

**Oral health-related quality of life and oral hygiene
knowledge, attitudes, and practices of the general population
in Sevan and Artashat cities, Armenia**

Master of Public Health Integrating Experience Project

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By

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LIST OF ABBREVIATIONS

BBP	Basic Benefit Package
EIH	Entrepreneurs in Health
IRB	Institutional Review Board
KAP	Knowledge, Attitudes and Practices
MOH	Ministry of Health
OHIP	Oral Health Impact Profile
OHRQoL	Oral Health-Related Quality of Life
SES	Socio-Economic Status
VIF	Variance Inflation Factor
WHO	World Health Organization
YLD	Years Lived with Disabilities

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Abstract

Background: Oral health is a vital part of general health and is an important factor that influences individual's quality of life. The prevalence of oral diseases has been high. Oral diseases are responsible for not only physical but also social and psychosocial problems. The ramifications of poor oral health pose a major threat to an individual's quality of life, affecting their appearance, functioning and even interpersonal relationships. Oral health knowledge is considered as a precondition for better oral-health attitudes and practices. The aim of this study was to assess the oral health-related quality of life (OHRQoL) among the general adult population living in Sevan and Artashat cities of Armenia and explore its associations with potential risk factors.

Methods: A cross-sectional household survey was conducted to address the research question. The study population included adults (18+) living in Sevan and Artashat cities. Data collection was conducted through an interviewer-administered household survey. The survey questionnaire included questions regarding OHRQoL, oral hygiene knowledge, attitudes and practices, and socio-demographic characteristics. Descriptive, simple and multivariable linear regression analyses were performed using STATA 13 software.

Results: Overall, 196 participants were included in the study. The mean age of the participants were 45.0 (SD: 14.99) and 42.6 (SD: 14.15) in Sevan and Artashat cities, respectively. The mean percent score for OHRQoL was approximately the same for both cities (37.6% in Sevan and 37.5% in Artashat). The mean percent scores for knowledge, attitudes, and practices were calculated (70.0%, 65.3% and 57.7% in Sevan; 73.2%, 76.5% and 62.6% in Artashat, respectively). The scores were not statistically significantly different between the cities. After adjusting for the knowledge score, attitudes score, age, and standard of living, the research team

did not find significant association between the practice score and OHRQoL score ($\beta= 0.23$; 95%CI= -1.12, 1.60; p-value = 0.732).

Conclusion: The present study was the first investigating OHRQoL and oral hygiene knowledge, attitudes, and practices in Sevan and Artashat cities, Armenia. We did not find an association between oral hygiene practices and OHRQoL. However, the findings from this study might become a starting point for further studies to obtain more information about underlying factors influencing peoples' oral health related quality of life not only in Sevan and Artashat cities but across Armenia. The study revealed important aspects of oral hygiene knowledge, attitudes, and practices which can be used for implementing interventions to increase the knowledge, hence oral hygiene practices influencing the OHRQoL.

1. Introduction

Oral health is a vital part of general health and is an important factor that influences an individual's quality of life.¹ The term oral health-related quality of life (OHRQoL) gained broader recognition in the past few decades due to the shift from focusing solely on clinical dentistry assessments to a more patient-centered oral healthcare delivery, which holistically encompasses a patient's social, emotional and physical experience and well-being.² There is no exact definition for the "oral health-related quality of life", however, there is a general agreement that it represents a multidimensional concept³ reflecting "people's comfort when eating, sleeping, and engaging in social interaction; their self-esteem; and their satisfaction with respect to their oral health."⁴

The prevalence of oral diseases has been increasing.⁵ "Globally, oral conditions accounted for 15 million Disability Adjusted Life Years in 2010; this is an average health loss of 224 years per 100,000 people."⁶ Caries and periodontal disease are highly prevalent among oral diseases.⁵ According to the World Health Organization (WHO), the majority of adults and 60-90% of children are affected by caries.⁷ Some 3.5 billion people have been identified as having dental caries, which constitutes the most prevalent oral condition worldwide.⁸ Furthermore, complete and partial tooth loss is a leading contributor to the Years Lived with Disabilities (YLD).⁸ The prevalence of caries among the general population is high due to the fact, that the disease affects all population worldwide.⁹ According to one study conducted in the United States from 2010 to 2011, 91% of adults aged 20-64 had dental caries, and those aged 40-64 were more prone to tooth loss (66%) compared to adults aged 20-39 (33%).^{10,11} A systematic review and meta-analysis conducted by Gerritsen et al. demonstrated that there was a positive association between the number of teeth remaining in the oral cavity and OHRQoL.¹² In other words, as the number

of teeth decreased, the negative impact on their OHRQoL increased and revealed that those who had less than 17 teeth remaining had the worst quality of life.¹² Moreover, periodontal diseases lead to tooth loss and are highly prevalent amongst adults in both low-, middle- and high-income countries.^{13,14} Periodontal diseases affect 20-50% of the population globally.¹⁴ The Global Burden of Disease Study illustrates that starting from 1990 to 2010 the burden of periodontal diseases worldwide increased by 57.3%.¹⁵ Individuals with periodontal diseases are at high risk of tooth loss leading to chewing limitations and dysfunction, thereby deleteriously impacting their OHRQoL.¹⁵ Severe periodontal diseases that lead to tooth loss is prevalent amongst 5%-15% of general populations.¹⁶ Furthermore, periodontal diseases share some of the main risk factors with non-communicable diseases, for instance, cardiovascular disease, diabetes mellitus, and cancer; combined, these diseases are responsible for two-thirds of all deaths worldwide.¹⁵

Different age groups of general population value different aspects of oral health status influencing one's quality of life, e.g. older age adults value more the teeth function and younger age adults focus on the appearance. Oral diseases are responsible for not only physical but for social and psychosocial problems as well.⁵ The ramifications of poor oral health pose a major threat to an individual's quality of life, affecting their appearance, function and even interpersonal relationships.⁵ A study conducted among adults by Drachev et al have shown a wide range of OHRQoL prevalence from 1.7% to 37% among participants.¹⁷ Approximately 54% of adults reported poor OHRQoL with highest scores in physical pain and psychological discomfort.¹⁷ Seniors in the United Kingdom with systematic diseases had a 44% higher probability of experiencing psychological discomfort influencing their OHRQoL.¹⁸ A study conducted amongst a large national cohort to assess OHRQoL has shown that older adults who mention poor oral health status experience troubles with eating, swallowing and chewing; while younger

adults with poor oral health experience discomfort with interpersonal relationships.¹⁹ Illustrating this point, a national survey in the UK showed that 75% of the general population stated that their oral health status had an influence on their quality of life, in which 66% reported about the influence on appearance, 63% on comfort and 62% on eating habits.²⁰ Moreover, a study conducted in Australia similarly concluded that oral health can influence the quality of life;²¹ it showed that 35% of the participants were influenced by oral pain, while over a quarter of them felt that their nutrition was poor due to diminished oral health, and their compromised oral health status made them feel more self-conscious.²¹

Progressive oral diseases during lifetime (e.g. tooth loss, denture wear) contribute to the functional difficulties, especially among the older adult population. Several dental diseases can lead to functional limitation such as chewing and pain or discomfort, which at the end lead to disability.¹¹ Especially tooth loss is believed to be something inherited as a person gets older and usually teeth are extracted at this point in life to relief an adult from pain or discomfort.²²

Atchison and Gift reported in their paper that dentate individuals had a positive rating of their oral health status compared to edentulous participants.²³ People with dentures had 2.5 times and those who reported poor oral health status 2.3 times higher oral practice limitation, again influencing their quality of life.¹⁸ A study conducted by Mason et al, have shown that men with better socioeconomic status and fewer number of teeth lost during their adulthood have shown that their oral health has less negative impact on their everyday life.²⁴ Women, on the other hand, have shown that even only the number of remaining natural teeth has a great impact on their OHRQoL.²⁴

As mentioned above oral health is an essential part of the general health and it is well defined especially among adults.²⁵ Some general diseases for instance diabetes can provoke

xerostomia(dryness in the mouth). This could later influence oral health and as a result OHRQoL.²⁶ Moreover, oral and systematic diseases might share some widespread risk factors, such as poor oral health, excessive consumption of sugary food/beverages, alcohol and tobacco are causing diabetes, periodontal and cardiovascular diseases respectively.²²

Dentistry is constantly evolving with new approaches, techniques, and medications being introduced into the industry as technology, research and globalization perpetually exert influence in this field. Cohorts born in different generational time periods face dentistry in the various developmental stages. Therefore, those from different generations possess varying points of view regarding the preservation of their teeth and dental visits.²⁷

Different studies reported about different factors that can be associated with poor OHRQoL among adults. Poor OHRQoL was found to be more common among adults who did not have regular dental visits.^{17,18} A study conducted in Brazil for assessing OHRQoL found that dental pain was the main motive for dental visits, as it affected anywhere from 7% to 66% of the adult population.³¹ In fact, this study found that dental pain was the main factor that hindered daily activities of participants, which impacted dental care utilization and quality of life.³¹ A survey in Australia showed that people who continued their education after high school had more likelihood of attending dental offices compared to less educated people.²⁷ Socioeconomic status has been one of the important barriers to getting dental care. Surveys have shown that people who live in a wealthy area, who have high income have better dental care utilization.³²

In the oral health perspective, oral health knowledge is needed for the population to understand the reasons of poor oral health and implement positive oral health care behavior, and to make proper oral-health care decisions.³³ It is considered as the crucial prerequisite for better oral-

health attitudes and behavior.³⁴ The various studies have demonstrated that low oral health knowledge is linked with reduced oral health status.³⁵ The study conducted among seniors in Canada showed that those with lower education are 2.3 times more likely to have poorer OHRQoL.³⁶ Adults living in urban areas showed that they have three times higher oral health knowledge compared to adults in rural areas.³⁷ Moreover, Holtzman et al. found that those with low oral health knowledge are more likely to either miss their dental appointments or to have lower dental service visits.³⁸ An association was found between those with poor oral health knowledge and SES, low education and higher age.³⁹ A study conducted among adults in Brazil have shown that those with low education tend to visit dentist only when having some problems, missing routine visits.⁴⁰ Lee et al. have reported that higher oral health knowledge level is associated with a low score in Oral Health Impact Profile(OHIP-14), which means that higher oral health literacy indicates better OHRQoL.⁴¹ Likewise, the study in Brazil showed an association between low oral health knowledge and OHRQoL (people who had low oral health literacy level showed poor quality of life).⁴⁰

Attitudes reflect person's experience, cultural beliefs and norms, and influences one's oral health behavior.⁴² Studies conducted on oral health attitudes and behavior have shown that there is gender difference aspect in oral health knowledge, dental care utilization, and oral hygiene practice: showing that females have more positive oral hygiene attitudes.⁴³ A study among adults in China showed that people with higher SES and better oral health knowledge practiced better oral hygiene showing a positive attitudes towards oral health status.³⁷ Petersen et al. reported that adults in Lithuania had weak self-care practices.⁴⁴ The study showed that oral hygiene practice is an association with gender, education, and urbanization. The majority of the adults in the study reported that they cleaned/brushed their teeth less than once a day, showing

poor oral hygiene practices.⁴⁴ A study by Batista et al found an association among low oral health literacy and oral hygiene behavior showing that irregular tooth brushing and flossing are a result of poor oral health literacy influencing person's quality of life.⁴⁰

The study utilizes the conceptual framework of “Ethnicity, Ageing and Oral Health Outcomes” adapted from Andersen and Davidson (Appendix 1).⁴⁵ This conceptual framework was originally used to demonstrate the factors that have a systematic influence on oral health.⁴⁶ The model shows that individual's characteristics, beliefs, and behavior predicts the perception of oral health. It consists of variables divided into four levels. The first level of the framework includes age and gender. The second level consists of environmental (e.g. geographical location) and personal characteristics (e.g. marital status, education, income). The third level includes health practice, such as personal (hygiene) practices and dental care utilization. The fourth level consists of oral health status (e.g. number of teeth remaining) which influences the primary outcome OHRQoL.^{45,46}

1.1 Situation in Armenia

Currently, nearly all dental clinics are in the private sector in Armenia.⁴⁷ Almost all of the former public dental clinics (polyclinics) have undergone privatization.⁴⁷ According to Armenia health system performance assessment report, the utilization rates of health care in Armenia vary from marz to marz.⁴⁷ Dental services are not well organized in rural areas discouraging utilization.⁴⁷ Based on the Health systems review report from 2013 certain categories of people included in the Basic Benefit Package (BBP) receive health services for free.⁴⁷ Based on the Ministry of Health (MOH) decision, as part of the BBP package, people with certain disability points can get some dental treatments without paying in Armenia. For example, people over 65 years of age get a free prosthetic treatment (e.g. complete denture).

However, the MOH provides only 18,500 AMD for the denture, if it is going to cost more, the rest of the money should be paid by the patient out of pocket.^{48,49}

There is limited information available about studies in oral health sphere conducted in Armenia. Mainly, some projects have been implemented in order to improve oral health conditions in Armenia.⁵⁰⁻⁵² A few studies conducted in Armenia focused on children and oral hygiene knowledge of mothers.^{53,54} A pilot study conducted in Yerevan revealed that only 39% of mothers had good oral health/hygiene knowledge and were aware of the importance of oral hygiene.⁵⁴ Another qualitative study was conducted among mothers to reveal oral hygiene among children under 3 years of age and their mothers' oral hygiene-related knowledge, attitudes, and practices.⁵³ The study found that although the majority of participants were knowledgeable about oral hygiene and its importance for oral and overall health, their actual practices were not consistent with their knowledge.⁵³ There is a lack of studies about oral hygiene KAP and OHRQoL among the general population in Armenia.

1.2 Rationale

Many international studies assessing OHRQoL included either children or older age population. The focus on older age population was justified by the assumption that this population has worse oral health-related quality of life.⁵⁵ There is a knowledge gap about OHRQoL among the general population (18+) specifically in Armenia. This study allowed to assess OHRQoL among the general population in two cities located in different marzes of Armenia addressing the knowledge gap in the literature.

1.3 The aim

The aim of this study was to assess the OHRQoL among the general adult population living in Sevan and Artashat cities of Armenia and explore its associations with potential risk factors.

Primary research question

- What was the level of OHRQoL among the general population living in Sevan and Artashat cities?

Secondary research questions

- What was the level of oral health knowledge, attitudes, practices (KAP) among the general population?
- Was there an association between OHRQoL and practice score after adjusting for confounding variables?

2. Methods and Materials

2.1 Study design

A cross-sectional household survey was conducted to assess OHRQoL among the adult population in Sevan and Artashat cities of Armenia. The selected study design allows proper data collection from the target population of interest at a defined point in time.⁵⁶ In addition, the cross-sectional study design is comparatively not expensive and less time consuming.⁵⁷

2.2 Study setting and population

The target population for the study was adults (18+) living in Sevan and Artashat cities. These two cities were chosen within the scope of collaboration with the Entrepreneurs in Health (EIH) project. The project is part of the Turpanjian Rural Development Program and aims to help “young physicians and other health practitioners to open and operate quality private health practices in rural areas of Armenia.”⁵⁸ Hence, data from the study cities will allow having background information prior to opening dental offices in these communities with support from the EIH.

2.3 Sample Size

The student investigator calculated the sample size using the formula for comparing two means.⁵⁹

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 * 2 * \sigma^2}{d^2}$$

The two groups were the 18+ population in Sevan and Artashat cities assuming an equal number of people in each group.

The estimates for the formula were taken from the previous study assessing OHRQoL in Yerevan and Gyumri, Armenia (S. Sahakyan, RN, BS, MPH, G. Abelyan, MS, MPH, V. Petrosyan, MS, Ph.D., unpublished data, 2017). According to this study, the mean score of OHRQoL in Gyumri was 6.4 and in Yerevan 5.8.

Therefore, the estimated difference in means was $d^2 = (0.6)^2 = 0.36$

$$\sigma^2 = 2.25$$

$$Z_{\alpha/2} = 1.96 \text{ (with Confidence Interval = 95\%)}$$

$$Z_{\beta} = 0.84 \text{ (with Power = 80\%)}$$

$$n = \frac{(1.96 + 0.84)^2 * 2 * 2.25}{0.36} = 98$$

Due to the inability to calculate the response rate beforehand for this study, participants were selected until the desired sample size was reached for both groups in Sevan and Artashat cities.

2.4 Sampling strategy

The study sampling frame was the Parliamentary election (December 2018) voting lists for Sevan

and Artashat cities. The study population was selected from these lists, which included information about home addresses. The student investigator gave a number to each household address in the voting list. Then using “Randbetween” function in Microsoft Excel program, the student investigator generated random numbers according to the desired sample size from the sampling frame. Additional lists of addresses were generated in order to substitute wrong, missing, not eligible or refusing addresses.

2.5 Study variables

The primary outcome (dependent variable) was the OHRQoL score. The main independent variables were knowledge (score), attitudes (score) and practice of oral hygiene (score). The list of intervening variables included socio-demographic characteristics of the participants, number of their teeth, use of dentures, and presence of chronic diseases.^{11,22–24,36,39} Table 1 presents more detailed information about the variables.

2.6 Study instrument

The data on OHRQoL was collected using the OHIP – 14short instrument (Appendix 2). It consists of 14.⁶⁰ The OHIP – 14 consists of 4 dimensions: “functional limitation, pain and discomfort, psychological impacts and behavioral impacts”.⁶¹ The five-point Likert scale is used for a response format of the instrument: never – 0; hardly ever – 1; occasionally – 2; fairly often – 3; very often – 4.⁶² Additive method is the most used method to calculate the score for the instrument.⁶² Hence, the higher is the score the poorer is OHRQoL.⁶³ OHIP-14 is a widely used instrument to measure OHRQoL and is considered as a valid measurement in different countries.^{62,64–66}

The questions regarding the general oral health information were taken from the questionnaire provided by the World Health Organization (WHO).⁶⁷ This instrument had been pilot tested in

different countries and is considered as a validated instrument.⁶⁷ The answers for some questions were edited in order to meet cultural context, as it was suggested by the WHO.⁶⁷

Knowledge questions in the instrument were adapted from previous studies where oral hygiene knowledge was measured.⁶⁸⁻⁷⁰ To come up with the score for knowledge, all the right answers were coded as 1, and the wrong answers and “don’t know” responses were coded as 0. The student investigator added the correct answers together to get the final knowledge score.

Attitudes section contains questions selected based on previous studies and the WHO questionnaire.^{67,70} The right answer was coded as 1 and the rest as 0. Practice section contains questions taken from a study conducted in Gyumri and Yerevan (S. Sahakyan, RN, BS, MPH, G. Abelyan, MS, MPH, V. Petrosyan, MS, Ph.D., unpublished data, 2017). The same scoring methods used for calculating the knowledge score was applied for calculating the practice score.

2.7 Data collection

The student investigator with support from the Turpanjian School of Public Health trained the interviewers providing them with an interviewer guide (Appendix 3). The latter was adapted from a previous study.⁷¹ The interviewers were trained on how to approach the provided household addresses and select participants, how to provide the consent form (Appendix3) and conduct interviews. The student investigator participated in the data collection process as well.

Each interviewer received a list from the student investigator, which contained information about the household addresses and the corresponding IDs. The list contained additional addresses as well. The interviewer was required to approach the identified main home addresses first in order to recruit eligible participant. The interviewer identified all adult people available in the household. In case of identifying several people in the same household meeting, the inclusion

criteria the interviewer approached the one whose birthday month was the first in the year. If that person refused to participate in the study, the interviewer approached the next eligible person in the household. After each approach, the interviewer marked the corresponding response status in the journal form in front of each address.

The data was collected during March 2019. Due to the fact that face – to – face interviews which tend to have a better response rate than self-administered interviews,⁷² the data was collected using interviewer-administered questionnaires. The student investigator with the help of trained data collectors approached the participants in their households. The data collection was conducted in a way that each data collector would spend equal numbers of working and weekend days in each city. Overall, it took two working and two non-working days for each city to complete the data collection. Approximately 15 minutes was needed to answer the questionnaire.

2.8 Data analysis

The student investigator entered the data into SPSS software, parallel to the data collection process. Double data entry was performed in order to have accurate data for the analysis. Two datasets were compared in SPSS and all the discrepancies were found. The mistakes were cleaned using the questionnaires until the two datasets were identical. The statistical analysis was conducted through STATA 13 software.

Descriptive analysis was provided for the participants' characteristics. Means and standard deviations were counted for the continuous variables. Differences in the outcome (OHRQoL continuous variable) between groups in Sevan and Artashat were examined using two-tailed-tests. Linear regressions were utilized for the continuous variables. Univariate analysis was

conducted between dependent and all independent variables to detect associations. Moreover, further univariate analysis was done between main independent variables and those variables which were significantly associated with the outcome in order to check for confounding. The variables that were found to be confounders were included in further multi-variable linear regression. After running the final model the distribution of residuals was checked by generating plots such as kernel density, normal probability and the quantiles of the independent variable against the quantiles to normal distribution plots. Multicollinearity between variables was checked with the Variance Inflation Factor (VIF) statistics.

2.9 Ethical consideration

The Institutional Review Board 1 (IRB) of the American University of Armenia reviewed and approved the study protocol. An oral consent form was obtained from all of the participants before the interview started (Appendix 4). To protect participants' anonymity the database does not include any identifiable information.

3. Results

To reach the desired sample size in each city (98 participants) the team made 217 attempts in Sevan city and 212 attempts in Artashat city. Out of the 217 attempts in Sevan city, 34 refused to participate, two people did not meet the inclusion criteria and 83 participants were either not at home or the address was wrong. The resulting response rate in Sevan city was 74.2%. Out of the 212 attempts in Artashat city, 31 refused to participate, two people were not eligible and the rest (81) were not at home or the address was wrong. Hence, the response rate in Artashat city was approximately 76.0%.

3.1 Descriptive statistics

Socio-demographic characteristics

Table 2 demonstrates the socio-demographic characteristics of the participants in both cities. Mean age of the participants in Sevan city was 45.0 years (SD= 14.9) and in Artashat city was 42.6 (SD = 14.1). A large proportion of the participants were females in both cities: 83.7% in Sevan and 81.6% in Artashat. The majority of the participants were married in both cities (approximately 75%). Only 1% of the participants in both cities were not educated, and the rest had an approximately similar distribution of school education, profession technical or university degree. A little over half of the participants considered themselves as an average family in terms of the standards of living (54.1% and 57.1%, correspondingly). In regards to family's monthly expenditures, more than a quarter of the participants in Sevan and Artashat cities mentioned 101,000 to 200,000 AMD (27.6% and 36.7%, respectively). Table 3 presents details about the study participants' number of uncrowned teeth, use of dentures, smoking status, drinking status and presence of medical conditions. A little less than half of the participants 46.9% in Sevan city reported having 20 or more natural uncrowned teeth, whereas in Artashat the number was 53.1%. In both cities, the same number of participants 83.7% did not use dentures. Many participants in both cities reported having no chronic diseases (58.2% in Sevan and 63.3% in Artashat). Cardiovascular disease was mentioned most often - 23.5% of participants in Sevan and 16.3% in Artashat cities. The majority of the participants in Sevan and Artashat cities never smoked (87.8% and 82.7%, respectively). In terms of drinking, 43.9% of the participants in Sevan and 34.7% in Artashat city reported not drinking at all.

3.2 Oral Health-Related Quality of Life

Table 4 illustrates the results of the OHRQoL scores for each domain separately and the total score in Sevan and Artashat cities. The overall mean OHRQoL score in Sevan and Artashat

cities were 26.37 and 26.26; the percent score in Sevan city was 37.6 (SD = 14.22) and in Artashat city was 37.5 (SD = 12.95); the lowest possible score was 14 and the highest possible score was 70. OHRQoL score was compared between two cities to detect if there was a difference. Student t-test showed that there was no significant difference in the mean OHRQoL scores between Sevan and Artashat cities (p-value = 0.934).

3.3 Knowledge, Attitudes, and Practices towards oral hygiene and dental care

Table 5 shows details about oral hygiene knowledge level in Sevan and Artashat cities. Overall, the mean knowledge score in Sevan and Artashat cities were 4.20 and 4.39, correspondingly.

The mean percent scores were 70.1% in Sevan and 73.2% in Artashat. Student t-test showed that there was no significant difference in the mean knowledge percent scores between Sevan and Artashat cities (p-value = 0.31). Table 6 illustrates the responses to attitudes related questions.

The majority of participants in both cities responded that every person should visit a dentist regularly/twice a year (65.3% in Sevan and 76.5% in Artashat). A little more than half of the participants (52%) in Sevan city stated that the reason for a dental visit should be pain and 56% of responders in Artashat identified treatment for a dental visit. The vast majority of responders in Sevan and Artashat cities pointed the price as the main barrier to having dental visits (62.4% and 69.4%, respectively). The mean attitudes score was 0.6 (SD: 0.47) in Sevan and 0.7 (SD: 0.42) in Artashat cities. The mean attitudes percent score was 65.3% in Sevan and 76.5% in Artashat cities. Student t-test showed that there was no significant difference in the mean attitudes percent scores between Sevan and Artashat cities (p-value = 0.08).

Table 7 shows details regarding the practices section. More than half of the participants (68.4%) in Sevan and 50.0% of the participants in Artashat reported attending dentists only when in pain. Three-quarter of the participants in both cities did not know if the toothpaste they were using

contained fluoride or not. In regards to practices, the mean score was 2.8 (SD: 0.93) among participants in Sevan city and 3.1 (SD: 0.95) among Artashat respondents. The mean percent scores in Sevan and Artashat cities were 57.7% and 62.6%, respectively. Student t-test showed that there was no significant difference in the mean practices percent scores between Sevan and Artashat cities (p-value = 0.07).

3.4 Simple linear regression

Simple linear regression was conducted to find associations between the main outcome (OHRQoL) and other variables (Table 8). Knowledge score, age, education, marital status, employment status, monthly spending, the standard of living, number of natural teeth, use of dentures, drinking status and presence of diseases were significantly (p-value <0.05) association with the OHRQoL score in the unadjusted analysis. The simple linear regression showed that the increase of the practices score by one was associated with 0.6 decrease in OHRQoL score (95% CI: -2.01, 0.80; p<0.399), hence, those with higher practice score had better OHRQoL.

Similarly, the increase of the knowledge score by one was associated with 1.6 decrease in the OHIP score (95% CI: -2.58, -0.65; p<0.001), hence, those with higher knowledge score had better OHRQoL.

3.5 Testing for Confounding

Tables 9-11 show details regarding simple linear regression analysis between the practice score and independent variables, attitudes score and independent variables, and knowledge score and independent variables that could potentially confound the relationship of knowledge, attitudes, and practices scores and the outcome variable (OHRQoL). The analysis demonstrated that the following variables could confound the relationship between the OHRQoL and knowledge score: age, employment status, the standard of living, and presence of a disease (Table 9). The analysis

demonstrated that the following variables could confound the relationship between the OHRQoL and attitudes score: knowledge score, age, employment status, the standard of living, and presence of a disease (Table 10). The analysis demonstrated that the following variables could confound the relationship between the OHRQoL and practice score: knowledge score, attitudes score, age, and standard of living (Table 11).

3.6 Multivariable linear regression

The final multivariable regression investigated the relationships between the outcome variable and the knowledge score (Table 12), the outcome variable and the attitudes score (Table 13), and the outcome variable and the practices score (Table 14). After adjusting for the knowledge score, attitudes score, age, and standard of living, the research team did not find a significant association between the practice score and OHRQoL score ($\beta = 0.23$; 95% CI = -1.12, 1.60; p-value = 0.732). According to the analysis, only 16% of the variance in the OHRQoL score was explained by the final regression model. All the significantly associated variables were tested for the multicollinearity with the VIF statistics. The highest VIF factor was 1.52 with the mean VIF = 1.30, hence the analysis found no multicollinearity between the variables. After completing the multivariable analysis the distribution of residuals of the final models were checked. Figures 1-4 illustrate the normal distribution of residuals in the final model describing the relationship between the OHRQoL and the knowledge scores. Figures 5-8 demonstrate the normal distribution of residuals in the final model describing the relationship between the OHRQoL and the practices score.

4. Discussion

4.1 Main findings

This study conducted among the general population in Sevan and Artashat cities of OHRQoL contributes to the growing importance of dental public health literature in Armenia. However, OHRQoL was not significantly different between the two cities.

The results of the study were consistent with other study results.^{19–21,65,73,74} The analysis of our study showed that discomfort while eating, pain and self-conscious feeling were the most common contributors to worse OHRQoL in both cities, which was similar to the study conducted among Thai adults.¹⁹ A study conducted by Marin et al. showed similar results, reporting oral pain as the major contributor to the lower quality of life for over the third of the participants (32%).²¹ The highest oral health impact was found in two domains out of seven (physical pain and psychological discomfort) in both Sevan and Artashat cities. The study conducted among adult Spain population had similar results, suggesting that physical pain and psychological discomfort illustrated the highest contribution to worse OHRQoL among the main seven domains ($p < 0.01$).⁶⁵

Only 18.4% of the population in Sevan and Artashat cities had the highest possible knowledge score regarding oral hygiene. Compared to the study conducted among Chinese adults which reported low score in oral health knowledge (67% of middle-aged adults and 41% of older adults)³⁷, the total percent scores in Sevan and Artashat cities were high (70.06% and 73.2% respectively). Furthermore, another study conducted among Brazilian adults illustrated similar oral health literacy (71.5%) level as in our study.⁴⁰ The majority of the participants in Sevan and Artashat cities showed positive attitudes towards oral hygiene. For instance, in this study participants reported that, normally, there is a need to visit a dentist regularly/ twice a year in both Sevan and Artashat cities (65.3% and 76.5%, respectively). Similar to our finding, study in China demonstrates positive attitudes toward oral hygiene despite low oral health

literacy.³⁷ Positive beliefs towards oral health/hygiene were found in different studies conducted among the general population in Lithuania⁴⁴ and India⁶⁹. In general, oral hygiene practices in both cities were pretty weak in this study. Over half of the interviewed people reported regular tooth brushing in both cities. Regardless of the higher knowledge level, our study found low oral hygiene practices scores among participants. Similar to our findings, the study in Lithuania reported low oral hygiene practices among the general population.⁴⁴

Our study did not find any significant association between oral hygiene practice and OHRQoL. This result was consistent with several studies conducted in different countries.⁷⁴⁻⁷⁶ However, the study found that higher knowledge score was associated with better OHRQoL.

4.2 Strengths and limitations

This study has both strengths and weaknesses. This was the first study conducted in these cities regarding OHRQoL. Moreover, the study team used simple random sampling technique that is considered as the least biased. However, the study has some limitations that need to be recognized. The study has limited generalizability outside those two cities as the situation can be different in rural communities. The study instrument was not validated.

5. Recommendations

In order to strengthen the oral hygiene knowledge score in both cities, further oral hygiene training can help to increase the population literacy regarding dental hygiene procedures. Moreover, as the vast majority of our participants were women, including more men could change the picture of the overall findings in Sevan and Artashat cities. Further studies with objective measures alongside self-reported subjective measures about overall individual's oral health status could help to obtain more information about underlying factors influencing peoples'

oral health-related quality of life. Other variables can be included in further studies in order to attain the overall OHRQoL nationwide in order to take corresponding preventive measures.

Our study found no significant association between oral hygiene practices and OHRQoL, but the knowledge level had a significant influence on the OHRQoL.

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TABLES

Table 1. Study variables

Variables	Type
<i>Dependent variable</i>	
OHRQoL score	Continuous
<i>Independent variables</i>	
Knowledge score	Continuous
Attitudes score	Continuous
Practices score	Continuous
<i>Intervening variables</i>	
Age	Continuous
Gender	Dichotomous
Marital status	Nominal
Level of education	Ordinal
Employment status	Dichotomous
Socio-economic status	Ordinal
Number of natural teeth	Ordinal
Use of dentures	Dichotomous
Presence of a disease	Dichotomous

Table 2. Socio-demographic characteristics of participants

Characteristics	Sevan	Artashat
Age (years), mean (SD)	45.0 (14.99)	42.6 (14.15)
Gender, n (%)		
Female	82 (83.7)	80 (81.6)
Male	16 (16.3)	18 (18.4)
Marital status, n (%)		
Married	73 (74.5)	74 (75.5)
Separated/Divorced	6 (6.1)	9 (9.2)
Widowed	10 (10.2)	5 (5.1)
Single	9 (9.2)	10 (10.2)
Highest education, n (%)		
No education	1 (1.0)	1 (1.0)
School (12 years or less)	26 (26.5)	38 (38.8)
Professional technical education	39 (39.8)	36 (36.7)
Institute/University or higher	32 (32.7)	23 (23.5)
Employment status, n (%)		
Employed	31 (31.6)	40 (40.8)
Not employed	67 (68.4)	58 (59.2)
Family's standard of living, n (%)		
Less than average	2 (2.0)	3 (3.1)
A little less than average	11 (11.2)	5 (5.1)
Average	53 (54.1)	56 (57.1)
A little above average	24 (24.5)	27 (27.6)
Above average	8 (8.2)	7 (7.1)
Amount of monthly spending, n (%)		
Less than 50,000 AMD	7 (7.1)	5 (5.1)
From 50,000 to 100,000 AMD	26 (26.5)	21 (21.4)
From 101,000 to 200,000 AMD	27 (27.6)	36 (36.7)
From 201,000 to 300,000AMD	9 (9.2)	7 (7.1)
Above 300,000 AMD	2 (2.0)	9 (9.2)
Refused/Did not want to answer	27 (27.6)	20 (20.4)

Table 3. Participants' characteristics

Characteristics	Sevan	Artashat
Natural uncrowned teeth, n (%)		
No natural teeth	9 (9.2)	9 (9.2)
1-9 natural teeth	25 (25.5)	19 (19.2)
10-19 natural teeth	18 (18.4)	18 (18.4)
20 or more	46 (46.9)	52 (53.1)
Use of dentures, n (%)		
Partial removable	5 (5.1)	2 (2.0)
Full upper	3 (3.1)	3 (3.1)
Full lower	0 (0.0)	3 (3.1)
Both upper and lower dentures	8 (8.2)	8 (8.2)
Does not have dentures	82 (83.7)	82 (83.7)
Presence of a disease, n (%)		
Diabetes	5 (5.1)	5 (5.1)
Cancer	0 (0.0)	1 (1.0)
Thyroid or hormonal disorder	10 (10.2)	8 (8.2)
Cardiovascular disease	23 (23.5)	16 (16.3)
Osteoporosis	9 (9.2)	7 (7.1)
Immune system disorders	3 (3.1)	1 (1.0)
HIV/AIDS	0 (0.0)	0 (0.0)
Other	7 (7.1)	14(14.3)
No chronic disease	57 (58.2)	62 (63.3)
Current or past smoker, n (%)		
Yes	12 (12.2)	17 (17.3)
No	86 (87.8)	81 (82.7)
Frequency of smoking among those who smoked n (%)		
Every day	5 (41.7)	10 (58.8)
Some day	1 (8.3)	0 (0.0)
Not currently	6 (50.0)	7 (41.2)
Frequency of drinking one portion, n (%)		
Never	43 (43.9)	34 (34.7)
Less than once per month	37 (37.8)	39 (39.8)
1-3 times per month	16 (16.3)	20 (20.4)
1-3 times per week	2 (2.0)	4 (4.1)
Almost every day	0 (0.0)	1 (1.0)
Period of drinking 5 portions of drinks every day, n (%)		
Yes	8 (8.2)	11 (11.2)
No	90 (91.8)	86 (87.8)
Don't know/Difficult to answer	0 (0.0)	1 (1.0)

Table 4. OHRQoL domains and overall percent scores

Domains	Sevan, mean (SD)	Artashat, mean (SD)
Functional limitation	3.6 (1.9)	3.8 (1.7)
Physical pain	4.5 (1.7)	4.6 (1.9)
Psychological discomfort	4.6 (2.0)	4.5 (1.9)
Physical disability	3.5 (1.9)	3.3 (1.6)
Psychological disability	3.7 (2.0)	3.3 (1.6)
Social disability	3.1(1.6)	3.2 (1.4)
Handicaps	3.1 (1.6)	3.1 (1.5)
Total percent score mean (SD)	37.6 (14.2)	37.5 (13.0)

Table 5. Descriptive results of the participants' knowledge questions

Questions	Sevan	Artashat
Does oral health have any role on general health? n (%)		
Yes	76 (77.6)	80 (81.6)
No	10 (10.2)	10 (10.2)
Don't know	12 (12.2)	8 (8.2)
What does irregular tooth brushing cause? n (%)		
Decay	4 (4.1)	9 (9.2)
Gum disease	3 (3.1)	3 (3.1)
Bad breath	5 (5.1)	5 (5.1)
All of the above	71 (72.4)	77 (78.6)
Nothing	15 (15.3)	4 (4.1)
Fluoride added to toothpaste makes it... n (%)		
Cheap	0 (0.0)	2 (2.0)
Improves taste	6 (6.1)	6 (6.1)
Makes teeth resistant to caries	43 (43.9)	41 (41.8)
Don't know	49 (50.0)	49 (50.0)
Do sweets affect oral health? n (%)		
Yes	68 (69.4)	77 (78.6)
No	14 (14.3)	13 (13.3)
Don't know	16 (16.3)	8 (8.2)
Does tobacco affect oral health? n (%)		
Yes	90 (91.8)	92 (93.9)
No	2 (2.0)	2 (2.0)
Don't know	6 (6.1)	4 (4.1)
Does tooth decay avoidable? n (%)		
Yes	64 (65.3)	64 (65.3)
No	15 (15.3)	26 (26.5)
Don't know	19 (19.4)	8 (8.2)
Total knowledge percent score, mean (SD)	70.0(24.5)	73.2 (20.6)

Table 6. Descriptive results of the participants' attitudes questions

Questions	Sevan	Artashat
How often should one visit a dentist? n (%)		
Regularly (twice a year, or every six months)	64 (65.3)	75 (76.5)
When in pain	20(20.4)	14 (14.3)
Rarely (less than once a year)	9 (9.2)	6 (6.1)
Other (Specify)	5 (5.1)	3 (3.1)
What should be the reason of dental visit? n (%)		
Consultation/advice	21 (21.4)	25 (25.5)
Routine check up	31 (31.6)	34 (34.7)
Pain or trouble with teeth, gums or mouth	49 (50.0)	56 (57.1)
Treatment	51 (52.0)	45 (45.9)
Don't know	2 (2.0)	1 (1.0)
What might be a factor of not visiting a dentist? n (%)		
Fear/pain	51 (52.0)	58 (59.2)
Cost	68 (69.4)	68 (69.4)
No dentists nearby	6 (6.1)	2 (2.0)
Other (Specify)	0 (0.0)	0 (0.0)
Total attitudes percent score, mean (SD)	65.3 (47.84)	76.5 (42.59)

Table 7. Descriptive results of the participants practices questions

Questions	Sevan	Artashat
How often do you visit a dentist? n (%)		
Regularly (twice a year, or every six months)	9 (9.2)	14 (14.3)
When in pain	67 (68.4)	49 (50.0)
Rarely (less than once a year)	16 (16.3)	26 (26.5)
Other (<i>Specify</i>)	6 (6.1)	9 (9.2)
How often do you brush your teeth? n (%)		
I don't brush or rarely brush my teeth	10 (10.2)	1 (1.0)
Few times a week	10 (10.2)	8 (8.2)
Once a day	36 (36.2)	42 (42.9)
Two or more times a day	42 (42.9)	47 (48.0)
What kind of toothpaste do you use for tooth brushing? n (%)		
Fluoride-containing	17 (19.1)	18 (18.6)
Fluoride-free	4 (4.5)	3 (3.1)
I don't know	68 (76.4)	76 (78.4)
What else do you use besides your toothbrush? n (%)		
Dental pick or interdental brush	30 (30.6)	26 (26.5)
Dental floss	12 (12.2)	5 (5.1)
Mouth rinsing with water	37 (37.8)	32 (32.7)
Other (specify)	9 (9.2)	7 (7.1)
None of this	21 (21.4)	30 (30.6)
Total practice percent score, mean (SD)	57.7 (18.58)	62.6 (19.18)

Table 8. Simple linear regression between OHRQoL and independent variables

Variable	Regression coefficient	Standard Error	95% (CI)	p-value
Practice score	-0.60	0.71	(-2.01, 0.80))	0.399
Attitudes	-0.16	1.49	(-2.97, 2.93)	0.991
Knowledge score	-1.61	0.48	(-2.58, -0.65)	0.001
City	-0.11	1.36	(-2.79, 2.57)	0.934
Gender				
Male	1.0(ref)			
Female	-1.35	1.79	(-4.89, 2.18)	0.451
Age	0.18	0.04	(0.09, 0.27)	0.000
Marital status				
Married	1.0(ref)			
Separated and widowed	-0.34	1.85	(-4.01, 3.31)	0.851
Single	-7.64	2.26	(-12.10, -3.18)	0.001
Education				
Professional technical education and less	1.0(ref)			
Institute/University or higher	-2.2	1.43	(-5.05, -0.58)	0.120
Employment				
No	1.0(ref)			
Yes	-3.37	1.39	(-6.12, -0.62)	0.016
Standard of living				
Less than average	1.0(ref)			
Average and more	-8.97	2.10	(-13.1, -4.82)	0.000
Monthly spending				
Less than 100,000 AMD	1.0(ref)			
From 101,000 to 200,000 AMD	-2.71	1.69	(-6.05, 0.63)	0.111
More than 201,000 AMD	-3.64	2.17	(-7.93, 0.63)	0.095
Don't know/ Refusal	-5.36	1.82	(-8.97, -1.75)	0.004
Number of uncrowned teeth				
9 natural teeth or less	1.0(ref)			
10-19 natural teeth	-5.46	1.80	(-9.02, -1.90)	0.003
20 teeth or more	-9.28	1.39	(-12.04, -6.52)	0.000
Use of dentures				
Yes	1.0(ref)			
No	-5.81	1.79	(-9.35, -2.27)	0.001
Presence of a disease				
At least one disease	1.0(ref)			
No disease	-4.34	1.35	(-7.02, -1.67)	0.002
Drinking status				
Yes	1.0(ref)			
No	-6.60	2.19	(-10.93, -2.26)	0.003
Smoking status				

Yes	1.0(ref)			
No	-2.94	1.90	(-6.69, 0.81)	0.124

Table 9. Simple linear regression between knowledge score and variables (confounders)

Variable	Regression coefficient	Standard Error	95% (CI)	p-value
Age	-0.01	0.006	(-0.02, -0.002)	0.023
Marital status				
Married	1.0(ref)			
Separated and divorced	-0.14	0.27	(-0.68, 0.39)	0.591
Single	-0.24	0.33	(-0.89, 0.41)	0.468
Employment				
No	1.0(ref)			
Yes	0.54	0.19	(0.15, 0.93)	0.007
Standard of living				
Less than average	1.0(ref)			
Average and more	0.92	0.30	(0.31, 1.5)	0.003
Monthly spending				
Less than 100,000 AMD	1.0(ref)			
From 101,000 to 200,000 AMD	0.47	0.24	(-0.007, 0.95)	0.053
More than 201,000 AMD	0.40	0.31	(-0.21, 1.02)	0.196
Don't know/ Refusal	0.38	0.26	(-0.13, 0.9)	0.149
Number of uncrowned teeth				
9 natural teeth or less	1.0(ref)			
10-19 natural teeth	0.15	0.28	(-0.40, 0.71)	0.590
20 teeth or more	0.35	0.21	(-0.08, 0.78)	0.111
Use of dentures				
Yes	1.0(ref)			
No	-0.27	0.26	(-0.79, 0.24)	0.295
Presence of a disease				
At least one disease	1.0(ref)			
No disease	0.47	0.19	(0.08, 0.86)	0.016
Drinking status				
Yes	1.0(ref)			
No	0.61	0.32	(-0.02, 1.25)	0.060

Table 10. Simple linear regression between attitudes score and variables (confounders)

Variable	Regression coefficient	Standard Error	95% (CI)	p-value
Knowledge score	0.08	0.02	(0.04, 0.13)	0.000
Age	-0.004	0.002	(-0.008, -0.0001)	0.044
Marital status				
Married	1.0(ref)			
Separated and widowed	-0.12	0.09	(-0.30, 0.05)	0.185
Single	0.06	0.11	(-0.15, 0.28)	0.538
Employment				
No	1.0(ref)			
Yes	0.21	0.06	(0.08, 0.34)	0.001
Standard of living				
Less than average	1.0(ref)			
Average and more	0.04	0.1	(-0.16, 0.25)	0.652
Monthly spending				
Less than 100,000 AMD	1.0(ref)			
From 101,000 to 200,000 AMD	0.13	0.08	(-0.02, 0.29)	0.103
More than 201,000 AMD				
Don't know/ Refusal	0.18	0.10	(-0.02, 0.39)	0.077
	0.05	0.08	(-0.12, 0.22)	0.545
Number of uncrowned teeth				
9 natural teeth or less	1.0(ref)			
10-19 natural teeth	0.12	0.09	(-0.06, 0.31)	0.186
20 teeth or more	0.17	0.07	(0.03, 0.32)	0.015
Use of dentures				
Yes	1.0(ref)			
No	0.02	0.08	(-0.14, 0.19)	0.769
Presence of a disease				
At least one disease	1.0(ref)			
No disease	0.09	0.06	(-0.03, 0.22)	0.139
Drinking status				
Yes	1.0(ref)			
No	0.08	0.11	(-0.13, 0.30)	0.445

Table 11. Simple linear regression between practice score and variables (confounders)

Variable	Regression coefficient	Standard Error	95% (CI)	p-value
Knowledge Score	0.17	0.04	(0.08, 0.27)	0.000
Attitudes Score	0.30	0.15	(0.10, 0.60)	0.042
Age	-0.002	0.004	(-0.01, 0.006)	0.531
Marital status				
Married	1.0(ref)			
Separated and divorced	-0.07	0.19	(-0.45, 0.30)	0.696
Single	-0.09	0.23	(-0.55, 0.36)	0.687
Employment				
No	1.0(ref)			
Yes	0.03	0.14	(-0.24, 0.31)	0.808
Standard of living				
Less than average	1.0(ref)			
Average and more	0.55	0.21	(0.12, 0.98)	0.011
Monthly spending				
Less than 100,000 AMD	1.0(ref)			
From 101,000 to 200,000 AMD	0.23	0.17	(-0.10, 0.58)	0.170
More than 201,000 AMD	0.28	0.22	(-0.15, 0.72)	0.198
Don't know/ Refusal	0.32	0.18	(-0.04, 0.69)	0.085
Number of uncrowned teeth				
9 natural teeth or less	1.0(ref)			
10-19 natural teeth	-0.35	0.19	(-0.75, 0.03)	0.073
20 teeth or more	0.13	0.15	(-0.16, 0.44)	0.377
Use of dentures				
Yes	1.0(ref)			
No	-0.24	0.18	(-0.61, 0.12)	0.191
Presence of a disease				
At least one disease	1.0(ref)			
No disease	0.25	0.14	(-0.02, 0.52)	0.073
Drinking status				
Yes	1.0(ref)			
No	0.13	0.23	(-0.31, 0.59)	0.545

Table 12. Multivariable linear regression between OHRQoL and knowledge score after adjusting for confounders

Variable	Regression coefficient	Standard error	95% CI	p-value
Knowledge Score	-0.88	0.48	(-1.84, 0.06)	0.069
Standard of living				
Less than average	1.0(ref)			
Average and more	-6.51	2.09	(-10.65, -2.37)	0.002
Age	0.11	0.05	(0.01, 0.21)	0.028
Employment				
No	1.0 (ref)			
Yes	-1.90	1.33	(-4.53, 0.72)	0.155
Presence of a disease				
At least one disease	1.0(ref)			
No disease	-1.52	1.48	(-4.46, 1.41)	0.308

R² Coefficient: 0.17

Adjusted R² Coefficient: 0.15

Table 13. Multivariable analysis between OHRQoL and attitudes score after adjusting for confounders

Variable	Regression coefficient	Standard error	95% CI	p-value
Attitudes	3.28	1.39	(0.52, 6.04)	0.020
Knowledge Score	-1.34	0.46	(-2.26, -0.43)	0.004
Age	0.04	0.04	(-0.04, 0.14)	0.316
Employment				
No	1.0(ref)			
Yes	-2.50	1.29	(-5.04, 0.04)	0.054
Number of uncrowned teeth				
9 natural teeth or less	1.0(ref)			
10-19 natural teeth	-5.51	1.77	(-9.01, -2.01)	0.002
20 teeth or more	-8.37	1.56	(-11.46, -5.29)	0.000

R² Coefficient: 0.25

Adjusted R² Coefficient: 0.23

Table 14. Multivariable linear regression between OHRQoL and practice score after adjusting for confounders

Variable	Regression coefficient	Standard error	95% CI	p-value
Practice Score	0.23	0.69	(-1.12, 1.60)	0.732
Attitudes Score	1.72	1.44	(-1.12, 4.58)	0.234
Knowledge Score	-1.23	0.50	(-2.23, -0.24)	0.015
Age	0.14	0.04	(0.06, 0.23)	0.001
Standard of living				
Less than average	1.0(ref)			
Average and more	-6.61	2.12	(-10.81, -2.41)	0.002

R² Coefficient: 0.16

Adjusted R² Coefficient: 0.1

FIGURES

Figure 1. The distribution of residuals of the final model exploring the relationship between OHRQoL and knowledge score (residuals versus predictor plot)

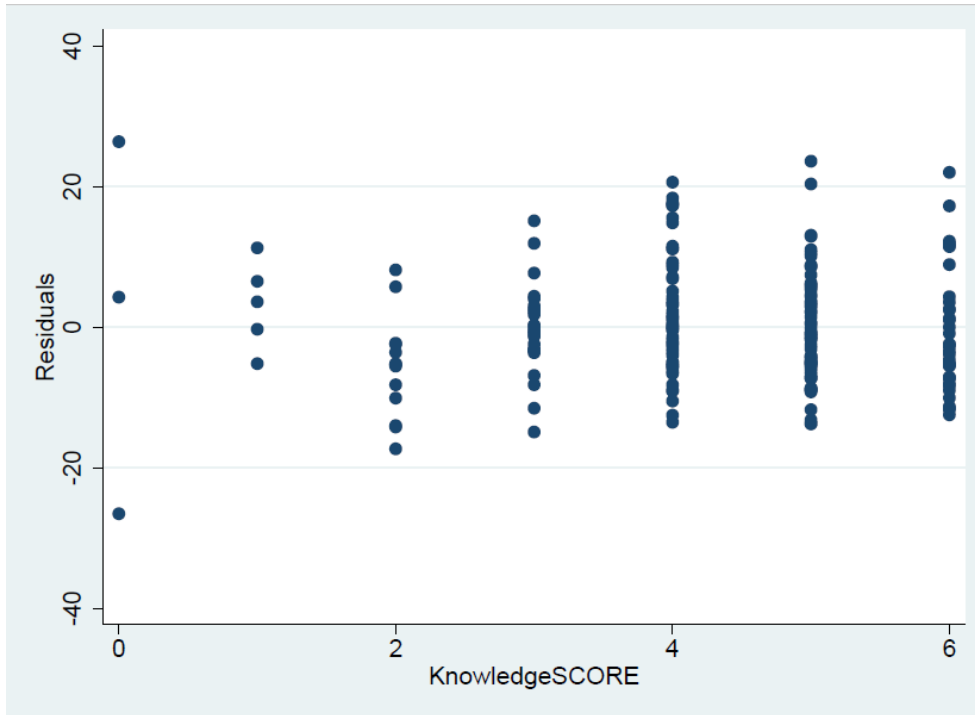


Figure2. Normality of distribution of residuals of the final model exploring the relationship between OHRQoL and knowledge score (standardized normal probability plot)

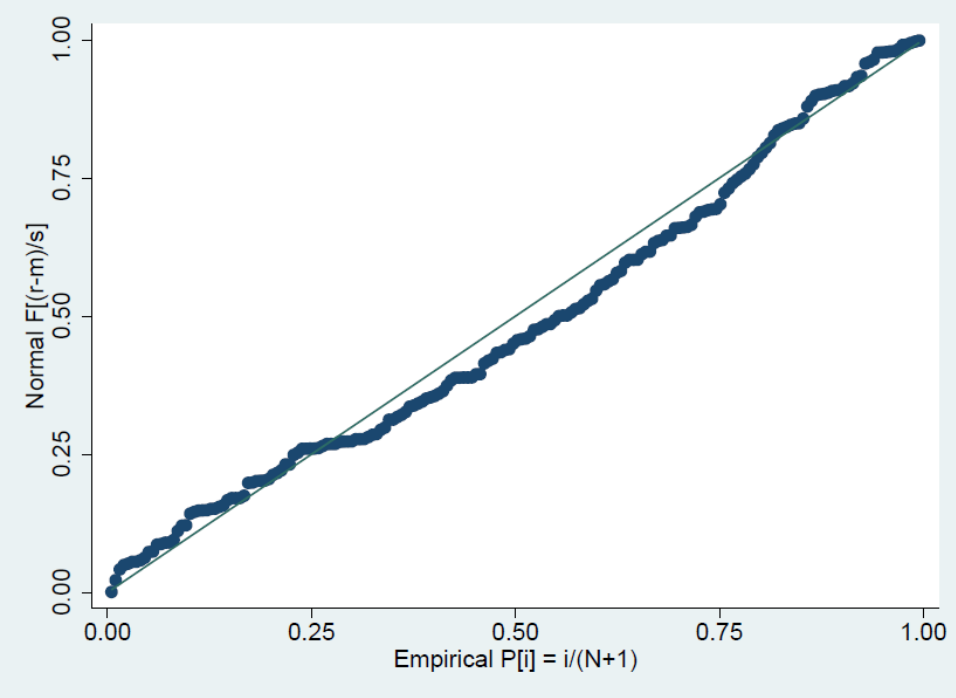


Figure 3. Normality of distribution of residuals of the final model exploring the relationship between OHRQoL and knowledge score (quantiles of knowledge score against quantiles of normal distribution plot)

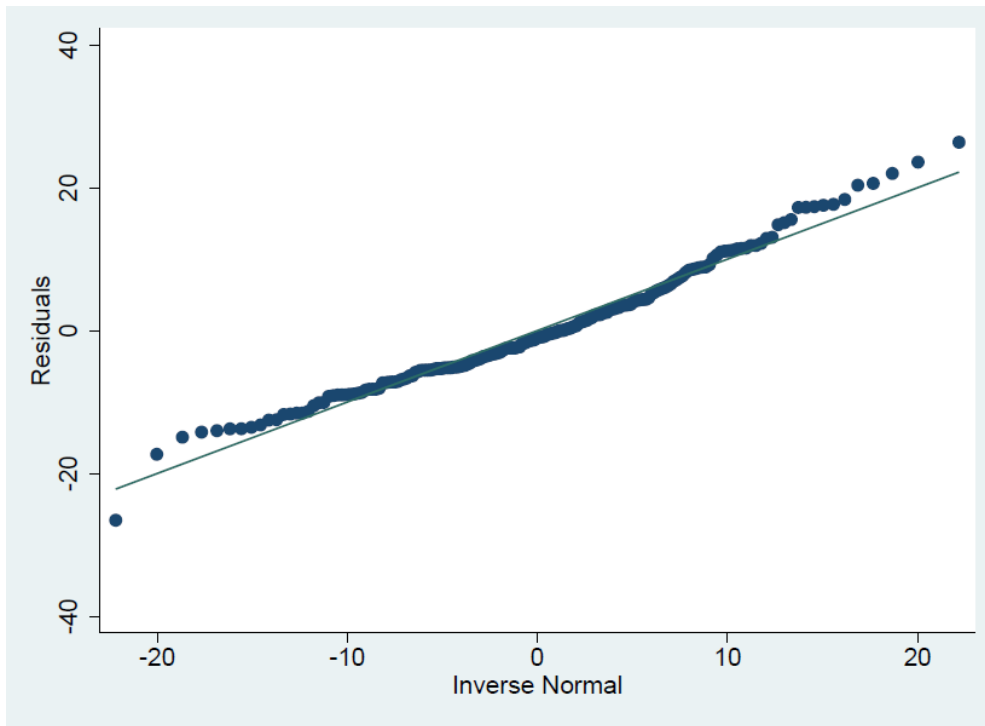


Figure 4. Normality of distribution of residuals of the final model exploring the relationship between OHRQoL and knowledge score (kernel density plot)

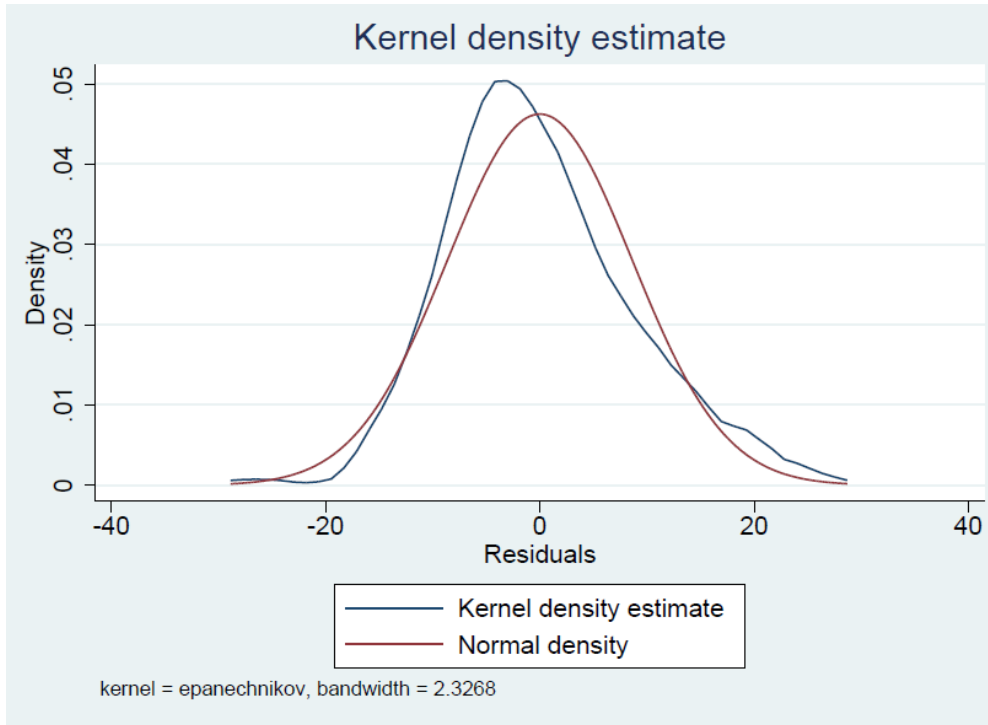


Figure 5. The distribution of residuals of the final model exploring the relationship between OHRQoL and practices score (residuals versus predictor plot)

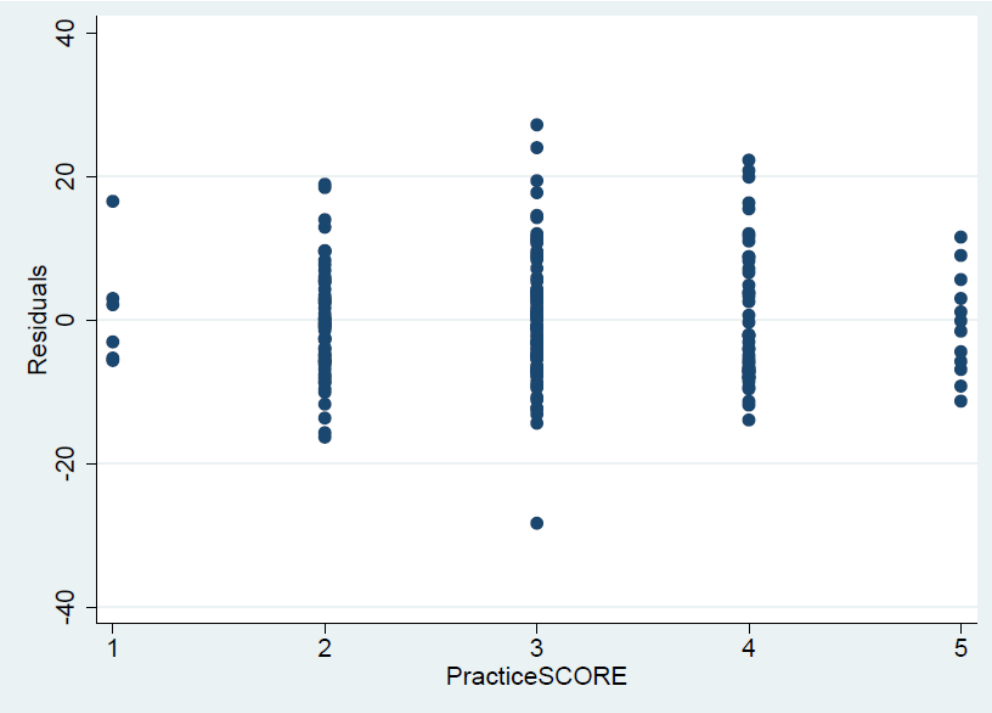


Figure 6. Normality of distribution of residuals of the final model exploring the relationship between OHRQoL and practices score (standardized normal probability plot)

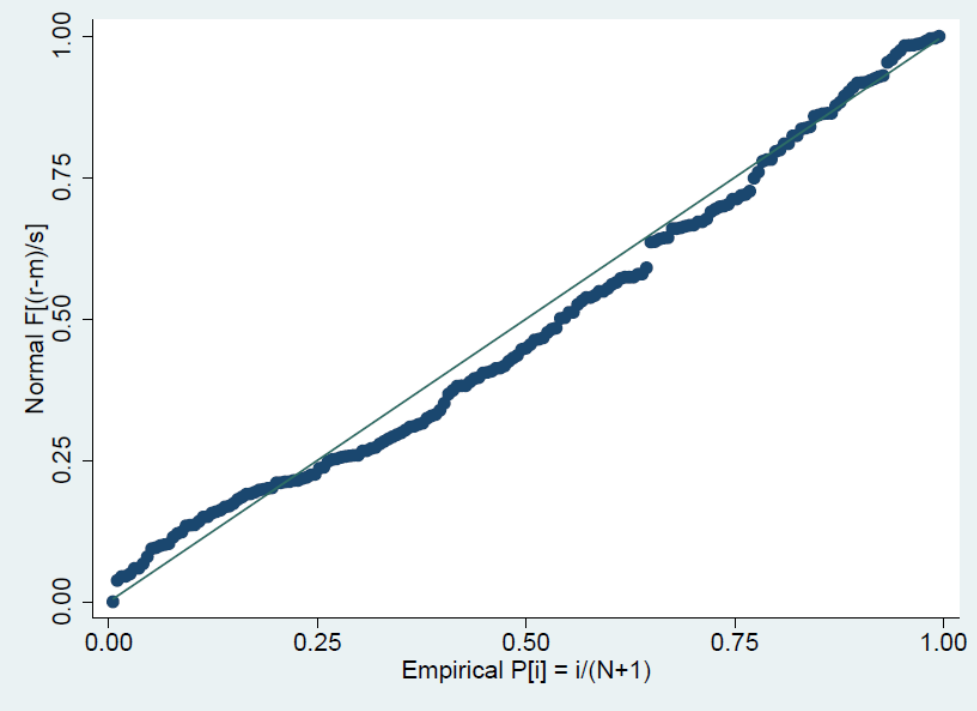


Figure 7. Normality of distribution of residuals of the final model exploring the relationship between OHRQoL and practices score (quantiles of practices score against quantiles of normal distribution plot)

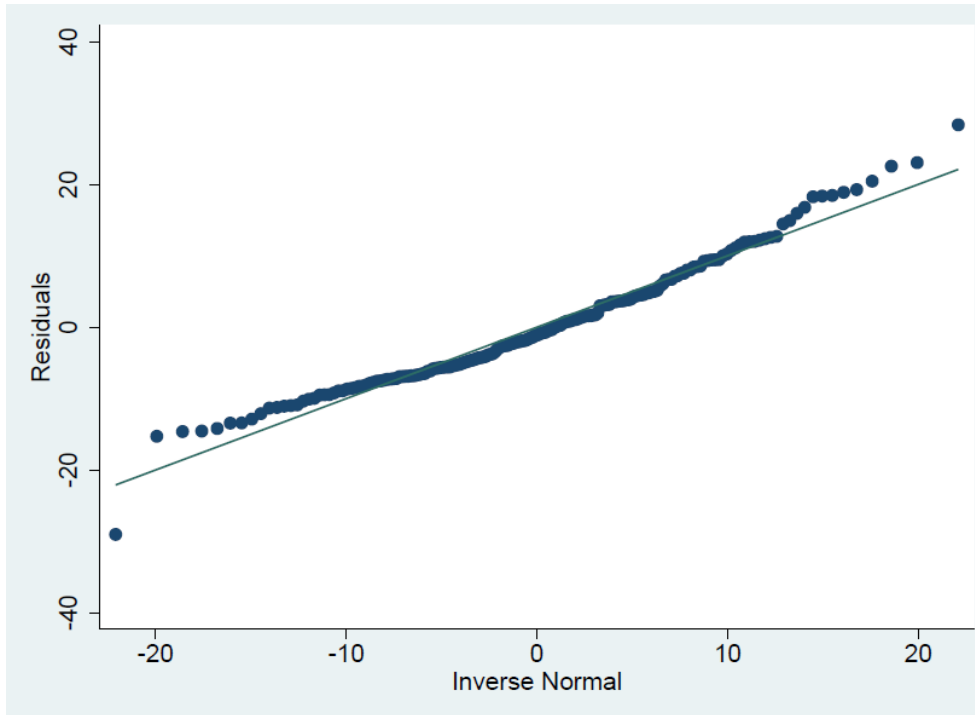
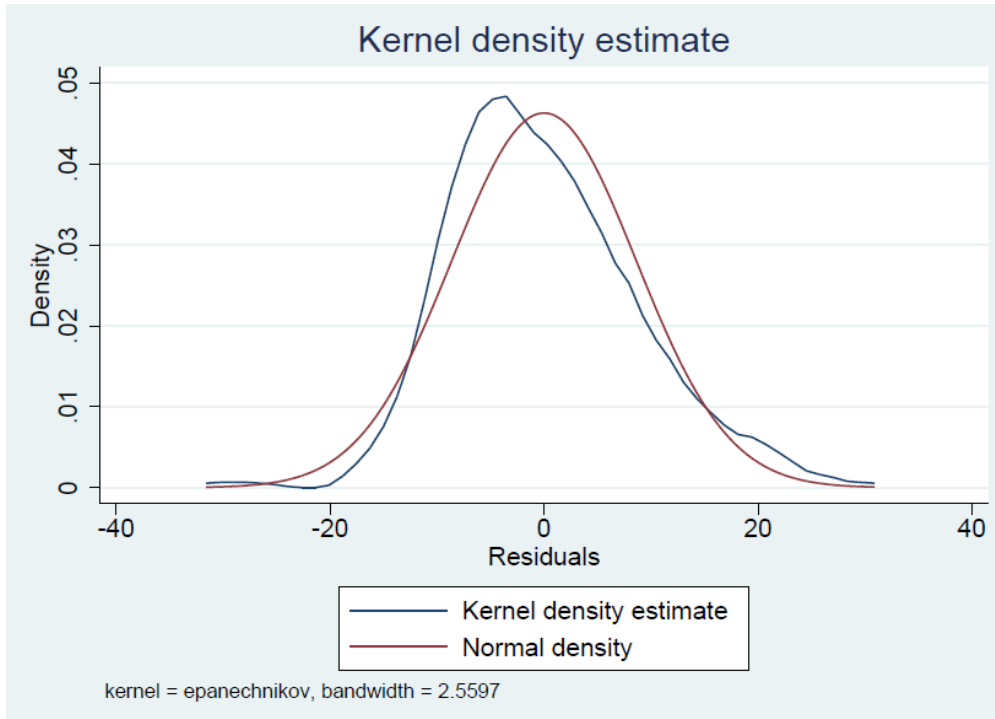
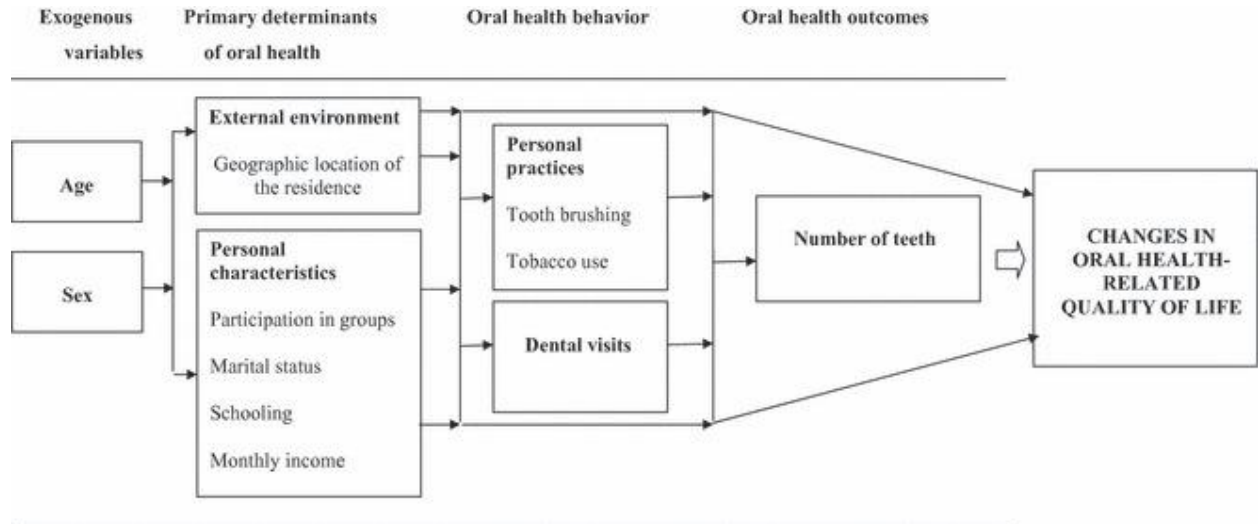


Figure 8. Normality of distribution of residuals of the final model exploring the relationship between OHRQoL and practices score (kernel density plot)



APPENDICES

Appendix 1: Andersen and Davidson conceptual framework⁴⁵



Appendix 2:

Study instrument

**Oral health-related quality of life and oral hygiene knowledge, attitudes, and practices of
the general population in Sevan and Artashat cities, Armenia**

City: _____

Participant's ID: _ _ _ _

Date: ___/___/___ (day/month/year)

A. Knowledge

The following section is regarding the basic oral hygiene.

Q 1: Does oral health have any role on general health?

1. Yes
2. No
3. Don't know

Q 2: What does irregular tooth brushing cause?

1. Decay
2. Gum disease
3. Bad breath
4. All of the above
5. Nothing

Q 3: Fluoride added to toothpaste makes it

1. Cheap
2. Improves taste
3. Makes teeth resistant to caries
4. Don't know

Q 4: Do sweets affect oral health?

1. Yes
2. No
3. Don't know

Q5: Does tobacco affect oral health?

1. Yes
2. No
3. Don't know

Q6: Does tooth decay avoidable?

1. Yes
2. No
3. Don't know

B. Attitudes

This section is regarding your attitudes towards oral hygiene.

Q7: How often should one visit a dentist?

1. Regularly (twice a year, or every six months)
2. When in pain
3. Rarely (less than once a year)
4. Other (Specify) _____

Q 8: What should be the reason of dental visit?(*You can choose more than one option*)

1. Consultation/advice
2. Routine check up
3. Pain or trouble with teeth, gums or mouth
4. Treatment
5. Don't know

Q9: What might be a factor of not visiting dentist?(*You can choose more than one option*)

1. Fear/pain
2. Cost
3. No dentists nearby
4. Other (Specify) _____

C. Practice

The following section is regarding your oral hygiene practices.

Q10: How often do you visit the dentist?

1. Regularly (twice a year, or every six months)
2. When in pain
3. Rarely (less than once a year)
4. Other (*Specify*) _____

Q11: How often do you brush your teeth?

1. I don't brush or rarely brush my teeth-----**Go to Q_13**
2. Few times a week
3. Once a day
4. Two or more times a day

Q12: What kind of toothpaste do you use for tooth brushing?

1. Fluoride-containing
2. Fluoride-free
3. I don't know

Q13: What else do you use besides your toothbrush? (*Choose more than one option*)

1. Dental pick or interdental brush
2. Dental floss, **if yes**, how many days during a week? _____
3. Mouth rinsing with water, **if yes**, how often during a day? _____
4. Other (specify) _____
5. None of this

D. OHRQoL

The following questions measure your oral health-related quality of life.

	Never	Hardly ever	Occasionally	Often	Very often
Q14: Have you had trouble pronouncing any words because of problems with your teeth, mouth or dentures?					
Q15: Have you felt that your sense of taste has worsened because of problems with your teeth, mouth or dentures?					
Q16: Have you have painful aching in your mouth?					
Q17: Have you found it uncomfortable to eat any foods because of problems with your teeth, mouth or dentures?					
Q18: Have you felt self-conscious because of problems with your teeth, mouth or dentures?					
Q19: Have you felt tense because of problems with your teeth, mouth or dentures?					
Q20: Has your diet been unsatisfactory because of problems with your teeth, mouth or dentures?					
Q21: Have you had to interrupt meals because of problems with your teeth, mouth or dentures?					
Q22: Have you found it difficult to relax because of problems with your teeth, mouth or dentures?					
Q23: Have you been a bit embarrassed because of problems with your teeth, mouth or denture?					
Q24: Have you been a bit irritable with other people because of problems with your teeth, mouth or dentures?					
Q25: Have you had difficulty doing your usual jobs because of problems with your teeth, mouth or denture?					

Q26: Have you felt that life, in general, was less satisfying because of problems with your teeth, mouth or dentures?					
Q27: Have you been totally unable to function because of problems with your teeth, mouth or dentures?					

E. General information

The following section contains general questions regarding your oral health status.

Q28: How many natural uncrowned teeth do you have?

1. No natural teeth
2. 1-9 natural teeth
3. 10-19 natural teeth
4. 20 or more

Q29: Do you have any removable dentures?

1. Partial removable
2. Full upper denture
3. Full lower denture
4. Both upper and lower dentures
5. Don't have dentures

Q30: Please, list any chronic diseases you have. *(You can choose more than one option)*

1. Diabetes
2. Cancer
3. Thyroid or hormonal disorders
4. Cardiovascular diseases
5. Osteoporosis
6. Immune system disorders
7. HIV/ AIDS
8. Other (*Specify*)_____
9. None

Q 31: How often do you eat or drink any of the following foods, even in small quantities?

	1. Several times a day	2. Everyday	3. Several times a week	4. Once a week	5. Several times a month	6. Seldom/ never
a. Fresh fruit						
Q32. Biscuits, cakes						
Q33. Sweets/candy						
Q34. Lemonade, Coca-Cola or other soft drinks						
Q35. Tea with sugar						
Q36. Coffee with sugar						

Q 37: Have you smoked at least 100 cigarettes in your entire life?

1. Yes
2. No(Go to Q40)

Q38: Do you now smoke cigarettes every day, some days, or not at all?

1. Every day
2. Some days
3. Not at all

Q39: When was the last time you smoked a cigarette, even one or two puffs?

_____ (day, week, month, year ago)

Q40: How often do you drink 1 or more portions of any kind of alcoholic beverages (1 or more glasses of wine, cans/bottles of beer, shots of cognac, vodka, or liquor)?

1. Never
2. Less than once per month
3. 1 to 3 times per month
4. 1 to 3 times per week
5. Almost everyday

Q41: Was there a period in your life when you drank 5 or more portions of any kind of alcoholic beverage almost every day?

1. Yes
2. No
3. Don't know/ Difficult to answer

F. Demographic and Socio-Economic Status

Now I would like to ask you some brief questions about yourself. Please remember that all the information you provide is completely confidential.

Q 42: Please, indicate your gender. (Please do not read this question)

1. Male
2. Female

Q 43: Please, indicate your age (*Completed years*) _____

Q 44: What is your marital status?

1. Married
2. Separated/Divorced
3. Widowed
4. Single

Q 45: Indicate the highest level of education that you have received

1. No education
2. School (12 years or less)
3. Professional technical education
4. Institute/University or higher

Q 46: Are you currently employed? (Including self-employment, farming, and seasonal/migrant work)

1. Yes

2. No

Q 47: How would you describe your family's standard of living?

1. Less than average
2. A little less than average
3. Average
4. A little above average
5. Above average

Q48: On average, how much money does your family spend monthly?

1. Less than 50,000 AMD
2. From 50,000 to 100,000 AMD
3. From 101,000 to 200,000 AMD
4. From 201,000 to 300,000 AMD
5. Above 300,000 AMD
6. Don't know/ Refusal

Thank you for participation

Armenian version

Բերանի խոռոչի առողջությամբ պայմանավորված կյանքի որակը, և բերանի հիգիենայի վերաբերյալ գիտելիքները, վերաբերմունքը և գործելակերպը Հայաստանի Սևան և Արտաշատ քաղաքների ընդհանուր բնակչության շրջանում

Քաղաք: _____

Մասնակցի ID: _ _ _ _

Ամսաթիվ: ____/____/____ օր/ամիս/տարի

Ա. Բերանի խոռոչի վերաբերյալ գիտելիքներ

Տվյալ բաժինը վերաբերում է բերանի խոռոչի հիգիենային:

1. Արդյո՞ք կա կապ բերանի խոռոչի և ընդհանուր առողջական վիճակի միջև
 1. Այո
 2. Ոչ
 3. Չգիտեմ

2. Ինչի՞ կարող է հանգեցնելատամների ոչ կանոնավոր մաքրելը/խոզանակելը
 1. Կարիեսի
 2. Լնդերի ախտահարման
 3. Բերանի տհաճ հոտի
 4. Բոլոր վերը նշվածները
 5. Չգիտեմ

3. Ձեր կարծիքով ատամի մածուկին ավելացված ֆտորը ի՞նչ նշանակություն ունի
 1. Նվազեցնում է մածուկի գինը
 2. Բարելավում է համի զգացողությունը
 3. Պաշտպանում է ատամը կարիեսից
 4. Չգիտեմ

4. Արդյո՞ք քաղցր սնունդը ազդու՞մ է բերանի խոռոչի առողջության վրա
 1. Այո
 2. Ոչ
 3. Չգիտեմ

5. Արդյոք ծխախոտը ազդու՞մ է բերանի խոռոչի առողջության վրա
 1. Այո
 2. Ոչ
 3. Չգիտեմ

6. Արդյոք հնարավո՞ր է խուսափել ատամի կարիեսից
 1. Այո
 2. Ոչ
 3. Չգիտեմ

Բ. Վերաբերմունք

Այս բաժինը վերաբերում է բերանի խոռոչի հիգիենայի նկատմամբ Ձեր վերաբերմունքին:

7. Որքա՞ն հաճախ պետք է այցելել ատամնաբույժի
 1. Կանոնավոր (տարին երկու անգամ կամ վեց ամիսը մեկ)
 2. Երբ ցավեր են ունենում
 3. Հազվադեպ (տարին մեկ անգամ կամ մեկ անգամից պակաս)
 4. Այլ (մանրամասնեք) _____

8. Ի՞նչը պետք է պատճառ հանդիսանա ատամնաբույժի այցելելու համար *(կարող եք բնորոշել մեկ կամ ավել պատասխան)*
 1. Կոնսուլտացիա/ խորհրդատվություն
 2. Պրոֆիլակտիկ/կանխարգելիչ նպատակով
 3. Ցավ կամ ատամի նվնդերի հետ կապված այլ խնդիր
 4. Բուժման նպատակով
 5. Չգիտեմ

9. Ի՞նչը կարող է պատճառ լինել ատամնաբույժին այցելելու համար *(կարող եք բնորոշել մեկ կամ ավել պատասխան)*
 1. Վախ / ցավ
 2. Վճարման գինը

3. Մոտակայքում ատամնաբույժերի բացակայությունը
4. Այլ (մանրամասնեք) _____

Գ. Գործելակերպ

Տվյալ բաժինը վերաբերվում է Ձեր բերանի խոռոչի հիգիենայի գործելակերպին:

10. Որքա՞ն հաճախ եք այցելում ատամնաբույժի:

1. Կանոնավոր (տարին երկու անգամ կամ վեց ամիսը մեկ)
2. Երբ ցավեր եմ ունենում
3. Հազվադեպ (տարին մեկ անգամ կամ մեկ անգամից պակաս)
4. Այլ (մանրամասնեք) _____

11. Որքա՞ն հաճախ եք խոզանակում Ձեր ատամները:

1. Չեմ խոզանակում կամ հազվադեպ եմ խոզանակում → **Անցեք 13-երորդ հարցին**
2. Շաբաթը մի քանի անգամ
3. Օրը մեկ անգամ
4. Օրը երկու կամ ավելի անգամ

12. Ինչպիսի՞ ատամի մածուկ եք օգտագործում ատամները խոզանակելու համար:

1. Ֆտոր պարունակող
2. Առանց ֆտորի
3. Չգիտեմ/կարևոր չէ

13. Ատամի խոզանակից բացի ուրիշ ի՞նչ խնամքի միջոցներ եք օգտագործում:

1. Ատամի չոփիկ կամ միջատամնային խոզանակ
2. Ատամի ֆլոս/թել: **Եթե այո**, ապա քանի՞ օր շաբաթվա մեջ _____
3. Բերանի ողողում ջրով: **Եթե այո**, ապա քանի՞ անգամ օրվա մեջ _____
4. Այլ (մանրամասնեք) _____
5. Նշվածներից ոչ մեկը

Դ. Բերանի առողջությամբ պայմանավորված կյանքի որակի սանդղակ

Հետևյալ հարցերը չափում են Ձեր բերանի խոռոչի առողջության հետ կապված կյանքի որակը:

	Երբեք	Հազվադեպ	Երբեմն	Հաճախ	Շատ հաճախ
14. Երբևէ դժվարություն ունեցե՞լ էք որևէ բառ արտաբերել Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
15. Երբևէ զգացե՞լ էք որ Ձեր համի զգացողությունը վատացել է Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
16. Ունեցե՞լ էք բերանում տանջալից ցավեր:					
17. Երբևէ անհարմարություն զգացե՞լ էք ուտել որևէ տեսակի ուտելիք Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
18. Երբևէ անհանգստություն զգացե՞լ էք Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
19. Երբևէ լարվածություն					

զգացել է եք Ձեր ատամների, բերանիկամ պրոթեզների հետ կապված խնդիրների պատճառով:					
20. Դուք երբևէ, ունցել եք թերիսննդակարգ Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
21. Երբևէ ստիպված եք եղել լրագրագրել ուսուցիչ Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
22. Երբևէ դժվարացել էք լիցքաթափվել Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
23. Երբևէ ամաչել էք Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
24. Երբևէ եղել էք դժուրագրգիռ այլ մարդկանց հետ շփվելուց Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
25. Երբևէ դժվարացել էք կատարել Ձեր առօրյա աշխատանքը Ձեր ատամների, բերանի կամ պրոթեզների հետ կապված խնդիրների պատճառով:					
26. Երբևէ զգացել էք որ կյանքից ավելի քիչ					

բավականություն եք ստանում Ձերատամների, բերանի կամպրոթեզների հետ կապված խնդիրների պատճառով:					
27. Երբնե՞ք պատահե՞լ է որ Ձերատամների, բերանի կամպրոթեզների հետ կապված խնդիրների պատճառով բացարձակապես ի վիճակի չեք եղել որևէ բանանել:					

Ե. Ընդհանուր տեղեկություններ

Տվյալ բաժինը պարունակում է ընդհանուր հարցեր Ձեր բերանի խոռոչի վիճակի մասին:

28. Քանի՞ առանց շապիկի բնական ատամներ ունեք

1. Ոչ մի ատամ
2. 1-9 բնական ատամ
3. 10-19 բնական ատամ
4. 20 և ավել

29. Դուք ունե՞ք որևէ շարժական պրոթեզ

1. Մասնակի պրոթեզ
2. Ամբողջ վերին ծնոտի
3. Ամբողջ ստորին ծնոտի
4. Ամբողջ վերին և ստորին ծնոտների
5. Չունեմ պրոթեզ

30. Խնդրում ենք նշել թե ինչ հիվանդություններ ունեք: (Կարող եք ընտրել մեկից ավել տարբերակներ)

1. Շաքարային դիաբետ
2. Քաղցկեղ
3. Վահանաձև գեղձի կամ այլ հորմոնալ խանգարումներ
4. Սիրտանոթային խնդիրներ

5. Օստեոպորոզ
6. Իմունային համակարգի խանգարումներ
7. ՄԻԱՎ/ ՉԻԱՀ
8. Այլ (Մանրամասներ) _____
9. Ոչինչ

31. Որքա՞ն հաճախ եք օգտագործում ստորև նշված սննդամթերքները նույնիսկ չնչին քանակով

	1.Օրը մի քանի անգամ	2.Ամեն օր	3.Շաբաթը մի քանի անգամ	4.Շաբաթը մեկ	5.Ամիսը մի քանի անգամ	6.Հազվադեպ/ երբեք
ա. Թարմ մրգեր						
32. Խմորեղեն						
33. Քաղցրավենիք/ շոկոլադ						
34. Լիմոնադ, գազավորված քաղցր ըմպելիքներ						
35. Թեյ շաքարավազով						
36. Սուրճ շաքարավազով						

37. Դուք ծխե՞լ եք առնվազն 100 ծխախոտ ձեր ամբողջ կյանքի ընթացքում:

1. Այո
2. Ոչ(Անցեք 40-երորդ հարցին)

38. Ներկայումս որքա՞ն հաճախ եք ծխախոտ ծխում:

1. Ամեն օր
2. Որոշ օրեր
3. Ներկայումս ընդհանրապես չեմ ծխում

39. Ե՞րբ եք վերջին անգամ ծխել, անգամ մեկ կամ երկու ծուխ:

_____ (օր, շաբաթ, ամիս, տարի առաջ)

40. Որքան^օն հաճախ եք խմում 1 կամ ավելի բաժին ակոհոլային որևէ խմիչք (1 կամ ավելի բաժակ գինի, կոնյակ, օղի, լիկյոր, շիշ գարեջուր և այլն):

1. Երբեք
2. Ամիսը մեկ անգամից պակաս
3. Ամիսը 1-3 անգամ
4. Շաբաթը 1-3 անգամ
5. Գրեթե ամեն օր

41. Ձեր կյանքում եղե՞լ է ժամանակաշրջան, երբ գրեթե ամեն օր խմել եք 5 կամ ավելի բաժին որևէ ակոհոլային խմիչք:

1. Այո
2. Ոչ
3. Չգիտեմ /Դժվարանում եմ պատասխանել

Ձ. Ժողովրդագրական և սոցիալ-տնտեսական տվյալներ

Այժմ ես կցանկանայի հարցնել մի քանի կարճ հարցեր Ձեր մասին: Խնդրում եմ հիշեք, որ Ձեր տրամադրած բոլոր տեղեկությունները լիովին գաղտնի են:

42. Ձեր սեռը(Չբարձրաձայնել տվյալ հարցը)

1. Տղամարդ
2. Կին

43. Ձեր տարիքը: (Լրացած տարիները) _____

44. Ձեր ամուսնական կարգավիճակը

1. Ամուսնացած
2. Բաժանված
3. Այրի
4. Չամուսնացած

45. Ձեր ամենաբարձր կրթական աստիճանը
1. Կրթություն չունեմ
 2. Միջնակարգ դպրոց (12 տարի կամ քիչ)
 3. Միջին մասնագիտական/տեխնիկում
 4. Բարձրագույն (Ինստիտուտ/Համալսարան) և ավել
46. Ներկայումս աշխատո՞ւմ եք: (Ներառյալ ինքնազբաղվածությունը, գյուղատնտեսությունը և սեզոնային /միգրացիոն աշխատանքը)
1. Այո
 2. Ոչ
47. Ինչպե՞ս կբնութագրեք Ձեր ընտանիքի կենսամակարդակը:
1. Միջինից բավականին ցածր
 2. Միջինից միփոքր ցածր
 3. Միջին
 4. Միջինից միփոքր բարձր
 5. Միջինից բավականին բարձր
48. Միջինում, ամսական որքա՞ն գումար է ծախսում Ձեր ընտանիքը:
1. 50000 դրամից պակաս
 2. 50000-ից 100000 դրամ
 3. 101000-ից 200000 դրամ
 4. 201000-ից 300000 դրամ
 5. 300000-ից ավել
 6. Չգիտեմ/ հրաժարվում եմ պատասխանել

Շնորհակալություն Ձեր մասնակցության համար:

Appendix 3:

Interviewer guide

ՈՒՂԵՑՈՒՅՑ ՀԱՐՑԱԶՐՈՒՑԱՎԱՐՆԵՐԻ ՀԱՄԱՐ

Բերանի խոռոչի առողջությամբ պայմանավորված կյանքի որակը, և բերանի հիգիենայի վերաբերյալ գիտելիքները, վերաբերմունքը և գործելակերպը Հայաստանի Սևան և Արտաշատ քաղաքների ընդհանուր բնակչության շրջանում

Ընդհանուր ծանոթությունն ծրագրին

Որպես Հայաստանի ամերիկյան համալսարանի հանրային առողջապահության ֆակուլտետի ավարտական կուրսի ուսանող, ավարտական թեզի շրջանակներում անց է կացվում հետազոտություն, որի նպատակն է ուսումնասիրել և համեմատել բերանի խոռոչի հետ կապված կյանքի որակը և բերանի խոռոչի հետ կապված գիտելիքները, վերաբերմունքը և գործելակերպը մեծահասակների շրջանում (18+) երկու տարբեր մարզային քաղաքներում: Այդ նպատակով երկու քաղաքներում հարցազրուցավարների կողմից լրացվելու են հարցաթերթիկներ, որոնք նախատեսված են տվյալ ինֆորմացիան հավաքագրելու վերոհիշյալ քաղաքներում բնակվող հարցմանը ենթարկվող բնակիչներից:

Հարցմանը ենթակա բնակչությունը

Հետազոտությանը մասնակցելու են Սևան և Արտաշատ քաղաքներում բնակվող չափահաս անձիք, ովքեր Հայաստանի Հանրապետության քաղաքացիներ են:

Հետազոտության տևողությունը

Երկու քաղաքներում հարցազրուցավարները կաշխատեն միաժամանակ:

Հարցազրուցավարին կտրամադրվի հարցման ուղեցույց, հարցման մատյանի ձև և հարցաթերթիկ, որոնք պետք է լրացվեն հարցազրուցավարի կողմից: Մեկ հարցազրույցի տևողությունն է 15-20 րոպե:

Հարցազրուցավարների ուսուցումը

Ծրագրում ներգրավված հարցազրուցավարները պետք է մասնակցեն երկժամյա ուսուցմանը: Ուսուցման ընթացքում նրանք կձանոթանան ծրագրին, իրենց պարտականություններին, կներկայացվի հետազոտման կարգը և հետազոտվողների ընտրության մեթոդը: Հարցազրուցավարները կձանոթանան հարցաթերթիկին և հնարավորություն կունենան փորձարկել այն միմյանց հետ:

Հարցազրուցավարների պարտականությունները

Հարցազրուցավարները պետք է աշխատեն երկու թիմերով: Մեկ թիմը կազմված կլինի երկու հարցազրուցավարից: Հետազոտության համար պատասխանատու ուսանողը կտրամադրի հարցազրուցավարներին մասնակիցների ընտրության համապատասխան տվյալները, ինչպես նաև անհրաժեշտ քանակը: Ցանկացած հարցի դեպքում հարցազրուցավարը պետք է կապ հաստատի հետազոտության համար պատասխանատու ուսանողի հետ և չկայացնի ինքնակամ որոշումներ: Հարցազրույցը անցկացվելու է մասնակցի տանը:

Հարցվողի ընտրության մեթոդաբանությունը

Յուրաքանչյուր թիմ կստանա հասցեների ցուցակ, ըստ որի անհրաժեշտ է ընտրել հարցվողին: Ցուցակը պարունակելու է միայն տան հասցեն: Յուրաքանչյուր հարցազրուցավար ունենալու է իրեն համապատասխան կոդը (ID-ներ), որն անհրաժեշտ է լրացնել հարցաթերթիկի վրա: Տվյալ կոդը կազմված է չորս նիշից ABCD: A – առաջին թիվը համապատասխանում է քաղաքին, որտեղ անց է կացվում հարցումը 1-Սևան և 2-Արտաշատ: B – հարցազրուցավարին համապատասխանող թիվն է (յուրաքանչյուր հարցազրուցավարին կտրվի իր անձնական թիվը): CD – համապատասխանում է թե որերորդ հասցեն է այցելում հարցազրուցավարը (օրինակ – առաջին հասցեն 01, երկրորդը 02, տասնհինգերորդը 15 և այդպես շարունակ): Հարցազրուցավարը, այցելելով տվյալ հասցեն պետք է ընտրի համապատասխանող մասնակցին: Մասնակիցը պետք է լինի առնվազն 18 տարեկան և պետք է բնակվի Հայաստանում: Անհրաժեշտ է տեղեկանալ չափահաս անձանց քանակը տվյալ պահին բնակարանում: Եթե առկա են մեկից ավելի անձիք, որոնք համապատասխանում են հարցման չափանիշներին, ապա պետք է հարցումն անց կացնել այն անձի հետ ում ծննդյան ամիսն առաջինն է տարվա մեջ: Իսկ եթե տվյալ անձը նույնպես հրաժարվում է մասնակցելուց, ապա անցնել հաջորդ ծննդյան ամսաթիվ ունեցող անձին:

Օրինակ՝ եթե տվյալ հասցեում են գտվում երեք անձիք, որոնք համապատասխանում են հարցման չափանիշներին, ապա անհրաժեշտ է հարցնել իրենց ծննդյան ամիսները: Ենթադրենք, որ իրենց ծննդյան ամիսներն են մարտ, օգոստոս և նոյեմբեր ամիսները: Տվյալ դեպքում հարցազրույցը պետք է անց կացնել մարտ ամսին ծնված

անձի հետ: Եթե նա հրաժարվում է մասնակցելուց, առաջարկել հարցազրույցն անց կացնել օգոստոս ամսին ծնված անձի հետ:

Հարցազրույցն ավարտելուց հետո անհրաժեշտ է նշումներ կատարել տրամադրված հարցման մատյանի մեջ: Մատյանը պարունակում է հասցեին համապատասխան կոդը (ID-ն), որի դիմաց անհրաժեշտ է նշում կատարել, թե ինչպես է անցել հարցազրույցը:

Եթե տվյալ հասցեում հարցազրույց չի կատարվում, ապա անհրաժեշտ է անցնել ցուցակին համախառնասխանող հաջորդ հասցեին:

Հարցազրույցի վարման ուղեցույց

Հարցազրույցի սկիզբը. Հարցազրույցը պետք է անցկացնել համապատասխանող մասնակցի տանը: Եթե դուրը թակելուց հետո մասնակիցը հրաժարվում է մասնակցել հարցմանը, կամ այլ պատճառով հարցազրույցը տեղի չի ունենում անհրաժեշտ է անմիջապես լրացնել հարցման մատյանը: Եթե հարցումը տեղի է ունենում, ապա անհրաժեշտ է հարցման մատյանը լրացնել վերջում:

Ինչպե՞ս ներկայանալ

Բարև Ձեզ: Ես Հայաստանի ամերիկյան համալսարանի Առողջապահական ծառայությունների հետազոտման և զարգացման կենտրոնից եմ: Այժմ իրականացվում է մի հետազոտություն, որի նպատակն է ուսումնասիրել և համեմատել բերանի խոռոչի հետ կապված կյանքի որակը և բերանի խոռոչի հետ կապված գիտելիքները, վերաբերմունքը և գործելակերպը 18 տարեկանից բարձր անձանց մոտ Սևան և Արտաշատ քաղաքներում: Բնակվո՞ւմ եք արդյոք այդ տարիքային խմբին պատկանող անձ Ձեր տանը/բնակարանում:

Հնարավոր պատասխանները

□ Ոչ – Ներողություն խնդրեք և հեռացեք:

□ Այո - Ներողություն եմ խնդրում Ձեզ անհանգստացնելու համար: Ես կուզեի հարցազրույց անցկացնել Ձեզ (համապատասխանող անձի) հետ: Կարո՞ղ եմք խոսել:

Հնարավոր պատասխանները

□ Ոչ ---- Փորձեք իմանալ հրաժարվելու պատճառը: Փորձեք համոզել նրան մասնակցել հարցազրույցին: Խուսափեք շատ պնդելուց: Տեղեկացրեք, որ հարցազրույցի ընթացքում չի նշվելու իրենց անունը, որ նրա մասնակցությունը իսկապես արժեքավոր է հետազոտության համար և այլն: Եթե մասնակիցը շարունակում է հրաժարվել, հեռացեք: Լրացրեք հարցման մատյանի ձևը:

□ Այո ---- Շարունակեք:

Ներկայացրեք ամբողջական համաձայնության ձևը: Համոզվեք, որ սենյակում միայն երկուսով եք: Եթե սենյակում են գտնվում կամ ցանկանում են գտնվել այլ անձիք, բացատրեք, որ հարցազրույցը գաղտնի է և այն կարող էխանգարել հարցվողին լինել ազատ և անկաշկանդ: Հարցաթերթիկի հարցերը կարդացեք հստակ, հասկանալի տոնայնությամբ: Ներկայացրեք պատասխանների ամբողջական ցանկը:

Անհրաժեշտության դեպքում կրկնեք հարցը և/կամ պատասխանների տարբերակները, բայց չփորձեք բացատրել հարցը: Նույնիսկ, եթե մասնակիցը պնդում է, որ չի հասկացել հարցը, միայն կրկնեք այն ինչպես տրգրված է: Հարցազրույցի ավարտից հետո մեկ անգամ ևս ստուգեք հարցաթերթիկը, համոզվեք, որ որևէ հարց կամ

պատասխան բաց չի թողնվել: Հարցազրույցի վերջում լրացրեք հարցման մատյանը, շնորհակալություն հայտնեք և դուրս եկեք բնակարանից:

Հարցազրուցավարը պետք է

- Լինի բարեհամբուր և հարգալից մոտենա հարցվողին
- Տրամադրի հավելյալ ժամանակ, եթե հարցվողը տարեց է և պահանջում է հավելյալ ժամանակ հարցին պատասխանելու համար
- Իր վերաբերմունքով ցուցադրի մասնակցողի կարևորությունը հարցմանը մասնակցելուն
- Հարցերի և պատասխանների ընթերցման ժամանակ լինի չեզոք, առանց էմոցիաներ արտահայտելու
- Չմիջամտի մասնակցի պատասխանին իր կարծիքով
- Հարցերի հետ դժվարությունների և անհասկանալի իրավիճակների պարագայում դիմի անմիջապես համակարգողին և հետևի իր ցուցումներին

Appendix 4: Oral consent form

English version:

American University of Armenia

Turpanjian School of Public Health

Institutional Review Board #1

Consent form

Hello. My name is Syuzanna Hovsepyan. I am a dentist and a final year graduate student at the School of Public Health at the American University of Armenia. As a thesis project, we are conducting research to assess oral health-related quality of life (OHRQoL) and factors associated with it among the general population in Sevan and Artashat cities.

(For the interviewer) I am from the American University of Armenia's Health Services Research and Development Center. My name is _____. Now research is being carried out, which aims to assess oral health-related quality of life (OHRQoL) and factors associated with it among the general population in Sevan and Artashat cities.

Your home address was randomly selected from the parliamentary election voting list. You are one of approximately 100 participants who is invited to participate in this survey as you are an adult and live in Sevan/Artashat city.

Your participation is completely voluntary. There will be no penalty if you refuse to participate in this study.

There are no direct benefits from your participation; however; your answers are very valuable and can contribute to a better understanding of the oral health-related quality of life among older adults, and later provide evidence-based information to healthcare providers about

the needs and concerns. The interview will last around 15 minutes. The questionnaire consists of questions about oral health, oral hygiene, oral health-related quality of life. You can skip any question you do not want to answer and can stop the interview at any point in time.

The information you provide is confidential and will be used only for this study. The provided information will be available only to the research team. Your home address will be destroyed after data collection.

If you have any further questions about this study you can contact the principal investigator of this study Dr. Varduhi Petrosyan at (+374 60) 612592. If you think that you have not been treated properly or you have been hurt by participating in this survey you can contact the Human Protections Administrator of the American University of Armenia Varduhi Hayrumyan at (+37460) 61 25 61.

Do you agree to participate?

Armenian version

Հայաստանի ամերիկյան համալսարանի

Թրփանճեան Հանրային առողջապահության ֆակուլտետ

Գիտահետազոտական էթիկայի թիվ 1 հանձնաժողով

Իրազեկ համաձայնության ձև

Բարև Ձեզ: Իմ անունը Սյուզաննա Հովսեփյան է: Ես ստոմատոլոգ եմ և հանդիսանում եմ Հայաստանի ամերիկյան համալսարանի հանրային առողջապահության ֆակուլտետի ավարտական կուրսի ուսանող: Որպես մագիստրոսական թեզ մենք իրականացնում ենք հետազոտություն ուսումնասիրելու համար բերանի խոռոչի առողջական վիճակի հետ կապված կյանքի որակը և դրա հետ կապված գործոնները մեծահասակների մոտ Սևան և Արտաշատ քաղաքներում:

(Հարցազրուցավարի համար) Ես Հայաստանի ամերիկյան համալսարանի

Առողջապահական ծառայությունների հետազոտման և զարգացման կենտրոնից եմ:

Իմ անունն է ____: Այժմ իրականացվում է մի հետազոտություն, որի նպատակն է ուսումնասիրել բերանի խոռոչի առողջական վիճակի հետ կապված կյանքի որակը և դրա հետ կապված գործոնները մեծահասակների մոտ Սևան և Արտաշատ քաղաքներում:

Ձեր հասցեն ընտրվել է պատահականության սկզբունքով խորհրդարանական ընտրության ցուցակից: Դուք այն մոտ 100 մասնակիցներից եք, ով հրավիրված է

մասնակցելու այս հարցմանը, քանի որ Դուք չափահաս եք և ապրում եք

Սևան/Արտաշատ քաղաքում:

Ձեր մասնակցությունը լիովին կամավոր է: Դուք կարող եք հրաժարվել

մասնակցությունից՝ առանց որևէ բացասական հետևանքների:

Ուսումնասիրությանը Ձեր մասնակցությունը չի ենթադրում որևէ ուղղակի շահ Ձեզ համա

ր, սակայն Ձեր պատասխանները չափազանց արժեքավոր են և կօգնեն ավելիլավ

ուսումնասիրել բերանի խոռոչի առողջական վիճակի հետ կապված կյանքի որակը

մեծահասակների մոտ, և հետագայում տրամադրել հիմնավորված տեղեկություն

առողջապահական ոլորտի ներկայացուցիչներին՝ տվյալ խնդրի կարիքների և

մտահոգությունների մասին: Հարցազրույցը կտևի մոտավորապես 15 րոպե:

Հարցաշարը կազմված է բերանի խոռոչի առողջության և հիգիենայի վերաբերյալ

գիտելիքների, բերանի խոռոչի առողջական վիճակի հետ կապված կյանքի որակի

վերաբերյալ հարցերից Դուք կարող եք բաց թողնել ցանկացած հարց, որին չեք

ցանկանա պատասխանել և կարող եք ընդհատել հարցազրույցը ցանկացած պահի:

Ձեր տրամադրած տեղեկատվությունը գաղտնի է և կօգտագործվի միայն տվյալ

հետազոտության շրջանակներում: Ձեր տրամադրած պատասխանները հասանելի

կլինեն միայն հետազոտման թիմին: Ձեր հասցեն կոչնչացվի տվյալները

հավաքագրելուց հետո:

Եթե Դուք ունեք հետագա հարցեր տվյալ հետազոտության մասին, կարող եք կապվել

անմիջապես հետազոտության ղեկավար՝ Վարդուհի Պետրոսյանին (+374 60) 612592

հեռախոսահամարով: Եթե Ռուք կարծում էք, որ հետազոտության ընթացքում Ձեզ
հետ լավ չեն վերաբերվել և/կամ հետազոտությունը Ձեզ վնաս է հասցրել, կարող եք
զանգահարել ՀԱՀ-ի Էթիկայի հանձնաժողովի համակարգող՝ Վարդուհի
Հայրումյանին, հետևյալ հեռախոսահամարով (010) 6125 61:
Ռուք համաձայն եք մասնակցել: