ASSOCIATION BETWEEN HEALTH RISK KNOWLEDGE AND RISK BEHAVIOR AMONG MEDICAL STUDENTS AND RESIDENTS IN YEREVAN

Master of Public Health Thesis Project Utilizing Professional Publication Framework

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Executive Summary

*Objectives***.** The objectives of this study were to investigate the association between health risk knowledge/perception and risk behaviors among medical students and residents in Yerevan, to reveal the determinants of risk behaviors, and to examine the degree and direction of the associations between individual characteristics and risk behavior.

Methods. A descriptive-analytical cross-sectional survey design was used. Risk behavior and health risk knowledge/perception were assessed using an anonymous self-administrated questionnaire completed by 163 participants. Risk-taking behavior was measured as the number of all risk behaviors during lifetime. Knowledge/perception was measured by the extent to which subjects agreed with statements of risk-related information. Two-sample t-test, ANOVA, simple linear regression and multiple linear regression modeling were used to analyze associations between total risk and health knowledge/perception , age, gender, education, marital status, having children, birth order and belief in God.

Results. Total risk was statistically significantly associated with all demographic characteristics of participants (age category, gender, education, marital status, and having children) except birth order (marginal significance) and attitude toward religion. Knowledge/perception about health risks was not associated with behaviors of interest investigated in this study after it was adjusted for the potential "confounders" age, gender, education, marital status, birth order, having children, and belief in God. There was a statistically significant interaction between marital status and knowledge/perception. After introducing the interaction term into the regression model, it was detected a statistically significant association between total risk and knowledge/perception. Being married versus being single predicts less decrease in the number of reported risk behaviors with one-point higher knowledge/perception score in this population.

Conclusion. This study provided some preliminary results regarding the relationships between health risk knowledge and risk behaviors among medical students and residents in Yerevan. Some individual and demographic characteristics were associated with the behavior of this population. Knowledge/perception of health risk did not appear to be a statistically significant predictor of risk behavior. Considering the limitations of this study (instrument was not validated in Armenia, interview bias, and low external validity) more research is needed to adequately assess the selected factors, particularly, knowledge and perceptions of health risk, on risk behaviors of medical students in Armenia.

1. Introduction

Public health interventions are aimed at improving health often by changing behaviors of people. One of the key assumptions laying in the basis of health interventions, particularly, health educational programs, is that the relationship between health knowledge and health practices is, in general, positive: "Those individuals who are better informed tend to have better health practices" (1). According to such "rational models of human perception," people receive and interpret health information so their behaviors are changed to reduce risk (2). Given this concept, communicating health knowledge will increase the likelihood that one will take preventive action: "…many people believe, assume, or theorize that the more one knows about HIV and how it is transmitted, the more likely one will be to avoid performing those behaviors that put one at risk for HIV infection" (3). Therefore, the conceptual framework for developing health education programs assumes that knowledge contributes to the development of new attitudes and to the improvement and strengthening the old ones and attitudes determines one's behavior.

However, such theoretical models are not always confirmed. The literature shows that often people engaging in risky behaviors are aware of the risk and fail to change their behavior (2, 4, 5, 6, 7). Graham et al revealed that the reported behavior of female adolescents was inconsistent with the high scores obtained in their knowledge of safer sex practices; their knowledge did not appear to influence their risky behavior (8). In another study, it was shown that university students frequently use tanning lamps despite the fact that 90% of them have adequate knowledge of the adverse effects of ultraviolet exposure (9). Moreover, risk-taking behavior (e.g., smoking, alcohol drinking and drug use) is not rare even in well-informed groups of populations such as doctors and medical students (2, 4). Several studies have been conducted to investigate lifestyles of students attending medical school in various countries, and the results of these surveys revealed that unhealthy behaviors

were widely practiced by students and graduates of medical institutions (10, 11, 12). Previous research shows that knowledge alone does not translate into health gain or, in other words having information about a disease and how it is spread does not necessarily increase the likelihood that one will take preventive action (2, 3, 13).

Behavioral science suggests several theories to explain behavioral changes in individuals (3, 14, 15). These theories identify four factors that may influence a person's intentions and behaviors: the person's perceptions; the person's attitudes, which are based upon his or her beliefs; perceived norms; and self-efficacy (15, 16).

However, the necessity of knowledge should not be underestimated in motivating behavioral change (17). Although knowledge does not always lead to a certain action, no action is taken without motivation, and motivation is based on some previous experience, information, or understanding (1). Therefore, knowledge is essential in developing attitudes towards distinct behaviors and assisting individuals with making decisions and taking actions toward healthy behaviors. Thus, health education or health risk information is an important part of public health interventions aimed at modifying person's behavior.

Nevertheless, the relationship between a person's knowledge, attitudes, and behavior is complex and it is not sufficiently explored. From the public health point of view, it is particularly interesting to explore the association between individuals' awareness of health risks and their risk behavior. A better understanding of how this knowledge influences attitudes and to what extent it is crucial in efforts to reduce the risk, will significantly help in designing effective educational programs and health messages.

It would be particularly interesting to explore the relationship between knowledge and behavior among medical students, assuming their detailed exposure to medical knowledge and associated health risks. As future health professionals, they would have a significant role in formulating, spreading, and clarifying health messages to the general population (11). The

better risk behaviors are understood the more will be known about effective delivering health knowledge, for example, how to design educational materials, and how to implement educational programs and campaigns.

Researchers in many countries show that medical students and graduates of medical colleges, as well as physicians, do not practice what they are supposed to preach; high prevalence of their smoking, drinking, low physical activity, engaging in unsafe sex, and obesity have been observed in studies conducted in Jerusalem, Japan, and the United States (10, 11, 18). For example, while assessing sexual behavior of resident physicians and non-medical graduate students (law students and master's-level social work students) in Hungary, no difference was recorded, though the formers were educated about healthy sexual behavior (12). In general, health professionals do not appreciate adequately their responsibility in prevention not only as educators but also as role models for their patients (10, 11, 18). In the Jerusalem study, only 30% of respondents thought that their own behavior was important in counseling patients about changing lifestyles, however, 90% of them believed that doctors should explain to their patients the importance of healthy habits in disease prevention (10). Patients indicate greater confidence in doctors who lead healthy lifestyle; for instance, it is reported that physicians with personal weight management practices achieve higher rates of weight loss efforts in patients than their obese colleagues (19).

Investigating the association between certain risk behaviors of health professionals, both practicing physicians and medical students, and their knowledge about the adverse effects of these behaviors on health, becomes important since "health professionals primarily focus on change processes that affect general well being" (20).

There are no available data in this area in Armenia except limited statistics on some risk behaviors like smoking and illegal drug use. Per capita cigarette consumption increased steadily in Armenia during the 1990s, from 105 packs per adult 15 years and older in 1993 to

110 packs in 1999 (a 4.8% increase), and has been regularly above the average for the Newly Independent States (NIS) (21, 22). In 1999, Armenians smoked 5,800 million cigarettes, a 9.3% increase over the 5,305 million cigarettes smoked in 1993 (22). In 2000, the prevalence of smoking in Armenia was 69.0% for men and 6.2% for women (22). Healthcare workers are in a professional group with some of the highest smoking rates: 56.8% of doctors smoke (22). Moreover, 39.1% of physicians smoke in the presence of their patients, 34.7% do not consider that they harm themselves, and 45.7% do not consider that they harm other people (22).

Data about drug use come primarily from unofficial sources, including more or less rigorous rapid assessments, consultant reports and the news media. According to the Ministry of Internal Affairs, the local market for narcotics is not very large (23). However, the number of substance abusers has been on the rise since 1998 (23). In addition, the rising number of individuals testing positive for HIV associated with drug use has become a concern (23). The number of registered drug abusers has increased from 610 in 1996 to 1438 in 1998; according to the Ministry of Internal Affairs, the real number of drug abusers is 15–20 times this figure (21). The statistics of the last 5 years show an increase in the incidence rates of syphilis and gonorrhea among teenagers by 2.2 and 2.9 times, respectively (24). In conclusion, investigating health risk knowledge and its association with risk behaviors, is an interesting and practical research area in Armenia presently.

This first survey of risk knowledge and practice in Armenia was designed to fill the data gap and explore the possible relationship between health risk knowledge and risk behaviors among medical students and medical residents living in Yerevan. It was hypothesized that there was a significant association between health risk knowledge of medical students and residents and their risk behaviors after adjusting for their demographic characteristics. The specific objectives of this study were:

1. To investigate the association between health risk knowledge and risk behaviors among the study population;
2. To examine the degree and direction of association between individual characteristics (age, gender, education, marital status, having children, and belief in God) and the risk behavior.

2. Methods

2.1. Study Design

The study design was a cross-sectional descriptive/analytical survey, which is an accepted method for assessing knowledge, attitudes, and behavior of certain groups of population, and for analyzing the relationship between study variables. This type of design was chosen because:

1. Cross sectional study is fast and can include a large number of persons at little cost or effort;
2. Participants dropping out during the course of the study is not a problem; and
3. The design is efficient at identifying associations, though may have trouble deciding cause and effect.

The survey was conducted during July and September 2003.

2.2. Study Population

The study population included students of 4^{th} and 5^{th} years of study at Yerevan State Medical University (MU) and residents of the National Institute of Health (NIH). The choice of the study population was related to the research question and the rationale of the study: the four and 5-year students and residents are assumed to have appropriate knowledge of health risk behaviors, which is the most important independent variable of interest in the study.

The sampling frame included all students of 4th and 5th years of study of MU (528 students) and all medical residents of the NIH (625 residents). The sampling method was a two-staged strategy:

1. Random selection of groups;

2. Selection of resident participants by convenience sampling and involving all the members of the selected group of students if they do not refuse to participate.

The students of MU are divided into 42 groups (12-13 students in each group). In the first stage, 7 groups were selected from the numerated list of the groups by simple random sampling**.** All students of the selected groups were included in the sample. The residents of NIH represented 44 departments (specialties), and were not equally distributed among them. On the first stage of sampling, the sorted (by size, in descending order) list of the departments with the numbers of residents was used. The specialties were selected by systematic random sampling. On the second stage, certain number of participants (5-15) was selected by convenience sampling.

Since there were departments with less than 10 residents specializing, and, considering possible refusals, it was decided to go to the next group from the list if the selected group was very small or the majority refused to participate. This was done to ensure the required number of participants.

The rational for using this sample design was that it would be impractical, or even impossible, to apply random selection method to the list of all students and all residents.

The required sample size was calculated by the following formula (25):

$$n = \frac{z^2 * p * (1 - p)}{d^2},$$

Where z is 1.96 assuming a 95% level of confidence, *p* is the estimated prevalence of the outcome of the interest; d is the level of precision (0.1). Since more than one behavior was

investigated, and there were no available data on the prevalence of these behaviors in Armenia, the most conservative estimate of p was chosen (0.5). However, this formula assumes that the sample design is a random sampling. Since the sampling method of the study included some cluster sampling, the design effect (the impact of a more complex design on sampling errors) was included in the formula; the estimated design effect for this type of sampling is 1.3 (25). The ultimate sample size was approximately 140 after adjusting for design effect and response rate (estimated to be 90%).

$$n = \frac{(1.96)^2 * 0.5 * 0.5}{(0.1)^2} * 1.3 * 1.1 = 137$$

2.3. Study Instrument

The study instrument was an anonymous self-administrated questionnaire adapted from the study conducted by Cook and Bellis in Liverpool and Manchester, United Kingdom, in 2001 (2) (Appendix A). The original instrument was pretested through a pilot study with 20 participants (P.A. Cook, personal communication).

Basic demographic questions included age, gender, marital status, number of children, number of brothers and sisters, and birth order. The risk behavior questions were divided into 10 categories: diet, sexual behavior, alcohol, tobacco, illegal drugs, accidents, hygiene, neglect, involuntary risks, and other. The second set of items was related to the knowledge and perception of the risk associated with behaviors. The knowledge/perception items were in the form of statements with four-point scale (Likert-type). Statements were presented in a random order and in truthful and false directions in order to minimize interviewee error or response bias: for example, always answering the same way (so called "yea/nay saying").

The student investigator translated the instrument into Armenian. Further, a native speaker prepared a backward translation independently; and the second English version was compared for equivalence to the original questionnaire in English. Finally, a third person

prepared the final Armenian translation. The final version was edited and a pilot study was conducted to pretest the instrument (10 participants included doctors, medical residents, and MPH students). Some changes were made in the instrument based on the results of the pretest.

2.4. Data Collection, Entry, and Editing

The student investigator performed data collection. The survey was conducted in the institutions where the potential participants were available: State Medical University and selected departments of the NIH (hospitals). The completion of the survey took 20-25 minutes; groups of 5-10 residents or 12-13 students were surveyed at the same time, 10-25 questionnaires were distributed and completed in a day.

The transcriptive type of data entry was used, which involved coding the data in the source document, which was then used as the basis for entering the information (25). Since the instrument had a mix of positive and negative statements, some codes were recoded, using the formula R=H+L-I, where H is the highest possible value, L is the lowest possible value, and I is the actual response (25).

Data editing was accomplished by the procedure of range checking (verifying that only valid ranges of numbers were used in coding) (25). Decision rules were set to distinguish between partially completed observations (less than 25% of answers were missing) and uncompleted (more than 25% of answers were missing). One incomplete survey was excluded from the analysis, and for partially completed surveys (36 questionnaires), the procedure of imputation was performed. The basic idea of this procedure is that less bias was introduced than by excluding the entire case from the analysis (25). The imputation method used in this study was one of the "hot-deck imputation" procedures called *random imputation within classes* (26). All missing values (overall 51 items) were imputed.

2.5. Study Variables

The study variables are presented in Table 1. Initially the dependent variable was define as "number of risks taken in the previous 12 months," and it would be created by summing the answers to the corresponding questions in section 3 of the questionnaire (Appendix A). However, the completed survey results revealed that almost no participants mentioned any risk behavior during the last 12 months, which resulted in some changes in the proposed study variables. Thus, the outcome variable was defined as "total risk" and was measured as the sum of all risk behaviors during lifetime. For that purpose, the answers to items in section 2 and section 3 of the study instrument were grouped into two categories, "yes" or "no" answers. First, the answers "never" and "rarely" in section 2 were considered as "no" (coded as "0"), and the answers "sometimes," "often," and "always" were considered as "yes" (coded as "1"). Similarly, the answer "never" in section 3 was considered as "no" and all others as "yes."

The authors of the original instrument did not provide any criteria for distinguishing between knowledge and perceptions questions. In addition, they used the same items to measure knowledge and perceptions. For this study, it was decided to combine the variables "health risk knowledge" and "health risk perceptions" into one variable "health risk knowledge/perception." It was measured by summing the scores assigned to each answer category in Likert-type scale.

2.6. Analytical Approach

The statistical analysis of the survey data included:

1. Two sample *t-test* for testing the difference between mean total risks by two categories of responses, i.e. association between binary covariates (gender, belief in God, being student or resident, and having children or not) and the total risk;
2. ANOVA global test for testing the difference between mean total risk of more than two

groups of respondents, i.e. association between other categorical variables (age group, marital status, and birth order) and the dependent variable;

3. Simple linear regression to investigate the association between the continuous variable knowledge/perception and the response variable; and
4. Multiple linear regression analysis to develop linear models that predict total risk adjusted on all intervening variables. STATA for Windows (version 7.0) package was used to perform the statistical analysis.

2.7. Ethical Considerations

The study proposal was reviewed and approved by the IRB committee of the American University of Armenia. The study posed minimal risk for participants. Since the participants were selected by groups, the group, but not participants individually, was provided with the informed consent form and the contact information in Armenian (Appendix B). Anonymity and confidentiality of the participants were ensured by the student investigator keeping the surveys, and only the principal investigator and the co-investigator having access to the information.

3. Results

3.1. Demography

Table 2 summarized the demographic characteristics of the study participants by institution and gender. The total number of participants was 163 (five refused to participate), and more than half of them (53.9%) were medical residents. Respondents' median age was 24 years (range 19-55) with 69.9%of the sample being females. The majority of men were single while more than half of the women among residents were married; most of both female and male students were single (95.3% and 93.7%, respectively). Since only five participants (residents) were divorced, the categories "married" and "divorced" of the variable "marital

status" were combined. Most of the participants (79.8%) believed in God. Before the analysis, the variable "age" was categorized into five groups, and the variable "children" was categorized into two groups (Table 2).

3.2. Distribution of the Main Study Variables

The range of the number of reported risk behaviors (dependent variable) was from 3 to 19 with median of 10 and standard deviation 3.2. The stem and leaf plot and the frequency histogram show that the distribution of this variable was approximately normal but skewed to the right (Appendix C). Similarly, the main explanatory variable knowledge/perception has a left-skewed approximately normal distribution (Appendix C).

The most frequently reported behaviors were "Eating snacks like chocolate in a day" (84.7%), "Walking through moving traffic to cross a road" (79.2%), "Having a dessert with the main meal" (62.7%), and "Getting skin burnt when on a sunny holiday" (58.3%). None of the participants reported ever having sex with someone of the same sex. One participant reported ever using anabolic steroids (0.6%), three ever having a sexually transmitted disease (1.8%), six were treated in emergency department because of an accident (3.7%), and six participants (3.7%) reported that they had tried to kill themselves.

3.3. Association between Total Risk Behavior and Individual Characteristics

The majority of intervening variables included in the survey were categorical (gender, marital status, education (being student or resident), belief in God, and birth order). In addition, continuous variables "age" (age in years) and "children" (number of children) were categorized. Bivariate relationships between the outcome variable and categorical variables were investigated by the t-test and ANOVA (26). The results are presented in Tables 3 and 4. The results of between group comparison tests reveal that total risk was statistically significantly associated with all demographic characteristics of participants (age category,

gender, marital status, having children, and education) except their attitude toward religion (Table 3, Table 4).

Further statistical analysis demonstrated that participants aged 40-50 years were significantly less likely than their youngest (less than 25 years old) colleagues to have reported risks behaviors ($p<0.019$). Similarly, students in this sample reported more risk behaviors than did residents ($p<0.0003$). More risk was reported by single versus married participants ($p< 0.013$), and by those not having children versus those participants who were parents ($p<0.0017$). Comparison of total risk by birth order did not show statistically significant differences although analysis of variance showed a marginally statistically significant variability between groups ($p<0.0481$). Finally, the analysis demonstrated a significant relationship between reported risk behaviors and gender: male appear to be more risk taking than females ($p<0.000$).

3.4. Association between Health Risk Knowledge/Perception and Total Risk Behaviors

The association between health risk knowledge/perception and risk taking behavior was examined using simple linear regression (SLR) analysis. The results suggested that there does not appear to be any significant linear relationship between study variables; the unadjusted regression coefficient was $\beta=-0.02$, and 95% CI was [-0.09; 0.05]. In addition, health knowledge/perception variable was examined as a dichotomous covariate. The knowledge score less than 102 (median) was considered as low, and the score equal or more than 102 was considered as high knowledge. No statistically significant association was shown ($\beta= -0.2$ and 95% CI was [-1.2; 0.8]).

In the consequent step of analysis, the association between total risk and health knowledge was adjusted for intervening variables using multiple linear regression (MLR) modeling. One intervening variable at a point in time was introduced into the model. The adjusted and unadjusted regression coefficients are summarized in Table 5. Of the

intervening variables only age and gender had some "confounding" effect on these relationships (Table 5). However, of the models, none demonstrated any statistically significant adjusted relationships between risk knowledge/perception and the outcome variable (no MLR coefficient was significantly different from zero). Thus, knowledge/ perception about health risks was not associated with behaviors of interest investigated in this study even after they were adjusted on the potential "confounders" age, gender, education, marital status, birth order, having children, and belief in God.

However, an assumption was made that an interaction of two covariates might influence the change in the total risk scores. New variables or interaction terms were generated and MLR models were investigated in order to see if the relationship between knowledge and behavior of this cohort could be influenced by different individual characteristics.

Of seven intervening variables, two revealed statistically significant interactions with knowledge/perception variable. The models including interaction terms with marital status and having children were consequently selected as "best" models. Nevertheless, each of these models explained only 12% and 11% of the variability in the dataset, respectively. Given that variables measuring marital status and having children are associated (all 45 participants that had children were married, and only 4 (8.2%) participants who were married did not have children) only the first of the selected models is presented and used in the further analysis, particularly, for checking the model adequacy (Table 6).

According to this model, one unit higher level of health risk knowledge score is associated with a slight decrease (β=-0.4; 95% CI=[-0.6; -0.2]) of the total risk score among single participants. This decrease of the total risk score is smaller among married participants. Regression coefficient for an effect modifier was β=0.3 (95%CI=[0.1; 0.4]). In conclusion, being married predicts, in average, from 0.1 to 0.4 less decrease in the number of

reported risk behaviors in students and residents with one point higher knowledge/perception score in this population. The fitted model was checked for goodness of fit through inspection of residuals (27, 28) (Appendix D).

4. Discussion

The study explored the relationships between the number of reported risk behaviors and health risk knowledge/perception, and the variety of individual and demographic characteristics among medical students in higher grades and medical residents of two medical institutions in Yerevan. The analysis of the survey results demonstrated statistically significant differences between females versus males, students versus residents, married versus single participants, and older versus younger participants. These differences, however, could be limited to different behavior according to age, gender, and having a family. Thus, being a student or resident in this population predicted also being younger or older, since the great majority (97.7% females and 90.6% males) of students were less than 25 years old. Given that most of the questions referred to current behaviors, and taking into consideration recall bias, it could be possible that young people reported more risk behaviors than older residents did. This result was consistent with the findings of Cook and Bellis (2). The second finding was a highly significant difference between female and male participants, which was similar to the findings available in the literature (2). This could be explained by the content of the given questions: higher prevalence of smoking, drinking, and being in a physical fight reported by males than by females.

Finally, it was demonstrated that those who were married and had children (these are the same respondents) reported significantly less risk behaviors. Moreover, having a family appeared to be an effect modifier in the relationship between health knowledge/perception and behavior. Changes in health knowledge/perception had more impact on the behavior if a person was single. Nevertheless, an interviewee bias might have influenced the study results

of the participants with certain characteristics. For example, female, older, and married persons might avoid reporting certain behaviors while single young people could feel freer in answering sensitive questions.

The variables birth order and belief in God were investigated in order to compare the results of the current study with the data available in other similar studies. Birth order appeared not to be a significant predictor of selected behaviors, which is consistent with data reported by other authors (2). A significant part (79.8%) of students and residents in this study reported believing in God. However, there was no evidence of any statistically significant association between this characteristic and total risk behavior. This finding could be explained by some trends in the society in recent years, especially, by an increasing interest toward religion. However, it is also possible that this interest has not yet turned into a strong conviction that might influence one's behavior.

The results of this study agree also with the data reported by investigators who conducted similar studies in the United States, as well as in various countries in Europe and Asia (2,4,6,9,10,11). It has been demonstrated that, in general, risk taking behavior and high scores of health risk knowledge was not correlated. However, there were no available data regarding those kinds of relationships between persons' knowledge and behavior in Armenia. Because of the limitations of the present study, our findings could be considered as preliminary and further investigation in this issue is required.

5. Study Limitations

The study had some limitations that could be threats both to the internal and external validity of the study.

1. Although the instrument was pretested and certain changes were made in order to make it more relevant to Armenia, the Armenian version of it was not validated.

2. The interviewee bias could weaken the internal validity of the study. Although the questionnaire was a self-administrated instrument, and the anonymity of the responses was ensured, some of the participants completed the surveys in groups. This was the case especially among students and among the majority of residents. It was not always possible to avoid some discussion between participants while they answered the questions, particularly, about knowledge and perception. In addition, there seemed to be an opinion among the participants that their answers might be identified or their teachers might have an access to the results. Therefore, the participants could mention the absence of risk behaviors or choose only healthy behaviors.
3. The results of this study could not be generalized to the whole population of medical students and medical residents in Armenia. The target population was limited to a group of medical students and residents. Although some randomization was applied in the first stage of the selection, it could not be demonstrated that the participants were representative of the whole population of medical students and medical residents in Armenia.

6. Recommendations and Conclusion

The main findings of this study suggest the following recommendations:

1. To develop a health risk behavior, knowledge and perceptions questionnaire for students by involving health professionals, teachers, and health educators. The items measuring knowledge and perceptions should be clearly distinguished. The instrument should be validated to be relevant to the Armenian student population;
2. To design and conduct surveys in a representative sample of Armenian students (medical and non-medical specialties), compare and contrast the results from two

groups, and to reveal if medical school acquired health knowledge influences the risk knowledge and risk behavior relationship;

3. To conduct these surveys periodically and to use the results of such surveys to influence medical school curriculum development, and to design educational materials and disseminate health messages to the general public.

This study provided some preliminary results regarding the relationships between health risk knowledge and certain risk behaviors among medical students and residents from two medical institutions in Yerevan. Some individual and demographic characteristics (age, gender, and marital status) were highly correlated with behavior of this population. However, knowledge of health risk did not appear to be a statistically significant predictor of risk behavior. A multiple regression model of this relationship was suggested, which included, besides the knowledge variable, the marital status (or having children) of the participants. Considering the limitations of this study more research is needed to adequately assess the selected factors, particularly, knowledge and perceptions of health risk, on risk behaviors of medical students in Armenia.

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Tables

Table 1. Study Variables

Type of variables	Level of measurement	Measurement	Method of constructing
Independent			
Health risk Knowledge/ perception	Interval	Extent of agreement with statements about risk-related information	Summative scale*
Dependent			
Total risk	Interval	Number of reported risk behaviors	Index**
Intervening			
Age	Interval	Years	Number of years
Gender	Categorical (binary)	Female/Male	Coding
Birth order	Ordinal	Oldest/Youngest/Middle	Coding
Marital status	Categorical	Single/Married/Divorced	Coding
Children	Ratio	Number of children	Number of children
Belief in God	Categorical (binary)	Yes/No	Coding

**Likert approach is based on ordinal response scale. Scores are assigned to each of responses to reflect the strength and direction of the attitude. The scores then are added to produce the summary score.*

*** Is the simple summary (adding up) measure of the items.*

Table 2. Demographic Characteristics of the Study Participants

Variable	Students (n=75)		Residents (n=88)	
	Female n (%)	Male n (%)	Female n (%)	Male n (%)
Age by categories:				
<25	42 (97.7)	29 (90.7)	15 (21.1)	6 (35.3)
25-30	-	1 (3.1)	33 (46.5)	8 (47.1)
31-40	-	1 (3.1)	9 (12.7)	2 (11.7)
41-50	1 (2.3)	1 (3.1)	11 (15.5)	1 (5.9)
>50	-	-	3 (4.2)	-
Marital status				
Single	41 (95.4)	30 (93.7)	31 (43.7)	12 (70.6)
Married	2 (4.6)	2 (6.3)	40 (56.3)	5 (29.4)
Having children				
Yes	2 (4.6)	2 (6.3)	37 (52.1)	4 (23.5)
No	41 (95.4)	30 (93.7)	34 (47.9)	13 (76.5)
Belief in God				
Yes	36 (83.7)	22 (68.7)	59 (83.1)	13 (76.5)
No	7 (16.3)	10 (31.3)	12 (16.9)	4 (23.5)

Table 3. Association between Total Risk of Respondents and Their Individual Characteristics

Characteristic (binary covariates)	Difference in the total risk scores between groups with and without the characteristic	*t* statistic	*p* value	95% CI
Gender (female vs male)	-2.8	-5.5	0.0000	-3.8; -1.8
Marital status (single vs married)	1.7	3.1	0.0023	0.6; 2.8
Having children (no children vs children)	1.8	3.2	0.0017	0.7; 2.9
Education (student vs resident)	1.8	3.7	0.0003	0.9; 2.8
Belief in God (yes vs no)	-0.3	-0.5	0.6292	-1.6; 1.0

Table 4. Results of ANOVA global test for between group comparisons of total risk

Explanatory variable	Number of groups	*F* statistic	*p* value
Age category	5	3.2	0.0137
Birth order	3	3.1	0.0481

Table 5. Results of Multiple Linear Regression Models for Total Risk Behavior Adjusted for Confounding Variables

Covariate	*β* (*p* value)							
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
Knowledge/ perception	-0.02 (0.542)*	-0.04 (0.268)	-0.03 (0.334)	-0.03 (0.419)	-0.03 (0.411)	-0.03 (0.409)	-0.03 (0.374)	-0.03 (0.333)
Adjusted for								
Age		-0.10 (0.001)	-0.07 (0.012)	-0.05 (0.186)	-0.04 (0.377)	-0.04 (0.369)	-0.03 (0.571)	-0.02 (0.578)
Gender			2.56 (0.000)	2.42 (0.000)	2.40 (0.000)	2.39 (0.000)	2.38 (0.000)	2.46 (0.000)
Education				-0.83 (0.146)	-0.80 (0.168)	-0.79 (0.171)	-0.82 (0.159)	-0.88 (0.133)
Marital status					-0.23 (0.705)	-0.23 (0.701)	0.20 (0.828)	-0.70 (0.650)
Birth order						0.12 (0.709)	0.14 (0.672)	0.14 (0.652)
Children							-0.75 (0.537)	-1.19 (0.469)
Belief in God								0.79 (0.176)

* *Unadjusted coefficient*

Table 6. Association between Total Risk and Knowledge/Perception by Marital Status

Covariate	β	Standard error	*t statistic*	*p* value	95% CI	R^2
Knowledge/ perception	-0.4	0.1	-3.3	0.001	-0.6; -0.2	0.1
Marital status	-29.2	8.8	-3.3	0.001	-46.5; -11.9	
Knowmarit (interaction term)	0.3	0.1	3.1	0.002	0.1; 0.4	

Appendix A
Questionnaire (English version)

American University of Armenia
College of Health Sciences
Master of Public Health Program

Questionnaire for medical students and residents

The questionnaire should take about 20 minutes and is:

- Voluntary
- Anonymous
- Not related to your course marks

Please, read the instructions before each section carefully.

Section 1

Check the appropriate answer:

Age ☐ Sex 1.Female ☐ 2. Male ☐

1. Student ☐ 2. Resident ☐

Year of studying ☐

Please, tell us about your parents' education and profession

A Father 1. Secondary ☐ 2. High ☐ Profession _____

B Mother 1. Secondary ☐ 2. High ☐ Profession _____

A. What is your current marital status 1. Single ☐ 2. Married ☐ 3. Divorced ☐

B. How many children do you have ☐

A. How many brothers and sisters have you got (count any that grew up with you) ☐ If you have none, please move on to section 2

C. Out of the brothers and/or sisters you grew up with, are you 1. The eldest ☐ 2. The youngest ☐ 3. Intermediate ☐

Section 2

How likely are you to do the following:

R	(*Please check **only one** answer)*	Never	Rarely	Sometimes	Often	Always
1	Eat low fat spread in preference to margarine or butter	☐	☐	☐	☐	☐
2	Eat snacks like chocolate in a day	☐	☐	☐	☐	☐
3	Wash your hands before you prepare or eat food	☐	☐	☐	☐	☐
4	Chew your fingers or finger nails	☐	☐	☐	☐	☐
5	Take fairly vigorous exercise once a week or more	☐	☐	☐	☐	☐
6	Drink more than 5 cups of coffee or tea in a day	☐	☐	☐	☐	☐
7	Eat a baked potato in preference to chips	☐	☐	☐	☐	☐
8	Eat some fruit, green vegetables or salad each day	☐	☐	☐	☐	☐
9	Use skimmed or semi skimmed milk in preference to full fat milk	☐	☐	☐	☐	☐
10	Have a desert with your main meal	☐	☐	☐	☐	☐
11	Walk through moving traffic to cross a road	☐	☐	☐	☐	☐
12	Take vitamin supplements each day	☐	☐	☐	☐	☐
13	Clean your teeth each morning and night	☐	☐	☐	☐	☐
14	Drink more than a bottle of wine, or 1.5 l of beer in a day	☐	☐	☐	☐	☐
15	Get your skin burnt when on a sunny holiday	☐	☐	☐	☐	☐

Section 3

During any periods, have you:

ER	Tick ***all*** that apply	When you were aged					
		Never	0-15	16-18	19-24	25+	In the last 12 months
1		☐	☐	☐	☐	☐	☐
2	Considered yourself overweight for your height	☐	☐	☐	☐	☐	☐
3		☐	☐	☐	☐	☐	☐
4	Ever tried to lose weight by dieting	☐	☐	☐	☐	☐	☐
5		☐	☐	☐	☐	☐	☐
6	Been in a physical fight	☐	☐	☐	☐	☐	☐
7		☐	☐	☐	☐	☐	☐
8	Ever been a cause of a car or motorbike crash	☐	☐	☐	☐	☐	☐
9		☐	☐	☐	☐	☐	☐
10	Ever drunk enough alcohol to cause some memory loss	☐	☐	☐	☐	☐	☐
11		☐	☐	☐	☐	☐	☐
12	Ever had sex with a new partner without using a condom	☐	☐	☐	☐	☐	☐
13		☐	☐	☐	☐	☐	☐
14	Had more than 2 sexual partners in a year	☐	☐	☐	☐	☐	☐
15		☐	☐	☐	☐	☐	☐

Section 3

During any periods, have you:

ER	Tick ***all*** that apply	Never	When you were aged 0-15	16-18	19-24	25+	In the last 12 months
16	Ever used or had your partner use emergency contraception	☐	☐	☐	☐	☐	☐
17		☐	☐	☐	☐	☐	☐
18	Ever bought cigarettes when underage	☐	☐	☐	☐	☐	☐
19		☐	☐	☐	☐	☐	☐
20	Ever been for treatment as a result of food poisoning	☐	☐	☐	☐	☐	☐
21		☐	☐	☐	☐	☐	☐
22	Ever broken a bone in your body	☐	☐	☐	☐	☐	☐
23		☐	☐	☐	☐	☐	☐
24	Ever needed a blood transmission as a result of injury	☐	☐	☐	☐	☐	☐
25		☐	☐	☐	☐	☐	☐
26	Used or had a partner who used the contraceptive pill	☐	☐	☐	☐	☐	☐
27		☐	☐	☐	☐	☐	☐
28	Regularly checked your breasts/testicles for lumps	☐	☐	☐	☐	☐	☐
29		☐	☐	☐	☐	☐	☐

Section 4

Please tell us whether you agree with the following statements:

K	*(Please check **only one** answer)*	Agree 1	Tend to agree 2	Tend to disagree 3	Disagree 4
1	The contraceptive pills increases the risk of blood clots				
2	A glass of wine each night is good for health				
3	Risk of getting testicular cancer is increased by wearing tight trousers				
4	Regular teeth cleaning can reduce your chance of cancer of the mouth				
5	Hearth attacks are more likely in overweight people				
6	There is more salmonella in uncooked lamb than uncooked chicken				
7	It is not dangerous to drive after drinking alcohol				
8	Smoking only 10 cigarettes per day does not increase the risk of lung cancer				
9	It should not be compulsory to wear a seatbelt whilst traveling a car				
10	The contraceptive pill is effective at preventing HIV				
11	Ten minutes of exercise per day reduces your risk of hearth disease				
12	Breast cancer is more likely in those with relatives who have had breast cancer				
13	By the age of 30, most people have more than 15 teeth either decayed, filled or extracted				
14	The risk of HIV transmission through oral sex is virtually zero				
15	Regular teeth cleaning prevent gum disease				
16	Sharing a needle to inject drugs can transmit HIV				
17	There is a very good chance of curing testicular cancer if it is caught early enough				
18	Butter is worse for your health than margarine				
19	More than 10% of eggs contain salmonella				
20	Smoking near the baby can lead to the baby dying from cot death				

Please tell us whether you agree with the following statements:

K	*(Please check **only one** answer)*	Agree	Tend to agree	Tend to disagree	Disagree
21	The contraceptive pill increases the risk of breast cancer	☐	☐	☐	☐
22	Drinking a few cups of tea can reduce your chance of getting of cancer	☐	☐	☐	☐
23	Condoms help to prevent the transmission of most sexually transmitted diseases	☐	☐	☐	☐
24	Exercise which doubled the heart rate is bad for the heart	☐	☐	☐	☐
25	A long term consequences of smoking is to reduce a man's ability to have an erection	☐	☐	☐	☐
26	Of people who smoke, more than a quarter eventually die from smoking-related disease	☐	☐	☐	☐
27	HIV is more likely transmitted by anal sex than by vaginal sex	☐	☐	☐	☐
28	Chlamydia is a sexually transmitted disease that is more common than HIV	☐	☐	☐	☐
29	The chance of pregnancy after one night of unprotected sex is less than 5%	☐	☐	☐	☐
30	A 180 cm tall man who weights 115 kg is overweight	☐	☐	☐	☐
31	Smoking during pregnancy is dangerous for the unborn child	☐	☐	☐	☐
32	Your blood cholesterol level should be measured every year	☐	☐	☐	☐
33	High fat meals lead to heart disease	☐	☐	☐	☐
34	The speed limit through in towns should be increased to 75 km/h	☐	☐	☐	☐
35	Eating too many vegetables increases risk of bowel cancer	☐	☐	☐	☐
36	Sunburn can lead to skin cancer	☐	☐	☐	☐
37	Only gay people get HIV	☐	☐	☐	☐
38	More than one in five people eventually die of cancer	☐	☐	☐	☐
39	HIV can be contracted by kissing an infected person	☐	☐	☐	☐
40	Smoking cigars does not increase the risk of cancer	☐	☐	☐	☐

Thank you for answering questions!
We really appreciate your time and participation!

Items of the Study Instrument Included in the Main Study Variables

Variable	Section of the questionnaire	Item #
Total risk	II	1*,2,3*,4,5*,6,7*,8*,9*,10,11,12*,13*,14,15
	III	(1-11)*,13*,14*,15*,17*,18*,19,20*,21,22-24*,27*,28,29*
Knowledge/ Perception	IV	1*,2*,3,4,5*,7,8,9,10,11*,12*,13,14,15*,16*,17*,18*,20, 21*, 23,24,25*,26*,27,30*,31*,32, 33*,34,35,36*,37, 39,40

Answers were recoded (direction was changed)

Questionnaire (Armenian version)

ՀԱՅԱՍՏԱՆԻ ԱՄԵՐԻԿՅԱՆ ՀԱՄԱԼՍԱՐԱՆ
Առողջապահական գիտությունների քոլեջ
Հանրային առողջապահության մագիստրոսի ծրագիր

Բժշկական հաստատությունների ուսանողների և կլինիկական օրդինատորների հարցաշար

Այս հարցաշարի լրացումը կտևի մոտավորապես 20 րոպե, այն

- կամավոր է
- անանուն է
- կապված չէ ուսումնական պրոցեսի_և գնահատականների հետ

Ուշադիր կարդացեք, խնդրեմ, յուրաքանչյուր բաժնի սկզբում տրված ցուցումները:

Բաժին 1

Նշում արեք, խնդրեմ, համապատասխան վանդակում:

Տարիքը _____ Սեռը 1. Իգական ☐ 2. Արական ☐

1.Ուսանող ☐ 2. Օրդինատոր ☐ Ուսումնառության տարին ☐

Հաղորդեք, խնդրեմ, որոշ տեղեկություն Ձեր ծնողների կրթության և մասնագիտության մասին

Հայրը 1. Միջնակարգ ☐ 2. Բարձրագույն ☐

Մայրը 1. Միջնակարգ ☐ 2. Բարձրագույն ☐

Ձեր ներկա ընտանեկան կարգավիճակը 1. Չամուսնացած ☐

2. Ամուսնացած ☐ Քանի երեխա ունեք ☐

3. Ամուսնալուծված ☐

Քանի քույր և եղբայր ունեք ☐ Եթե քույրեր և եղբայրներ չունեք, անցեք, խնդրեմ, երկրորդ բաժնին

Ձեր եղբայրներից և քույրերից Դուք. 1. ավագն եք ☐ 2. կրտսերն եք ☐ 3. միջնեկն եք ☐

Բաժին 2

Ինչ հաճախականությամբ եք Դուք անում հետևյալը.

R	*(Խնդրեմ, նշում արեք **միայն մեկ** վանդակում)*	Երբեք	Հազվադեպ	Երբեմն	Հաճախ	Միշտ
1	Գերադասում եք ուտել ցածր յուղայնությամբ մթերք՝ կարագի կամ մարգարինի փոխարեն	☐	☐	☐	☐	☐
2	Ամեն օր ուտում եք շոկոլադ կամ շոկոլադով որևէ քացրավենիք	☐	☐	☐	☐	☐
3	Լվանում եք Ձեր ձեռքերը ուտելուց կամ ուտելիք պատրաստելուց առաջ	☐	☐	☐	☐	☐
4	Կրծում եք Ձեր եղունգները	☐	☐	☐	☐	☐
5	Կատարում եք բավական եռանդուն ֆիզիկական վարժություններ շաբաթը մեկ կամ ավելի անգամ	☐	☐	☐	☐	☐
6	Օրական խմում եք 5 կամ ավելի բաժակ սուրճ	☐	☐	☐	☐	☐
7	Գերադասում եք ուտել խորոված կարտոֆիլ՝ տապակածի (չիփսի) փոխարեն	☐	☐	☐	☐	☐
8	Ամեն օր ուտում եք որևէ միրգ, կանաչ բանջարեղեն կամ սալաթ	☐	☐	☐	☐	☐
9	Օգտագործում եք ճարպազրկված կամ կիսաճարպազրկված կաթ՝ բնական կաթի փոխարեն	☐	☐	☐	☐	☐
10	Ճաշի ժամին ուտում եք նաև քաղցրավենիք կամ թխվածք (десерт)	☐	☐	☐	☐	☐
11	Փողոցը հատում եք երթևեկող մեքենաների արանքով	☐	☐	☐	☐	☐
12	Ամեն օր վիտամինային հավելումներ եք ընդունում	☐	☐	☐	☐	☐
13	Մաքրում եք Ձեր ատամները ամեն առավոտ և երեկո	☐	☐	☐	☐	☐
14	Խմում եք մեկ շշից ավել գինի կամ 1.5 լիտրից ավել գարեջուր մեկ օրում	☐	☐	☐	☐	☐
15	Ամառային արևոտ արձակուրդին մաշկն արևահարում եք (загар)	☐	☐	☐	☐	☐

Բաժին 3

Երբևիցե Դուք արե՞լ եք կամ Ձեզ պատահե՞լ է հետևյալը.

ER	*Նշեք **<u>բոլոր պատասխանները</u>**, որոնք համապատասխանում են*	**Երբեք**	Երբ այս տարիքի էիք **0-15**	**16-18**	**19-24**	**25+**	**Վերջին 12 ամսում**
1.		☐	☐	☐	☐	☐	☐
2.	Ձեզ համարել եք գեր՝ Ձեր հասակի (ոչ տարիքի) համեմատ	☐	☐	☐	☐	☐	☐
3.		☐	☐	☐	☐	☐	☐
4.	Փորձել եք ազատվել ավելորդ քաշից դիետայի միջոցով	☐	☐	☐	☐	☐	☐
5.		☐	☐	☐	☐	☐	☐
6.		☐	☐	☐	☐	☐	☐
7.		☐	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐	☐
9.		☐	☐	☐	☐	☐	☐
10.	Այնքան ալկոհոլ եք օգտագործել, որ հիշողության կորուստ եք ունեցել	☐	☐	☐	☐	☐	☐
11		☐	☐	☐	☐	☐	☐
12.	Սեռական հարաբերություն եք ունեցել նոր զուգընկերոջ հետ՝ առանց պահպանակի	☐	☐	☐	☐	☐	☐
13		☐	☐	☐	☐	☐	☐
14		☐	☐	☐	☐	☐	☐
15		☐	☐	☐	☐	☐	☐

Երբևիցե Դուք արե՞լ եք կամ Ձեզ պատահե՞լ է հետևյալը.

ER	*Նշեք **<u>բոլոր պատասխանները</u>**, որոնք համապատասխանում են*	Երբեք	Երբ այս տարիքի էիք 0-15	16-18	19-24	25+	Վերջին 12 ամսում
16.	Դուք կամ Ձեր զուգընկերը հրատապ հակաբեղմնավորիչ է օգտագործել	☐	☐	☐	☐	☐	☐
17.	Այնքան ալկոհոլ եք օգտագործել, որ հիվանդացել եք	☐	☐	☐	☐	☐	☐
18.	Ծխել եք, երբ անչափահաս էիք	☐	☐	☐	☐	☐	☐
19.	Բուսակեր եք եղել	☐	☐	☐	☐	☐	☐
20.	Սննդային թունավորում եք ունեցել	☐	☐	☐	☐	☐	☐
21.	Պարբերաբար այցելել եք Ձեր ատամնաբույժին՝ պրոֆիլակտիկ ստուգումների համար (ամենաքիչը տարին մեկ անգամ)	☐	☐	☐	☐	☐	☐
22.	Ոսկրի որևէ կոտրվածք եք ունեցել	☐	☐	☐	☐	☐	☐
23.	Սպորտով զբաղվելիս անաբոլիկ ստերոիդներ եք օգտագործել	☐	☐	☐	☐	☐	☐
24.	Արյան փոխներարկման կարիք եք ունեցել՝ վնասվածքի պատճառով	☐	☐	☐	☐	☐	☐
25.	Հավատացել եք Աստծուն	☐	☐	☐	☐	☐	☐
26.	Դուք կամ Ձեր զուգընկերը հակաբեղմնավորիչ հաբ է օգտագործել	☐	☐	☐	☐	☐	☐
27.	Ուժեղ հարված կամ ցնցում եք ստացել	☐	☐	☐	☐	☐	☐
28.	Պարբերաբար ստուգել եք Ձեր կրծքագեղձերը / ամորձիները՝ կոշտացումների, ուռուցքների համար	☐	☐	☐	☐	☐	☐
29.	HIV տեստի անհրաժեշտություն եք ունեցել	☐	☐	☐	☐	☐	☐

Բաժին 4

Նշեք, խնդրեմ, թե հետևյալ պնդումներին համաձայն եք, թե ոչ.

K	*Փորձեք պատասխանել բոլոր հարցերին, նշեք **միայն մեկ** պատասխան*	Համա-ձայն եմ	Որոշ չափով համաձայն եմ	Ավելի շուտ համաձայն չեմ	Բոլորովին համաձայն չեմ
1	Հակաբեղմնավորիչ հաբերի օգտագործումը մեծացնում է արյան մակարդման վտանգը	☐	☐	☐	☐
2	Մի բաժակ գինին ամեն երեկո օգտակար է առողջությանը	☐	☐	☐	☐
3	Սերմնարանների քաղցկեղի վտանգը մեծանում `է ձիգ կիսավարտիք կրելիս	☐	☐	☐	☐
4	Ատամները պարբերաբար մաքրելը նվազեցնում է բերանի քաղցկեղի վտանգը	☐	☐	☐	☐
5	Սրտի նոպաներն ավելի հավանական են ավելորդ քաշի դեպքում	☐	☐	☐	☐
6	Ավելի շատ սալմոնելլա է պարունակվում հում գառան, քան հում հավի մսում	☐	☐	☐	☐
7	Մեքենա վարելը՝ ալկոհոլ օգտագործած վիճակում, վտանգավոր չէ	☐	☐	☐	☐
8	Օրական ընդամենը 10 սիգարետ ծխելը չի մեծացնում թոքերի քաղցկեղի վտանգը	☐	☐	☐	☐
9	Մեքենա վարելիս անվտանգության գոտի օգտագործելը պետք է պարտադիր չլինի	☐	☐	☐	☐
10	Հակաբեղմնավորիչ հաբերն արդյունավետ են HIV կանխարգելման համար	☐	☐	☐	☐
11	Օրական 10 րոպե ֆիզիկական վարժություններ կատարելը կնվազեցնի սրտի հիվանդության վտանգը	☐	☐	☐	☐
12	Կրծքագեղձի քաղցկեղն ավելի հավանական է նրանց համար, ում ազգականներից որևէ մեկն ունեցել է այդ հիվանդությունը	☐	☐	☐	☐
13	30 տարեկանում մարդկանց մեծ մասն ունի 15-ից ավել հեռացված կամ բուժված ատամ	☐	☐	☐	☐
14	Մարդու իմունային անբավարարության վիրուսի (HIV) փոխանցման վտանգն օրալ սեքսի միջոցով փաստորեն զրո է	☐	☐	☐	☐
15	Ատամները սիստեմատիկ մաքրելը կանխարգելում է լնդերի հիվանդությունը	☐	☐	☐	☐

Բաժին 4

Նշեք, խնդրեմ, թե հետևյալ պնդումներին համաձայն եք, թե ոչ.

K	*Փորձեք պատասխանել բոլոր հարցերին, նշեք **միայն մեկ** պատասխան*	Համա-ձայն եմ	Որոշ չափով համաձայն եմ	Ավելի շուտ համաձայն չեմ	Բոլորովին համաձայն չեմ
16	Նույն ներարկիչից օգտվելը կարող է HIV փոխանցման պատճառ լինել	☐	☐	☐	☐
17	Սերմնագեղձի քաղցկեղի բուժման շատ մեծ հնարավորություն կա, երբ այն հայտնաբերվում է բավականին վաղ	☐	☐	☐	☐
18	Ձեր առողջության համար մարգարինն ավելի օգտակար է, քան կարագը	☐	☐	☐	☐
19	Ձվերի ավելի քան 10 տոկոսը սալմոնելլա է պարունակում	☐	☐	☐	☐
20	Փոքր երեխայի մոտ ծխելը կարող է առաջ բերում հանկարծահաս մահ	☐	☐	☐	☐
21	Հակաբեղմնավորիչ հաբերը մեծացնում են կրծքագեղձի քաղցկեղի վտանգը	☐	☐	☐	☐
22	Օրական մի քանի բաժակ թեյը խմելը կարող է նվազեցնել քաղցկեղի վտանգը	☐	☐	☐	☐
23	Պահպանակը նպաստում է սեռավարակների փոխանցման կանխարգելմանը	☐	☐	☐	☐
24	Այն վարժությունները, որոնց ընթացքում սրտի աշխատանքն արագանում է երկու անգամ, վտանգավոր են սրտի համար	☐	☐	☐	☐
25	Ծխելու հեռավոր հետևանքներից է տղամարդկանց էրեկցիայի ընդունակության նվազումը	☐	☐	☐	☐
26	Ծխող մարդկան մեկ քառորդից ավելին ի վերջո մահանում է ծխելու հետ կապված որևէ հիվանդությունից	☐	☐	☐	☐
27	HIV փոխանցումն ավելի հավանական է անալ, քան վագինալ սեքսի միջոցով	☐	☐	☐	☐
28	Խլամիդիոզը սեռավարակ է, որն ավելի տարածված է, քան HIV-ն	☐	☐	☐	☐
29	Մեկ գիշերվա չպաշտպանված սեռական հարաբերությունից հղիանալու վտանգը 5 տոկոսից քիչ է	☐	☐	☐	☐
30	Եթե 180սմ հասակով տղամարդու քաշը 115 կգ է, նա ավելորդ քաշ ունի	☐	☐	☐	☐

Բաժին 4

Նշեք, խնդրեմ, թե հետևյալ պնդումներին համաձայն եք, թե ոչ.

K	*Փորձեք պատասխանել բոլոր հարցերին, նշեք **միայն մեկ** պատասխան*	Համա-ձայն եմ	Որոշ չափով համաձայն եմ	Ավելի շուտ համաձայն չեմ	Բոլորովին համաձայն չեմ
31	Հղի կնոջ ծխելը վտանգավոր է պտղի համար	☐	☐	☐	☐
32	Արյան մեջ խոլեստերինի քանակը պետք է որոշել ամեն տարի	☐	☐	☐	☐
33	Ճարպով հարուստ սնունդը սրտի հիվանդություն է առաջ բերում	☐	☐	☐	☐
34	Բնակավայրում արագության սահմանափակումը պետք է ավելացնել մինչև 75 կմ/ժ	☐	☐	☐	☐
35	Շատ մեծ քանակով բանջարեղեն ուտելը մեծացնում է աղիքների քաղցկեղի վտանգը	☐	☐	☐	☐
36	Արևայրուքը (загар) կարող է մաշկի քաղցկեղ առաջացնել	☐	☐	☐	☐
37	Միայն հոմոսեքսուալներն են վարակվում HIV-ով	☐	☐	☐	☐
38	Յուրաքանչյուր 5 մարդուց մեկից ավելին վերջին հաշվով մահանում է քաղցկեղից	☐	☐	☐	☐
39	HIV կարող է փոխանցվել վարակված մարդու հետ համբուրվելիս	☐	☐	☐	☐
40	Սիգար ծխելը չի մեծացնում քաղցկեղի վտանգը	☐	☐	☐	☐

Շնորհակալություն հարցերին պատասխանելու համար:

Մենք գնահատում ենք Ձեր ժամանակը և մասնակցությունը:

Appendix B
Consent form (English version)

American University of Armenia
Department of Public Health
Consent form

Association between Health Risk Knowledge and Risk Behavior Among Medical Students and Residents in Yerevan

Good morning/ afternoon. My name is *Tereza Khachkalyan.* I am the second year student of the American University of Armenia, department of Public Health. As a master thesis project topic we are studying relationships between health risk knowledge, attitudes, perceptions and risk behavior of medical students and residents of selected medical colleges in Yerevan.

You are selected as students of one of the selected medical colleges for our study. You do not directly benefit from the participation in this study. Since you are going to become health professionals, and, presumably, will be responsible also for dissemination of health knowledge, particularly, about risk behaviors, your participation is highly valuable for this project.

Information for the study will be collected through the use of the attached questionnaire, which should take approximately 20 minutes to complete. Please, be free asking any question regarding the project and your participation.

The questionnaire is anonymous. However, it includes some sensitive questions regarding your personal habits and characteristics. This information will never be connected to your name. Only group or aggregate data will be used in any written or oral reports about the findings. The only people who will have access to the data are members of research team. The questionnaires will be kept locked 3 years. After that time, they will be destroyed.

It is your decision whether to be in this study. We can withdraw from the study at any time you wish. Whether or not you are participating in the study will not affect your education. You should ask the person in charge listed below any questions you may have about this research study. You should ask him/her questions in the future if you do not understand something about the study.

If you have any questions concerning the study or feel that have been treated unfair you can contact the Center for Health Services Research and Development of the American University of Armenia: Dr. Yelena Amirkhanyan; phone: 512568, or Dr. Michael Thompson; phone: 512592.

The completion of the questionnaire will imply your consent to participate in the study.
I really appreciate your time. Thank you.

Consent form (Armenian version)

Հայաստանի ամերիկյան համալսարան
Հանրային առողջապահության ֆակուլտետ
Իրազեկ համաձայնություն

Երևանի բժշկական բարձրագույն հաստատությունների ուսանողների և կլինիկական օրդինատորների առողջապահական գիտելիքների կապը նրանց վարքագծի հետ

Բարի առավոտ/օր: Իմ անունը Թերեզա Խաչկալյան է: Ես Հայաստանի ամերիկյան համալսարանի հանրային առողջապահության ֆակուլտետի երկրորդ կուրսի ուսանող եմ: Հանրային առողջապահության մագիստրոսի աստիճանի ավարտական նախագծի շրջանակներում մենք ուսումնասիրում ենք Երևանի բժշկական բարձրագույն հաստատությունների ուսանողների առողջապահական գիտելիքների, որոշակի վարքագծի նկատմամբ նրանց վերաբերմունքի, ինչպես նաև նրանց կենսակերպի փոխհարաբերության որոշ կողմեր:

Դուք ընտրվել եք որպես հետազոտությանը մասնակցող հաստատու-յուններից մեկի ուսանող/օրդինատոր: Սույն հետազոտությունից Դուք որևէ անմիջական օգուտ: չեք ստանալու: Սակայն Դուք առողջապահության ապագա մասնագետ եք եվ, ամենայն հավանականությամբ, ապագայում կլինեք առող-ջապահական, մասնավորապես, առողջ կենսակերպի վերաբերյալ գիտելիքի հիմնական տարածողները: Ուստի Ձեր մասնակցությունը խիստ արժեքավոր է այս ծրագրի իրականացման համար:

Հետազոտության համար անհրաժեշտ տեղեկությունները պետք է գրանցվեն անանուն հարցաշարում, որը կցված է այս փաստաթղթին. Հարցաթերթիկը լրացնելու համար Ձեզնից կպահանջվի մոտավորապես 20 րոպե: Կարող եք ցանկացած հարց տալ հետազոտության եվ ձեր մասնակցության վերաբերյալ:

Հարցաշարն անանուն է, սակայն այն պարունակում է որոշ հարցեր, որոնք վերաբերում են Ձեր անհատական վարքագծին: Այդ տեղեկությունները երբեք չեն կապվի Ձեր անվան հետ: Կհրապարակվեն, գրավոր կամ բանավոր, միայն ընդհանրական կամ հավաքական տվյալներ հետազոտության արդյունքի վերաբերյալ: Հետազոտության ընթացքում հավաքված տվյալները մատչելի կլինեն միայն հետազոտող խմբի անդամներին. Լրացված հարցաթերթիկները կպահվեն 3 տարի փակ պահոցում, ապա կոչնչացվեն:

Ձեր մասնակցությունը այս հետազոտությանը խիստ կամավոր է: Դուք կարող եք ընդհատել Ձեր մասնակցությունը հետազոտության ցանկացած պահի: Ձեր հրաժարվելը որևէ կերպ չի ազդի Ձեր ուսումնառության վրա: Եթե Դուք որևէ հարց ունենաք այս աշխատանքի վերաբերյալ, ինչպես հետազոտության ընթացքում, այնպես էլ ապագայում, եթե նաև կարծեք, որ Ձեզ հետ արդարացի չեն վարվել, կարող եք դիմել ստորև նշված անձանց.

Հայաստանի ամերիկյան համալսարանի Առողջապահության ծառայությունների հետազոտման եվ զարգացման կենտրոն, Ելենա Ամիրխանյանին, հեռ.՝ 512568, կամ դոկտոր Մայքլ Թոմփսոնին, հեռ.՝ 512592:

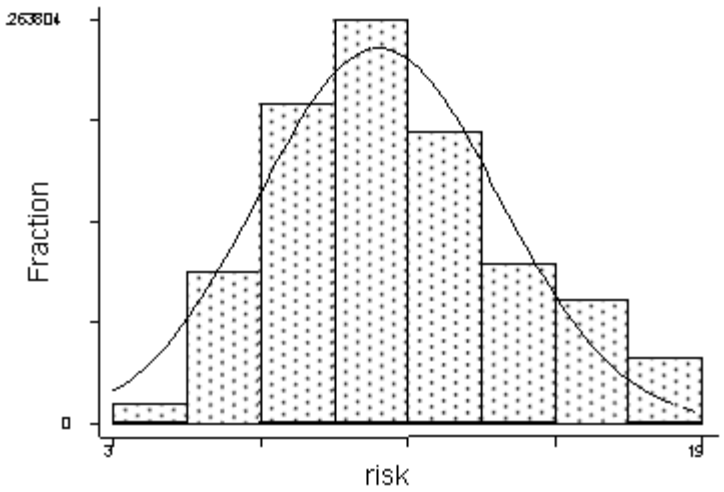
Հարցաշարը լրացնելը կնշանակի ձեր համաձայնությունը՝ մասնակցել այս հետազոտությանը: Շնորհակալություն ձեր ժամանակը տրամադրելու համար:

Appendix C

Summary Measures of the Study Main Variables

Variable	Num of observations	Mean	Std. Dev.	Min	Max	Median
Total risk	163	10.21	3.25	3	19	10
Knowledge/ Perception	163	102.46	6.64	85	117	102

```
0* | 3
0* | 4
0* | 5555
0* | 666666666666
0* | 777777777777777777
0* | 8888888888888
0* | 9999999999999999999
1* | 00000000000000000000
1* | 111111111111111111
1* | 2222222222222
1* | 333333333
1* | 44444444
1* | 55555555
1* | 66666
1* | 777
1* | 888
1* | 9
```



Stem-and-leaf plot and frequency histogram of total risk

```
 8f | 5
 8s | 67
 8. | 88
 9* | 00111
 9t | 233
 9f | 4445555555
 9s | 6666666777777
 9. | 88888888999999999
10* | 0000000011111111111
10t | 2222222222233333333
10f | 44444444445555555555
10s | 66666667777777
10. | 888888899999999
11* | 0000011111
11t | 23333
11f | 555
11s | 66677
```

Stem-and-leaf plot and frequency histogram of knowledge/perception

Appendix D

Checking Model for Goodness of Fit