The target population was the general population of adults residing in Yerevan. Eligibility criteria were: age 18 and over, Armenian citizen, willing to participate, and with the ability to speak and understand Armenian. Citizens of other countries and people reached at businesses were excluded from the study.

2.3. Sampling Strategy

Stratified Random Digit Dialing (RDD) was used to generate an appropriate sample. This method enabled the sample to be as representative as possible, randomly drawing respondents from the general population of Yerevan, the capital city of Armenia and its population center. Yerevan has over 350000 telephone lines of which 90.3% are located in households. The coverage of Yerevan households by phones is 79% (29). The first two digits of the six-digit phone numbers identify the geographic location of the household within the city (one of 12 "quarter communities" or "Hamaynks"). The distribution of these first two digits was apportioned according to the population registered in that Hamaynk. The remaining four digits were randomly generated using Microsoft Excel. Phone numbers were drawn until the desired number of surveys from that Hamayank completed surveys. This procedure supported a geographically representative sample drawn from the population of Yerevan.

2.4 Sample Size Calculation

Sample size was calculated using the formula for estimating-proportions:

$N = Z^2 p (100 - p)/e^2$ (30) where

- N is the required sample size

- Z is a value of corresponding to significance level

- P is the expected percentage of people with adequate knowledge and practices

- e is the level of precision

Since no information existed upon which to base an estimated prevalence in Yerevan, the most conservative estimate (yielding the largest sample size) of P=50% was used. Thus, assuming simple random sampling with significance level of 5% and 10% precision, the required sample size was

$N = 1.96^2 * 50(100-50)/10^2 = 96$

2.5 Data Collection

Data were collected from April to July 4 2009 in telephone interviews. All interviews were administered by the student investigator using a structured questionnaire. In order to maximize the likelihood of finding someone at home, the interviews were conducted during evening hours (from 6.pm until 9.pm) on workdays and at any time (from 12.pm until 9.pm) on weekends.

2.6 Study instrument

A questionnaire was constructed to address the research questions posed in this study (see Appendix 1). The questionnaire was adapted from questionnaires used by other investigators (13; 21; 29; 30; 32). Questions solicit self-report information on demographic characteristics, socio-economic status, skin type, constitutional factors, knowledge of solar exposure on skin, knowledge of cancer, knowledge of sun prevention, attitudes toward sun tanning, use of sun beds, and practices in sun protection. Questions concerning demographic characteristics and socio-economic status were adopted from Household Health Survey (29). A question based on Fitzpatrick's four skin types was used to establish the respondents' skin sensitivity (31). According to this classification skin type is divided into four types; skin type I 'Always burns, never tans ', type II 'Always burns, sometimes tans', skin type III 'Sometimes burns, always tans' and skin type IV 'Never burns, always tans'. The remaining questions mostly were taken from studies which had been conducted among Maltese secondary school students (13), Swedish adolescents (31), British population (21), and Irish population 32).

The questions were written in English and then translated into Armenian by the student investigator. Back- translation by the student investigator and several other students was used to bolster accuracy. As a final measure to enhance content validity and feasibility, the questionnaire was piloted on a 10 people, after which small changes (question 19 and 23) were made to improve relevance for the Armenian context. Forty-five questions were included in the final questionnaire, of which 10 questions assess knowledge, 7 attitudes and 7 practices. One item queries sunbed use.

3. Data Analysis

   After the interviews were completed, the data from the questionnaires were entered into SPSS 11.0. Data were cleaned and assessed for logical inconsistencies in responses, skip patterns and missing data by range checking. Double data entry of 15 questionnaires (16% of the sample) was performed and no errors were found. Means with standard deviations were calculated for continuous variables and frequencies for categorical variables. Inferential statistical analysis was completed using STATA. Simple linear regression was applied when analyzing continuous variables. A knowledge score was computed by assigning one point for each correct response to the 17 items on knowledge of sun exposure/skin cancer thus making 17 the highest possible knowledge score. An alternate education variable was created by dichotomizing into "high" and "low" by classifying "Institute/University" and above as high due to small cell frequencies. This dichotomized variable was used in some analyses while original ordinal variable was used in the regression analysis. The age was placed into 5 categories for the ANOVA analysis. As continuous variables, before regression analyses, age and education were checked for linearity. Fisher's exact test was used to check for association between sunbed use and gender because of presence of empty cells. Two-tailed t-test was performed on continuous and χ^2 for dichotomous variables. Simple and Multivariate linear (continuous dependent variables) and logistic (dichotomous dependent variables) regression analyses also were conducted.

4. Ethical considerations

   The study was approved by American University of Armenia's Institutional Review Board (IRB) within the College of Health Sciences. Oral consent was provided by each respondent. Participation in the survey was voluntary and respondents were free to withdraw

from the study at any time. Respondents were exposed to minimal, if any, risk during participation. Each interview took aproximately 15 minutes and respondents received no incentives for their participation. Interviews were anonymous and data remained confidential throughout the study.

5. Results

5.1 Descriptive analysis

In total, 148 adult residents of Yerevan were contacted to obtain the requisite total of 96 respondents. This represents a 65% response rate (96/148). Of the 52 non-respondents 37(71%) refused to participate, 14 participants were unavailable during the whole period of data collection and 1 chose to stop the interview. The reason for stopping the interview was the disease the respondent had (renal cancer) and questions concerning cancer were unpleasant for her.

Of 96 participants, 26.04% were men and 73.96% were women (see table 2). The mean age of the participants was 34 years (34±15). Among the respondents, 53% had completed institute or university education. About half of the respondents were employed (51.04%) and most reported a family income of 101,000-250,000 and above 250,000 AMD (28.13% and 27.07% respectively) while the poverty line in Armenia is 19,373 AMD (37).

The distribution of skin types among respondents was type I (always burns, never tans) 7.29%, type II (burns, then tans) 23.96 %, type III (tans, sometimes burn) 27% and IV (tans, never burns) 41.67%. The majority had brown hair (61.46%) color and brown eyes (55.21%). Among respondents, 31.25% had very fair natural skin color, 43.75% had fair skin color and 24% had somewhat dark color of skin.

The mean knowledge score was 9.57 (out of 17) with a standard deviation of 2.99. None

of the respondents scored either 0 or 17. Among the specific knowledge items, respondents knew most about the time of the day which is dangerous in terms of sun's harmful effects (100%), sun's UV radiation effects on skin and least were aware that suntan is not a sign of being healthy (39.58%), sun could also be dangerous on a cloudy day (28.13%), melanoma is the most dangerous type of skin cancer etc. (Table 3a). Awareness of sunscreens (26.04%), risk factors for melanoma such as severe sunburns in childhood (37.50%) was low. Only about half of respondents reported the desired attitude towards suntan and were concerned with sun exposure because of skin cancer (54.74%) (Table 3b). Use of shade was the most common method of sun protection. The most unpopular method of sun protection was clothing which covers most of the body (Table 3c).

5.2 Tests for associations

Standard 2-tailed t-tests and χ^2. Table 3 summarizes the tests for associations between knowledge score and age, gender, educational level. The knowledge score was statistically significantly different with respect to gender and educational level (Table 4). Knowledge score was significantly higher for females compared to males (10.24±2.74 vs. 7.68±2.87) and for people with high educational level compared to those with low educational level (10.05±2.99 vs. 8.74±3.50). Table 5 summarizes the tests for associations between protective practices and age, gender and skin type. Women were more likely to use protective measures as were younger respondents. Sunbed use was also significantly greater for younger respondents (24±5.36 vs. 35±15.84) (see table 6).

Simple linear regression. Education and gender were confounders for relationship between knowledge score and age. When these variables were included the regression model, the

magnitude of the coefficient changed by more than 10-15% (34). No evidence for interactions was found.

Lowess smoothing was used to determine that the independent continuous variables (e.g. age, education) met the linearity assumption for the linear regression model (33). Linear regression analysis results revealed statistically significant increase in knowledge score by 2.56 for females compared to males, increase by 0.87 per increase in an educational level (see Table 7). No statistically significant associations were observed between the knowledge score and the remaining age.

Multivariate linear regression analysis was performed to investigate the more complicated relationship among different variables. After adjusting for gender and education, a statistically significant association was found between knowledge score and age (β =-0.042 95% CI: -0.077; -0.007). Per every increase of one year in age on the average there is a decrease in knowledge score by 0.042, controlling for other variables (Table 8).

Simple Logistic regression

Simple logistic regression was performed to identify relationships between protective practices and variables of interest such as skin type, gender and age. The results are shown in Table 9. Women had significantly higher odds of seeking shade (OR=10.47, 95% CI: 3.66; 29.94), wearing hats (OR=2.59; 95% CI: 0.99; 6.77), using sunglasses (OR=7.93, 95% CI: 2.87; 21.80) and using sunscreens (OR=4.50, 95% CI: 1.23; 16.48). The odds of using sunscreen decreased by 45% per year-increase in age (OR=0.55, 95% CI: 0.35; 0.86). Odds of wearing protective clothing increased per year increase in age (OR=1.38; 95% CI: 1.00; 1.91). Logistic regression did not show any statistically significant association between sunbed use and age.

Multivariate logistic regression was performed, the results of which are summarized in

Table 10. Women and those with high education had more knowledge about the sun's harmful effects. Protective behavior was more common among women. Unfortunately, there were too few sunbed users to detect any statistically significant associations between sunbed use and variables of interest.

6. Discussion

This cross-sectional study assessed the knowledge, attitudes, and practices of adult residents of Yerevan, Armenia. The majority of participants were women (73.96%) with a mean age of 34 and generally high levels of education. Our findings reflect a sample with a low tendency to sunburn (type III 27% and type IV 41.67%) with dominance of brown eye color and self-reported fair skin. These findings suggest a moderate risk for development of skin cancer (1), similar to that of residents of Mediterranean countries (35).

Overall, respondents had a sense that sun exposure is bad for their health. Most of the population correctly identified that the sun causes skin cancer and that it is more harmful for fair skin than for dark skin. All of the participants knew the time of day when the sun is the most dangerous. This high level of knowledge may be explained by the fact that summertime weather forecasts include warnings avoid time outside from 11am until 4pm. Many other aspects of knowledge, however, were limited. About 63% did not know that sunburn and prolonged childhood sun exposure are risk factors for melanoma. Similarly, a telephone survey conducted by the American Academy of Dermatology (ADD) found that 42% of participants were unaware that severe childhood sunburn was a risk factor for melanoma. Conversely, another study, supported by UK's "SunSmart" campaign, demonstrated only 18% wrong answers (21). Lower levels of specific knowledge among Yerevan residents may be explained by the fact that there is no relevant public health campaign.

Attitudes about sun exposure revealed preferences for tanning and limited preferences for protective practices. About 50% of the sample reported that they felt attractive and healthy with a suntan. These results are consistent with the results of a British study (21). Among the most popular protective practices were shade seeking and sunglasses. Shade seeking was also popular among other studies (21). Of those who used sunscreen (30%), only 25% reapplied the sunscreen every 2 hours. Thus, not only small number of people use sunscreens as a protective measure, but also of these respondents a few of them know how to apply the sunscreen appropriately. These relatively poor indicators of this protective practice may be explained by the recent entry of sunscreens into the Armenian market. Despite incursions of sunbeds into the Armenian marketplace, their use was not popular among this sample. Nonetheless, their use could become more popular, creating a new risk for skin cancer especially among young girls to whom sunbeds are marketed. The nine sunbed users in this sample were women, which corresponds to published studies (24; 25; 26; 27).

Statistically significant associations were detected between knowledge of sun exposure and skin cancer with gender, education, and age. Women were more likely to report higher knowledge score than males (β =2.56, 95% CI: 1.27; 3.84). Higher education was associated with higher knowledge scores (β =0.871, 95% CI: 0.36; 1.39). In addition, younger people were more knowledgeable (β =-0.025, 95% CI: -0.08; -0.007). Statistically significant association was found between protective behavior and gender. These results are consistent with findings of other studies (17; 18).

This study has several strengths; this is the first study to examination KAP around skin cancer in Armenia. The sample, generated by RDD, was representative of adults in Yerevan. The

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findings establish preliminary understandings of the absence of knowledge about skin cancer risk and commensurate attitudes and practices which may promote risk.

The study is subject to several limitations. The investigator-generated instrument limits comparison with prior studies. Inaccurate self-report is a potential threat to internal validity given the telephone survey methodology. Selection bias was a threat as the sample disproportionately included women (75% vs. 50% (36)). Further, the sample was not stratified by age and gender to increase generalizability. Finally, the findings may not be generalizable to the Armenian population as a whole, as the study excluded rural residents and likely over-represented women and those with higher education.

7. Conclusion and recommendations

This study is the first conducted to assess knowledge, attitudes, and practices regarding skin cancer prevention in Armenia. Despite the limitations, the present study's findings suggest this population lacks sufficient knowledge to understand and assess the importance of skin cancer risk. More sophisticated research and replication of the present study with other samples are needed to identify the barriers to adopting protective behavior and how best to change attitudes towards sun tanning by, identifying those at particularly high risk of developing skin cancer. For this purpose several studies on different topics can be useful.

- Replicate the same study within other areas of Armenia and with diverse samples drawn from the population.

- Investigate current sources of KAP and explore future avenues to improve KAP for skin cancer prevention. Study KAP of health care practitioners regarding skin cancer and its prevention.

- Investigate occupational and recreational sun exposure in urban and rural Armenia.

- Explore the influence of sunbeds in the Armenian context.

References

1. WHO, Ultraviolet radiation and the INTERSUN Programme

    http://www.who.int/uv/faq/skincancer/en/index1.html   Accessed August 5, 2009

2. Wang SQ, Setlow R, Berwick M, Polsky D, Marghoob AA, Kopf AW, Bart RS, Ultraviolet A and melanoma. *J Am Acad Dermatol*. 2003 Mar; 48(3):464-5

3. Armstrong BK, Kricker A. Epidemiology of sun exposure and skin cancer. *Cancer Surv* 1996; 26:133-53

4. Parkin DM, Muir C, Whelan SL, Gao YT, Ferlay J, Powell J. *Cancer Incidence in Five Continents*, vol. VI. Lyon, IARC Scientific Publications 120, IARC, 1992

5. Parkin DM, Whelan SL, Ferlay J, Young J. *Cancer Incidence in Five Continents*, vol. VII. Lyon, IARC Scientific Publication 143, IARC, 1997

6. MacKie RM, Bray CA, Hole DJ, et al. Incidence of survival from malignant melanoma in Scotland: an epidemiological study. Lancet 2002, 360, 587-591

7. Remontet L, Este`ve J, Bouvier AM, et al. Cancer incidence and mortality in France over the period 1978–2000. Rev *Epidemiol Sante´ Publique* 2003, 51, 3–3

8. Fauci, et al. Harrison's Principles of Internal Medicine. 17th edition

9. SkinCancerNet, A comprehensive skin cancer information resource

10. USA Today, Tanning beds now listed among top cancer risks

    http://www.usatoday.com/news/health/2009-07-28-tanning-cancer_N.htm Accessed

    August 5, 2009

11. Autier P. Perspectives in melanoma prevention: the case of sunbeds, *Eur J Cancer*. 2004

    Nov;40(16):2367-76

12. Jones B Corkery E, Hanley R, Egan CA. Attitudes and perceptions regarding skin cancer

    and sun protection behaviour in an Irish population. *J Eur Acad Dermatol Venereol* 2007

    Sep; 21(8):1097-101

13. Aquilina S, Gauci AA, Ellul M, Scerri L. Sun awareness in Maltese secondary school

    students. *J Eur Acad Dermatol Venereol* 2004 Nov; 18(6):670-5

14. Harrison SL, Saunders V, Nowak M. Baseline survey of sun-protection knowledge,

    practices and policy in early childhood settings in Queensland, Australia. *Health Educ*

    Res 2007 Apr; 22(2):261-71. Epub 2006 Jul 31

15. Cokkinides V, Weinstock M, Glanz K, Albano J, Ward ET hun M. Trends in sunburns,

    sun protection practices, and attitudes toward sun exposure protection and tanning among

    US adolescents. 1998-2004. *Pediatrics* 2006 Sep; 118(3):853-64

16. Geller AC, Shamban J, O'Riordan DL, Slygh C, Kinney JP, Rosenberg S. Raising sun

    protection and early detection awareness among Florida high schoolers. *Pediatr*

    Dermatol 2005 Mar-Apr; 22(2):112-8.

17. Cinar ND, Cinar S, Karakoc A, Ucar F. Knowledge, attitudes and behaviors concerning

    sun protection/skin cancer among adults in Turkey. Pak J Med Sci 2009;25(1):108-112

18. Kristjansson S, Ullen H, Helgason AR. The importance of assessing the readiness to change sun-protection behaviors: a population-based study. *European J Cancer* 2004;40(18):2773-80

19. Campbell HS, Birdsell JM. Knowledge, beliefs and sun protection behaviors of Alberta adults. Preventive Medicine 1994;23(2)160-6

20. Ermertcan AT, Ozturkcan S, Dinc G, Yurtman D et al., Sunscreen use and sun protection practices in students and peronel of Celal Bayar University. Photo dermatology, Photoimmunology & Photomedicine 2005;26(4):191-7

21. Miles A, Waller J, Hiom S, Swanston D. SunSmart? Skin cancer knowledge and preventive behaviour in a British population representative sample. *Health Educ Res* 2005 Oct; 20(5):579-85

22. Mawn VB, Fleischer AB Jr. A survey of attitudes, beliefs, and behavior regarding tanning bed use, sunbathing, and sunscreen use. *J Am Acad Dermatol*. 1993 Dec;29(6):959-62

23. Banks BA, Silverman RA, Shwartz RH,. Attitudes of teenagers toward sun exposure and sunscreen use. *Pediatrics* 1992 Jan;89(1):40-2

24. Boldeman C, Bränström R, Dal H, Kristjansson S, Rodvall Y, Jansson B, Ullén H. Tanning habits and sunburn in a Swedish population age 13-50 years. *Eur J Cancer* 2001 Dec; 37(18):2441-8

25. Stott MA. Tanning and sunburn: knowledge, attitudes and behavior of people in Great Britain. *J Public Health Med* 1999 Dec: 21(4):377-84

26. Amir Z, Wright A, Kernohan EE, Hart G. Attitudes, beliefs and behaviour regarding the use of sunbeds among healthcare workers in Bradford. *Eur J Care* 2000 June; 9(2):76-9

27. Boldeman C, Jansson B, Nilsson B, Ullén H. Sunbed use in Swedish urban adolescents related to behavioral characteristics. *Prev Med* 1997 Jan-Feb; 26(1):114-9

28. National Ozone Unit of Armenia. Studies on ozone layer in Armeia http://www.nature-ic.am/Ozone/Eng/index.htm Accessed August 5, 2009

29. American University of Armenia, Center for Health Services Research and Development. Primary Health Care Project. *Household Health Survey*: *Baseline Evaluation*. 2006

30. Aday LA. Designing and conducting health surveys: a comprehensive guide. 2nd ed., Jossey Bass

31. Bränström R, Brandberg Y, Holm L, Sjöberg L, Ullén H. Beliefs, knowledge and attitudes as predictors of sunbathing habits and use of sun protection among Swedish adolescents. *Eur J Cancer Prev* 2001 Aug;10(4):337-45

32. Jones B, Oh C, Corkery E, Hanley R, Egan CA. Attitudes and perceptions regarding skin cancer and sun protection behaviour in an Irish population. *J Eur Acad Dermatol Venereol* 2007 Sep; 21(8):1097-101

33. Clevland, W.S.; Delvin, S.J. (1988). "Locally-Weighted Regression: An Approach to Regression Analysis By Local Fitting". Journal of the American Statistical Association 83(402):596-610.JSTOR:2289282

34. Hosmer D, Lemeshow S. *Applied Logistic regression*, 2nd edition, New York, Wiley Series in Probability and Statistics, 2000:340.

35. Argyriadou S, Makridis D, Lygidakis H, Apazidis G, Gagalis G. Knowledge and behaviour of tourists towards the sun, as studied in a region of northern Greece. *Rural Remote Health* 2005 Oct-Dec;5(4):367

36. National Statistical Service of the Republic of Armenia *The Results of 2001 Population Census of the Republic of Armenia 2001*

37. National Statistical Service of RA, 2006

Tables

Table 1. Dependent and Independent Study Variables

Variable definition	Type	Levels of measurment
Dependent (outcome) variable		
Knowledge score	Numerical	Measured as continuous variable: number of correct items (one point to each correct answer, overall 16 points)
Protective practices		
Seeking shade	Binary	Measured as: 0=no 1=yes
Wearing a hat	Binary	Measured as: 0=no 1=yes
Wearing clothes	Binary	Measured as: 0=no 1=yes
Using sunscreen	Binary	Measured as: 0=no 1=yes
Using sunglasses	Binary	Measured as: 0=no 1=yes
Sunbed use	Binary	Measured as: 0=no 1=yes
Independent variables		
Gender	Binary	Measured as: 1=no 2=yes
Age	Numerical (Binary*)	Measured as continuous variable: --------Year
Educational level	Ordinal (Binary**)	1=School (less than 10 years), 2=School (10 years), 3=Professional technical education (10-13 years),4=Institute/University Postgraduate
Skin type	Nominal	1=Always burns, never tans

	2=Burns, then tans
	3=Tans, sometimes burns
	4=Tans, never burns

*Variable was measured as continuous, but also was converted into 5 categories (18-30, 31-40, 41-50, 51-60, 60>).
** Variable was measured as ordinal, was dichotomized into "high" and "low," Institute/University and above as high.

Table 2. Demographic and other characteristics of the participants

Variable name	Result (n=96)
Age (mean±SD)	34.12±15.46
Gender	
Male	25 (26.04%)
Female	71 (73.96%)
Nationality	96 (100.00%)
Armenian	
Education	
School (< 10 years)	10 (10.42%)
School (10 years)	8 (8.33%)
Prof. technical education (10-13)	17 (17.71%)
Institute/university	51 (53.13%)
Postgraduate	10 (10.42%)
Marital status	
Married	39 (40.63%)
Single	43 (44.79%)
Divorced	9 (9.38%)
Widowed	5 (5.00%)
Employment	
Employed	49 (51.04%)
Unemployed	46 (47.92%)
Household income (last month)	
Less than 25,000 drams	5 (5.21%)
From 25,000 - 50,000 drams	8 (8.33%)
From 51,000 - 100,000 drams	17 (17.71%)
From 101,000 - 250,000 drams	27 (28.13%)
Above 250,000drams	26 (27.08%)
Don't know	13 (13.54%)

Table 3a. **Knowledge about sun exposure/skin cancer**

Knowledge statements	Correct n (%)
Ultraviolet rays from the sun cause suntan	76 (79.17%)
Ultraviolet rays from the sun cause sunburn	72 (75.00%)
Too much sun exposure can cause freckles	60 (62.50%)
Too much sun exposure can cause wrinkles on the skin	58 (60.42%)
Sun exposure can cause skin cancer	51 (53.13%)
The sun is more harmful to dark skin than to fair skin	74 (77.08%)
The sun is harmful for your skin only when you get sunburn	53 (55.21%)
A suntan is a sign of being healthy	38 (39.58%)
The sun is strongest and most harmful between 11.00 am and 4.00 pm	96 (100.00%)
You cannot get too much sun on a cloudy day	27 (28.13%)
Sunscreen can protect from ultraviolet radiation	60 (62.50%)
Sunscreen with sun protection factor (SPF) less than 15 is not enough to protect you	40 (41.67%)
One application of sunscreen protects your skin for at least 4 hours	25 (26.04%)
There is nothing I can do to prevent skin cancer	62 (64.58%)
Melanoma is the most dangerous type of skin cancer	39 (40.63%)
Many severe sunburns in childhood increase chance of getting skin cancer later on	36 (37.50%)
The number of moles a person has is an important risk factor for developing melanoma	62 (64.58%)

Table 3b. Attitudes towards sun exposure

Attitude statements	Negative attitude (desired attitude) n (%)	Positive attitude n (%)
My skin will age more quickly if I spend time in the sun	68 (70.83%)	28 (29.17%)
I'm concerned, exposure to the sun/UV may give me skin cancer	52 (54.74%)	42 (44.21%)
A suntan makes me look attractive	53 (55.21%)	43 (44.79%)
A suntan makes me look healthier	50 (52.08%)	46 (47.92%)
Sun beds are a safe way to tan	27 (28.13%)	69 (22.92%)

Table 3c. Protective behavior

Practices	Yes n (%)
Stay in shade	64 (66.67%)
I wear sunglasses	64 (66.67%)
I wear hat	47 (48.96%)
I wear clothing covering most of my body	26 (27.08%)
I use high protection sunscreen/suntan lotion	30 (31.25%)

Table 4. Results of Standard 2-tailed t-tests and ANOVA

Knowledge score	Mean±SD	p-value
Age		
18-30	9.76±3.23	
31-40	9.69±2.50	
41-50	11.22±1.79	0.299
51-60	8.42±2.82	
61>	7.83±2.32	
Gender		
Male	7.68±2.87	0.0001
Female	10.24±2.74	
Educational level		
Low	8.74±3.50	0.0387
High	10.05±2.99	

Table 5. Results of Standard 2-tailed t-tests and χ^2 tests

Shade	Yes	No	p-value
Age (mean±SD)	32±16	30±14	0.073
Gender			
Male	7 (28.00%)	18 (72.00%)	0.000*
Female	57 (80.28%)	14 (19.72%)	
Skin type			
1 Always burns, never tans	3 (42.86%)	4 (57.14%)	
2 Always burns, sometimes tans	16 (69.57%)	7 (30.43%)	0.332
3 Sometimes burns, always tans	20 (76.92%)	6 (23.08%)	
4 Never burns, always tans	25 (62.50%)	15 (37.50%)	

Sunscreen			
Age (mean±SD)	28±9	37±16	0.006
Gender			
Male	3 (12.00%)	22 (88.00%)	0.016
Female	27 (38.03%)	44 (61.97%)	
Skin type			
1 Always burns, never tans	3 (48.86%)	4 (57.14%)	
2 Always burns, sometimes tans	9 (39.13%)	14 (60.87%)	0.332
3 Sometimes burns, always tans	7 (26.92%)	19 (73.08%)	
4 Never burns, always tans	11 (27.50%)	29 (72.50%)	

Sunglass			
Age (mean±SD)	33±15	35±17	0.5
Gender			
Male	8 (32.00%)	17 (68.00%)	0.000
Female	56 (78.87%)	15 (21.13%)	
Skin type			
1 Always burns, never tans	2 (3.13%)	5 (15.63%)	
2 Always burns, sometimes tans	15 (23.44%)	8 (25.00%)	0.119
3 Sometimes burns, always tans	17 (26.56%)	9 (28.13%)	
4 Never burns, always tans	30 (46.88%)	10 (31.25%)	
Skin type			
1 Always burns, never tans	4 (57.14%)	3 (42.86%)	0.062
2 Always burns, sometimes tans	6 (26.09%)	17 (73.91%)	0.158
3 Sometimes burns, always tans	4 (15.38%)	22 (84.62%)	
4 Never burns, always tans	4 (16.00%)	21 (84.00%)	0.147
Female	22 (30.99%)	49 (69.01%)	

Clothes
Age (mean±SD)   38±15   32±15
Gender
Male   12 (30.00%)   28 (70.00%)

Hat			
Age (mean±SD)	35±16	34±15	0.792

29

Gender			
Male	8(32.00%)	17 (68.00%)	0.049
Female	32 (45.07%)	39 (54.93%)	
Skin type			
1 Always burns, never tans	1 (14.29%)	6 (85.71%)	
2 Always burns, sometimes tans	12 (47.83%)	12 (52.17%)	0.299
3 Sometimes burns, always tans	13 (50.00%)	13 (50.00%)	
4 Never burns, always tans	21 (52.50%)	19 (47.50%)	

*p<0.05

30

Table 6. Results of tests for associations

Sun bed use	Yes (n=96)	No (n=96)	P value
Age (mean±SD)	24±5	35±15	0.051
Gender			
Male	0 (0.00%)	25 (100.00%)	0.106*
Female	9 (12.62%)	62 (87.32%)	

*Fisher's exact test

Table 7. Test for associations between knowledge score and covariates. Simple linear regression

Variable name	β coefficient	95% CI	p- value
Age	-0.025	-0.064- (-0.014)	0.207
Gender	2.56	1.274-3.844	0.000
Educational level	0.871	0.356-1.387	0.001

Table 8. Multivariate linear regression

Variable name	β coefficient	95% CI	p-value
Age	-0.042	-0.077-(-0.006)	0.021
Gender	2.392	1.158-3.627	0.000
Educational level	0.786	0.300-1.272	0.002

Table 9. Simple logistic (bivariate) regression analysis

Variable	OR	95% CI	p-value
Shade			
Age	1.39	0.97-1.99	0.074
Gender			
Males			
Females	10.46	3.66-29.94	0.000*
Skin type	1.05	0.68-1.62	0.824
Hat			
Age	1.084	0.80-1.46	0.594
Gender			
Males			
Females	2.59	0.99-6.77	0.052
Skin type	1.28	0.84-1.94	0.842
Sunglasses			
Age	0.91	0.67-1.24	0.555
Gender			
Males			
Females	7.93	2.87-21.80	0.000*
Clothes			
Age	1.38	1.00-1.91	0.049
Gender			
Males			
Females	2.36	0.72-7.69	0.155
Skin type	0.86	0.54-1.35	0.508
Sunscreen			
Age	0.55	0.35-0.86	0.008
Gender			
Males			
Females	4.5	1.23-16.48	0.023
Skin type	0.78	0.50-1.21	
Sunbeds			
Age	0.92	0.67-1.24	0.555
Skin type	0.75	0.38-1.49	0.415

*p<0.05

Table 10. Multivariate logistic analysis for "Sunscreen"

Variable	OR	95% CI	p-value
Age	0.94	0.91-0.98	0.004
Gender	6.24	1.62-24.00	0.008

Appendix1. Questionnaire (English and Armenian versions)

ID_____

Date of the interview   _____ (Day/Month/Year)

Start time of the interview_____ (Hour/Minute)

End time of the interview _____ (Hour/Minute)

Part 1. Demographic questions

1. What is your age _____

2. Please indicate your Gender

      1. Male

      2. Female

3. What is your nationality? *(Read answers)*

    1. Armenian

    2. Russian

    3. Yesidi

    4. Other *(describe)* _____

4. What is your marital status? *(Read answers)*

1. Single

2. Married

3. Divorced

4. Widowed

5. Please indicate the highest level of education that you have completed: *(Read answers)*

1. School (less than 10 years)

2. School (10 years)

3. Professional technical education (10-13 years)

4. Institute/University

5. Postgraduate

Part 2. Questions about skin type

6. Your natural hair color *(Read answers)*

1. Red
2. Blond
3. Brown
4. Black
5. Other_____

7. Your natural eye color *(Read answers)*

1. Blue
2. Grey
3. Green
4. Brown
5. Hazel

6. Black

8. Your skin reaction after 1-hour exposure to summer sun (*Read answers*)

       1. Always burns, never tans
       2. Burns, then tans
       3. Tans, sometimes burns
       4. Tans, never burns

9. Your natural skin color (*Read answers*)
       1. Very fair
       2. Fair
       3. Somewhat dark
       4. Other_____

Part 3. Knowledge of the sun's effect on the skin

Do you agree with the following statements?

                                               (Circle one)

10. Ultraviolet rays from the sun cause suntan.   Yes   No

11. Ultraviolet rays from the sun cause sunburn.   Yes   No

12. Too much sun exposure can cause freckles.   Yes   No

13. Too much sun exposure can cause wrinkles on the skin.   Yes   No

14. Sun exposure can cause skin cancer.   Yes   No

15. The sun is more harmful to dark skin than to fair skin.   Yes   No

16. The sun is harmful for your skin only when you get sunburn.　　　Yes　No

17. A suntan is a sign of being healthy.　　　Yes　No

18. The sun is strongest and most harmful between 11.00 a.m. and 4.00 p.m.　　Yes　No

19. You cannot get too much sun on a cloudy day.　　　Yes　No

20. Sunscreen can protect from ultraviolet radiation.　　　Yes　No

21. Sunscreen with sun protection factor (SPF) less than 15 is not enough to protect you.

　　　Yes　No

22. One application of sunscreen protects your skin for at least 4 hours.　　Yes　No

Part4. Knowledge of skin cancer

Indicate whether you agree or disagree with each of the following statement by responding Yes or No.　　　　　　　　　　　　　　　　　　　　　　*(Circle one)*

23. There is nothing I can do to prevent skin cancer.

　　　Yes　　　No

24. Melanoma is the most dangerous type of skin cancer, and can kill me.

　Yes　　　No

25. Many severe sunburns in childhood increase my chance of getting skin cancer later on.

Yes   No

26. The number of moles a person has is important risk for developing melanoma.

Yes   No

Part 5. Attitude Questions

In your Opinion   *(Circle one)*

27. My skin will age more quickly if I spend time in the sun.

    Yes   No

28. I'm concerned; exposure to the sun/UV may give me skin cancer.

Yes   No

29. A suntan makes me look attractive.

Yes   No

30. A suntan makes me look healthier.

    Yes   No

31. Sunbeds are a safe way to tan.

    Yes   No

Part 6. Practice questions.

32. What do you personally do to protect yourself from the sun and/or skin cancer? *(Circle all*

that apply) (Read answers)

  1. I stay in shade
  2. I wear hat
  3. I wear sunglasses
  4. I wear clothing covering most of my body
  5. I use high protection sunscreen/suntan lotion

For the following questions, think about what you do when you are outside during the

summer on a warm sunny day.   *(Circle one)   (Read answers)*

33. How often do you stay in the shade or under an umbrella?
  1. Always
  2. Nearly always
  3. Sometimes
  4. Seldom
  5. Never

34. How often do you wear a hat?
  1. Always
  2. Nearly always
  3. Sometimes
  4. Seldom
  5. Never

35. How often do you wear sunglasses?

  1. Always
  2. Nearly always
  3. Sometimes

4. Seldom

5. Never

36. How often do you wear clothing covering most of your body?

    1. Always

    2. Nearly always

    3. Sometimes

    4. Seldom

    5. Never

37. How often do you wear sunscreen?

    1. Always

    2. Nearly always

    3. Sometimes

    4. Seldom

    5. Never

38. Which is the Sun Protection Factor (SPF) of your sunscreen?
    (Circle one) (Read answers)

    1. I don't apply sunscreen. **(Go to *Q10*)**

    2. Less than 15.

    3. Equal or more than 15.

    4. I don't know

39. Do you reapply your sunscreen? *(Read answers)*

    1. Never.

    2. Every 4 hours.

    3. Every 2 hours

    4. Every hour.

40. Have you ever used or use sunbeds?

Yes   No

Part 7. Socio-economic questions

Now we are going to ask some background questions

41. Are you currently employed?

1. Yes *(Go to Q3)*

2. No

42. Which of the following best describes your situation? *(Read answers 1-9)*

1. Unemployed, looking for work

2. Unemployed, not looking for work

3. Can't work due to (permanent) disability

4. Can't work due to inability to find/afford child care

5. Student/attending school

6. Homemaker

7. Retired

8. Self-employed

9. Farmer

10. Other _____

43. What is the total number of people living in your household (including you)? _____

44. Last month, the approximate amount of household income spent by all of your household

members was: *(Read answers)*

        1. Less than 25,000 drams

        2. From 25,000 - 50,000 drams

        3. From 51,000 - 100,000 drams

        4. From 101,000 - 250,000 drams

        5. Above 250,000drams

        6. Don't know

45. Please tell me whether this household or any member of it has the following working items:

(Read answers)

1. Hot water tank	Yes	No
2. Color television	Yes	No
3. VCR	Yes	No
4. Automobile	Yes	No
5. Auto Washing machine	Yes	No
6. Telephone	Yes	No

7. Personal computer	Yes	No
8. Satellite	Yes	No
9. Cellular phone	Yes	No
10. Vacation home/villa	Yes	No

Հարցաթերթիկ

Տարբերակման համարը _____

Հարցման օրը _____ օր/ամիս/տարի)

Հարցման սկիզբը _____ (ժամ/րոպե)

Հարցման ավարտը _____ (ժամ/րոպե)

Մաս 1.   Դեմոգրաֆիկ տվյալներ

1.Ձեր տարիքը_____

2. Սեռը _____

       1.արական

       2.իգական

3. Ազգությունը

       1.հայ

       2.ռուս

       3. եզդի

       4. այլ (նշեք) _____ _____

4. Ամուսնական կարգավիճակը

       1.ամուսնացած

       2.ամուրի

       3.ամուսնալուծված

       4.այրի

_____

5. Ձեր ստացած կրթության ամենաբարձր մակարդակը

       1. թերի միջնակարգ (10 տարուց պակաս)

       2. միջնակարգ (10 տարի)

       2. միջնակարգ մասնագիտական (10-13 տարի)

       3. համալսարան, ԲՈՒՀ

       4. հետդիպլոմային

Հարցեր մաշկի տեսակի վերաբերյալ   (Կարդալ պատասխանները)

6. Ձեր մազերի բնական գույնը

    1. կարմիր
    2. շիկահեր
    3. շագանակագույն
    4. սև
    5. այլ _____

_____

7. Ձեր աչքերի բնական գույնը

    1. կապույտ
    2.մոխրագույն
    3. կանաչ
    4. շագանակագույն
    5. խամ
    6. սև

8. Ձեր մաշկի ռեակցիան արևանը 1 ժամ արևի տակ մնալուց հետո

    1. Միշտ այրվում է, երբեք արևայրուկ չի ստանում
    2. Այրվում է, հետո արևայրուկ է ստանում
    3. Արևայրուկ է ստանում, երբեմն էլ այրվում է
    4. Արևայրուկ է ստանում, երբեք չի այրվում

9. Ձեր մաշկի բնական գույնը

    1. սպիտակ
    2. ցորենագույն
    3. թուխս
    4. այլ_____

Մաս 3. Հարցեր մաշկի վրա արևի ունեցած ազդեցության զհտելիքների վերաբերյալ.

Դուք համաձա՞յն եք հետևյալ պնդումների հետ.

10.Արևի ուլտրամանուշակագույն ճառագայթները առաջացնում են արևայրուկ

       Այո   Ոչ

11. Արևի ուլտրամանուշակագույն ճառագայթները առաջացնում են արևային այրվածք

       Այո   Ոչ

12.Արևի տակ չափից ավելի երկար գտնվելը կարող է առաջացնել պեպեններ

       Այո   Ոչ

13. Արևի տակ չափից ավելի երկար գտնվելը կարող է առաջացնել կնճիռներ մաշկի վրա

       Այո   Ոչ

14. Արևը կարող է առաջացնել մաշկի քաղցկեղ

       Այո   Ոչ

15.Արևը ավելի վտանգավոր է մուգ մաշկի համար քան բաց մաշկի համար

       Այո   Ոչ

16. Արևը վտանգավոր է Ձեր մաշկի համար միայն, եթե արևային այրվածք եք ստանում

       Այո   Ոչ

17. Արևայրուկը առողջության նշան է

       Այո   Ոչ

18. Արևը ամենաուժեղն է և վտանգավորը 11.00- ից 16.00-ը ընկած ժամանակահատվածում

       Այո   Ոչ

19. Դուք կարո՞դ եք արևի ազդեցությանը ենթարկվել ամպոտ եղանակին

Այո   Ոչ

20. Հականաբրնային քսուքը կարող է պաշտպանել ուլտրամանուշակագույն ճառագայթներից

Այո   Ոչ

21. 15-ից պակաս արևի պաշտպանության գործոն ունեցող հականաբրնային քսուքը բավարար չէ Ձեզ արևից պաշտպանելու համար

Այո   Ոչ

22. Հականաբրնային քսուքի միանգամյա օգտագործումը պաշտպանում է Ձեզ ամենաքիչը 4 ժամ.

Այո   Ոչ

Մաս 4. Գիտելիքներ մաշկի քաղցկեղի վերաբերյալ.

(նշեք մեկ պատասխան)

Նշեք,թե հետևյալ պնդումներից որի հետ եք համաձայն` պատասխանելով այո կամ ոչ.

23. Դուք որևէ բան կարո՞դ եմ անել մաշկի քաղցկեղը կանխարգելու համար
Այո   Ոչ

24. Մելանոմման մաշկի քաղցկեղի ամենավտանգավոր տեսակն է և կարող է սպանել ինձ

Այո   Ոչ

25. Մանկական տարիքում բազմաթիվ արևային այրվածքները բարձրացնում են հետագայում քաղցկեղ ունենալու հավանականությունը
Այո   Ոչ

26. Խալերի քանակը կարևոր ռիսկի գործոն է մելանոմայի զարգացման համար

Այո   Ոչ

Մաս 5. Մոտեցումներին վերաբերող հարցեր

Ձեր կարծիքով

27. Իմ մաշկը ավելի արագ կծերանա, եթե ես երկար ժամանակ անց կացնեմ արևի տակ
                    Այո   Ոչ

28. Ես անհանգստացած եմ, քանի որ արևի ճառագայթները կարող են մաշկի քաղցկեղ առաջացնել
                    Այո   Ոչ

29.Արևայրուկով ես ավելի գրավիչ եմ երևում

                    Այո   Ոչ

30. Արևայրուկով ես ավելի առողջ եմ երևում

                    Այո   Ոչ

31.Արհեստական արևային լոգանքները արևայրուկ ստանալու անվտանգ տարբերակ են
                    Այո   Ոչ

Մաս 6. Գործելակերպին վերաբերող հարցեր

Դուք անձամբ ի°նչ եք անում, որպեսզի պաշտպանեք Ձեզ արևից և/կամ մաշկի քաղցկեղից

(Կարդալ պատասխանները)   *(Նշեք բոլոր համապատասխան*
                                              պատասխանները)

        1. Մնում եմ ստվերում
        2.Գլխարկ եմ կրում
        3. Ակնոցներ եմ կրում
        4. Կրում եմ հագուստ, որը ծածկում է իմ մարմնի մեծ մասը
        5. Օգտագործում եմ հակաարևային քսուք

Հետևյալ հարցերին պատասխանելու համար մտածեք, թե ինչ եք անում, երբ ամառային 3րդ օրը անցկացնում եք դրսում.   (Կարդալ պատասխանները)

33. Որքա՞ն հաճախ եք մնում ստվերում կամ անձրևանոցի տակ

   1. Մշտապես
    2.Գրեթե մշտապես
    3. Երբեմն
    4. Հազվադեպ
    5. Երբեք

34. Որքա՞ն հաճախ եք կրում գլխարկ

   1. Մշտապես
   2. Գրեթե մշտապես
   3. Երբեմն
   4. Հազվադեպ
   5. Երբեք

35. Որքա՞ն հաճախ եք կրում ակնոցներ

   1. Մշտապես
   2. Գրեթե մշտապես
   3. Երբեմն
   4. Հազվադեպ
   5. Երբեք

36 Որքա՞ն հաճախ եք կրում հագուստ, որը ծածկում Ձեր մարմնի մեծ մասը

   1. Մշտապես
   2. Գրեթե մշտապես
   3. Երբեմն
   4. Հազվադեպ
   5. Երբեք

37. Որքա՞ն հաճախ եք օգտագործում հակաարևային քսուք.

   1. Մշտապես

2. Գրեթե մշտապես
3. Երբեմն
4. Հազվադեպ
5. Երբեք

38. Ո՞ն է Ձեր հակառնային քունքի արևի պաշտպանման գործոնը

(Վարդալ պատասխանները)   (նշեք մեկ պատասխան)

1. Չեմ օգտագործում հակառնային քուն (*անցնել 40-րդ հարցին*)
2. 15-ից պակաս
3. 15 կամ ավել
4. Չգիտեմ

39. Դուք թարմացնում եք հակառնային քունցը

1. Երբեք
2. 4 ժամը մեկ
3. Յուրաքանչյուր 2 ժամը մեկ
4. ժամը մեկ

40. Դուք երբևէ օգտվել կամ օգտվում եք արհեստական արևային լոգանքից "solarium"

Այո   Ոչ

Մաս 8. Սոցիալ-տնտեսական հարցեր

Այժմ մի քանի ընդհանուր հարցեր

41. Ներկայումս դուք աշխատու՞մ եք

1.այո   (*անցնել 43-րդ հարցին*)

2. ոչ

42. Ո՞րն է լավագույնս բնութագրում Ձեր կարգավիճակը

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1. գործազուրկ եմ, աշխատանք եմ փնտրում
2. գործազուրկ եմ, աշխատանք չեմ փնտրում
3. չեմ կարող աշխատել (մշտական) հաշմանդամության պատճառով
4. չեմ կարող աշխատել երեխայի խնամքը ապահովելու անկարողության պատճառով
5. ուսանող եմ/դպրոց եմ հաճախում
6. տնային տնտես(ուհի) եմ
7. թոշակառու եմ
8. անհատ ձեռներեց եմ
9. ֆերմեր եմ
10. այլ (նշեք) _____
_____

43. Ընդամենը քանի՞ մարդ է ապրում ձեր տանը (ձեզ ներառյալ)_____ _____

44. Անցյալ ամիս Ձեր ընտանիքի բոլոր անդամների կողմից ունեցած միջին ամսեկան եկամուտը կազմել է՝

1. ոչ ավելի, քան 25,000 դրամ
2. 25,000-50,000 դրամ
3. 51,000-100,000 դրամ
4. 101,000-250,000դրամ
5. ավելի քան 250,000 դրամ
6. չգիտեմ

45. Ձեր տնտեսությունում ունե՞ք հետևյալ աշխատող/գործող իրերը (**Կարդալ պատասխանները**)

1.անհատական ջեռուցման համակարգ	Այո	Ոչ
2. հեռուստացույց	Այո	Ոչ
3. DVD նվագարկիչ	Այո	Ոչ
4. ավտոմեքենա	Այո	Ոչ
5. ավտոմատ լվացքի մեքենա	Այո	Ոչ
6. հեռախոս	Այո	Ոչ
7. անձնական համակարգիչ	Այո	Ոչ
8. արբանյակային ալեհավաք	Այո	Ոչ
9. բջջային հեռախոս	Այո	Ոչ
10. ամառանոց	Այո	Ոչ

Appendix 2. ORAL CONSENT FORM (English & Armenian)

Title of Research Project:
Assessing Skin Cancer Knowledge, Attitudes and Practices among Yerevan Residents.

Explanation of Research Project:

Good day

My name is Gayane Avagyan. I am a second year MPH student of American University of Armenia. I am conducting a survey concerning knowledge, attitudes and practices about sun exposure among Yerevan residents. Your household phone number was randomly selected for inclusion in this study. I need to speak with an adult over 18, who is a citizen of Armenia and understands Armenian. Do you meet these criteria? (If yes, continue)

(If no) Is someone presently at home meeting these criteria? Can I speak with him or her? (If yes, read from the beginning)

The interview will not take more than 15 minutes. Questions will not be of personal or of a sensitive nature. The information provided will be anonymous. Participation in this survey is voluntary and you can withdraw from the study at any time you want.

There are no direct benefits for you, no incentives will be provided, but the information received from you will be important and valuable for the investigation, and hopefully it will be useful for implementation of preventive programs. Would you agree to participate in this study?

If you would like to get more information about this study, please contact Varduhi Petrosyan, Associate Dean, College of Health Sciences: (010) 512564, e-mail: vpetrosi@aua.am

If you want to talk to anyone about the study as you feel that you have been treated unfairly or have been hurt, please contact the American University of Armenia at (010) 512568

Հարցման մասնակցության համաձայնագիր

Բարև Ձեզ

Իմ անունը Գայանե Ավագյան է։ Ես Հայաստանի Ամերիկյան Համալսարանի Հանրային առողջապահության ֆակուլտետի ուսանող եմ։ Ես հետազոտություն եմ անց կացնում մաշկի վրա արևի ազդեցության վերաբերյալ Երևանում ապրող մարդկանց տեղեկացվածության մասին։ Ձեր հեռախոսի համարը պատահականորեն է ընտրվել այս հետազոտության մեջ ընդգրկվելու համար։ Ինձ անհրաժեշտ է զրուցել 18 կամ ավել տարիք ունեցող, հայերենին տիրապետող և Հայաստանի Հանրապետության քաղաքացի հանդիսացող անձի հետ։ Դուք համապատասխանու՞մ եք այս չափանիշներին։ (Եթե այո, շարունակել)

(Եթե ոչ) Կա՞ ներկայումս որևէ մեկը Ձեր տանը, որը համապատասխանում է այս չափանիշներին։ Կարո՞ղ եմ խոսել նրա հետ։ (Եթե այո, սկզբից կարդալ)

Հարցումը 15 րոպեից ավել չի տևի։ Հարցերը անձնական կամ նուրբ զգայական բնույթի չեն լինի։ Տրամադրված տեղեկատվությունը կլինի անանուն։ Մասնակցությունը ըստ ցանկության է, և Դուք կարող եք դադարեցնել հարցազրույցը ցանկացած պահի։

Այս հետազոտությունից դուք ուղղակի օգուտ չեք ստանա, սակայն Ձեր կողմից տրամադրված տեղեկատվությունը կարևոր է հետազոտության համար և կարող է օգտակար լինել կանխարգելիչ միջոցառումների ներդրման համար։ Կցանկանա՞ք մասնակցել այս հետազոտությանը։

Ավելի մանրամասն տեղեկությունների համար կարող եք դիմել Վարդուհի Պետրոսյանին` Առողջապահական գիտությունների բղեջի փոխդեկան, (010) 51 25 64, e-mail: *vpetrosi@aua.am*

Եթե դուք կգտնեք, որ Ձեզ հետ ոչ ազնիվ կամ վատ են վարվել, խնդրում ենք զանգահարել Ամերիկյան Համալսարան հետևյալ հեռախոսահամարով։ (010) 51 25 68