Knowledge, attitude, and practice (KAP) related to diabetes and diabetic retinopathy: a cross-sectional pilot survey among diabetic retinopathy patients in Armenia

Master of Public Health Integrating Experience Project

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by

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List of Abbreviations

BMI	Body mass index
DR	Diabetic retinopathy
IRB	Institutional review board
KAP	Knowledge attitude practice
MMAS	Morisky Medication Adherence Scale

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Abstract

Background: Diabetes is a major global public health issue. According to the International Diabetes Federation, in 2021, around 537 million adults (20-79 years) had diabetes, and it caused 6.7 million deaths globally. Diabetic retinopathy (DR) is the most frequent microvascular consequence of diabetes mellitus. DR is the major reason for vision loss in working-age adults (20-65 years old) and the fifth most frequent cause of blindness among adults aged 50 years and older. In Armenia, out of 270,000 people with diabetes, 90,000 people (33%) have DR. DR might not be preventable; however, good control of blood glucose levels, obesity, nephropathy, regular eye exams, and early interventions for vision problems can prevent loss of vision. Also, healthy nutrition and physical activity are essential factors for controlling diabetes and diabetes-related complications.

Aim and Objectives: This project aimed to explore the current level of knowledge, attitude, and practice (KAP) related to diabetes and DR among 18 years old and older patients with DR in Armenia. The study objectives are: 1) to evaluate diabetes and DR-related knowledge, attitude, and practice among 18 years old and older DR patients and 2) to assess the associations of knowledge, attitude, health status, and socio-demographic factors with diabetes and DR-related practice.

Methodology: A cross-sectional, quantitative survey design was used with the interviewer-administered questionnaire. Participants were selected from the "Lions Regional Ophthalmic Unit in Sevan" in Gegharkunik province. The census sampling method was used to recruit patients diagnosed with DR from the clinic's medical records. The study instrument was a combination of existing questionnaires that were used in different countries for assessing the KAP of diabetes and DR and the inclusion of self-developed questions appropriate to our population.

Results: Overall, 46 participants were surveyed. The average diabetes-related knowledge percent score was 67.5%, and the average DR-related knowledge score was 46.7%. The average attitude percent scores for diabetes, and DR were 57.3% and 87.5%, respectively. The mean practice percent score for diabetes was 50.0%. Only four out of 46 respondents knew about having DR despite being diagnosed with the condition. The simple linear regression analysis showed a statistically significant positive association between monthly expenditures and diabetes mean practice score ($p=0.047$, $e^{\beta} = 1.4$; 95% CI = -0.04;2.8). Also, there was a significant positive association between diabetes attitude and diabetes mean practice scores ($p=0.002$, $e^{\beta} = 0.4$; 95% CI = 0.1;0.6).

Conclusion: The current study assessed DR and diabetes KAP in Armenia. The study found a relatively good level of diabetes knowledge, attitude, and practice, but a poorer level of DR awareness, which stresses the need for urgent educational programs about DR and the associated risks among people with diabetes in Armenia. A larger study using a representative sample of the Armenian population should be initiated to confirm and expand the findings of this investigation.

1. Introduction

1.1.Diabetes Mellitus

According to the World Health Organization, diabetes mellitus is a metabolic disease of multiple etiologies characterized by increased glucose levels, which causes severe damage to the eyes, heart, kidneys, nerves, and blood vessels over time.[1]

Type 1 or insulin-dependent diabetes is a severe chronic condition in which the pancreas produces little or no insulin, which is a hormone that controls the glucose levels in the blood.[2] Type 2 or non-insulin-dependent diabetes mainly affects adults. It happens when the organism does not make sufficient insulin, or the body becomes resistant to it.[1] More than 95% of individuals with diabetes have the second type of diabetes.[3]

Diabetes is a significant global public health issue. Globally, over the last few decades, the incidence and prevalence rate of diabetes has steadily increased.[1] According to the International Diabetes Federation, in 2021, around 537 million adults (20-79 years) had diabetes, and it caused 6.7 million deaths.[4] More than 80% of 463 million adults with diabetes live in middle- or low-income countries.[5] International Diabetes Federation Diabetes Atlas reports that diabetes cases will increase to 643 million by 2030 and will reach around 783 million by 2045.[6]

The International Diabetes Federation reported that in 2021, there were 133,600 new cases of diabetes in Armenia. The diabetes prevalence among the population aged 20-79 years was 5.6%, and 2,392 people died from diabetes in 2021 in Armenia. [7]

Diabetic people have a higher risk of developing a variety of health problems.[8] Most serious diabetes complications include diabetic retinopathy, neuropathy, and diabetic kidney disease, which are the leading causes of disability and mortality among diabetic patients. Other

complications include heart and blood vessel disease, foot damage, skin problems including fungal and bacterial infections, and depression.[8]

1.2. Diabetic Retinopathy

Diabetic retinopathy (DR) is the most frequent microvascular consequence of diabetes. DR happens as a result of chronic high glucose levels in the blood, which causes injury to the retinal capillaries. DR is the major reason for vision loss in working-age adults (20-65 years old) and the fifth most common cause of blindness among adults aged 50 years and older.[9]

From 1990 to 2020, the age-standardized global prevalence of DR increased from 14.9% to 18.5%.[10] Based on the 59 population-based studies, the global prevalence of DR was 22.7% among people with diabetes in 2020. The study, as mentioned above, showed that the prevalence of DR was highest in Africa (35.9%), followed by the Caribbean and North America (33.3%), and was lowest in Central and South America (13.37%). The number of DR cases is projected to increase globally by 25.9% to 129.84 million in 2030 and by 55.6% to 160.50 million in 2045. [11]

In Armenia, out of 270,000 people with diabetes, 90,000 people (33%) have DR.

1.3. Stages and Risk Factors of DR

DR progresses in three main stages. Stage one is called background retinopathy and is characterized by the tiny bulges that have developed in blood vessels in the retina (back of the eye). At this stage, the sight is not affected, but there is a higher risk of later acquiring visual problems. The second stage is called pre-proliferative retinopathy, which means that the retina is damaged more severely, and broad alternations are seen in the retina. At this level, there is a greater risk of impaired vision. The third stage is proliferative retinopathy,

which indicates that the retina has formed new scar tissue and blood vessels, causing significant bleeding and retinal detachment. At this phase, there is a huge risk of losing vision. [13] Additionally, other eye problems can occur as a result of DR, such as diabetic macular edema (about 1 out of 15 people with diabetes develop diabetic macular edema, and the result is blurry vision), neovascular glaucoma (an eye condition that can cause blindness or loss of vision), and retinal detachment.[14]

Longer duration of diabetes, race, age, gender, smoking status, hypertension, and increased hyperglycemia are all significantly correlated with DR development. The condition can develop in any person with type one or two diabetes .[15] Glycemic control is essential in diabetic patients for preventing DR. The Los Angeles Latino Eye study claims that there is a 22% elevation in the prevalence of DR with a 1% rise in a blood test that measures blood sugar level.[21]

Hypertension, nephropathy, and higher body mass index are additional risk factors that can be modifiable to protect the development of DR.[18,19,20]

The clinical observation might explain the association between DR and hypertension, as DR and hypertension often co-exist. High blood pressure might lead to morphological changes in the retinal vessels.[22] In one study, patients with high blood pressure had a twice as high chance of developing retinopathy after ten years in comparison with diabetic patients who had normal blood pressure.[23]

Multiple studies showed a positive association between DR and high body max index. A study focused on patients with type one diabetes with good metabolic control (average glucose level < 6.87%) revealed that obesity with a body mass index of >30 kg/m^2 was a potential risk factor for DR compared to normal-weight patients. Another study examined

2,848 adults and showed that a higher prevalence of DR is significantly associated with a higher body max index. [24,25]

Various studies have shown the link between nephropathy and retinopathy. A study by Park and colleagues showed that among the Korean population, both kidney disease (OR=2.34; 95% CI, 1.04-5.28) and proteinuria (OR=4.56; 95% CI, 1.51-13.77) were strongly correlated with DR. The urine albumin to creatine ratio is a clinical marker of renal function. The authors analyzed that high urine albumin to creatine ratio increases the prevalence of DR. [26] A different study by Zhang et al. found a significant association between DR and chronic kidney disease among the Chinese population. The research revealed that patients with an increased urine albumin to creatine ratio had higher rates of DR.[27]

1.4. Diagnosis, Prevention, and Treatment of DR

Generally, DR does not become evident among people with type 1 diabetes until five or more years after the disease has occurred. DR, which might be a result of several years of not being diagnosed with diabetes, could be visible in type two diabetic patients at the time of the diabetes detection.[28]

Despite the fact that DR progression leads to blindness, the diagnosis of DR is complicated in the early stages because of its invisible first signs. Yet early detection and regular screening can cut the risk of vision loss by 57% and lower treatment expenses.[29] The screening procedures for DR are easy, safe, benefit-validated, and efficient, according to numerous longitudinal studies.[30,31] Scalable and quick screening is a vital need as it helps to develop appropriate management plans.[32]

DR is not always preventable; however, good control of blood glucose levels, obesity, nephropathy, regular eye exams, and early interventions for vision complications can prevent loss of vision.[23]

According to the U.S. National Institute of Diabetes and Digestive and Kidney Diseases, healthy nutrition, and physical activity, are essential factors for controlling diabetes and diabetes-related complications. In the prevention of DR, following a balanced diet and being physically active will keep blood glucose levels under control.[33]

Multiple studies have shown that increasing physical activity decreases the likelihood of developing DR. Particularly, the chance of developing DR can be decreased by 40% when physical activity is for at least 150 minutes per week. [34,35,36]

Moreover, having a healthy diet is a crucial component for managing diabetes and DR. A systematic review showed that reduced sodium and caloric intake and increased healthy intake (more carotenoids, fruits, and vegetables) have an association with a lower risk of DR.[37,38]

Patients diagnosed with DR can use effective treatments, such as laser therapies and intravitreal injections of antivascular endothelial growth factor (VEGF) agents during severe DR.[32] Besides anti-VEGF agents, anti-angiogenic drugs are undergoing clinical research for the treatment of DR. Various therapeutic agents such as Cardiolipin-targeting peptides, Alpha-lipoic acid, Lutein, and Darapladib are therapeutic targets for treating diabetic macular edema.[40,41,42,43] Laser approaches are also used for treating diabetic macular edema, such as pattern scanning laser, navigated laser, and micropulse diode laser. Those laser therapies applied to the retina produce favorable visual results.[44,45,46]

1.5. Knowledge, Attitude, and Practice Related to Diabetes and DR

The appropriate management of diabetes is important for the prevention of the onset and control of the progression of DR. [47] The knowledge, attitudes, and practice (KAP) framework has been commonly used to understand the components of health education crucial for optimal patient behaviors for the control and management of various diseases. Several studies have shown that good diabetes and DR knowledge and attitude are associated with preventive behavior, including receiving an eye examination by an ophthalmologist.[47,48,49,50]

1.6. Study Rationale

Studies exploring DR are scarce in Armenia. A survey conducted in the Gegharkunik region of Armenia in 2015 described the prevalence and risk factors related to DR.[12] Yet, no studies have assessed diabetes and DR-related knowledge, attitude, and practice among DR patients in Armenia.

1.7. Study Aim and Objectives

This project aims to explore the current level of knowledge, attitude, and practice related to diabetes and DR among 18 years old and older patients with DR in Armenia.

The specific study objectives are the following:

1. To evaluate diabetes and DR-related knowledge, attitude, and practice among 18 years old and older DR patients.
2. To assess the associations of knowledge, attitude, health status, and socio-demographic factors with diabetes and DR-related practice.

2. Methods

2.1. Study Design

A cross-sectional telephone survey with an interviewer-administered questionnaire was used. Participants were selected from the "Lions Regional Ophthalmic Unit in Sevan" in Gegharkunik province.

Cross-sectional studies are observational studies that help to analyze data on multiple variables at a single time point. Strengths of the design involve low cost, easy implementation, high speed, and the opportunity to measure the prevalence of the studied factors.[51] Weaknesses of the cross-sectional studies include the inability to confirm causal associations .[51]

2.2. Study Population

The target population included patients with DR in Armenia. The study population included patients with DR over 18 years old who received treatment in the "Lions Regional Ophthalmic Unit in Sevan" in Gegharkunik province. Women who were pregnant at the time of the interview were excluded as studies showed that DR during pregnancy can progress as the condition impacts blood vessels in the retina, and this topic can be sensitive for them.[57,58]

2.3. Study Tool

The study instrument was a combination of existing questionnaires that were used in different countries for assessing the KAP of diabetes and DR and the inclusion of self-developed questions appropriate to our population (Appendix 1).[52, 53, 54, 55]

The questionnaire contained seven questions about socio-demographic information of patients, five questions about health status, 20 questions about diabetes and DR-related knowledge, 15 questions about the attitude towards diabetes and eye problems related to diabetes attitude, and 22 questions about diabetes and DR-related practice. The diabetes practice domain included the Morisky Medication Adherence Scale (MMAS_4) as a validated assessment tool to measure patients' adherence to medication/medication-taking behavior. The four items of MMAS-4 addressed non-adherence reasons, including forgetfulness, carelessness, or quitting medications because of improved or worsened feelings.[56] The diabetes practice section also contained five questions on physical activity to understand whether the participants were doing regular physical activity in order to manage and prevent diabetes and diabetes-related complications.

The study instrument was pretested among five participants; three of them were patients diagnosed with diabetes and DR, one was an ophthalmologist, and one was a researcher at Garo Meghrigian Institute for Preventive Ophthalmology. After the pretest, minor revisions to the wording were made to finalize the questionnaire.

2.4. Sample Size Calculation

The formula for two sample proportions was used to calculate sample size at the level of significance of 5% and with a confidence of 95%. In the cross-sectional study of knowledge, attitude, and practice among diabetic patients conducted in Saudi Arabia, about 48.6% of male patients and 51.5% of female patients had good knowledge of DR. Appropriately, 47.2% of males and 33.7% of females had a good attitude, and 40.7% of males and 30% of females had good practices regarding DR. So, for the study's sample size calculation, the following formula was used:[59]

$n = (Z_{\alpha/2}+Z_{\beta})^2 * (p_1(1-p_1) + p_2(1-p_2)) / (p_1 - p_2)^2$

n = required sample size for one group (when the groups are equal),

z = the level of significance = 1.96 for a two-tailed, 95% confident interval

p_1 = the percentage of DR patients with good practice among males; based on the study mentioned above, it is equal to 0.41

p_2 = the percentage of DR patients with the appropriate practice among females; this was an arbitrary number for our population = 0.61

$n = (1.96 + 0.84)^2 * (0.41(1-0.41)) + 0.61 (1-0.61)/ (0.41-0.61)^2 = 194$

2.5. Data Collection

The patients list diagnosed with DR was provided by the "Lions Regional Ophthalmic Unit in Sevan" from the clinic's medical records.

The data was collected from March 15 to April 13, 2023, by the student investigator. The clinic's medical records were reviewed to choose those patients who were diagnosed with DR. The Journal for Medical Abstraction Form was used to abstract and collect data on the patient's names, phone numbers, and length of DR from the medical records (Appendix 4).

To have the required sample size, the nurse of the clinic called each participant, assessed eligibility, and obtained permission to provide their contact information to the student investigator. Initially, it was planned to start the enrollment of patients from the most recent medical records and go back through the list until reaching the desired sample size. However, the preliminary review of the records revealed that there will be fewer patients eligible for the

survey than planned and that a census will have to be conducted; therefore, all records were reviewed without consideration of time order.

The student investigator called the patients enrolled by the nurse and filled out the questionnaire after receiving consent to participate.

2.6. Data Analysis

The data was entered and analyzed by SPSS 22 software. The database was cleaned by conducting random spot-checks and checking missing values. In order to measure the level of knowledge, attitude, and practice scores of participants, a descriptive analysis was done using means, standard deviations, frequencies, and proportions. A simple linear regression analysis was performed in order to explore the association of practice with socioeconomic characteristics, health status, diabetes knowledge, and attitude scores.

2.7. Study Variables

The independent variables included age (continuous), gender (categorical), educational level (ordinal), monthly expenditures (ordinal), employment status (categorical), as well as health characteristics, including the number of years being diagnosed with diabetes (continuous), type of diabetes (categorical), insulin-dependent treatment (binary), BMI (categorical), also knowledge (continuous) and attitude scores (continuous).

Diabetes and DR knowledge and attitude scores were obtained by giving one point for each right answer and zero for wrong or “don’t know” answers. All twelve questions of the diabetes and six questions of the DR knowledge section were summed up to get the diabetes and DR knowledge scores for each respondent.

The diabetes and DR attitude scores of each participant were computed by summing up eleven questions of the diabetes attitude domain and four questions of the DR attitude section.

To come up with a diabetes practice score, the questions from the Morisky Medication Adherence Scale (MMAS-4) in the diabetes practice section were computed by giving one point for all "no" answers, which implied adherence to medication, and zero to "yes" answers. The total score ranged from 0 to 4. For the question about dietary recommendations, the answers of "never," "hardly ever," and "sometimes" was given zero, and the options of "often" and "always" was given one point. The physical activity questions were also categorized and given one point if the participant had been physically active during the last week for at least 150 minutes and 0 if this activity level was not met. The total diabetes practice score was obtained by summing up seven questions of the practice domain, including one question about weekly testing of blood glucose level, and for that question, one point was given if the blood glucose level tested seven times per week and zero if the blood glucose level tested less than seven times in a week. Also, there were questions regarding MMAS-4 items (computed as one question and given one point if the MMAS score was 4) and two items regarding the following dietary recommendations and the frequency of following them (computed as one question and given one point if the participant answered "often" or "always") and five questions related to physical activity (computed as one question and given one point if the patient did a physical activity at least 150 minutes in a week). Also, three questions about diabetes practice were computed by giving one point for each right answer and zero for the wrong answer, including one question about taking the medication without a doctor's prescription, one question to identify whether the patients were going to regular follow-up visits as advised by the physician and one question to understood whether they had periodic/regular eye checkups.

DR practice score was obtained by giving one point for each “yes” answer and zero for the “no” answer. Overall, the two questions of the DR practice section were summed up to get the practice score for each respondent.

3. Ethical Considerations

The study protocol was approved by the Institutional Review Broad (IRB) of the American University of Armenia. All the study responders knew about their rights and the purposes of the study and gave informed consent. The questionnaire was not containing any identifying information. For each participant, a personal ID number was used. Only the student investigator and co-investigators had access to the database.

4. Results

4.1. Administrative Results

The respondents from “Lions Regional Ophthalmic Unit in Sevan” in Gegharkunik province who met the eligibility criteria and agreed to participate were recruited into the study.

During the clinic’s medical records review, 179 patients were identified. The clinic’s nurse calls resulted in 60 people (33.5%) who agreed to participate. Twenty-one people (11.7%) died, three (1.7%) were not eligible, and 10 (5.6%) refused to participate. Eighty-five patients (47.5%) were unavailable, or the contact numbers were missing or wrong.

Out of 60 patients who were contacted by the student investigator, 46 (76.7%) agreed to participate, four were unavailable (6.6 %), and ten refused to participate (16.7%). So, the response rate was 25.7%.

4.2. Socio-demographic Characteristics

Table 1 shows the socio-demographic characteristics of the study participants. The mean age of the study respondents was 67.3 (SD = 8.4). The majority of the study participants were female (60.9%). Most of the recruited patients received secondary school education (up to 10 years) (50%). Approximately twenty-eight percent of respondents had been spending 50,000-100,000 AMD per month. Eighty-seven percent of the study participants were retired (Table 1).

4.3.Health Status

The mean number of years of being diagnosed with diabetes was 15 (SD = 7.6) (Table 2). The overwhelming majority of the study participants (58.7%) did not know about the type of diabetes they had. More than a third (39.1%) of respondents were obese (BMI = 30 or higher).

4.4.Knowledge about Diabetes

The respondents' answers to diabetes knowledge-related questions are presented in Table 3a and Table 3b. The majority of study participants disagreed (95.7%) that diabetes cannot be diagnosed with the help of blood analysis, and 54.3% agreed that diabetes can be diagnosed with the help of urine analysis. About 65.2% of the participants knew that medication could keep diabetes under control, and 78.3% knew that diet can keep diabetes under control. Also, 56.5% agreed that exercise can keep diabetes under control. Similarly, 52.2% agreed that weight reduction can keep diabetes under control. Approximately sixty-seven percent of responders agreed that going for regular checkups can keep diabetes under control. The vast majority of participants (97.8%) knew that eye health could be affected by diabetes. About

82.7% thought that kidney health could be affected by diabetes, and 76% thought that cardiovascular system health could be affected by diabetes (Table 3a). About 65.2% of participants knew that once diabetes is diagnosed, the diet should be controlled lifelong. About 41.3% of participants thought that patients with diabetes have to go for an eye checkup every six months (Table 3b).

4.5. DR Awareness and Knowledge

The respondents' awareness of DR is presented in Table 4. Forty participants (87%) were not aware of DR. Out of the six respondents who have heard of DR, only four knew of their DR diagnosis (Table 4).

Table 5 presents the six study participants' knowledge of DR. Half of the respondents knew that poor control of diabetes could lead to DR, and almost 67% of the participants claimed that poor control of diabetes could cause the progression/worsening of DR. All respondents agreed that DR could cause blindness. Three responders out of six reported that DR cannot be improved with spectacles, five people did not know that DR can be treated with an intraocular injection, and three people did not know that DR can be treated with a laser.

4.6. Diabetes and DR Attitude

Most of the participants (52.4%) stated that people with diabetes can eat sweets occasionally (Table 6). Overall, almost 76% of responders disagreed with the statement that even if they forget to take their medications on some days, it is all right. The vast majority (82.7%) agreed that going to regular checkups is important. Only 45.7% agreed that even if they don't exercise regularly, it is all right. Almost all participants (95.7%) claimed that keeping their sugar level under control is important, while approximately 72% stated that keeping their

weight under control is important, and the vast majority (97.8%) was confident that keeping their eye health under control is important. Half of the responders disagreed with the statement that they don't need regular eye exams if they control their blood sugar, and similarly, almost fifty-two percent disagreed that they don't need regular eye exams if they don't have eye problems. Seventy-eight percent of responders were sure that controlling blood sugar is important even if they were receiving treatments related to diabetes eye complications. Few responders (41.3%) disagreed that going for an eye exam for patients diagnosed with diabetes is a waste of time and money.

The attitude toward DR was presented in Table 7. The overwhelming majority of participants (83.3%) agreed with the statements that controlling DR is important for patients diagnosed with DR. All respondents (100%) were confident that receiving appropriate treatment after a diagnosis of DR is important. About 83.3% of respondents agreed that receiving appropriate treatment after a diagnosis of DR is important and that going for follow-up examinations after treatment of DR is important.

4.7. Adherence to Medication

The significant majority of the study participants (95.7%) were taking medications based on their physician's advice. Among fourthly-six patients, 25 (54.3%) were non-adherent to medication according to Morisky's scale (Table 8).

4.8. Diabetes and DR Practice

Table 9 presents the study participants' diabetes-related behavior. About 78.3% of participants tested blood glucose levels less than seven times per week. The majority (87.9%) of respondents had never taken diabetes medication without a doctor's prescription. Almost

eighty percent stated that they follow the dietary recommendations for diabetes, and about thirty-nine percent of respondents were "always" following the dietary recommendations for diabetes. The majority (78.3%) of the participants were physically "inactive," and thirteen were "highly active" (doing activities ≥ 300 minutes a week). Approximately eighty percent of respondents were going for regular follow-ups for diabetes, as advised by the physician. The most common reason that the participants gave for not going to regular check-ups for diabetes, as advised by the physician, was "cannot afford it" (55.6%). Almost seventy percent of participants had a periodic/ regular eye checkup (69.6%). The most common barrier identified for not going to periodic/ regular eye checkups was "financial problems" (50.0%).

Among four participants who knew they were diagnosed with DR, three had taken treatment (laser/intravitreal injections/ vitrectomy) for DR, and the same number had been going for follow-up visits (Table 10).

Only one person was not compliant with taking treatment for DR and explained it by the doctor not informing him/her about it. The reason for not going for follow-up visits after taking prescribed treatment for DR was "could not afford to go for frequent follow-up visits."

4.9. KAP scores of Diabetes and DR

Table 11 illustrates mean diabetes and DR-related KAP scores. The questions to assess knowledge, attitude, and practice of diabetes were administered to all the participants, while the questions regarding the knowledge and attitude patterns of DR were administered only to the six respondents (13.0%) who were aware of DR and the questions regarding DR-related practice were administered to only four respondents who were aware that they had been diagnosed with DR.

The average diabetes-related knowledge score was 8.1 (score range 0-12) (SD = 2.1), with a percent score of 67.5%. The average knowledge score for DR was 2.8 (SD = 1.7) (score range 0-6), and the percent score was 46.7%. The average attitude scores for diabetes and DR were 6.3 (SD = 1.7) (score range 0-11), with a 57.3% percent score, and 3.5 (SD = 1.2) (score range 0-4), with 87.5% percent score, respectively.

The mean practice score for diabetes was 3.5 (SD = 1.3) (range 0-7), with a percent score of 50.0%. The mean practice score for DR was 1.5 (SD = 0.6) (range 0-2), with a percent score of 75.0% (Table 11).

4.10. Bivariate Analysis

The simple linear regression analysis showed a statistically significant positive association between monthly expenditures and diabetes practice mean score (p=0.047). The unadjusted mean score of practice on diabetes will increase by 1.4 among those who spent more than 201.000 AMD monthly compared to those who spent less than< 100.000 AMD ($e^{ß}$ = 1.4; 95% CI = -0.04; 2.8). Also, there was a significant positive association between diabetes attitude and diabetes practice mean score (p=0.002). With every one-unit increase in the diabetes-positive attitude, the regression coefficient of the diabetes good practice mean score will increase by 0.4 ($e^{ß}$ = 0.4; 95% CI = 0.1;0.6) (Table 12).

5. Discussion

This cross-sectional study aimed to evaluate diabetes and DR-related knowledge, attitude, and practice among DR patients and identify associations of knowledge, attitude, health status, and socio-demographic factors with diabetes and DR-related practice.

Among our participants, the percent knowledge score of DR was 46.7%, the attitude percent score was 87.5%, and the practice percent score was 75%. In the cross-sectional study conducted in Saudi Arabia among 313 participants, the average DR knowledge score was 4.5 out of 11, while the mean score of DR attitude was 2 out of 4, and the average mean score of DR practice was 3 out of 5.[59] Our study seemed to detect better DR-related KAP scores in Armenian population compared to Saudi Arabia population; however, a small sample size used in our study does not allow drawing definitive conclusions about the actual level of DR-related KAP in Armenia.

The diabetes-related knowledge percent score in our study was 67.5%, the attitude percent score was 57.3%, and the practice score was 50%. In the study conducted in Pakistan, knowledge and attitude indicated higher mean percent scores of 85.5% and 88.6%, while the practice percent score was 40.7%.[60] A study conducted in Greece showed a percent knowledge score of 59.6% which is more comparable to our findings. Similarly, the exploration of knowledge related to diabetes among diabetes patients in China revealed a percent knowledge score of 54.4%. Unfortunately, a direct comparison of the KAP scores found in our study to those reported by other authors is not possible because of the different questionnaires used to construct the scores.[61]

However, relatively high diabetes and DR-related KAP scores in Armenia found in this pilot study warrant further investigation using a larger and more representative sample of respondents and standardized scales.

Among our participants, only six patients (13%) heard about DR. A similar study conducted in Ethiopia revealed that among 306 diabetic patients, only eighty-one patients (26.5%) were aware of DR.[62]

One of the most important findings of the present study was that only four out of 46 respondents knew about having DR despite being diagnosed with the condition at the health care facility. This might imply a substantial gap in the appropriate communication of crucial information related to the patient's health condition by the healthcare providers or an underestimation of the importance of this condition by the patients.

Our research found significant associations between diabetes practice mean score and diabetes attitude ($p = 0.002$), which is similar to the findings reported in the international literature[63,64,65 66] and is in line with the multiple health behavior theories stressing the importance of attitude in positive health-related practices.[67]

The association between monthly expenditures and practice score found in this study has been previously reported in the literature; however, there have also been authors that could not confirm this link. [68,69,70,71,72]It has been noted that those with insufficient resources are not only more likely to face higher risks of developing diabetes but that they are also more likely to face additional difficulties in managing their condition, which might be true for Armenian diabetes patients as well.[73]

6. Strengths and Limitations

This is the first study that attempted to assess knowledge, attitude, and practice of DR and diabetes among DR patients in Armenia. The major limitation of the study was a small sample size, which did not allow for conducting multivariable analysis. Also, this study recruited participants from one hospital in one of the provinces of Armenia, which limited the generalizability of our findings throughout Armenia. The third limitation is self-reported information regarding practices on adherence to medication, following the diet, and physical activity, which might have posed a recall bias.

7. Conclusion

The current study assessed DR and diabetes KAP in Armenia. The study found a relatively good level of diabetes knowledge, attitude, and practice, but a poorer level of DR awareness, which stresses the need for urgent educational programs about DR and the associated risks among people with diabetes in Armenia. A larger study using a representative sample of the Armenian population should be initiated to confirm and expand the findings of this investigation.

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Tables and Appendices

Table 1: Socio-demographic Characteristics of Respondents

Variables	Results (N = 46), % (n)
Age in years (mean, SD)	67.1 (8.4)
Gender	
Male	39.1 (18)
Female	60.9 (28)
Education	
Incomplete secondary (8 years or less)	10.9 (5)
Secondary school (up to 10 years)	50.0 (23)
Technical professional (10-13 years)	21.7 (10)
High/Post diploma	17.4 (8)
Monthly Expenditures	
Less than 50.000 AMD	17.4 (8)
50-100.000 AMD	28.3 (13)
101.000-200.000 AMD	13.0 (6)
201.000-300.000 AMD	10.9 (5)
Over 301.000 AMD	2.2 (1)
Don't know	28.3 (13)
Employment	
Employed	8.7 (4)
Unemployed	4.3 (2)
Retired	87.0 (40)

Table 2: Health Characteristics of Responders

Variables	Results (N = 46), % (n)
Mean number of years being diagnosed with diabetes in years (mean, SD)	15 (7.6)
Type of diabetes	
Type I	8.7 (4)
Type II	32.6 (15)
Don't know	58.7 (27)
Receiving insulin treatment for diabetes treatment	
Yes	54.3 (25)
No	45.7 (21)
BMI = weight (in kg)/[height in cm]^2	
Underweight (<18.5)	2.2 (1)
Normal weight (18.5 – 24.9)	15.2 (7)
Overweight (25 – 29.9)	30.4 (14)
Obese (>30)	39.1 (18)
*Missing	13.0 (6)

Table 3a: Diabetes Knowledge

Variables (N=46)	Agree % (n)	Disagree % (n)	Don't know % (n)
Diabetes cannot be diagnosed with the help of blood analysis.	4.3 (2)	95.7 (44)	-
Diabetes can be diagnosed with the help of urine analysis.	54.3 (25)	13.0 (6)	32.7 (15)
Medication can keep diabetes under control.	65.2 (30)	19.6 (9)	15.2 (7)
Diet can keep diabetes under control.	78.3 (36)	13.0 (6)	8.7 (4)
Exercise can keep diabetes under control.	56.5 (26)	17.4 (8)	26.1 (12)
Weight reduction can keep diabetes under control.	52.2 (24)	15.2 (7)	32.6 (15)
Going for regular checkups can keep diabetes under control.	67.4 (31)	10.9 (5)	21.7 (10)
Eye health can be affected by diabetes.	97.8 (45)	-	2.2 (1)
Kidney health can be affected by diabetes.	82.7 (38)	4.3 (2)	13.0 (6)
Cardiovascular system health can be affected by diabetes.	76.1 (35)	4.3 (2)	19.6 (9)

Table 3b: Diabetes Knowledge

Variables	% (n)
Once diabetes is diagnosed, how long should diet control be continued	
Lifelong	65.2 (30)
Don't know	34.8 (16)
How often should patients with diabetes have an eye checkup	
Once in 6 months	41.3 (19)
Once a year	15.2 (7)
Any other	26.1 (12)
Don't know	17.4 (8)

Table 4: Respondents' Awareness of DR

Variables	% (n)
Heard about DR (n=46)	
Yes	13.0 (6)
No	87.0 (40)
Aware of being diagnosed with DR (n=6)	
Yes	66.6 (4)
No	16.7 (1)
Don't know	16.7 (1)

Table 5: DR Knowledge

Variables (N=6)	Agree % (n)	Disagree % (n)	Don't know % (n)
Poor control of diabetes can lead to DR.	50.0 (3)	-	50.0 (3)
Poor control of diabetes can cause the progression/worsening of DR.	66.7 (4)	-	33.3 (2)
DR can cause blindness.	100.0 (6)	-	-
DR can be improved with spectacles.	33.3 (2)	16.7 (1)	50.0 (3)
DR can be treated (prevented) with injection into the eye.	16.7 (1)	-	83.3 (5)
DR can be treated with a laser.	33.3 (2)	16.7 (1)	50.0 (3)

Table 6: Diabetes Attitude

Variables (N=46)	Agree % (n)	Disagree % (n)	Don't know % (n)
People with diabetes can eat sweets occasionally.	52.2 (24)	32.6 (15)	15.2 (7)
Even if I forget to take my medicines on some days, it is alright.	13.0 (6)	76.1 (35)	10.9 (5)
Going for regular checkups is important.	82.7 (38)	4.3 (2)	13.0 (6)
Even if I do not exercise regularly, it is alright.	45.7 (21)	26.0 (12)	28.3 (13)
Keeping my sugar level under control is important.	95.7 (44)	-	4.3 (2)
Keeping my weight under control is important.	71.7 (33)	6.5 (3)	21.8 (10)
Keeping my eye health under control is important.	97.8 (45)	-	2.2 (1)
I don't need regular (annual) eye exams if I control my blood sugar.	23.9 (11)	50.0 (23)	26.1 (12)
I don't need regular eye exams if I don't have eye problems.	23.9 (11)	52.2 (24)	23.9 (11)
Controlling blood sugar is important even if I am receiving treatments related to diabetes eye complications.	78.3 (36)	4.3 (2)	17.4 (8)
Going for an eye exam for patients diagnosed with diabetes is a waste of time and money.	34.8 (16)	41.3 (19)	23.9 (11)

Table 7: DR Attitude

Variables (N=6)	Agree % (n)	Disagree % (n)	Don't know % (n)
Controlling DR is important.	83.3 (5)	-	16.7 (1)
Regular eye exams are important for patients diagnosed with DR.	100.0 (6)	-	-
Receiving appropriate treatment after a diagnosis of DR is important.	83.3 (5)	-	16.7 (1)
Going for follow-up examinations after treating DR is important.	83.3 (5)	-	16.7 (1)

Table 8: Morisky Medication Adherence Scale (MMAS – 4)

Variables (N=46)	% (n)	
Taking medicines based on physician's advice		
Yes	95.7 (44)	
No	4.3 (2)	
MMAS – 4 Items	**Yes**	**No**
Forgot to take medications	23.9 (11)	76.1 (35)
Irregularly taken medications	26.1 (12)	73.9 (34)
When feeling better, stopped taking medications	19.6 (9)	80.4 (37)
When feeling worse, stopped taking medications	19.6 (9)	80.4 (37)
MMAS – 4 score		
0	2.1 (1)	
1	4.3 (2)	
2	13.0 (6)	
3	34.8 (16)	
4	45.7 (21)	
Adherence to medication		
Yes	45.7 (21)	
No	54.3 (25)	

Table 9: Diabetes Practice

Variables (N=46)	% (n)
Weekly testing of blood glucose level	
Less than seven times per week	78.3 (36)
Seven times per week	21.7 (10)
Ever taken diabetes medication without a doctor's prescription (e.g., on the advice of a neighbor, friend, or another person)	
Yes	8.7 (4)
No	87.9 (40)
I am currently taking diabetes medication without a doctor's prescription	2.2 (1)
Don't remember	2.2 (1)
Following the dietary recommendations for diabetics	
Yes	80.4 (37)
No	19.6 (9)
The frequency of following the dietary recommendations for diabetics	
Never	19.6 (9)
Hardly ever	2.2 (1)
Sometimes	17.4 (8)
Often	21.7 (10)
Always	39.1 (18)
During the past month, participated in any physical activities or exercises	
Yes	21.7 (10)
No	78.3 (36)
Physical Activity	
Inactive (0 minutes in a week)	78.3 (36)
Active (≥150 to <300 minutes in a week)	8.7 (4)
Highly active (≥ 300 minutes in a week)	13.0 (6)
Going for regular follow-ups for diabetes as advised by the physician	
Yes	80.4 (37)
No	19.6 (9)

Reasons for not going to regular follow-up for diabetes as advised by the physician	
Cannot afford	55.6 (5)
Checking sugar levels with a glucometer at home is sufficient	11.1 (1)
Any other	
If I listen to the doctor I will starve	11.1 (1)
I am retired	11.1 (1)
The doctors don't have humanity	11.1 (1)
Having a periodic/ regular eye checkup	
Yes	69.6 (32)
No	30.4 (14)
Reasons for not going to periodic/ regular eye checkups	
Do not trust the local doctor	14.3 (2)
Long distance from the hospital	14.3 (2)
Financial problems	50.0 (7)
Physically unwell	7.1 (1)
Any other	
I am retired	7.1 (1)
The doctors cannot cure	7.1 (1)

Table 10: DR Practice

Variables (N=4)	Yes % (n)	No % (n)
Have taken treatment (laser/intravitreal injections/ vitrectomy) for DR.	75.0 (3)	25.0 (1)
Have been going for follow-up visits (after taking prescribed treatment for DR).	75.0 (3)	25.0 (1)

Table 11: KAP Mean Scores and Percentages of Diabetes and DR

Diabetes	Mean (SD)	%
Knowledge score (0-12) **(n = 46)**	8.1 (2.1)	67.5
Attitude score (0-11) **(n = 46)**	6.3 (1.7)	57.3
Practice score (0-7) **(n = 46)**	3.5 (1.3)	50.0
DR	**Mean (SD)**	**%**
Knowledge score (0-6) (**n=6**)	2.8 (1.7)	46.7
Attitude score (0-4) (**n=6**)	3.5 (1.2)	87.5
Practice score (0-2) (**n=4**)	1.5 (0.6)	75.0

Table 12. Bivariate Associations Between Diabetes Practice Mean Score and Sociodemographic and Health Characteristics and Diabetes Knowledge and Attitude

Factors	Diabetes Practice Score		
	Regression Coefficient	**95% Confidence Intervals**	**p-value**
Age	-0.04	-0.09, 0.01	0.122
Gender			
Male	Reference		
Female	-0.4	-1.3, 0.4	0.336
Education			
Incomplete secondary (8 years or less)	Reference		
Secondary school (up to 10 years)	-0.4	-2.1, 1.4	0.676
Professional technical (10-13 years)	-0.3	-2.1, 1.6	0.769
High/Post diploma	0.2	-1.7, 2.1	0.822
Monthly expenditures			
<100.000 AMD	Reference		
101.000-200.000 AMD	0.4	-1.04, 1.9	0.56
Over 201.000 AMD	1.4	-0.04, 2.8	0.047
Employment			
Employed	Reference		
Unemployed	-0.4	-2.7, 2.0	0.763
Retired	-0.9	-2.4, 0.5	0.183
BMI	-0.008	-0.7, 0.06	0.814
Type of diabetes mellitus			
Type I	Reference		
Type II	0.7	-0.2, 1.5	0.125
Receiving insulin for diabetes mellitus			
Yes	Reference		
No	-0.09	-0.9, 0.7	0.828
Duration of diabetes mellitus	-0.02	-0.08, 0.04	0.456
Knowledge score of diabetes mellitus	0.1	-0.1, 0.3	0.348
Attitude score of diabetes mellitus	0.4	0.1, 0.6	0.002

Appendix 1. Questionnaire (English and Armenian versions)

Questionnaire for diabetic retinopathy patients aged over 18 years

Patient's ID_____

Interview date_____

Socio-demographic characteristics

1. State the place of your residence, the marz _____)

2. Do you live in a village or a city?

    1. Village (specify_____)
    2. City (specify_____)

3. Birth date __ __ /__ __ /__ __ _____ (day/month/year)

4. Gender
    1. Male
    2. Female

5. Your education
    1. Incomplete Secondary (8 years or less)
    2. Secondary school (up to 10 years)
    3. Professional technical (10-13 years)
    4. High/Post diploma (>13 years)
    5. Refuse to answer

6. On average, how much money do you spend monthly?
    1. Less than 50.000 AMD
    2. 50-100.000 AMD
    3. 101.000-200.000 AMD
    4. 201.000-300.000 AMD
    5. Over 301.000 AMD
    6. Don't know

7. Are you currently working? (Any paid or unpaid job)
    1. Employed (specify_____)
    2. Unemployed
    3. Retired

Health Status

8. Weight _____ kg

9. Height _____cm

10. When were you first diagnosed with diabetes?

Specify how many years ago _____

11. Please, indicate the type of diabetes.
    1. Type 1
    2. Type 2
    3. Don't know

12. Do you receive insulin for diabetes treatment?
    1. Yes
    2. No
    3. Don't know

Knowledge

Now I am going to ask you some questions to understand your general knowledge of diabetes

		1. Agree	2. Disagree	3. Don't know
13.	Diabetes cannot be diagnosed with the help of blood analysis.			
14.	Diabetes can be diagnosed with the help of urine analysis.			
15.	Medication can keep diabetes under control.			
16.	Diet can keep diabetes under control.			
17.	Exercise can keep diabetes under control.			
18.	Weight reduction can keep diabetes under control.			
19.	Going for regular checkups can keep diabetes under control.			
20.	Eye health can be affected by diabetes.			
21.	Kidney health can be affected by diabetes.			

22.	Cardiovascular system health can be affected by diabetes.			

23. Have you ever heard of diabetic retinopathy?
1. Yes
2. No → Go to Q31

24. Have you ever been diagnosed with diabetic retinopathy?
1. Yes (specify how many years ago _____)
2. No
3. Don't know

Read questions 25 – 30 if the patient is aware of DR				
		1. Agree	2. Disagree	3. Don't know
25.	Poor control of diabetes can lead to diabetic retinopathy.			
26.	Poor control of diabetes can cause the progression/worsening of diabetic retinopathy.			
27.	Diabetic retinopathy can cause blindness.			
28.	Diabetic retinopathy can be improved with spectacles.			
29.	Diabetic retinopathy can be treated (prevented) with injection into the eye.			
30.	Diabetic retinopathy can be treated with a laser.			

31. Once diabetes is diagnosed, how long should diet control be continued?
1. Till the sugar levels get under control
2. Lifelong
3. Don't know

32. How often should patients with diabetes have an eye checkup?
1. Once in 6 months
2. Once a year
3. Once in 2 years
4. Once in 5 years
5. Never
6. Any other (specify) _____

7. Don’t know

Attitude
Now I am going to ask some questions to test your attitude toward diabetes.

		1. Agree	2. Disagree	3. Don’t know
33.	People with diabetes can eat sweets occasionally.			
34.	Even if I forget to take my medicines on some days, it is alright.			
35.	Going for regular checkups is important.			
36.	Even if I do not exercise regularly, it is alright.			
37.	Keeping my sugar level under control is important.			
38.	Keeping my weight under control is important.			
39.	Keeping my eye health under control is important.			
40.	I don't need regular (annual) eye exams if I control my blood sugar.			
41.	I don't need regular eye exams if I don’t have eye problems.			
42.	Controlling blood sugar is important even if I am receiving treatments related to diabetes eye complications.			
44.	Going for an eye exam for patients diagnosed with diabetes is a waste of time and money.			
Read questions 44 – 47 if the patient is aware of DR				
44.	Controlling diabetic retinopathy is important.			
45.	Regular eye exams are important for patients diagnosed with diabetic retinopathy.			
46.	Receiving appropriate treatment after a diagnosis of diabetic retinopathy is important.			
47.	Going for follow-up examinations after treating diabetic retinopathy is important.			

Practice
Now I am going to ask you some questions about your practice of diabetes.

48. Usually, in a week, how many days did you test your blood glucose level?

0 1 2 3 4 5 6 7 (number of weekdays)

49. Do you take medicines based on your physician's advice?

1. Yes
2. No → Go to Q54

50. Have you ever forgotten to take your medications for diabetes?

1. Yes
2. No

51. Have you ever taken your medications for diabetes irregularly?

1. Yes
2. No

52. Have you ever stopped taking your medications for diabetes as you feel better?

1. Yes
2. No

53. Have you ever stopped taking your medications for diabetes as you feel worse?

1. Yes
2. No

54. Have you ever taken diabetes medication without a doctor's prescription (e.g., on the advice of a neighbor, friend, or another person)?

1. Yes
2. No
3. I am currently taking diabetes medication without a doctor's prescription
4. Don't remember

55. Do you follow the dietary recommendations for diabetics**?**

1. Yes
2. No → Go to Q57

56. How often do you follow the dietary recommendations for diabetics**?**

1. Never
2. Hardly ever
3. Sometimes
4. Often
5. Always

57. During the past month, did you participate in any physical activities or exercises?

1. Yes
2. No → Go to Q62
3. Don't know/ not sure → Go to Q62
4. Refusal → Go to Q62

58. How many times per week or per month have you usually took part in moderate-intensity physical activities (e.g., walking fast, riding a bike, or similar activities)?
    1. _____ times per week
    2. _____ times per month
    3. Don't know / not sure
    4. Refuse to answer

59. When you take part in this activity, for how many minutes did you usually keep at it?
    1. _____ minutes
    2. Don't know / not sure
    3. Refuse to answer

60. How many times per week or per month have you usually took part in vigorous-intensity physical activities (e.g., running, swimming, carrying heavy loads such as bricks, or similar activities)?
    1. _____ times per week
    2. _____ times per month
    3. Don't know / not sure
    4. Refuse to answer

61. When you take part in this activity, for how many minutes did you usually keep at it?
    1. _____ minutes
    2. Don't know / not sure
    3. Refuse to answer

62. Do you go for regular follow-ups for diabetes as advised by your physician?
    1. Yes → Go to Q64
    2. No
    3. No advice was given by the doctor → Go to Q64

63. Why do you not go for regular follow-up for diabetes as advised by your physician?
    1. Cannot afford
    2. No family support
    3. Do not think it is important
    4. Did not find time
    5. Checking sugar levels with a glucometer at home is sufficient
    6. Did not know that regular follow-up is necessary
    7. Any other (specify_____)

64. Do you have a periodic/ regular eye checkup?
    1. Yes → Go to Q66
    2. No

65. Why have you not gone for periodic/ regular eye checkups?

1. Do not trust the local doctor
2. Long distance from the hospital
3. Financial problems
4. Physically unwell
5. Did not know that periodic eye checkups should be done
6. Had good vision; so, did not feel the need checkups
7. The doctor did not inform me about it
8. Any other (specify) _____

Read questions 66 – 69 if the patient is diagnosed with DR

66. Have you taken treatment (laser/ intravitreal injections/ vitrectomy) for diabetic retinopathy?
1. Yes (specify_____) → Go to Q68
2. No

67. Why have you not taken treatment for diabetic retinopathy?
1. Was physically unwell
2. Could not afford treatment
3. Did not have any problems with vision
4. The center with facilities for treatment is too far from home
5. Could not stay on for the required period of time for treatment
6. I didn't know the treatment for diabetic retinopathy was necessary
7. The doctor did not inform me about it
8. Any other (specify) _____

68. Have you been going for follow-up visits (after taking prescribed treatment for diabetic retinopathy)?
1. Yes → Questionnaire Ends
2. No

69. Why have you not been going for follow-up visits?
1. Was physically unwell
2. Could not afford to go for frequent follow-up visits
3. Did not have any problems with vision after treatment
4. Did not find time
5. Was not instructed to go for follow-up after treatment
6. The center with facilities for treatment is too far from home
7. I didn't know that follow-up visits were necessary
8. The doctor did not inform me about it
9. Any other (specify) _____

Thank you!

Հարցաթերթ՝18 տարեկանից բարձր դիաբետիկ ոտինոպաթիայով պացիենտների համար

Հարցվողի ՏՀ_____

Հարցազրույցի ամսաթիվ _____

Սոցիալ-ժողովրդագրական տվյալներ

1. Նշեք Ձեր բնակության վայրը, մարզը՝ _____-_____)

2. Գյուղո՞մթե՞քաղաքումեքապրում:
   1. Գյուղ (նշեք _____)
   2. Քաղաք (նշեք _____)

3. Ծննդյան ամսաթիվ __ __/__ __/__ __ _____ (օր/ամիս/տարի)

4. Սեռը
   1. Արական
   2. Իգական

5. Ձեր կրթությունը
   1. Թերի միջնակարգ (< 8 տարի)
   2. Միջնակարգ դպրոց (10 տարուց ավելի)
   3. Տեխնիկական կրթություն (10-13 տարի)
   4. Բարձրագույն/հետդիպլոմայինկրթություն (>13 տարի)
   5. Հրաժարվումեպատասխանել

6. Միջինում, ամսական ո՞րքան գումար եք ծախսում:
   1. 50.000 ՀՀ դրամից քիչ
   2. 50.000 – 100.000 ՀՀ դրամ
   3. 101.000 – 200.000 ՀՀ դրամ
   4. 201.000 – 300.000 ՀՀ դրամ
   5. 301.000 ՀՀ դրամից բարձր
   6. Չգիտեմ
   7. Հրաժարվումեպատասխանել

7. Դուք ներկայումս աշխատումեք: (Նշեք ցանկացած վարձատրվող կամ չվարձատրվող աշխատանք)
   1. Աշխատումեմ (նշեք _____)
   2. Չեմ աշխատում

3. Թոշակառու

Առողջական կարգավիճակ

8. Քաշը _____ կգ

9. Հասակը _____սմ

10. Երբ առաջին անգամ Ձեզ մոտ հայտնաբերվեց շաքարային դիաբետ:

Նշեք քանի տարի առաջ՝ _____

11. Շաքարային դիաբետի որ տիպն է հայտնաբերվել Ձեզ մոտ:
1. Տիպ - I
2. Տիպ - II
3. Չգիտեմ

12. Շաքարային դիաբետի բուժման համար ստանում է՞ քինսուլին:
1. Այո
2. Ոչ
3. Չգիտեմ

Գիտելիք

Այժմ ես Ձեզ մի քանի հարց կտամ շաքարային դիաբետի՝ Ձեր ընդհանուր գիտելիքների վերաբերյալ

		1. Համաձան եմ	2. Համաձայն չեմ	3. Չգիտեմ
13.	Շաքարային դիաբետը հնարավոր չէ ախտորոշել արյան անալիզի միջոցով:			
14.	Շաքարային դիաբետը կարելի է ախտորոշել մեզի անալիզի միջոցով:			
15.	Շաքարային դիաբետը կարելի է վերահսկել դեղորայքի միջոցով:			
16.	Շաքարային դիաբետը կարելի է վերահսկել սննդակարգի կարգավորման միջոցով:			

17.	Շաքարայինդիաբետը կարելի է վերահսկել ֆիզիկական վարժություններիմիջոցով:			
18.	Շաքարայինդիաբետը կարելի է վերահսկել քաշի նվազեցմամբ:			
19.	Կանոնավոր հետազոտությանգնալը կարող է շաքարայինդիաբետը վերահսկողությանտակ պահել:			
20.	Շաքարայինդիաբետը կարող է ազդել աչքի առողջության վրա:			
21.	Շաքարայինդիաբետը կարող է ազդել երիկամների առողջության վրա:			
22.	Շաքարայինդիաբետը կարող է ազդել սիրտ-անոթայինհամակարգի առողջության վրա:			

23. Արդյո՞ք երբևէ լսել եք դիաբետիկ ռետինոպաթիայի մասին:

1. Այո
2. Ոչ → Անցնել Հ 31-ին

24. Ձեզ մոտերբևէ ախտորոշվե՞լ է դիաբետիկ ռետինոպաթիա:

1. Այո (նշեք քանի տարի առաջ՝ _____)
2. Ոչ
3. Չգիտեմ

25 – 30 հարցերը կարդալ այնդեպքում, եթե պացիենտը տեղյակ է ԴՌ-ի մասին				
		1. Համաձանեմ	2. Համաձայնչեմ	3. Չգիտեմ
25.	Շաքարայինդիաբետիվատ վերահսկումը կարող է հանգեցնել դիաբետիկ ռետինոպաթիայի:			
26.	Շաքարայինդիաբետիվատ վերահսկումը կարող է բերել դիաբետիկ ռետինոպաթիայի վատթարացման:			

27.	Դիաբետիկ ռետինոպաթիան կարող է կուրության պատճառ դառնալ:			
28.	Դիաբետիկ ռետինոպաթիան կարելի է ուղղել ակնոցների միջոցով:			
29.	Դիաբետիկ ռետինոպաթիան կարելի է բուժել (կանխել) աչքերում՝ ներարկումների միջոցով:			
30.	Դիաբետիկ ռետինոպաթիան հնարավոր է բուժել լազերով:			

31. Շաքարայինդիաբետի ախտորոշումից հետո, որքա՞ն ժամանակ պետք է շարունակել սննդակարգի վերահսկումը:

1. Մինչև շաքարի մակարդակը կարգավորվի
2. Ամբողջ կյանքի ընթացքում
3. Չգիտեմ

32. Շաքարայինդիաբետով հիվանդները որքա՞ն հաճախ պետք է ականաբուժական զննում անցնեն:

1. 6 ամիսը մեկ անգամ
2. Տարին մեկ անգամ
3. 2 տարին մեկ անգամ
4. 5 տարին մեկ անգամ
5. Երբեք
6. Այլ (նշեք) _____
7. Չգիտեմ

Վերաբերմունք

Այժմես Զեզ մի քանի հարց կտամ շաքարայինդիաբետի հետ կապված Ձեր վերաբերմունքի վերաբերյալ

		1. Համաձան եմ	2. Համաձայնչեմ	3. Չգիտեմ
33.	Մարդիկ, ովքեր ախտորոշվել են շաքարայինդիաբետով կարող են երբեմն քաղցրավենիք ուտել:			

34.	Նույնիսկ եթե ես մոռանամ ընդունել իմ դեղորայքը մի քանի օր, դա խնդիր չէ:			
35.	Կանոնավոր ստուգումների/հետազոտությունների գնալը կարևոր է:			
36.	Նույնիսկ եթե ես կանոնավոր չեմ մարզվում, ապա դա խնդիր չէ:			
37.	Իմ շաքարի մակարդակը հսկողության տակ պահելը կարևոր է:			
38.	Իմ քաշը հսկողության տակ պահելը կարևոր է:			
39.	Աչքերիս առողջությունը հսկողության տակ պահելը կարևոր է:			
40.	Ինձ պետք չեն կանոնավոր (տարեկան) աչքի հետազոտություններ, եթե ես հսկում եմ արյան մեջ շաքարի մակարդակը:			
41.	Ինձ պետք չեն կանոնավոր աչքի հետզոտություններ, եթե ես աչքերիս հետ կապված խնդիրներ չունեմ:			
42.	Արյան մեջ շաքարի վերահսկումը կարևոր է՝ նույնիսկ այն դեպքում, երբ ես բուժում եմ ստանում շաքարայինդիաբետից առաջացած աչքի հիվանդությունների դեմ:			
43.	Շաքարայինդիաբետով ախտորոշված պացիենտների համար՝ աչքի հետազոտության գնալը ժամանակի և գումարի կորուստ է:			
44 – 47 հարցերը կարդալ այն դեպքում, եթե պացիենտը տեղյակ է ԴՌ-ի մասին				
44.	Դիաբետիկ ռետինոպաթիայի վերահսկումը կարևոր է:			

45.	Կանոնավոր կերպով աչքի հետազոտությունների գնալը կարևոր է այն պացիենտների համար, ովքեր աշտրոշվել են դիաբետիկ ռետինոպաթիայով:			
46.	Դիաբետիկ ռետինոպաթիայի ախտրոշումից հետո համապատասխան բուժումը ստանալը կարևոր է:			
47.	Դիաբետիկ ռետինոպաթիայի բուժումից հետո հետևողական հետազոտությունների գնալը կարևոր է:			

Գործելակերպ

Այժմ ես Ձեզ մի քանի հարց կտամ շաքարային դիաբետի վերաբերյալ Ձեր ընդհանուր գործելակերպի մասին

48. Սովորաբար, մեկ շաբաթվա ընթացքում քանի՞ օրեք ստուգում արյան մեջ գլյուկոզայի մակարդակը:

0 1 2 3 4 5 6 7 (օրերի քանակը)

49. Դուք ընդունու՞մեք շաքարային դիաբետի համար նախատեսված դեղորայք բժշկի ցուցմամբ:
1. Այո
2. Ոչ → Անցնել Հ54-ին

50. Դուք երբևէ մոռացել եք ընդունել շաքարային դիաբետի համար նախատեսված նշանակված դեղորայքը:
1. Այո
2. Ոչ

51. Դուք երբևէ օգտագործել եք շաքարային դիաբետի համար նախատեսված դեղորայքը անկանոն կերպով:
1. Այո
2. Ոչ

52. Դուք երբևէ դադրեցրել եք շաքարայինդիաբետի համար նախատեսված դեղորայքի ընդունումը, քանի որ Ձեր ինքնազգացողությունը լավացել է:
1. Այո
2. Ոչ

53. Դուք երբևէ դադրեցրել եք շաքարայինդիաբետի համար նախատեսված դեղորայքի ընդունումը քանի որ Ձեր ինքնազգացողությունը վատացել է:
1. Այո
2. Ոչ

54. Դուք երբևէ ընդունել եք շաքարայինդիաբետի համար նախատեսված դեղորայք ոչ բժշկի ցուցմամբ (օր՝ հարևանի, բարեկամի կամայլանձի խորհրդով):

1. Այո
2. Ոչ
3. Ներկայումս էլ եմ ընդունում շաքարայինդիաբետի համար նախատեսված դեղորայք առանց բժշկի ցուցման
4. Չեմ հիշում

55. Դուք հետևու՞մ եք շաքարայինդիաբետի համար նախատեսված սննդակարգին:
1. Այո
2. Ոչ → Անցնել Հ57-ին

56. Որքա՞ն հաճախեք հետևում շաքարայինդիաբետի համար նախատեսված սննդակարգին:
1. Երբեք
2. Հազվադեպ
3. Երբեմն
4. Հաճախ
5. Միշտ

57. Անցած ամսվաընթացքում զբաղվե՞լ եք որևէ ֆիզիկական ակտիվությամբ կամվարժությամբ
1. Այո
2. Ոչ → Անցնել Հ62-ին
3. Չգիտեմ/համոզված չեմ → Անցնել Հ62-ին
4. Մերժում → Անցնել Հ62-ին

58. Շաբաթական կամամսական քանի՞ անգամ եք սովորաբար միջինինտենսիվությանֆիզիկականվարժություններով

զբաղվում (օրինակ՝ արագ քայլել, հեծանիվ վարել, այգում աշխատել կամ նմանատիպ գործողություններ):

1. _____ շաբաթական մեկ անգամ
2. _____ ամսական մեկ անգամ
3. Չգիտեմ / համոզված չեմ
4. Հրաժարվում է պատասխանել

59. Սովորաբար, երբ զբաղվում եք միջին ինտենսիվության ֆիզիկական վարժություններով՝ քանի՞ րոպե եք տրամադրում դրան:
1. _____ րոպե
2. Չգիտեմ / համոզված չեմ
3. Հրաժարվում է պատասխանել

60. Շաբաթական կամ ամսական քանի՞ անգամ եք սովորաբար բարձր ինտենսիվության ֆիզիկական վարժություններով զբաղվում (օրինակ՝ վազել, լողալ, ծանր բեռներ կրել օրինակ՝ աղյուսներ, կամ նմանատիպ գործողություններ):

1. _____ շաբաթական մեկ անգամ
2. _____ ամսական մեկ անգամ
3. Չգիտեմ / համոզված չեմ
4. Հրաժարվում է պատասխանել

61. Սովորաբար, երբ երբ զբաղվում եք բարձր ինտենսիվության ֆիզիկական վարժություններով՝ քանի՞ րոպե եք տրամադրում դրան:
1. _____ րոպե
2. Չգիտեմ / համոզված չեմ
3. Հրաժարվում է պատասխանել

62. Դուք կանոնավոր կերպով հետևո՞ւմ եք շաքարայինդիաբետին վերաբերվող՝ Ձեր բժիշկի խորհրդին:
1. Այո → Անցնել Հ64-ին
2. Ոչ
3. Բժիշկի կողմից տրված խորհուրդ/ներ չի/չեն եղել → Անցնել Հ64-ին

63. Ինչո՞ւ կանոնավոր կերպով չեք հետևում Ձեր շաքարայինդիաբետին, ինչպես խորհուրդ է տվել Ձեր բժիշկը:

1. Միջոցներ չունեմ
2. Ընտանիքս չի օժանդակում ինձ

3. Չեմ կարծում, որ դա կարևոր է
4. Ժամանակ չեմ գտնում
5. Շաքարի մակարդակը տանը գլյուկոմետրով ստուգելը բավարար է
6. Չգիտեի, որ կանոնավոր հետազոտություն անցնելն անհրաժեշտ է
7. Այլ (նշեք _____)

64. Դուք պարբերաբար/կանոնավոր աչքի զննում անցնում ե՞ք:
1. Այո → Անցնել Հ66-ին
2. Ոչ

65. Ինչու՞ պարբերաբար/կանոնավոր կերպով չեք գնացել աչքի զննման:
1. Չեմ վստահում տեղային բժշկին
2. Հիվանդանոցը հեռու է
3. Ֆինանսական խնդիրներ ունեմ
4. Ֆիզիկապես վատառողջ եմ
5. Չգիտեի, որ պետք է պարբերաբար աչքի զննում անցել
6. Լավ տեսողություն ունեմ՝ այդ պատճառով, ստուգման կարիք չեմ զգացել
7. Բժիշկը տեղյակ չի պահել ինձ այդմասին
8. Այլ (նշեք) _____

66 – 69 հարցերը կարդալ այն դեպքում, եթե պացիենտը ախտորոշված է ԴՈՒ-ով

66. Դուք ընդունել եք դիաբետիկ ռետինոպաթիայի համար նախատեսված բուժում (լազերային/ներակնային ներարկումներ/վիտրէկտոմիա):
1. Այո (նշեք _____) → Անցնել Հ68-ին
2. Ոչ

67. Ինչու՞ չեք ստանում դիաբետիկ ռետինոպաթիայի համար նախատեսված բուժում

1. Ֆիզիկապես վատեմ զգում
2. Բուժման միջոցներ չունեմ
3. Տեսողությանհետկապված ոչմի խնդիր չեմ ունեցել
4. Բուժման համար նախատեսված կենտրոնը տնից շատհեռու է
5. Բուժման համար անհրաժեշտժամանակի մեջ չեմ տեղավորվել
6. Չգիտեի, որ է դիաբետիկ ռետինոպաթիայի համար նախատեսված բուժումն անհրաժեշտ է

7. Բժիշկը տեղյակ չի պահել ինձ այդ մասին
8. Այլ (նշեք) _____

68. Դուք գնացե՞լ եք հետևողական այցերի (դիաբետիկ ռետինոպաթիայի համար նախատեսված բուժումստանալուց հետո):
1. Այո → Ավարտել հարցազրույցը
2. Ոչ

69. Ինչո՞ւ չեք գնում հետևողական հետազոտությունների (դիաբետիկ ռետինոպաթիայի համար նախատեսված բուժումստանալուց հետո):

1. Ֆիզիկապես վատառողջ եմ
2. Հաճախակի հետևողական հետազոտությունների համար միջոցներ չունեմ
3. Բուժումից հետո տեսողության հետկապված խնդիրներ չեմունեցել
4. Ժամանակ չեմ կարողանում գտնել
5. Բուժումից հետո հրահանգված չէր հետազոտության գնալ
6. Բուժման համար նախատեսված կենտրոնը շատհեռու է տնից
7. Չգիտեի, որ հետևողական հետազոտությունների գնալը անհրաժեշտէ
8. Բժիշկը տեղյակ չի պահել ինձ այդ մասին
9. Այլ (նշեք) _____

Շնորհակալություն!

Appendix 2. Oral Consent Form for Diabetic Retinopathy Patients: (English and Armenian versions)

American University of Armenia

Turpanjian College of Health Sciences

Institutional Review Board #1

Oral Consent Form

Investigating knowledge, attitude, and practice patterns of diabetic retinopathy among people with diabetic retinopathy in Armenia

Hello, my name is Mariam Mikayelyan. I am a graduate student of the Master of Public Health Program at the Turpanjian College of Health Sciences at the American University of Armenia. I am conducting a survey as part of my master thesis project to explore the current level of knowledge, attitude, and practice patterns of diabetic retinopathy among patients with diabetic retinopathy.

For this study 194 patients with diabetic retinopathy, was selected from "Lions Regional Ophthalmic Unit in Sevan" in Gegharkunik province. We obtained your phone number from your medical records. Your permission was obtained to share your contact information with the student investigator when the nurse called you. You are requested to participate in this research, as you were diagnosed with diabetic retinopathy and can provide valuable information for this study. Your involvement and input are crucial to this study.

The interview will take approximately 15-25 minutes. During the interview, I will ask you questions about knowledge, attitudes, and practice of diabetic retinopathy. This study participation is voluntary. If you choose not to take part, there are no repercussions. The treatment you receive in the clinic will not be affected by your decision to participate or not and you can continue to receive further treatment as you used to. You are free to leave the interview at any point or decline to answer any questions. There is no direct benefits or other personal gains for participating in the study, and there is no risk if you decide to participate. Your contributions will help researchers for future prevention and management of diabetic retinopathy in Armenia.

Your personal information will be strictly confidential and used solely for research purposes. The supplied data will only be available to the study team, and only a summary of the information will be used in the final report. After the study implementation, all personally identifying information, such as individual phone numbers, will be destroyed.

If you have any questions regarding this study, you can contact Dr. Tsovinar Harutyunyan, the principal investigator, Associate Professor of Turpanjian College of Health Sciences, at AUA calling (374-60) 612560. If you believe you have not been handled correctly or that your participation in the study has caused you harm, please contact Ms. Varduhi Hayrumyan, the Institutional Review Board's Human Participant Protections Administrator, (374-60) 612561. Do you agree to participate in this survey?

Thank you.

Հայ աստանի ամերիկյան համալսարան

Թրփանճեան առողջապահական գիտությունների ֆակուլտետ

Գիտահետազոտական էթիկայի թիվ 1 հանձնաժողով

Բանավոր իրազեկ համաձայնագիր

Հայ աստանում իրականացվող հետազոտության, որն ուսումնասիրում է դիաբետիկ ռետինոպաթիայով ախտորոշված պացիենտների գիտելիքները, վերաբերմունքը և գործելակերպը դիաբետիկ ռետինոպաթիայի վերաբերյալ

Բարև Ձեզ: Իմ անունը Մարիամ Միքայելյան է: Ես Հայ աստանի ամերիկյան համալսարանի Թրփանճեան առողջապահական գիտությունների ֆակուլտետի Հանրային առողջապահության մագիստրոսական ծրագրի ավարտական կուրսի ուսանողեմ: Մագիստրոսական ծրագրի շրջանակներում ես կատարում եմ հետազոտություն, որի նպատակն է ուսումնասիրել դիաբետիկ ռետինոպաթիա ունեցող պացիենտների շրջանում դիաբետիկ ռետինոպաթիայի վերաբերյալ նրանց ներկայիս գիտելիքները և վերաբերմունքը, ինչպես նաև գործելակերպը:

Այս հետազոտության համար ընտրվել են մոտ 194 դիաբետիկ ռետինոպաթիայով պացիենտներ՝ Գեղարքունիքի մարզի «Սևանի Լայոնս Մարզային Ակնաբուժական կենտրոն»-ից: Ձեր հեռախոսահամարը ձեռք ենք բերել այս կլինիկայի Ձեր բժշկական քարտերից: Երբ բուժքույրը զանգահարել է Ձեզ՝ Ձեր թույլտվությունը ձեռք բերվել, որպեսզի Ձեր կոնտակտային տվյալները փոխանցվի ուսանող հետազոտողին: Ձեզ խնդրում ենք մասնակցել այս հետազոտությանը, քանի որ դուք ախտորոշվել եք դիաբետիկ ռետինոպաթիայով և կարող եք արժեքավոր տեղեկատվություն տրամադրել այս հետազոտության համար: Ձեր մասնակցությունը և ներդրումը չափազանց կարեւոր է այս հետազոտության համար:

Այս հարցմանը Ձեր մասնակցությունը կսահմանափակվի միայն այս հարցազրույցով, որը կտևի մոտավորապես 15-25 րոպե: Հարցազրույցի ընթացքում ես Ձեզ կհարցնեմ դիաբետիկ ռետինոպաթիայի վերաբերյալ Ձեր գիտելիքների, վերաբերմունքի և գործելակերպի մասին: Ձեր մասնակցությունն այս հարցմանը կամավոր է: Մասնակցությունից հրաժարվելը չի ունենա որևէ հետևանք: Ձեր մասնակցությունը կամ դրանից հրաժարումը այս հետազոտությանը չի ազդի կլինիկայում Ձեր բուժման վրա, և դուք կարող եք շարունակել Ձեր հետագա բուժումը՝ ինչպես նախկինում: Դուք կարող եք չպատասխանել ցանկացած հարցի, եթե չեք ցանկանում, կամ ցանկացած պահի ընդհատել հարցազրույցը: Այս հարցմանը մասնակցությունը չի ներառում օգուտ կամ անձնական շահ և չկան հայտնի ռիսկեր/վտանգներ, որոնք կարող են առաջանալ հարցմանը

մասնակցելիս: Ձեր կողմից տրամադրված ինֆորմացիան կնպաստի հետազոտողներին Հայաստանում, դիաբետիկ ռետինոպաթիայի հետագա կանխարգելմանը և վերահսկմանը:

Ձեր կողմից տրամադրած տվյալները պահվելու են գաղտնի և օգտագործվելու են միայն հետազոտության նպատակով: Միայն հետազոտող թիմն է ունենալու հասանելիություն Ձեր կողմից տրամադրված տեղեկություններին, և բոլոր հարցումների տվյալները ամփոփ ձևով ներկայացվելու են միայն ամբողջական զեկույցի տեսքով: Բոլոր անձնական տվյալները, ներառյալ անձնական հեռախոսահամարները, կոչնչացվեն հետազոտությունը ավարտելուց հետո:

Այս հետազոտության վերաբերյալ հարցեր ունենալու դեպքում կարող եք կապհաստատել Հայաստանի ամերիկյան համալսարանի Թրփանճեան առողջապահական գիտությունների ֆակուլտետի պրոֆեսոր, այս հետազոտության ղեկավար՝ Ծովինար Հարությունյանի հետհետեւյալ հեռախոսահամարով՝ (374-60) 612560: Եթե Դուք կարծում եք, որ այս հետազոտությանը մասնակցելու ընթացքում Ձեզ լավ չեն վերաբերվել, կամ մասնակցությունը Ձեզ վնաս է պատճառել, կարող եք զանգահարել Հայաստանի ամերիկյան համալսարանի գիտահետազոտական էթիկայի հանձնաժողովի համակարգող՝ Վարդուհի Հայրումյանին հետեւյալ հեռախոսահամարով՝ (374-60) 612561:

Դուք համաձա՞յն եք մասնակցել հարցմանը:

Շնորհակալություն:

Appendix 3. Script (English and Armenian versions)

American University of Armenia

Turpanjian College of Health Sciences

Institutional Review Board #1

Phone Script for Nurse

Investigating knowledge, attitude, and practice patterns of diabetic retinopathy among people with diabetic retinopathy in Armenia

Hello, my name is Narine. I am a nurse at "Lions Regional Ophthalmic Unit in Sevan" in Gegharkunik province. I obtained your phone number from the clinic's medical records. A graduate student from the Master of Public Health Program at the Turpanjian College of Health Sciences at the American University of Armenia is conducting a survey as part of her master thesis project to explore the current knowledge and attitude level and practice patterns of diabetic retinopathy patients. For this study, several diabetic retinopathy patients were selected from our clinic.
If you agree to provide your contact information to the student investigator, she will call you later to present the study in more detail and conduct the survey. She will ask you questions about your understanding of diabetic retinopathy, such as your knowledge, attitudes, and practice of diabetic retinopathy. Also, some characteristics from your medical record will be collected, such as the history of the disease and duration, etc. However, to see if you are eligible to take part in this survey, I would like to know the following:

1. Is your age over 18years?
2. Do you have a pregnancy? (Read if the gender of the potential participant is female)

Հայ աստղանի ամերիկյան համալսարան

Թրփանճեան առողջապահական գիտությունների ֆակուլտետ

Գիտահետազոտական էթիկայի թիվ 1 հանձնաժողով

Հեռախոսային Սկրիպտ՝Բուժքրոջ Համար

Հայ աստղանում իրականացվող հետազոտության, որն ուսումնասիրում է դիաբետիկ ռետինոպաթիայով ախտորոշված պացիենտների գիտելիքները, վերաբերմունքը և գործելակերպը դիաբետիկ ռետինոպաթիայի վերաբերյալ

Բարև Ձեզ: Իմ անունը Նարինե է: Ես Գեղարքունիքի մարզի «Սևանի Լայոնս Մարզային Ակնաբուժական կենտրոն» բուժքույր եմ: Ձեր հեռախոսահամարը ձեռք եմ բերել կլինիկայի բժշկական քարտերից: Հայ աստղանի ամերիկյան համալսարանի Թրփանճեան առողջապահական գիտությունների ֆակուլտետի ավարտական կուրսի ուսանողուհին՝ իր մագիստրոսական ծրագրի շրջանակներում կատարում է հետազոտություն, որի նպատակն է ուսումնասիրել դիաբետիկ ռետինոպաթիաուն եցող պացիենտների շրջանում դիաբետիկ ռետինոպաթիայի վերաբերյալ նրանց ներկայիս գիտելիքները և վերաբերմունքը, ինչպես նաև գործելակերպը: Այս հետազոտության համար մեր կլինիկայից ընտրվել են մի քանի տասնյակ պացիենտներ՝ ախտորոշված դիաբետիկ ռետինոպաթիայով: Եթե համաձայն եք Ձեր կոնտակտային տվյալները տրամադրել ուսանող հետազոտողին, նա ավելի ուշ կզանգահարի Ձեզ՝ ավելի մանրամասն ներկայացնելու ուսումնասիրության նպատակները և կանցկացնի հարցումը: Նա Ձեզ հարցեր կտա դիաբետիկ ռետինոպաթիայի վերաբերյալ Ձեր գիտելիքների և վերաբերմունքի, ինչպես նաև գործելակերպի մասին: Նաև Ձեր բժշկական քարտից, որոշ բնութագրիչներ՝ ինչպիսիք են Ձեր հիվանդության պատմությունը, տևողությունը և այլն կարող են հավաքագրվել: Այնուամենայնիվ, պարզելու համար արդյոք կարող եք ներառվել այս հետազոտության մեջ, կարո՞ղ եմ իմանալ.

1. Ձեր տարիքը 18-ից բարձր է:
2. Դուք հղիություն ունե՞ք: (Կարդացեք, եթե պոտենցիալ մասնակցի սեռը իգական է)

Appendix 4. Journal Form for Medical Abstraction

Patient's ID	Patient's Name	Patient's Phone Number	Length of diabetic retinopathy (in years)	Results of the call	Results of the refusal

Appendix 5. Journal Form for the Student Investigator

Patient's ID	Patient's Name	Patient's Phone Number	Results of the call	Results of the refusal