# Control of High Blood Pressure in Gavar Region:

# Knowledge, Attitude and Practice (KAP) Survey of Hypertensive People

Master of Public Health Integrated Experience Project

Professional Publication Framework

by

Anzhela Tadevosyan, MPharm, MPH Candidate

Advising team: Tsovinar Harutyunyan, MPH, PhD

Varduhi Petrosyan, MS, PhD

Hripsime Martirosyan, MD, MPH

School of Public Health

American University of Armenia

Yerevan, Armenia

2013

# Table of Content

II

# List of Abbreviations

**BP** – blood pressure

**HBP** – High blood pressure

**SBP** – Systolic blood pressure

**DBP** – Diastolic blood pressure

**mm Hg** – millimeters of mercury

**ECG** – Electrocardiography

**CVD** – Cardiovascular disease

**WHO** – World Health Organization

**MoH** – Ministry of Health

**DASH** - Dietary Approaches to Stop Hypertension

**KAP** – Knowledge, Attitude, Practice

**DHS –** Demographic Health Survey

**CHSR** – Center for Health Services Research and Development

**PHCR** – Primary Health Care Reform

**SD** – Standard Deviation

**CI** – Confidence Interval

**NIAC** - National Information Analytic Center

**JNC7** - Joint National Committee 7

# Acknowledgement

I would like to express great gratitude to my advisors Dr. Tsovinar Harutyunyan, Varduhi Petrosyan and Hripsime Martirosyan for their contribution to this project. Their constructive comments and valuable advice helped me to implement this study.

I am grateful to all faculty members of the School of Public Health, especially to Dr. Byron Crape. I am also thankful to all members of the Center for Health Services Research and Development, especially to Vahe Khachadourian and Meri Tadevosyan.

I would like to express my gratitude to my family and friends for their encouragement and support during these two years.

# Abstract

**Background**

Hypertension is one of the preventable leading risk factors for cardio vascular disease (CVD) and mortality worldwide. The prevalence of hypertension continues to increase in low- and middle-income countries including Armenia, where it reached 3,684.4 per 100,000 people in 2011. Healthy lifestyle and treatment adherence can significantly reduce the burden of hypertension.

**Aim of the Study**

The aim of this study was to assess the knowledge, attitude and practice of non-drug control of hypertension and the level of adherence to hypertension drug therapies among people who had self-reported hypertension in Gavar region of Gegharkunik marz. In addition, the study evaluated the perceived risk for cardiovascular disease among hypertensive people living in Gavar.

**Methodology**

The study utilized a cross-sectional study design with telephone interviews. Stratified systematic random sampling was used to select potential respondents. Study population included hypertensive adults living in Gavar region. Sample size of the study was 236. The study team developed the study instrument based on questionnaires used in similar studies internationally. It included 5 domains: knowledge, attitude, and practice of non-drug control of hypertension, drug treatment adherence, and respondents' demographic characteristics.

**Results**

From 631 contacted households 307 (48.65%) had at least one hypertensive family member. The mean percent knowledge score was 50.23%, and the mean percent attitude score was 64.05%. The mean percent knowledge and attitude scores were significantly associated with education in adjusted analysis, with more educated respondents having higher knowledge and attitude scores. The lowest percent scores were recorded for practice domain (16.87%). Women and people in older ages had higher mean percent practice scores. Only 31.5% of participants adhered to drug treatment. The main reasons for not taking medication included feeling better and not continuing the treatment (51.3%), followed by not being able to buy medicines (28.7%), and forgetting to take them (25.2%). Forty-two percent of respondents were not able to assess their risk of developing CVD. About 30% of participants at second stage of hypertension perceived their risk of CVD as low.

**Conclusion**

This was the first study which assessed KAP of non-drug control of hypertension, drug treatment adherence, and perceived CVD risk among hypertensive people in Gavar region. The study found inadequate levels of knowledge and practice of non-drug control of hypertension, along with poor adherence to drug treatment and inability to assess personal CVD risk or incorrect assessment of risk in the hypertensive respondents. The study revealed the need for educational programs to increase awareness of hypertensive people about the importance of both non-drug and drug control of hypertension. Broader interventions are necessary to bring positive behavioral changes not only among hypertensive people, but also in their families.

# 1. Introduction/ Literature review

## *1.1. Hypertension and its global burden*

Hypertension is an important public health challenge in many countries.[1] It is defined by Giles as "a progressive cardiovascular syndrome arising from complex and interrelated etiologies".[2] According to classification of blood pressure for adults, normal systolic blood pressure (SBP) is less than 120mm Hg, and normal diastolic blood pressure (DBP) is less that 80mm Hg.[3] People are diagnosed as hypertensive when their blood pressure is more than 140/90mm Hg; however, early markers of the syndrome are often present before there is a sustained increase in blood pressure level.[2,3] SBP at pre-hypertension stage is 120-139mm Hg, and DBP 80-89mm Hg. The first stage of hypertension SBP is 140-159mm Hg, and DBP 90-99mm Hg (Table 1).[3] Progression of the disease can lead to damage of the heart, kidneys, brain, vascular and other organs, and cause premature morbidity and death.[2]

Hypertension is the leading risk factor for mortality worldwide, contributing to 13% of all deaths.[4] The association between blood pressure and risk of cardiovascular diseases (CVD) events is "continuous, consistent, and independent of other risk factors".[3] Observational studies show that death from stroke and ischemic heart disease rises progressively and linearly as blood pressure increases.[3] It is estimated that 62% of cerebrovascular disease and 49% of ischemic heart disease are ascribed to blood pressure level more than 115 for systolic and 75 for diastolic.[4]

According to Kerney et al., 25% of the world's adult population had hypertension (nearly 1 billion people) in 2000. By 2025, the number of hypertensive people is expected to increase by 60% and reach 1.56 billion people, with the largest proportion of this increase projected to occur in low and middle income countries.[1,2] In 2008, the prevalence of hypertension was 35% in high-income countries and 40% in low and middle income countries.[5]

## 1.2. Risk factors for hypertension

There are multiple risk factors which can lead to hypertension. The risk factors include age, gender, family history of hypertension, race, high-sodium and low-potassium diet, high cholesterol and fat diet, low vegetable and fruit diets, physical inactivity, obesity, oral contraceptive use, alcohol overuse, and smoking.[6,7] The prevalence of hypertension increases with the increase in age. It is estimated that more than half of the US (United States) people 60-69 years of age and ¾ of people 70 years of age and older have hypertension.[3] The prevalence of hypertension at older ages (>65years old) is higher among females than males, meanwhile at young ages (>55years old) it is higher among males.[1,8]

## 1.3. Hypertension prevention and control

Despite its high prevalence, hypertension is easy to detect and control with healthy lifestyle and medications.[3,7] Failure to keep blood pressure at normal levels has different reasons such as lack of knowledge among patients and physicians, unhealthy lifestyle, limited access to health care, lack of treatment adherence and other.[6] Lifestyle modifications include weight loss (at least 4.5kg), reduced daily sodium intake, limited increase in physical activity, quitting smoking, decreased alcohol intake and use of the Dietary Approaches to Stop Hypertension (DASH). DASH diet besides reduced sodium intake, includes regular consumption of fruits, vegetables and low fat dairy products rich with calcium and potassium.[3] It is estimated that at least 8 weeks adherence to DASH diet decreases BP by 5.5/3.0 mm HG.[9] The recommended amount of daily salt intake is 5.8g of NaCl or 2.3g sodium.[10] There is an evidence that lifestyle modification also decreases the risk of CVD development and enhances the effectiveness of antihypertensive treatment.[3]

The effective and common way of hypertension control is through antihypertensive drugs.[3] The drugs decrease high blood pressure and the risk of CVDs.[11] Antihypertensive drugs decrease the rate of stroke nearly by 40% and the rate of myocardial infarction nearly by 30%.[12] However, antihypertensive drug treatment adherence is often low and can vary between 50%-75%.[12]

There are multiple scientific studies which assessed levels of non-drug control and drug treatment adherence of hypertensive patients. Assessment of hypertensive population's knowledge, attitude and practice (KAP) could help to evaluate the level of non-drug control in the target population.[11]

## 1.4. Perceived risk of CVD

Several studies indicated that people do not fully understand and correctly evaluate their risk of developing CVD; however, those who know their risk tend to have healthier behavior and adhere to treatment.[13] Hypertension, as one of the major risk factors for CVD, in conjunction with other behavioral risk factors such as smoking, alcohol abuse, obesity, physical inactivity, and poor diet, can enhance the risk of developing CVD including myocardial infarction and stroke.[14] In general people tend to underestimate their risk of CVD; however, studies showed that people with hypertension tend to assess their risk of developing CVD as high.[15] People who take antihypertensive drugs perceive their risk of CVD development more accurately than those who do not take those drugs.[15] Moreover, people with lower risk more accurately assess their perceived risk of CVD.[15]

## 1.5. Hypertension burden in Armenia

According to the annual statistical report of Armenia, in 2011, 49% of CVDs were due to hypertension.[16] The incidence, as well as the prevalence of CVDs and hypertension have

3

increased since 2000.[16] The prevalence of hypertension in 2000 was 1,129.8 per 100,000, while in 2011 it reached 3,684.4 per 100,000, which represents a 3 - fold increase.[16] However, since this source uses data obtained from inpatient and outpatient hospitals, the increase of the prevalence might be partially attributed to increased access to health care, that took place between 2006 and 2008 according to assessment of the performance of the Armenian health system.[17] The mortality rate due to hypertension also increased from 11.5 per 100,000 population in 2004 to 33.4 per 100,000 population in 2010.[18] Hypertension mortality rate fluctuated from 2007 to 2010 in all marzes of Armenia, but the biggest increase (2.5 times) was recorded in Gegharkunik marz, where it changed from 19.2 in 2007 to 48.4 in 2010 per 100,000 people.[18] According to the data published in the Ministry of Health Order N-18N, on Prevention, Early Detection and Rehabilitation of More Prevalent Non-Communicable Diseases (NCDs), Gegharkunik marz had the second highest prevalence rate of CVD.[19] These data illustrate increasing burden of hypertension in Armenia and the need for countrywide efforts to improve hypertension prevention and control.

According to the Armenian Demographic and Health Survey (DHS), 22% of females and 27% of males had hypertension in 2005 in Armenia. The same study showed that hypertension was positively associated with age and body mass index (BMI).[20] DHS (2005) also showed that the majority of women (82%) and men (81%) did not know about being hypertensive; 5% of women and 11% of men knew about their disease but did not seek care; and only 7% of women and 2% of men knew about their disease and received treatment.[20]

Many of the risk factors for hypertension are highly prevalent in Armenia. According to the Armenian health sector performance assessment report, nearly 57% of the adult male population in Armenia (>20 years old) were smokers in 2009.[17] Armenia is among the countries with the

highest smoking rates in the WHO European region.[21]  In Armenia, 54% of the adult population are overweight.[17]  The common consumption of high sugary jams and canned fruit, salt and oil-rich canned vegetables, and preserved meat with high levels of saturated fats, cholesterol and sodium, are among unhealthy dietary habits of people living in Armenia.[22]  The overall prevalence of physical inactivity is 18% in Armenia.[17]  This percentage is higher among women than men, 22.3% and 10.4% respectively.  Alcohol consumption is not considered a significant public health problem in Armenia.  The prevalence of daily alcohol use (in average 20 grams or more) among men is 18%.[17]

As the rate of mortality and morbidity due to non-communicable diseases has been increasing in Armenia, the Ministry of Health (MOH) developed a national strategy on NCDs, particularly CVDs, diabetes and malignant tumors, in 2008.  The strategy includes education of patients about risk factors that cause the above mentioned diseases, including hypertension.  The program started in 2008 and was supposed to last 5 years.[19]  The implementation of the strategy on CVD would benefit from the evidence about the current level of knowledge, attitude and practice of the Armenian population about hypertension prevention and management.  KAP analysis can be a useful tool to develop evidence-based strategies for effective hypertension control[11], yet to date, no studies fully addressed this need in Armenia.  In 2009, the Center for Health Services Research and Development (CHSR) of the American University of Armenia conducted a population survey which assessed KAP on different health topics covered by the Primary Health Care Reform Project (PHCR) during public education activities in  Kotayk, Gegharkunik and Tavush marzes.[23]  The study found that the aggregate mean knowledge and attitude scores about hypertension were one of the  lowest among other health topics, including child care, healthy nutrition, healthy lifestyle, diabetes, reproductive health, osteoporosis, and tuberculosis.

Participants from Gegharkunik marz showed the lowest overall KAP score compared to other marzes. The study report did not include a separate hypertension KAP score for each marz, since hypertension was not the key topic of the study. The proposed research was addressed that gap and provided substantive evidence about hypertension control in Gavar region, which should be of particular interest to policy makers in Armenia, and other countries in the region with similar hypertension/CVD profile.

## 1.6. Research questions/ objectives

The aim of the proposed study was to assess the knowledge, attitude and practice about non-drug control of hypertension and the level of adherence to hypertension drug therapies among people who have hypertension in Gavar region of Gegharkunik marz. In addition, the study examined the perceived risk for cardiovascular disease among hypertensive people living in Gavar region.

The research questions were the following:

- ✓ What is the KAP of hypertensive people about non-drug control of hypertension in Gavar region?
- ✓ What is the level of adherence to hypertension drug treatment among hypertensive people in Gavar region?
- ✓ What is the perceived risk of cardiovascular disease among people who had hypertension in Gavar region?
- ✓ Is there a statistically significant association between socio-demographic factors and non-drug control, drug treatment adherence level, and perceived risk for CVD among hypertensive people in Gavar region?

## 2. Methods

### 2.1. Study design

A cross-sectional study design with telephone interviewing was used to assess knowledge, attitude, and practices of the study population in Gavar city and neighboring villages. Cross-sectional design was chosen as the most cost-efficient method to appropriately answer the research questions.

Telephone interviewing method was chosen to save the costs of survey administration, and to allow recruiting sufficiently large sample size in relatively short period of time. Moreover, since the data collection started in winter, it would be difficult to reach some areas of Gavar region for face-to-face interviews due to weather conditions.

### 2.2. Study population and settings

Target population included adult residents of Gavar region (town and villages) who had hypertension.

Inclusion criteria for the study population were the following:

1. Being an adult over 18 years of age

2. Having systolic blood pressure over 140 and diastolic blood pressure over 90

3. Residing in Gavar town or Gavar villages

4. Understanding and speaking Armenian language

Overall population of Gegharkuink marz is 243,300. The adult population of Gavar town is 22,638 and the adult population of Gavar region's 11 villages (Tsovazard, Ljap, Berdkunq,

Hayravanq, Noratus, Karmirgyugh, Tsakhashen, Gandzak, Sarukhan, Lanjakhbyur, Gegharkhunik) is 25,061. [24,25,26]

## 2.3. Sampling methodology

The study utilized a stratified systematic random sampling. It used the voting list of corresponding precinct for Gavar region for 2013 presidential elections as the most complete and updated sampling frame for adult population.[25] The sample was stratified by gender and place of residence (Gavar town and villages).

The individuals were the sampling units. The student investigator randomly selected the starting point and then chose every n[th] (interval) unit (a person). The interval was defined by the following formula: ***Interval=total number of list/sample size.***

Phone number for each selected unit from the election list was obtained from the old (1998) and new (2011)[26] versions of Gavar region's phone numbers' books. Where possible, the student investigator obtained missing phone numbers from other sources such as postal offices, local nurses, and personal contacts.

## 2.4. Sample size

In order to have a sufficiently large sample to answer the research questions, the study used the formula for estimating the difference in means between two groups.

$$\mathbf{n} = \frac{2\sigma^2 \left[Z_{1-\alpha/2} + Z_{1-\beta}\right]^2}{(\mu_1 - \mu_2)^2}$$

Where,

σ = estimated standard deviation (assumed

to be equal for each group)

$\mu_1$ = estimated mean (larger)

$\mu_2$ = estimated mean (smaller)

$Z_{1-\alpha/2}$ = 1.96

Confidence Interval = 95%

$Z_{1-\beta}$ = 0.842 Power = 80%

The study aimed to detect the difference of 5 between the mean knowledge scores of females and males. The study used standard deviation of 13.7 of the mean knowledge score of healthy nutrition and lifestyle among women from rural areas of Armenia.[27]

$$n=\frac{2\times(13.7)^2[1.96+0.842]^2}{5^2}=118$$

The sample size was 118 for each group and the total sample size was 236.

The sample size was adjusted for the expected response rate. The study took into consideration refusal rates (10% refuse) observed in studies done in Armenia using telephone interviews.[28] Besides, the pretest of the proposed sampling methodology has been conducted before fielding, which gave an opportunity to adjust for the non-contact rate, since there were missing and incorrect phone numbers in the phone book, no answers, and the expected rate of eligible (hypertensive) adults. After adjustments, the planned sample size reached 1,166, half of which was derived from Gavar town and another half from all Gavar villages.

## 2.5. Study protocol

To identify the eligible respondents, the study used the following screening question: "*Is there any person in your household whose blood pressure is usually 140/90 or above"?* If there was an eligible person, the interviewer asked to speak with him/her. In case of reporting more than one eligible participant, the interviewer selected the respondent according to the alphabetical order of their first names (in Armenian), and if the selected eligible person was not at home, she

asked possible/convenient time to contact with him/her later. In addition, as the sampling methodology required equal number of males and females, after certain amount of interviews with women and in case of availability of both genders, the interviewer chose males for the interviews.

## 2.6. Study instrument

The study instrument (Appendix 1) was developed based on questionnaires used in similar KAP and drug treatment adherence assessments in other countries and Armenia reported in the literature.[11,15,16,27,29-34] The questionnaire included 6 main domains on participants' knowledge (10 questions), attitude (6 questions), and practice (19 questions) of control of hypertension through a healthy lifestyle; their perceived risk of CVD (1 question), their level of treatment adherence (6 questions), and socio-demographic characteristics of participants (10 questions).

The study team translated the questionnaire into Armenian and the student investigator pre-tested it among 8 people. After the pre-test few questions were added, some wordings were changed and skip patterns were corrected.

## 2.7. Study variables

The *dependent variables* included knowledge of non-drug control of hypertension, attitude toward non-drug control and practice of non-drug control. They were measured as continuous scores. Other dependent variables were level of drug treatment adherence (ordinal) and level of perceived risk for CVD (ordinal).

The study team created practice, knowledge and attitude scores based on participants' answers to relevant questions. All correct answers for knowledge and attitude questions were scored as 1.

Wrong answers and the response option "neither agree nor disagree" were coded as 0. For practice questions, correct answers were coded as 2 and incorrect answers as 0. Those practice questions which had more than two response options were scored from 0 to 2 (0, 0.5; 1; 1.5, 2) based on the correctness of the answer. The decision about the correctness of the answers was made based on the evidence reported in the literature. "Don't know" responses in all domains were scored as 0.

*The independent variables* were socio-demographic characteristics such as age (continuous), gender (nominal), marital status (nominal), education (ordinal), and socioeconomic status (ordinal) (Table 2). The student investigator calculated wealth status based on 3 questions: number of employed people, general standard of living and amount of household income spent by all of household members. The summative score range between 0-3.5 corresponded to poor wealth status, 3.6-7.0 corresponded to average, and 7.1 – 10.5 to high wealth status.

## 2.8. Data management and analysis

The student investigator used SPSS 17 and Stata 10 statistical softwares for data entry and analysis. In order to catch data entry errors visual check-ups and comparisons of the entered data with the paper questionnaires were used. Besides, frequencies and descriptive statistics were run in order to find missing values and outliers.

The student investigator did descriptive analysis to assess means, standard deviations and frequencies of survey variables. Simple linear regression and chi-square test were used for bivariate analysis. The variables that had significant associations in bivariate analysis were included in the multiple linear regression analysis. The variables were checked for linearity assumption before the linear regression analysis. The student investigator created dummy

variables for categorical variables with more than two levels for the inclusion in the regression analysis. In order to perform chi-square analysis the student investigator created 3 age categories (<50 years, 51-70 years and >70 years).

## 2.9. Ethical considerations

The Institutional Review Board of the American University of Armenia approved the study protocol. Oral consent was obtained from all participants prior to asking questions (Appendix 2).

# 3. Results

## 3.1. Administrative results

The student investigator found phone numbers for 917 respondents out of 1,168 sampled for the study. From 917 numbers, 16 were incorrect and 263 numbers were unreachable. Among found numbers (917), the contact rate was 30.4%. About half of contacted people (48.65%) reported having a person with high blood pressure living in that household. Among eligible respondents the refusal rate was 11.8%. Individuals who were unable to participate due to severe conditions of various diseases or due to hearing problems comprised 1.3% of the contacted people. Finally, 236 interviews were completed (Figure 1).

## 3.2. Socio-demographic characteristics

The mean age of study participants was 59 (SD=12.37). The mean number of family members was 5.18 (SD=2.31). The majority of participants was married (88.6%) and had high school education (57.6%), followed by professional technical education (19.6%), less than 10 year school (12.3%), and university degree (10.2%). About 4% of the respondents had medical

education (nurse or physician). Almost 57% of participants were poor and 40.8% had average wealth status (Table 3).

According to self-reported BP numbers, 28.81% of participants belonged to the first stage of hypertension and 71.19% belonged to the second stage. Mean duration of having HBP was 6.31 years with the SD of 5.91 (Table 4).

### 3.3. Knowledge of non-drug control of hypertension

*Descriptive statistics*

Table 5 presents the study participants' knowledge about non-drug control of hypertension. More than half (54%) of participants knew that physically passive lifestyle can lead to BP increase. Similar proportions of participants knew that alcohol abuse (48.3%), smoking cigarettes (46.2%) and salt rich diet (47.0%) can contribute to hypertension. The percentage of men (51.7%) who knew that smoking can contribute to the development of hypertension was substantially higher than the corresponding percentage of women (40.7%). The majority of participants (82.0%) knew that hypertension can lead to other health problems in case of absence of or not following the treatment. The most frequently mentioned conditions which can be developed due to hypertension as reported by participants included heart diseases (68.6%), followed by stroke (53.9%), kidney (3.1%) and eye diseases (1.6%).

Cumulative mean knowledge score was 6.529 out of maximum 13 (SD=2.79). Cumulative mean percent knowledge score was 50.23% with the 21.53% SD. The highest percent knowledge score observed in this study was 92.31% (one participant). About 2% of respondents had zero knowledge score.

*Bivariate analysis*

In simple linear regression analysis, higher education level was associated with higher mean percent score (p=.00). Wealth status was associated with knowledge with marginal significance (p=0.06) (Table 6). Stage of hypertension, area of residence, gender and age were not associated with knowledge score in bivariate analysis.

*Multivariate analysis*

Multiple linear regression analysis was performed to test associations between mean percent knowledge score and educational level adjusting for wealth status. The F-test showed a statistically result (p-value =0.00) which means that at least one of two variables explains variability in knowledge scores. After adjusting for wealth status, education still remained statistically significant, however, the association between wealth status and knowledge score dissipated in the adjusted analysis (Table 7).

## 3.4. Attitude toward non-drug and drug control of hypertension

*Descriptive statistics*

Almost 70.3% and 51.7% of participants believed that following healthy diet and reducing salt intake, respectively, will help them to control their blood pressure (Table 8). Besides, 66% had positive attitude toward taking medications even in case of short term improvements. Almost 94% of study participants believed that they are responsible for their blood pressure control, while about 26% believed that their doctor has the main responsibility for ensuring their blood pressure is controlled.

The mean attitude score was 3.84 out of maximum 6, with SD of 1.24. Cumulative mean percent attitude score was 64.05% with the 20.72% SD. About 6% (14 people) of respondents had the maximum (100%) and 0.8% (2 people) the minimum attitude percent score (0.00%).

*Bivariate analysis*

Mean percent attitude score was associated with area of residence and education level in bivariate analysis (Table 9). Attitude toward healthy lifestyle and treatment was higher among people having higher education levels compared to those with less than 10 year school education who were chosen as reference category. Respondents living in rural areas had higher attitude score compared with those who live in Gavar town. Hypertension stage, gender, age, and wealth status were not associated with attitude score.

*Multivariate analysis*

In multiple linear regression model with the inclusion of only significant socio-demographic characteristics as independent variables and mean percent attitude score as dependent variable, the association with the area of residence became insignificant (Table 10). After adjusting for area of residence, those with 10 years of school (p=0.01) and technical professional (p=0.03) education level were still more likely to have higher attitude scores compared with the reference group (less than 10 school education), however the p-value for those with university level became marginally significant (p=0.07), which might be explained by the lower number of observations in that category in multivariate analysis.

### 3.5. Practice of non-drug control of hypertension

*Counseling practice*

Out of 236 hypertensive respondents, 71.6% visited a doctor for hypertension care. Of them, only 24.9% visit a doctor once per month (Table 11). About 59% of respondents visited a doctor once a year and 13% of once in two years or less often. Among those who visited a doctor, 80.5% received recommendations regarding healthy lifestyle. About 51% of respondents had

electrocardiogram (ECG) once a year or more often, 20.5% had ECG every two years or less frequently and 28.2% reported never having ECG. Almost 40% of respondents measured their BP daily and 32.8% reported weekly measurements.

*Practice of physical activity*

The mean number of days on which respondents walked was 6.6. The majority of respondents (91.9%) reported walking and being physically active every day of the week, with 49.8% of those people exercising for one hour or less (Table 12). Only 3% of participants mentioned not having any physical activity.

*Smoking practice*

None of the female participants reported past or current smoking. Almost 41% of male respondents are current smokers. On average, current smokers smoked for 30.52 years with the mean number of 22.85 cigarettes per day, ranging between 2 to 80 (Table 13).

*Alcohol consumption practice*

About 44% of participants reported never drinking alcohol, with women comprising the majority of them (74.6%) (Table 14). Almost 34% indicated drinking less than one portion of alcohol a week (one portion of alcohol is having at least 1 glass of wine, can/bottle of beer, a shot (50g) of cognac or vodka). Among those who reported drinking 37% (all males) indicated that there were periods when they were drinking 5 or more portions of any type of alcohol almost every day of their life.

*Salt consumption practice*

Almost 48% of respondents reported never adding salt to food before trying it, while 8.9% reported always doing so. Higher proportion of males (12.7%) reported always adding salt to

food than the proportion of females (5.1%). About 49% of participants thought that they consume just the right amount of salt. The percentage of participants reported consuming far too much or too much amount of salt was 14.5%, while the percentage of participants who reported consuming too little or far too little amount of salt was 36.4%. Only 22% of respondents did something to reduce their salt intake; the majority of them were women (67.3%). The most commonly reported ways of reducing salt intake included adding less salt to dishes while preparing it and not adding additional salt to dishes and vegetables (Table 15).

*Practice of DASH diet*

Mean practice score of DASH diet was 15.61 out of 28 with the standard deviation of 2.45. Among males it was 15.29 (SD=2.43) and among females 15.913 (SD=2.45).

The cumulative mean practice score was 31.24. The cumulative mean percent practice score was 16.87% (SD=2.95%). The mean percent score ranged from 9.45% to 23.49%.

*Bivariate analysis*

The difference between male's and female's DASH diet practices scores was marginally significant (p-value= 0.05). Simple liner regression analysis showed statistically significant difference of 2.64 between males and females' mean percent practice scores (p-value=0.00). Mean percent practice score was higher by 1.18% among people at the second stage of hypertension compared to those at the first stage (p=0.005). The mean percent practice score was also associated with age. With each additional year of age, mean percent practice score increased by 0.05% (Table 16). Area of residence, education and wealth status were not associated with mean percent practice score.

*Multivariate analysis*

After controlling for age, mean percent practice score was higher by 2.53% in females compared to males (p=0.00). With each additional year of age, mean percent practice score increased by 0.04% (Table 17). In adjusted model, the mean percent practice score was not associated with the stage of hypertension.

### 3.6. Medicament treatment adherence

*Descriptive statistics*

Almost all respondents, who visited doctors, were prescribed some type of medication (99.4%), and 98.2% received an explanation about how to take the prescribed medications. About 71% of women and 65.4% of men reported cases when they did not take medicaments according to the doctor prescriptions. The most common reason was "felt better and stopped taking medications" (51.3%), followed by "could not afford to buy" (28.7%), and "forgot to take medications" (25.2%) (Figure 2). Among those who visited doctors, 10.3% of males and 19.8% of females reported taking blood pressure lowering medication without doctor's prescription. More than half (55.2%) of those who did not visit doctors (N=67) also took blood pressure lowering medication. The most frequently mentioned sources of information for drugs not prescribed by the doctor were friends, neighbors or family members (52.8%) followed by other doctors (24.2%), newspapers and journals (3.2%), and pharmacies (2.5%).

*Bivariate analysis*

Chi-square test of association showed that treatment adherence was not associated with stage of hypertension, area of residence, gender, age (categories), education and wealth status.

### 3.7. Perceived risk of CVD

*Descriptive statistics*

About 42.0% of participants could not assess their perceived risk of developing CVD (Table 18). Almost 15% of study participants perceived their risk of developing CVD as high, 24.6% as an average and 18.6% as low. About 35% of respondents who had first stage of hypertension, perceived their risk of developing CVD as low, while 44.4% perceived their risk as average and 20% as high. Meanwhile, 30.43% of second stage hypertensive participants perceived their CVD risk as low and 28.26% as high (Table 19).

*Bivariate analysis*

In order to assess the associations between perceived risk of CVD and socio-demographic characteristics, the respondents were grouped into two categories: those who could indicate any risk (high, average, low) of developing CVD and those who could not indicate any risk. The chi-square analysis showed that the respondents' ability to indicate any risk of developing CVD was statistically significantly associated with age and education and marginally significantly associated with gender and wealth status, with higher proportions of more educated (p=0.04) and more affluent (p=0.06) respondents, those who are in younger age (<50 years old) (p=0.04), and males (p=0.08) being able to assess their risk (Table 20). The chi-square analysis also showed that there were no associations between ability to indicate any risk of CVD and hypertension stage, as well as with the area of residence.

## 4. Discussion

### *4.1. Main findings*

This study explored knowledge, attitude and practice of non-drug control of hypertension and assessed drug treatment adherence and perceived risk of CVD among hypertensive population of

Gavar region in Armenia. In addition, the study explored the associations between the above mentioned variables and socio-demographic factors.

The mean percent knowledge score among study participants was 50.23%. None of the respondents were able to provide correct responses to all knowledge questions. In general, the knowledge of non-drug control of hypertension was inadequate. The respondents were less knowledgeable on questions about contribution of physically passive lifestyle, alcohol abuse, smoking cigarettes, and salt reach diet on hypertension. For example, in this study, more than half of respondents agreed that physically passive lifestyle can be a reason of BP increase. In the similar study by Aubert et al. conducted in Seychelles in 1998, 78% of participants agreed that regular physical activity will lower the chance of getting hypertension.[11] A survey done in Georgia also revealed similar results (77%).[35] However, in another studies done in Pakistan and Iran, respectively only 42.1% and 45.7% of participants agreed that leisure physical activity could prevent BP increase.[36,37] Only 48% of respondents knew that alcohol abuse is one of leading risk factors for hypertension, which is similar to what was found in Georgia (56%), but substantially lower than what was reported in other studies, where 96.3% and 82.7% of participants agreed with that statement.[11,35,38] The role of smoking as a contributing factor to hypertension was vastly underestimated by the study respondents, with only 46% knowing that it can contribute to hypertension. In comparison, the studies by Aubert and Saleem indicate that 84.9% and 96.4% of respondents have adequate knowledge about it.[11,36] These differences might be explained by the lack of the awareness rising interventions or anti-smoking laws implemented in Armenia as compared to those countries. About half of respondents agreed that salt reach diet might increase blood pressure. The findings of other studies showed different results: higher (98.2%, 78%) and lower (13.5%) than what was reported in the current study.[11,35,36] These

substantial differences in the knowledge levels about harms of salt reach diet can be attributed to different cultural norms and dining traditions in compared countries.

The respondents' knowledge was more adequate in question areas concerned with the use of fats and oils. In this study, 61% and 72.5% of respondents acknowledged that high fat dairy products and excess use of fats and oils can contribute to blood pressure increase. These percentages are quite high compared with Saleem et al. study's results.[36]

In the adjusted analysis, the cumulative mean percent knowledge score was significantly associated with education, with more educated respondents having higher knowledge score. The role of education in the knowledge of healthy lifestyle has been largely documented in the literature.[35,39-41] More educated people have higher knowledge of health conditions, treatment pathways, have better self-management skills, and are more likely to participate in preventive educational programs and make better-informed choices regarding healthy lifestyles, thus have healthy behavior.[39,40]

The mean percent attitude score was 64.05%, which is higher than the mean percent knowledge score found in this study. About 6% of participants reported 100% attitude score. The results are quite similar to other studies. For instance, the percentages of participants of the current study (70.3%) who believe that diet can help them to feel better were almost the same as percentages provided in Heymann's study (77%) and Saleem's study (78.7%).[29,36] The participants of current and Heymann's studies believe that hypertension medications will help them to feel better, also, similar percentages of respondents (93.6% versus 79% in Heymann's study) believed that they are responsible for their BP control.[29] However, substantially lower proportion of Armenian respondents believed that they have to take their medications even in

case of feeling better (66% versus 90% reported in Heymann's and 96% reported in Clarkson's studies). This difference can be due to poor self-management counseling and higher fears of side effects among Armenian respondents, a hypothesis, which should be explored in further studies.

Only 71.6% of the study respondents visited a physician for hypertension care. Moreover, only 26.7% of participants have visited a physician monthly; however, the Joint National Committee 7 (JNC7) guidelines suggest that those who are in the first stage of hypertension should visit a health care provider once in two months, and those in the second stage should make monthly visits.[3] Besides, 70% of Iranian study participants indicated visiting physicians or health care providers for hypertension care once a month, which is 3 times higher what was observed in this study.[37] However, this huge difference might be due to fact that Iranian study was done among hypertensive people recruited from health care facilities and not from general population. Another reason can be a cultural difference among compared countries. Also, only 39% of respondents in this study measure their blood pressure daily, while the guidelines recommend having measurements twice per day.[3] Similarly, about half of the respondents did not have ECG examination yearly, but Armenian MoH Standard requires that hypertensive people undergo that examination at least once a year.[42] One of the reasons for the low level of utilization of health care services for hypertension care could be financial constraints and preference for self-treatment.[17] Although primary care is free in Armenia, recent surveys indicated that 78% of Armenian population could not utilize health care services due to financial reasons,[17,40] while 11% mentioned self-treatment as a reason of not utilizing health care services.[17]

One of the positive findings of this study was that almost 81% of respondents received recommendations about healthy lifestyle from physicians. This percentage is quite high even if

compared to the findings from countries with more developed health systems, such as the data provided in Heymann at all study from Israel, where only 54% received lifestyle counseling.[29]

Practice of physical activity, smoking, alcohol and salt consumption, as well as DASH diet of hypertensive people explored in this study was largely inadequate.  Almost 92% of respondents reported walking every day; however, half of them said that they walk for more than one hour, which is considered as excess physical activity and can be the cause of BP increase.[43,44]  Forty-one percent of hypertensive male respondents were current smokers, which is lower than the percentage reported for Gegharkunik marz (62.8%)  in the household health survey conducted in 2006.[32]  The discrepancy between these studies is likely to be due to the difference in the study populations. Although the proportion of smokers in hypertensive population is lower compared to general population, it is still very high considering higher risks associated with smoking among hypertensive people.  As in other studies of health behavior conducted in Armenia, alcohol consumption was statistically significantly higher among men than women.[23,32]  Thirty-seven percent of males reported cases of ever binge drinking, which could be a very dangerous practice in hypertensive people.  Overall, 22% of participants made an effort to eat less salt, which was 3 times less than the percentage reported in Aubert et al. study.[11]  Women were more inclined to do something for reducing salt intake than men.

Overall, women were more likely to have favorable practices than men in our study, which is similar to what was found in the earlier study conducted in 2009 in 3 marzes of Armenia, includingd Gegharkunik[23], yet different from the study by Heymann et al..[29]  This disparity can be due to different questions assessing practice in the study instruments, as well as the cultural differences between compared countries.  In adjusted analysis, practice score was associated with age, which confirms the findings from Heymann et al. study.[29]

Almost all respondents who visited doctors were prescribed medications and received explanations about them. However, a surprisingly small percent of respondents (31.5%) were adherent to prescribed treatment. The study done in former Soviet Union countries indicated that in 2010, the highest percentage of irregular treatment of hypertension was observed in Armenia (79%); in 2001 it was 77.3%.[45] Similar percentages were reported for Kazakhstan and Moldova (73.3% and 73.1% respectively). Hence, the findings of the current study confirm what was found in Armenia regarding the hypertension treatment adherence earlier. The reasons for poor treatment adherence are multiple, and have been sorted into five main categories, such as patient-related factors, therapy-related factors, healthcare-system-related factors, socio- economic factors, and disease-specific factors.[46] The main reasons for not taking medication reported by the participants of the current study included feeling better and not continuing treatment (51.3%), followed by not being able to buy medicines (28.7%), and forgetting to take them (25.2%), which is consistent with the literature. Treatment adherence was not statistically significantly associated with socio-demographic characteristics in this study; yet more studies are necessary to explain the non-adherence phenomenon and associated factors in Armenia.

The majority of respondents (41.9%) could not report their perceived risk of developing CVD. The ability to indicate any CVD risk was associated with younger age and higher educational level which is similar to Frijling et al. study conducted in the Netherlands in 2004.[47] In the study conducted in Republic of Seychelles by Alwan et al., the ability to indicate any risk of CVD was similarly associated with higher education; however, contrary to our findings, people at higher age were shown to be more likely to indicate any risk of CVD in their study.[13] This disparity could be partially explained by somewhat lower mean age of respondents in Alwan's study. Many participants at the second stage of hypertension perceived their risk of CVD as low

(30.43%) rather than high (28.26%), which shows the inadequate perception of risk in this population. This is consistent with the findings from other studies, which showed that the agreement between self-reported and objectively assessed risk of developing CVD was poor and that people in general tend to underestimate their risk.[15,48] Accurate risk perception is important, since it might help to follow healthier lifestyles and improve treatment adherence.[13] The estimation of the actual CVD risk of study respondents would require obtaining clinical data which was out of the scope of this student investigation. Hence, future studies should look into differences between perceived and actual risk of CVD in Armenian population.

## 4.2. Strengths and Limitations

This study included a random sample of adult hypertensive population from both towns and villages of Gavar region, hence it provides pretty accurate snapshot of the KAP of non-drug control and drug treatment adherence throughout Gavar region and possibly Gegharkunik marz, if we assume that there are no large differences between different regions within marz. At the same time, the study is not fully generalizable to Armenia, since other marzes and particularly country's capital Yerevan can have different sets of culturally and socio-economically conditioned lifestyles, knowledge, and believes. Although the use of telephone interviewing restricted the study population to those who have phones, the student investigator tried to reach those who have not had phone numbers (or correct phone numbers) registered in the Gavar area phone book using other sources; moreover, there were several attempts made to reach each selected respondent before moving to the next one, which helped to stay within the initially selected sample.

One of the main limitations of the study is that it used self-reported hypertension status as eligibility criteria; hence it is possible that some of the respondents were unable to correctly identify their hypertension level.  Guidelines show that home (self) blood pressure measurements on average are lower by 12/7 mmHg compared with the office measurements.[8]  Therefore, we could have missed some hypertensive respondents who are unaware of their condition.

## 5. Recommendations

The hypertension and CVD-prevention strategies in Armenia should include patient education component that would increase the awareness of hypertensive people in Armenia about the importance of both non-drug and drug control of hypertension and CVD risk factors.  The increased awareness could help them to accurately access their risk of developing CVD, make informed choices and initiate the behavior change towards healthier lifestyle and better treatment adherence.  Physicians seem to be appropriate channels for such communication, since this study showed that they are currently involved in the delivery of patient education messages. At the same time, the communication of information through educational brochures and other venues including pharmacies and mass media is also important, as it will help to reach those who do not visit healthcare providers on the regular basis.  Besides, it is recommended to develop CVD risk communication among physicians and patients. In addition, broader interventions are necessary to bring positive behavioral changes not only among hypertensive people but also among their families, which would help to create supportive environment for healthy lifestyles.[49]  Country wide interventions that could change larger environmental context such as controlling prices of anti-hypertension medications, producing healthy options of the default food choices, adding less sodium to packaged food, eliminating unsaturated fat in food, enhancing and appropriately enforcing anti-smoking laws, etc., could also help to prevent and control hypertension.

# 6. Conclusions

Current study assessed KAP of hypertensive people of Gavar region regarding non-drug control of hypertension, as well as drug treatment adherence and perceived risk of CVD. The study found inadequate levels of knowledge and practice of non-drug control of hypertension, along with poor adherence to drug treatment and inability to assess personal CVD risk or incorrect assessment of risk in the hypertensive respondents. The main observations included the following:

- About half of contacted people (48.65%) reported having a person with high blood pressure living in their household.

- According to self-reported BP numbers, 28.81% of participants belonged to the first stage of hypertension and 71.19% belonged to the second stage.

- The mean percent knowledge score was 50.23% and in general, participants had inadequate knowledge about…

- The role of smoking and alcohol use as contributing factors to hypertension was particularly underestimated by the study respondents.

- Attitude toward drug and non-drug control mainly was relatively adequate, with the mean percent score of 64.05% and SD of 20.72%.

- Believe that hypertensive people have to take their medications even in case of feeling better was much lower in Armenian respondents (66%) compared to the data from other countries.

- In the adjusted analysis, the mean percent knowledge and attitude scores were significantly associated with education, with more educated respondents having higher knowledge and attitude scores.

- Practice of non-drug control of hypertension among study participants was largely inadequate with the cumulative mean percent practice score of 16.87%.

- Women and people in older ages had higher mean percent practice score.

- Although almost all participants who approached physicians were prescribed medications, few of them (31.5%) were adherent to prescribed treatment.

- The main reasons for not taking medication reported by the participants of the current study included feeling better and not continuing treatment (51.3%), followed by not being able to buy medicines (28.7%) and forgetting to take them (25.2%).

- Almost 42% of respondents could not report their perceived risk of CVD. Among respondents at the second stage of hypertension, about 30% perceived their risk of CVD as low (30.43%) rather than high (28.26%).

# Reference List

1. Kearney P. M., Whelton M., Reynolds K., Mountner P., Whelton P. K., He J. Global burden of hypertension: analysis of worldwide data. *Lancet.* Jan 15-21 2005;365(9455):217-223.

2. Giles T. D. Assessment of global risk: a foundation for a new, better definition of hypertension. *Journal of Clinical Hypertension (Greenwich).* Aug 2006;8(8 Suppl 2):5-14; quiz 39.

3. Chobanian A.V., Bakris G.L., Black H.R., et al. *Seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure*2003. 0194-911X.

4. WHO. *World health report 2002. Reducing risks, promoting healthy life.* Geneva: World Health Organization (WHO);2006.

5. WHO. *Noncommunicable diseases country profiles 2011*: World Health Organization (WHO);2011.

6. Eskridge M.S. Hypertension and chronic kidney disease: the role of lifestyle modification and medication management. *Nephrology Nursing Journal.* 2010;37(1):55.

7. Johns Hopkins Medicine. Hypertension and stroke. *Johns Hopkins White Papers.* 2011.

8. Khatib M.N. O. *Clinical Guidelines for the Managemenent of Hypertension* Cairo: World Health Organization, Regional Office for the Eastern Mediterranean   2005.

9. Hedayati SS, Elsayed EF, Reilly RF. Non-pharmacological aspects of blood pressure management: what are the data&quest. *Kidney international.* 2011;79(10):1061-1070.

10. Sacks F, Svetkey L, Vollmer W, et al. DASH-Sodium Collaborative Research Group: Effects on blood pressure of reduced dietary sodium and the Dietary Approaches to Stop Hypertension (DASH) diet. *N Engl J Med.* 2001;344(1):3-10.

11. Aubert L., Bovet P., Gervasoni J.P., Rwebogora A., Waeber B., Paccaud F. Knowledge, attitudes, and practices on hypertension in a country in epidemiological transition. *Hypertension.* 1998;31(5):1136-1145.

12. Fung V., Huang J., Brand R., Newhouse J. P., Hsu J. Hypertension treatment in a medicare population: adherence and systolic blood pressure control. *Clinical Therapeutics.* May 2007;29(5):972-984.

13. Alwan H, William J, Viswanathan B, Paccaud F, Bovet P. Perception of cardiovascular risk and comparison with actual cardiovascular risk. *European Journal of Cardiovascular Prevention & Rehabilitation.* 2009;16(5):556-561.

14. Foss F.A., Dickinson E., Hills M., Thomson A., Wilson V., Ebrahim S. Missed opportunities for the prevention of cardiovascular disease among British hypertensives in primary care. *The British Journal of General Practice.* 1996;46(411):571.

15. Niknian M., McKinlay S.M., Rakowski W., Carleton R.A. A comparison of perceived and objective CVD risk in a general population. *American journal of public health.* 1989;79(12):1653-1654.

16. NIAC. *Health and Health care of Armenia. Annual Statistical Report 2011.* Yerevan: National Information Analytic Center (NIAC) 0f the National Institute of Health (NIH) of RA;2011.

17. WHO. *Armenia Health System Performance Assessment.* Copenhagen: World Health Organization (WHO);2009.

18. NSS. *The Demographic Handbook of Armenia.* Yerevan: The National Statistical Service (NSS) of The Republic of Armenia;2012.

19. The Ministry of Health. Order N 18-N on aprovement of the project about prevention, early detection, and treatment of more prevalent non communicable diseases at 17 November 2008. Yerevan2008.

20. NSS. *Armenia Demographic and Health Survey 2005.* Maryland: The National Statistical Service of the Republic of Armenia and Ministry of Health of the Republic of Armenia and ORC Macro in Calverton 2006.

21. Jakubowski, Arnaudova. *10 Health Questions About the Caucasus and Central Asia*: World Health Organization (WHO);2009.

22. FAO. *Nutrition Country Profile-the Republic of Armenia* Food and Agriculture Organization of The United Nations (FAO);2005.

23. Amirkhanyan Y, Demirchyan A, Petrosyan V, Thompson M. *Knowledge, Attitudes, and Practices of Health Education Activities: Post-intervention Evaluation among Patients of Selected PHC Facilities in Kotayk, Tavush, and Gegharkunik Marzes, 2009.* Yerevan: USAID Primary Health Care Reform Project, Cardno Emerging Markets USA, Ltd; American University of Armenia, Center for Health services Research and Development;2010

24. NSS. *Number of De Jure Population of the Republic of Armenia as of October 1, 2012.* Yerevan: The National Statistical Service (NSS) of The Republic of Armenia;2012.

25. Police of the Republic of Armenia. The RA voting list 18.02.2013. 2010-2012; http://www.police.am/en/%D5%B0%D5%B0-%D5%A8%D5%B6%D5%BF%D6%80%D5%B8%D5%B2%D5%B6%D5%A5%D6%80%D5%AB-%D6%81%D5%B8%D6%82%D6%81%D5%A1%D5%AF_18022013.html. Accessed 24 February, 2013.

26. Anna Hovhannisyan, Ani Hovhannisyan. *Directory of Gavar Region.* Gavar2011.

27. Grigiryan R., Martirosyan H., Truzyan N., Crape B., Petrosyan V. *Arpi Simonyan Healthy Nutrition and Lifestyle Project.* Yerevan: American University of Armenia, Center for Health Services Research and Development;2011.

28. Torchyan A. *Knowledge of the Armenian Population about Healthy Nutrition*. Yerevan: College of Health Science, American University of Armenia; 2007.

29. Heymann D.H., Gross R., Tabenkin H., Porter B., Porath A. Factors associated with Hypertensive Patients' compliance with recommended lifestyle Behaviors. *IMAJ.* 2011;13:553-557.

30. Nahapetyan A. *Relationship between Patients' Knowledge about Post Operative Risk Factors after Coronary Artery Bypass Surgery (CABG) and Adherence to Medication and Lifestyle Changes in Armenia* [Cross-sectional study]. Yerevan: College of Health Science, American Univercity of Armenia; 2007.

31. Saroyan L. *Cross-sectional Survey on Hypertension Prevalence, Frequency of Risk Factors and Compliance Practices in Armenia* [Research Grant Proposal]. Yerevan: Department of Public Health, American Univercity of Armenia; 2001.

32. USAID. *Household Health Survey, Baseline Evaluation*: United State Agency for International Development (USAID);2006.

33. WHO/PAHO. *Protocol for Population Level Sodium Determination in 24-hour Urine Samples*: WHO/PAHO Regional Expert Group for Cardiovascular Disease Prevention through Population-wide Dietary Salt Reduction;2010.

34. Diberichsen F. AI, Manuel C., The Working Group of the Danish Review on Social Determinants of Health, Andersen N. A., Bach E., Baadsgaard M., Bronnum-Hansen H., Hansen K. F., Jeune B., Jorgensen T., Sogaard J. Health Inequality - Determinants and Policies. *Scandinavian Journal of Public Health.* 2012;40: 12:65.

35. Clarkson LS. *2006 Georgia Stroke and Heart Attack Awareness Survey*: Georgia Dempartment of Human Resources, Division of Public Health;October 2008.

36. Saleem F, Hassali M, Shafie A, Awad A, Bashir S. Association between knowledge and drug adherence in patients with hypertension in Quetta, Pakistan. *Tropical Journal of Pharmaceutical Research.* 2011;10(2).

37. Sabouhi F, Babaee S, Naji H, Zadeh AH. Knowledge, awareness, attitudes and practice about hypertension in hypertensive patients referring to public health care centers in Khoor & Biabanak. *Iran J Nurs Midwifery Res.* Winter 2011;16(1):34-40.

38. Dawes MG, Kaczorowski J, Swanson G, Hickey J, Karwalajtys T. The effect of a patient education booklet and BP 'tracker' on knowledge about hypertension. A randomized controlled trial. *Fam Pract.* Oct 2010;27(5):472-478.

39. RWJF. *Education Matters for Health*: Robert Wood Johnson Foundation; September 2009.

40. Higgins C, Lavin T, Metcalfe O. *Health impacts of education a review*: Institute of Public Health in Ireland (IPH); 2008.

41. Lynch EB, Liu K, Kiefe CI, Greenland P. Cardiovascular Disease Risk Factor Knowledge in Young Adults and 10-year Change in Risk Factors The Coronary Artery Risk Development in Young Adults (CARDIA) Study. *American journal of epidemiology.* 2006;164(12):1171-1179.

42. MoH. The Standard on Free Outpatient Health Care Services within the frame of State guaranteed outpatient services. Vol #131-A: The Ministry of Health; 04 Feb 2011.

43. Manfredini F, Malagoni AM, Mandini S, et al. Sport Therapy for Hypertension: Why, How, and How Much? *Angiology.* 2009;60(2):207-216.

44. Diderichsen F. AJ, Manuel C., Andersen N., Bach E., Baadgaard M., Bronnum-Hansen H., Hansen K.F., Jeune B., Jorgensen T., Sogaard J.,. Health Inequality-determinants and policies. *Scandinavian Journal of Public Health.* 2012;40.

45. Roberts B., Stickley A., Balabanova D., Haerpfer C., McKee M. The persistence of irregular treatment of hypertension in the former Soviet Union. *Journal of Epidemiology Community Health.* Nov 2012;66(11):1079-1082.

46. Jin J, Sklar GE, Min Sen Oh V, Chuen Li S. Factors affecting therapeutic compliance: A review from the patient's perspective. *Ther Clin Risk Manag.* Feb 2008;4(1):269-286.

47. Frijling BD, Lobo CM, Keus IM, et al. Perceptions of cardiovascular risk among patients with hypertension or diabetes. *Patient Educ Couns.* Jan 2004;52(1):47-53.

48. van der Weijden T, Bos LB, Koelewijn-van Loon MS. Primary care patients' recognition of their own risk for cardiovascular disease: implications for risk communication in practice. *Curr Opin Cardiol.* Sep 2008;23(5):471-476.

49. Frieden TR. A framework for public health action: the health impact pyramid. *Am J Public Health.* Apr 2010;100(4):590-595.

# Tables

*Table 1: Classification of Blood Pressure [3]*

| Blood pressure classification | Systolic Blood Pressure (mmHg) | Diastolic Blood Pressure (mmHg) |
|---|---|---|
| Normal | < 120 | And <80 |
| Pre-hypertension | 120-139 | Or 80-89 |
| Stage 1 | 140-159 | Or 90-99 |
| Stage 2 | ≥160 | Or ≥100 |

*Table 2: Study Variables*

| **Variables** | **Type** |
|---|---|
| *Dependent Variables* | |
| Knowledge score of hypertension non-drug control | Continuous |
| Attitude score toward hypertension non-drug control | Continuous |
| Practice score of hypertension non-drug control | Continuous |
| Drug treatment adherence | Nominal dichotomous |
| Level of perceived risk | Ordinal |
| *Independent Variables* | |
| Age | Continuous |
| Gender | Nominal dichotomous |
| Marital Status | Nominal |
| Education level | Ordinal |
| Medical education | Nominal dichotomous |
| Socioeconomic status | Ordinal |

*Table 3.  Socio-demographic characteristics of respondents*

| Variables | Measures |
|---|---|
| | *Mean (SD)* |
| *Age (N=235)* | 59 (12.37) |
| *Age (categories)* | *% (n)* |
| <50 | 17.9 (42) |
| 51-70 | 60.4 (142) |
| >71 | 21.7 (51) |
| | *Mean (SD)* |
| *Number of family members (N=235)* | 5.18 (2.312) |
| *Marital status (N=236)* | *% (n)* |
| Married | 88.6 (209) |
| Divorced | 0.4 (1) |
| Widowed | 8.9 (21) |
| Single | 2.1 (5) |
| *Education (N=235)* | *% (n)* |
| School (less than 10 year) | 12.3 (29) |
| School (10 year) | 57.9 (136) |
| Professional technical | 19.6 (46) |
| Institute/University/Postgraduate | 10.2 (24) |
| | *% (n)* |
| *Having medical education (N=236)* | 3.8 (9) |
| *Wealth Status (score range) (N=233)* | *% (n)* |
| Poor | 56.7 (132) |
| Average | 40.8(95) |
| High | 2.6 (6) |

*Table 4.  Blood pressure information*

| Variables (N=236) | Measures |
|---|---|
| | *% (n)* |
| **First stage of BP** | 28.81 (68) |
| **Second stage of BP n (%)** | 71.19 (168) |
| | *Mean (SD)* |
| **Duration of having BP ( in years)** | 6.31 (5.91) |

*Table 5. Knowledge of non-drug control of hypertension*

| Variables | % (n) |
|---|---|
| *Physical passive lifestyle can lead to the increase of BP.* | 53.8 (127) |
| *Alcohol abuse is one of the promoting reasons of BP.* | 48.3 (114) |
| *Smoking cigarettes contribute to the development of HBP.* | 46.2 (109) |
| *Salt rich diet is one of the factors contributed to hypertension.* | 47.0 (111) |
| *HBP can be furthered by high vegetable and high fruit diet.\** | 71.6 (169) |
| *HBP can be promoted in case of usage of high fat dairy products.* | 61.0 (144) |
| *Fats and oils CANNOT contribute to hypertension.\** | 72.5 (171) |
| *Decrease of excess weight at least by 5 kg will let to control high blood pressure more effectively.* | 66.5 (157) |
| *Hypertension can lead to other health problems.* | 81.8 (193) |
| *Health problems which can be developed due to HBP. (N=194)* | |
|    *Stroke* | 53.9 (104) |
|    *Heart Disease* | 68.6 (133) |
|    *Kidney Diseases* | 3.1 (6) |
|    *Eye Diseases* | 1.6 (3) |

*percentage of people who do not agree with the statements

*Table 6. Unadjusted associations between cumulative mean percent knowledge score and socio-demographic characteristics*

| Variables | Regression coefficient | p-value | 95% Confidence Intervals |
|---|---|---|---|
| Stage of hypertension (1st vs. 2nd) | 0.321 | 0.918 | -5.789 – 6.429 |
| Area of residence (city vs. villages) | -3.194 | 0.255 | -8.713 – 2.324 |
| Gender (male vs. female) | 1.760 | 0.531 | -3.769 – 7.289 |
| Age | -0.157 | 0.169 | -0.381 – 0.067 |
| **Education** | | | |
|  School (< 10 year) (ref. group) | 1 | | |
|  School (10 year) | 19.823 | 0.000 | 11.825 – 27.820 |
|  Technical professional | 24.493 | 0.000 | 15.188 – 33.797 |
|  University degree | 29.551 | 0.000 | 18.693 – 40.409 |
| Wealth status (poor vs. average/high) | 5.335 | 0.062 | -0.272 – 10.941 |

*Table 7.  Adjusted associations between cumulative mean percent knowledge score and socio-demographic characteristics*

| Variables | Regression coefficient | p-value | 95% Confidence Intervals |
|---|---|---|---|
| **Education** | | | |
| **School (< 10 year) (ref. group)** | 1 | | |
| **School (10 year)** | 20.824 | 0.000 | 12.504 – 29.143 |
| **Technical professional** | 25.394 | 0.000 | 15.760 – 35.027 |
| **University degree** | 29.985 | 0.000 | 18.552 – 41.418 |
| **Wealth status (poor vs. average/high**) | 1.72 | 0.534 | -3.724 – 7.165 |

*Table 8.  Attitude toward non-drug and drug control of hypertension*

| Variables *(N=236)* | % (n) |
|---|---|
| *Following to healthy diet will help you to control your BP.* | 70.3 (166) |
| *Reducing salt intake in food is important for controlling your HBP.* | 51.7 (122) |
| *Using doctors prescribed medicine will help you to decrease your BP.* | 76.6 (181) |
| *During the treatment, people who have high blood pressure have not to stop the usage of prescribed medicines even in case of short term improvements.* | 66.1 (156) |
| *Main responsibility for ensuring your blood pressure balanced is yours.* | 93.6 (221) |
| *Main responsibility for ensuring your blood pressure balanced is your doctor's.* | 25.8 (61) |

*Table 9.  Unadjusted associations between cumulative mean percent attitude score and socio-demographic characteristics*

| Variables | Regression coefficient | p-value | 95% Confidence Intervals |
|---|---|---|---|
| **Stage of hypertension (1$^{st}$ vs. 2$^{nd}$)** | 2.871 | 0.336 | -2.997- 8.739 |
| **Area of residence (city vs. villages)** | -5.226 | 0.053 | -10.509 – 0.057 |
| **Gender (male vs. female)** | 1.271 | 0.638 | -4.052 – 6.594 |
| **Age** | 0.156 | 0.153 | -0.059 – 0.371 |
| **Education** | | | |
| **School (< 10 year) (ref. group)** | 1 | | |
| **School (10 year)** | 11.552 | 0.006 | 3.412 – 19.692 |
| **Technical professional** | 11.691 | 0.016 | 2.220 – 21.161 |
| **University degree** | 12.083 | 0.032 | 1.031 – 23.135 |
| **Wealth status (poor vs. average/high)** | 1.467 | 0.530 | -3.957 – 6.892 |

*Table 10.  Adjusted associations between cumulative mean percent attitude score and socio-demographic characteristics*

| Variables | Regression coefficient | p-value | 95% Confidence Intervals |
|---|---|---|---|
| **Education** | | | |
| **School (< 10 year) (ref. group)** | 1 | | |
| **School (10 year)** | 10.805 | 0.010 | 2.632 – 18.977 |
| **Technical professional** | 10.577 | 0.030 | 1.027 – 20.126 |
| **University degree** | 10.193 | 0.076 | -1.089 -  21.475 |
| **Area of residence (city vs. village)** | -4.201 | 0.125 | -9.576 – 1.174 |

*Table 11.  Counseling practice of hypertensive people*

| Variables | %  (n) |
|---|---|
| *Visiting a doctor N=236* | 71.6 (169) |
| *Frequency of approaching doctor (N=169)* | |
| Once a week | 1.8 (3) |
| Once a month | 24.9 (42) |
| Once a year | 58.6 (99) |
| Once in two years or less often | 13.02 (22) |
| Doctor living at home | 1.776 (3) |
| *Frequency of doing ECG (N=234)* | |
| Once a year or more often | 51.3 (120) |
| Every two years or less often | 20.5 (48) |
| Never | 28.2 (66) |
| *Frequency of measuring BP (N=232)* | |
| Every day (once a day) | 22.8 (53) |
| A couple of time a day | 16.8 (39) |
| Once a week | 2.6 (6) |
| A couple of time a week | 30.2 (70) |
| Once a month | 3.9 (9) |
| A couple of time a month | 19 (44) |
| A couple of time a year | 4.3 (10) |
| Never | 0.4 (1) |

*Table 12.  Practice of physical activity*

| Variables | Measures |
|---|---|
| | *Mean (SD)* |
| *Days of walking per week (N=236)* | 6.6 (1.47) |
| *Minutes spend on exercising per day (N=223)* | *% (n)* |
| Less than 30 minutes | 30.5 (68) |
| From 30 minutes to 1 hour | 19.3 (43) |
| More than 1 hour | 50.2 (112) |

*Table 13.  Practice of smoking among males*

| Variables | Measures |
|---|---|
| | *Mean (SD)* |
| *Mean years of smoking for current smokers* | 30.52 (14.49) |
| *Mean number of smoked cigarettes among current smokers* | 22.85 (14.28) |
| *Mean number of smoked cigarettes among former smokers* | 22.75 (15.09) |
| | **% (n)** |
| *Current smokers N=118* | 40.7 (48) |
| *Former smokers N=72* | 56.9 (41) |

*Table 14.  Alcohol consumption practice*

| Variables | % (n) |
|---|---|
| *Frequency of drinking (N=236)* | |
| Less than one drink a week | 33.9 (80) |
| One to three drinks a week | 15.7 (37) |
| Four to six drinks a week | 5.5 (13) |
| Seven or more drinks a week | 0.8 (2) |
| Never | 44.1(104) |
| *Frequency of drinking 4/5 or more portions of alcohol in a single day during the last 30 days* **(N=130)** | |
| 0-2 drinks | 88.5 (115) |
| 3-6 drinks | 7.7 (10) |
| 10-25 drinks* | 3.8 (5) |
| *Cases of drinking 4/5 or more portions of alcohol almost every day during whole life (N=131)* | 36.6 (48) |

*there were no cases reported drinking 7-9 times

*Table 15.  Salt consumption practice*

| Variables | % (n) |
|---|---|
| *Frequency of adding salt to food before trying it* (*N=236*) | |
| Never | 47.5 (112) |
| Rarely | 26.7 (63) |
| Sometimes | 11.4 (27) |
| Often | 5.5 (13) |
| Always | 8.9 (21) |
| *Quantity of salt consumption (N=228)* | |
| Far too much | 3.1 (7) |
| Too much | 11.4 (26) |
| Just the right amount | 49.1 (112) |
| Too little | 26.3 (60) |
| Far too little | 10.1 (23) |
| *Doing something to reduce salt intake* | 22.0 (52) |

*Table 16. Unadjusted associations between cumulative mean percent practice score and socio-demographic characteristics*

| Variables | Regression coefficient | p-value | 95% Confidence intervals |
|---|---|---|---|
| **Stage of hypertension (1st vs. 2nd)** | 1.184 | 0.005 | 0.362 – 2.006 |
| **Area of residence (city vs. villages)** | -0.320 | 0.405 | -1.077 – 0.436 |
| **Gender (male vs. female)** | 2.636 | 0.000 | 1.959 – 3.313 |
| **Age** | 0.045 | 0.003 | 0.015 – 0.075 |
| **Education** | | | |
| **School (< 10 year) (ref. group)** | 1 | | |
| **School (10 year)** | -0.013 | 0.983 | -1.189 – 1.165 |
| **Technical professional** | -0.014 | 0.984 | -1.383 – 1.356 |
| **University degree** | 0.472 | 0.561 | -1.126 – 2.071 |
| **Wealth status (poor vs. average/high)** | 0.482 | 0.218 | -0.286 – 1.250 |

*Table 17. Adjusted associations between cumulative mean percent practice score and socio-demographic characteristics*

| Variables | Regression coefficient | p-value | 95% Confidence intervals |
|---|---|---|---|
| **Stage of hypertension (1st vs. 2nd)** | 0.560 | 0.154 | -0.211- 1.332 |
| **Gender (male vs. female)** | 2.532 | 0.000 | 1.863 – 3.201 |
| **Age** | 0.036 | 0.011 | 0.008 – 0.065 |

*Table 18.  Perceived risk of CVD*

| Variable *(N=236)* | Measure |
|---|---|
| *How would you rate your risk of developing CVD* | **% (n)** |
| High | 14.8 (35) |
| Average | 24.6 (58) |
| Low | 18.6 (44) |
| Don't know/not sure | 41.9 (99) |

*Table 19. Perceived risk of CVD and stage of hypertension*

| BP stage / Perceived risk of CVD | *First stage of hypertension % (n)* | *Second stage of hypertension % (n)* |
|---|---|---|
| *High* | 20.00 (9) | 28.26 (26) |
| *Average* | 44.44 (20) | 41.30 (38) |
| *Low* | 35.56 (16) | 30.43 (28) |

*Table 20. Associations between ability to indicate any risk of developing CVD and socio-demographic characteristics (Chi-square test)*

| Variables | | Could indicate any risk of CVD % (n) | Could not indicate any risk of CVD % (n) | p-value |
|---|---|---|---|---|
| **BP level** | *1ˢᵗ stage* | 66.18 (45) | 33.82 (23) | 0.108 |
| | *2ⁿᵈ stage* | 54.76 (92) | 45.24 (76) | |
| **Area of residence** | *Gavar* | 55.93 (66) | 44.07 (52) | 0.510 |
| | *Villages* | 60.17 (71) | 39.83 (47) | |
| **Gender** | *Male* | 63.56 (75) | 36.44 (43) | 0.086 |
| | *Female* | 52.54 (62) | 47.46 (56) | |
| **Age** | *<50* | 71.43 (30) | 28.57 (12) | 0.037 |
| | *50-70* | 58.45 (83) | 41.55 (59) | |
| | *>70* | 45.10 (23) | 54.90 (28) | |
| **Education** | *School (<10 year)* | 34.48 (10) | 65.52 (19) | 0.040 |
| | *School (10 year)* | 58.82 (80) | 41.18 (56) | |
| | *Technical Prof.* | 65.22 (30) | 34.78 (16) | |
| | *University* | 66.67 (16) | 33.33 (8) | |
| **Wealth status** | *Poor* | 52.27 (69) | 47.73 (63) | 0.064 |
| | *Average/high* | 64.36 (65) | 35.64 (36) | |

# Figures

*Figure 1. Flowchart of participants' recruitment and response*
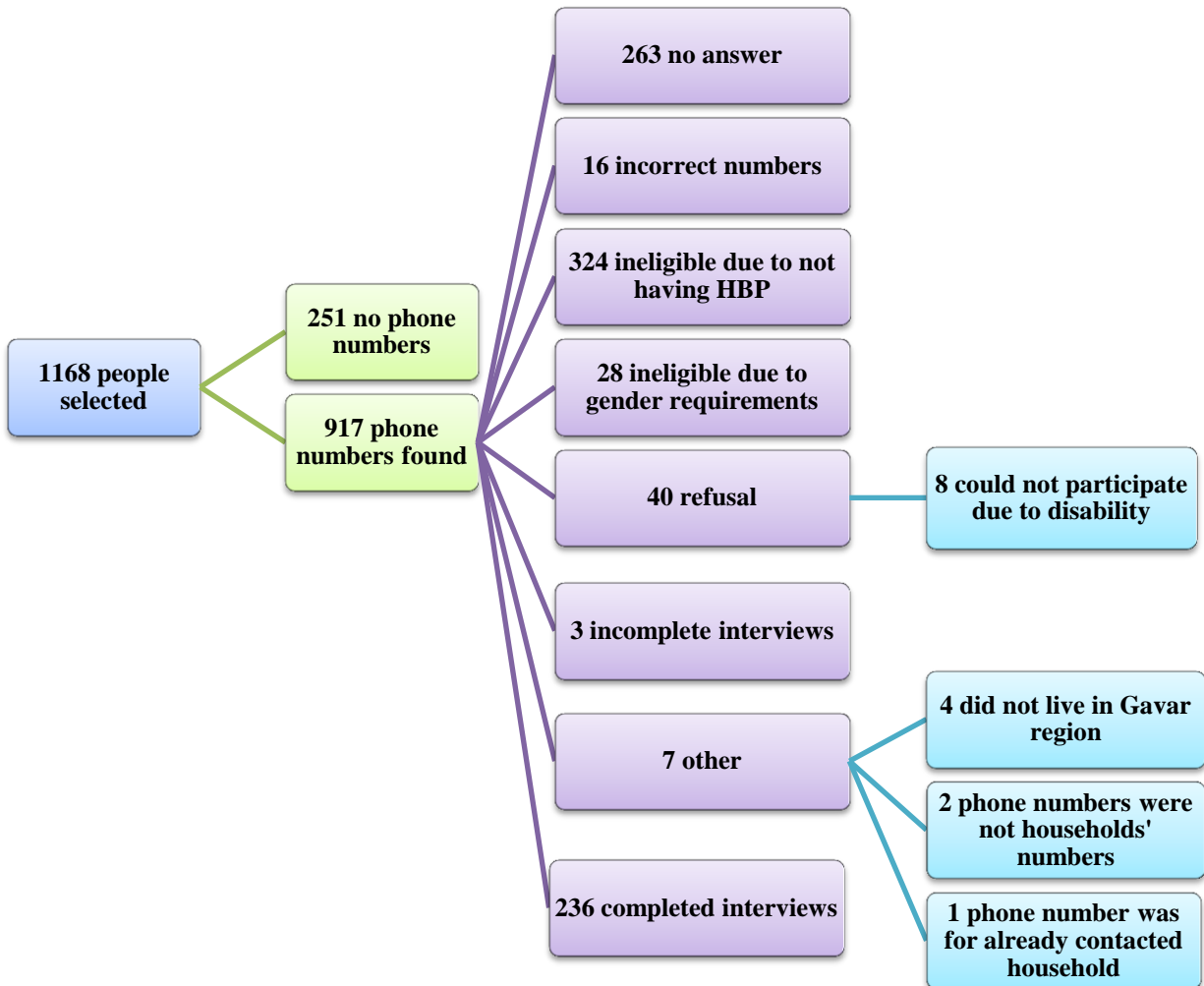
*Figure 2.  Reasons for not taking medications (N=115)*
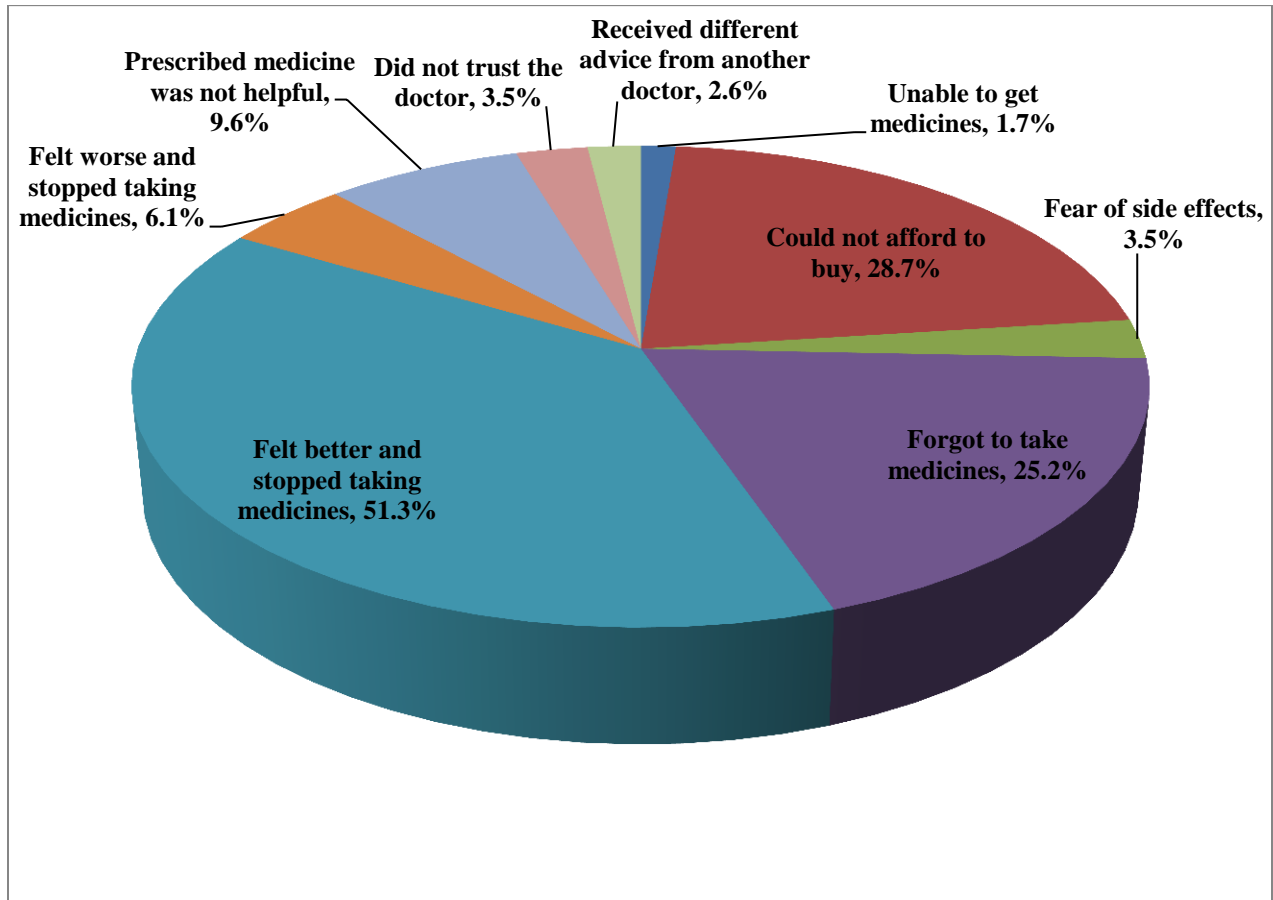
# Appendices

*Appendix 1: The questionnaire in Armenian and English*

Հարցաշար

Արյան բարձր ճնշման կարգավորումը Գավառի շրջանում.

Արյան բարձր ճնշումով հիվանդների գիտելիքների, վերաբերմունքի և վարվելակերպի հարցում

Ամսաթիվ__/__/____                                      Հարցազրույցի սկիզբը__/____

ԱՀ_____

1. Սովորաբար, որքա՞ն է Ձեր արյան ճնշումը առանց դեղը խմելու կամ մինչև դեղը խմելը:

   Սիստոլիկ արյան ճնշում_____

   Դիաստոլիկ արյան ճնշում_____

2. Որքա՞ն ժամանակ է տեղյակ եք, որ ունեք արյան բարձր ճնշում:

   _____տարի _____ամիս

*Վարվելակերպ*

3. Դուք դիմե՞լ եք բժշկի Ձեր արյան ճնշումը իջեցնելու համար:

   1) Այո

   2) Ոչ (Անցնել հարց 5-ին)

4. Որքա՞ն հաճախ եք այցելում Ձեր բժշկին Ձեր արյան բարձր ճնշումը իջեցնելու հարցերով: *(Չկարդալ պատասխանները, նշել մեկը)*

   1) Ամեն օր

   2) Շաբաթը մեկ անգամ

   3) Շաբաթը մի քանի անգամ

   4) Ամիսը մեկ անգամ

   5) Ամիսը մի քանի անգամ

   6) Տարին մեկ անգամ

   7) Տարին մի քանի անգամ

   8) Երբեք

   9) Այլ (նշեք) _____

5. Որքա՞ն հաճախ եք այցելում բժշկին էլեկտրասրտագրություն (ԷԿԳ) կատարելու համար: *(Չկարդալ պատասխանները, նշել մեկը)*
   1) Տարին մեկ անգամ կամ ավելի հաճախ
   2) Երկու տարին մեկ անգամ կամ ավելի քիչ
   3) Երբեք
   4) Այլ_____
   88) Չգիտեմ /Դժվարանում եմ պատասխանել


6. Որքա՞ն հաճախ եք չափում Ձեր արյան ճնշումը: *(Չկարդալ պատասխանները, նշել մեկը)*
   1) Ամեն օր
   2) Օրը մի քանի անգամ
   3) Շաբաթը մեկ անգամ
   4) Շաբաթը մի քանի անգամ
   5) Ամիսը մեկ անգամ
   6) Ամիսը մի քանի անգամ
   7) Տարին մեկ անգամ
   8) Տարին մի քանի անգամ
   9) Երբեք
   10) Այլ (նշեք) _____

*Այժմ մտածեք այն ժամանակի մասին, որ Դուք ծախսել եք գրոսանքի/ոտքով քայլելու վրա վերջին 7 օրվա ընթացքում: Այն ներառում է տանը, աշխատանքի վայրում կամ դրսում քայլելը, մի վայրից մյուսը ոտքով տեղափոխվելը, հանգստի, ժամանցի կամ մարզվելու նպատակով կատարվող գրոսանքը կամ ֆիզիկական վարժությունները:*

7. Վերջին **7** օրվա ընթացքում Դուք քանի՞ օր եք ոտքով քայլել/գրոսնել կամ մարզանք արել:
   _____ օր շաբաթվա ընթացքում **(եթե 0՝ անցնել հարց 9-ին)**
   88) Չգիտեմ/Դժվարանում եմ պատասխանել


8. Այն օրերին երբ Դուք քայլում/գրոսնում կամ կատարում եք մարզանք, սովորաբար օրական քանի՞ րոպե եք ծախսում դրա վրա: *(Չկարդալ պատասխանները, նշել մեկը)*
   1) Մինչև 30 րոպե
   2) 30 րոպեից մինչև 1 ժամ
   3) 1 ժամից ավել
   4) Այլ (նշեք) _____
   88) Չգիտեմ/Դժվարանում եմ պատասխանել

9. Դուք ներկայումս ծխո՞ւմ է՞ք:
   1) Այո
   2) Ոչ   (անցեք հարց 12-ին)

10. Որքա՞ն ժամանակ է, որ ծխում եք:
   _____տարի _____ամիս
   88) Չգիտեմ/Դժվարանում եմ պատասխանել

11. Օրական քանի՞ հատիկ ծխախոտ եք Դուք հիմա ծխում:
   _____ծխախոտ
   88) Չգիտեմ/Դժվարանում եմ պատասխանել

   **Անցնել հարց 14-ին**

12. Դուք անցյալում օգտագործե՞լ եք ծխախոտ:
   1) Այո
   2) Ոչ (անցեք հարց 14-ին)

13. Օրական քանի՞ հատիկ ծխախոտ էիք օգտագործում այն օրերին երբ ծխում էիք:
   _____ ծխախոտ
   88) Չգիտեմ/Դժվարանում եմ պատասխանել

14. Միջինում, սովորաբար Դուք որքա՞ն հաճախ եք ալկոհոլ օգտագործում (ալկոհոլի մեկ բաժինը նշանակում է. մեկ բաժակ գինի, մեկ շիշ գարեջուր, մեկ ըմպանակ (50գ) կոնյակ կամ օղի) *(Կարդալ բոլոր պատասխանները և նշել մեկը)*
   1) Շաբաթը մեկ բաժնից քիչ
   2) Շաբաթը մեկից մինչև երեք բաժին
   3) Շաբաթը չորսից մինչև վեց բաժին
   4) Շաբաթը յոթ և ավելի բաժին
   5) Երբեք    (անցեք հարց 17-ին)

15. Վերջին 30 օրվա ընթացքում, Դուք քանի՞ անգամ եք օգտագործել **հինգ/չորս (տղամարդ/կին)** կամ ավելի բաժին ալկոհոլ միանգամից:
   _____ անգամ (**եթե ոչ մի՝ նշել 0**)
   88) Չգիտեմ/Դժվարանում եմ պատասխանել

16. Երբևիցէ եղել է դեպք/դեպքեր Ձեր կյանքում, երբ գրեթե ամեն օր օգտագործել եք **հինգ/չորս (տղամարդ/կին)** կամ ավելի բաժին ցանկացած տեսակի ալկոհոլ:

    1) Այո
    2) Ոչ

17. Որքա՞ն հաճախ եք Դուք Ձեր կերակրին աղ ավելացնում մինչև համտեսելը: *(Կարդալ բոլոր պատասխանները և նշել մեկը)*

    1) Երբեք
    2) Հազվադեպ
    3) Երբեմն
    4) Հաճախ
    5) Միշտ

18. Ձեր կարծիքով, Դուք որքա՞ն աղ եք օգտագործում: *(Կարդալ պատասխանները բացի 88-ից և նշել մեկը)*

    1) Չափից ավելի շատ
    2) Շատ
    3) Ճիշտ քանակով
    4) Քիչ
    5) Շատ քիչ
    88) Չգիտեմ/Դժվարանում եմ պատասխանել

19. Դուք որևիցէ բան անու՞մ եք Ձեր կողմից աղի օգտագործումը պակասեցնելու համար:

    1) Այո
    2) Ոչ  (անցեք հարց 21-ին)

20. *Եթե 18-րդ հարցի պատասխանը "այո" է, ապա ինչ ե՞ք Դուք անում:*

    (Նշել)_____

*Յուրաքանչյուր սննդատեսակի համար ընտրել մեկ պատասխան:*

| 21. *Խնդրում եմ նշեք թե սովորաբար որքա՞ն հաճախ եք Դուք ուտում* | Ամեն օր | Շաբա-թական մի քանի անգամ | Ամսա-կան մի քանի անգամ | Տարե-կան մի քանի անգամ | Երբեք | Չգիտեմ/ Համոզված չեմ |
|---|---|---|---|---|---|---|
| | | | | | | |

46

| | | | | | | |
|---|---|---|---|---|---|---|
| 1) Միրգ (ներառյալ թարմ և չորացրած մրգեր առանց շաքարի) | 1 | 2 | 3 | 4 | 5 | 88 |
| 2) Թարմ բանջարեղեն | 1 | 2 | 3 | 4 | 5 | 88 |
| 3) Եփած կամ խորոված բանջարեղեն | 1 | 2 | 3 | 4 | 5 | 88 |
| 4) Հացավարեղեն (բրինձ, վարսակ, ցորեն) | 1 | 2 | 3 | 4 | 5 | 88 |
| 5) Յուղոտ կաթնամթերք (կաթ, պանիր, կաթնաշոռ և այլն) | 1 | 2 | 3 | 4 | 5 | 88 |
| 6) Անյուղ կամ ցածր յուղայնությամբ կաթնամթերք | 1 | 2 | 3 | 4 | 5 | 88 |
| 7) Կարագ | 1 | 2 | 3 | 4 | 5 | 88 |
| 8) Մարգարին յուղ, ինչպես օրինակ "Aftab", "Reddy","Gonche" | 1 | 2 | 3 | 4 | 5 | 88 |
| 9) Բուսական յուղ/ձեթ | 1 | 2 | 3 | 4 | 5 | 88 |
| 10) Տապակած միս, թռչնամիս, ձուկ | 1 | 2 | 3 | 4 | 5 | 88 |
| 11) Շոգեխաշած կամ խորոված միս, թռչնամիս, ձուկ | 1 | 2 | 3 | 4 | 5 | 88 |
| 12) Նրբերշիկ, երշիկ, ապխտած միս | 1 | 2 | 3 | 4 | 5 | 88 |
| 13) Շաքար, քաղցրավենիք, ջեմ, խմորեղեն | 1 | 2 | 3 | 4 | 5 | 88 |
| 14) Ընկուղեղեն, ընդեղեն | 1 | 2 | 3 | 4 | 5 | 88 |

*Գիտելիք*

| Խնդրում եմ նշել թե որքանով եք համաձայն հետևյալ պնդումների հետ. | Համա-ձայն եմ | Ոչ համա-ձայն եմ, ոչ էլ՝ ոչ | Համա-ձայն չեմ | Չգիտեք/ Համոզված չեք |
|---|---|---|---|---|
| 22. Ֆիզիկական պասիվ կյանքը կարող է բերել արյան ճնշման բարձրացմանը: | 1 | 2 | 3 | 88 |
| 23. Ալկոհոլի չափից ավելի օգտագործումը ճնշման բարձրացմանը բերող պատճառներից մեկն է: | 1 | 2 | 3 | 88 |
| 24. Ծխելը կարող է բարձրացնել արյան ճնշումը: | 1 | 2 | 3 | 88 |

| | | | | |
|---|---|---|---|---|
| 25. Ադով հարուստ սնունդը ճնշումը բարձրացնող պատճառներից մեկն է։ | 1 | 2 | 3 | 88 |
| 26. Բանջարեղենով և մրգերով հարուստ սնունդը կարող է բարձրացնել արյան ճնշումը։ | 1 | 2 | 3 | 88 |
| 27. Բարձր յուղայնությամբ կաթնամթերքի օգտագործումը կարող է բերել արյան ճնշման բարձրացմանը։ | 1 | 2 | 3 | 88 |
| 28. Ճարպերի ու յուղերի շատ օգտագործումը չի կարող բարձրացնել արյան ճնշումը։ | 1 | 2 | 3 | 88 |
| 29. Ավելորդ քաշի նվազեցումը ամենաքիչը 5կգ-ով կարող է թույլ տալ ավել լավ կարգավորել արյան բարձր ճնշումը։ | 1 | 2 | 3 | 88 |

30. Համեմատած Ձեր տարիքի և սեռի այն մարդկանց հետ, ովքեր չունեն արյան բարձր ճնշում, ինչպես կգնահատեք սիրտանոթային հիվանդություններ ձեռք բերելու հավանականությունը (ռիսկը) Ձեզ մոտ։ *(Կարդալ բոլորը բացի 88-ից, նշել մեկը)*

    1) Բարձր ռիսկ

    2) Միջին ռիսկ

    3) Ցածր ռիսկ

    88) Չգիտեմ/Դժվարանում եմ պատասխանել

31. *Չբուժվելու կամ բուժմանը չհետևելու դեպքում, արյան բարձր ճնշումը կարո՞ղ է առաջացնել առողջական այլ խնդիրներ։*

    1) Այո

    2) Ոչ    (**Անցնել հարց 33-ին**)

32. *Եթե 30-րդ հարցի պատասխանը "այո" է, ապա ի՞նչ առողջական խնդիրների կարող է այն բերել։ (Չկարդալ տարբերակները, նշել բոլոր թվարկված պատասխանները)*

    1) Կաթվածի (ինսուլտի) զարգացմանը

    2) Սրտային հիվանդությունների զարգացմանը

    3) Երիկամային հիվանդությունների զարգացմանը

    4) Աչքի հիվանդությունների զարգացմանը

    5) Այլ (նշել) _____

*Վերաբերմունք*

| *Որքանո՞վ եք Դուք համաձայն որ,* | Համաձայն եք | Ոչ համաձայն եք, ոչ էլ՝ | Համաձայն չեք | Չգիտեք/ Համոզված չեք |
|---|---|---|---|---|
| | | | | |

| | | ոչ | | |
|---|---|---|---|---|
| 33. Առողջ սնունդ ուտելը կօգնի Ձեզ իջեցնել Ձեր արյան ճնշումը: | 1 | 2 | 3 | 88 |
| 34. Աղի օգտագործման քչացնելը կարևոր է Ձեր արյան բարձր ճնշումը կարգավորելու հարցում: | 1 | 2 | 3 | 88 |
| 35. Բժշկի նշանակած դեղերի օգտագերծումը կօգնի Ձեզ իջեցնել Ձեր արյան ճնշումը: | 1 | 2 | 3 | 88 |
| 36. Բուժման ընթացքում,նույնիսկ կարճատև լավացում նկատվելու դեպքում, արյան բարձր ճնշում ունեցող մարդիկ չպետք է դադարեցնեն նշանակված դեղեր խմելը: | 1 | 2 | 3 | 88 |
| 37. Ձեր արյան ճնշման կարգավորման հիմնական պատասխանատուն Դուք եք: | 1 | 2 | 3 | 88 |
| 38. Ձեր արյան ճնշման կարգավորման հիմնական պատասխանատուն Ձեր բժիշկն է: | 1 | 2 | 3 | 88 |

*Հարցնել 39–րդը, եթե 3-րդ հարցի պատասխանը "Այո" է, իսկ եթե "ոչ"՝ անցնել հարց 45-ին:*

39. Երբևէ Ձեր բժիշկը, Ձեզ խորհուրդ տվե՞լ է հետևել առողջ ապրելակերպի

     1) Այո

     2) Ոչ  (**անցնել հարց 41-ին**)

40. ի՞նչ է խորհուրդ տվել Ձեր բժիշկը: *(Չկարդալ տարբերակները, նշել բոլոր հնարավոր պատասխանները)*

     1) Չծխել

     2) Օգտագործել մրգերով հարուստ սնունդ

     3) Օգտագործել բանջարեղենով հարուստ սնունդ

     4) Օգտագործել ցածր յուղայնությամբ սնունդ

     5) Օգտագործել ոչ աղի սնունդ

     6) Նվազեցնել ալկոհոլի օգտագործումը

     7) Բարձրացնել ֆիզիկական ակտիվությունը

     8) Այլ (նշել)_____

*Դեղորայքի ընդունում.*

*Հետևյալ հարցերը դեղորայքի ընդունման մասին են*

41. Ձեր բժիշկը նշանակե՞լ է Ձեզ դեղեր ճնշումը իջեցնելու համար:
    1) Այո
    **2) Ոչ (անցնել հարց 45-ին)**

42. Ձեր բժիշկը տվե՞լ է հստակ բացատրություն, թե ինչպես պետք է խմեք Ձեր ճնշումը կարգավորող դեղերը (օրական քանի անգամ և ինչ դոզայով)
    1) Այո
    2) Ոչ

43. Եղե՞լ են այնպիսի դեպքեր/ օրեր, երբ Դուք չեք խմել Ձեր դեղերը ըստ բժշկի նշանակման:
    1) Այո
    **2) Ոչ (անցնել հարց 45-ին)**

44. Որո՞նք են դեղերը չիմելու պատճառները (*Չկարդալ տարբերակները, նշել բոլոր հնարավոր պատճառները*) :
    1) Ես չեմ կարողացել գտնել նշանակված դեղը/դեղերը
    2) Ես չեմ կարողացել գնել նշանակված դեղը/ դեղերը
    3) Կողմնակի ազդեցությունները/ վախը դրանց նկատմամբ
    4) Ես մոռացել եմ խմել նշանակված դեղը/ դեղերը
    5) Ես ավելի լավ եմ զգացել ինձ ու դադարեցրել եմ դեղը խմել
    6) Ես վատ եմ զգացել ինձ ու դադարեցրել եմ դեղը խմել
    7) Նշանակված դեղերը ինձ ընդհանրապես չէին օգնում
    8) Չեմ վստահում բժշկին
    9) Ուրիշ բժշկի կողմից այլ խորհուրդ եմ ստացել
    10) Այլ (նշել) _____

45. Վերջին 12 ամիսների ընթացքում առանց բժշկի նշանակման Դուք խմել եք արյան ճնշումը իջեցնող որևէ դեղ:
    1) Այո
    **2) Ոչ (անցնել հարց 47-ին)**

46. Որտեղի՞ց եք Դուք տեղեկություն ստացել այդ դեղերի մասին (*Կարդալ բոլոր տարբերակները և նշել բոլոր հնարավոր պատասխանները*):

1) Այլ բժշկից /ոչ ընտանեկան բժիշկ, ոչ սրտաբան/
2) Ընկերներից/ հարևաններից
3) Թերթերից/ ամսագրերից
4) Հեռուստագովազդից
5) Այլ (նշել) _____

### *Ժողովրդագրական հարցեր*

47. Ծննդյան տարեթիվը. _____

48. **Սեռը (եթե վստահ եք, նշել ինքնուրույն)**
    1) Արական
    2) Իգական

49. Ձեր ազգությունը
    1) Հայ
    2) Ռուս
    3) Եզդի
    4) Քուրդ
    5) Այլ (նշել) _____

50. Դուք ամուսնացա՞ծ եք:
    1) Ամուսնացած
    2) Բաժանված
    3) Այրի
    4) Միայնակ
    5) Այլ (նշել) _____

51. Ներառյալ Ձեզ, քանի՞ հոգի է ապրում Ձեր տանը:
    _____

52. Ի՞նչ կրթություն ունեք: *(Կարդալ բոլոր պատասխանները և նշել մեկը)*
    1) Թերի միջնակարգ /մինչև 10 տարի/
    2) Միջնակարգ /10 տարի/
    3) Միջնակարգ մասնագիտական /ուսումնարան/
    4) Բարձրագույն /համալսարան, ինստիտուտ/ Հետդիպլոմային

53. Դուք ունե՞ք բժշկական կրթություն /բժիշկ կամ բուժքույր/:
    1) Այո

2) Ոչ

54. Ձեր ընտանիքում ներկայումս քանի հոգի է աշխատում.  հաշվեք նաև Ձեզ և նրանց, ովքեր աշխատում են տանը, զբաղվում են հողագործությամբ, կամ արտագնա աշխատանքի են գնում:

_____

55. Ընդհանուր առմամբ, ինչպե՞ս կգնահատեք Ձեր ընտանիքի նյութական վիճակը:
   *(Կարդալ բոլոր պատասխանները և նշել մեկը)*
   1) Միջինից բավականին ցածր
   2) Միջինից մի փոքր ցածր
   3) Միջին
   4) Միջինից մի փոքր բարձր
   5) Միջինից բավականին բարձր

56. Միջինում, ամսական ամեն ինչի վրա ինչքա՞ն փող է ծախսում Ձեր ընտանիքը:
   *(Կարդալ բոլոր պատասխանները և նշել մեկը)*
   1) 50,000 դրամից քիչ
   2) 51,000-ից մինչև 100,000 դրամ
   3) 101,000-ից մինչև 200,000 դրամ
   4) 201,000-ից մինչև 300,000 դրամ
   5) 301,000 դրամից ավելի
   88) Չգիտեմ/Դժվարանում եմ պատասխանել


*Շնորհակալություն մասնակցության համար*


Հարցաgrույցի ավարտը ___/____

# Questionnaire
## Control of High Blood Pressure in Gavar region: Knowledge, Attitude and Practice Survey of Hypertensive Patients

**Date \_\_\_\_/\_\_\_\_/\_\_\_\_\_**          **Starting time \_\_\_\_\_/\_\_\_\_\_**

**ID _____**

1. Usually what is your blood pressure level without taking medications or before taking them?
   Systolic blood pressure _____
   Diastolic blood pressure _____

2. Since what time you know that you have high pressure?

   _____years_____months

*Practice*

3. Do you approach to doctor to decrease your blood pressure?
   1) Yes
   2) No **(GO TO QUESTION 5)**

4. How often do you visit your doctor for your hypertension care? *(Do not read the options, check one answer)*
   1) Every day
   2) Once a week
   3) A couple of time a week
   4) Once a month
   5) A couple of time a month
   6) Once a year
   7) A couple of time a year
   8) Never
   9) Other (specify) _____

5. How often do you visit your doctor for ECG? *(Do not read the options, check one answer)*
   1) Once a year or more often
   2) Every two years or less frequently
   3) Never
   4) Other (specify) _____
   88) Don't know/Not sure/Refuse to answer

6. How often do you measure your blood pressure? *(Do not read the options, check one answer)*
   1) Every day (once a day)
   2) A couple of time a day
   3) Once a week
   4) A couple of time a week
   5) Once a month
   6) A couple of time a month
   7) Once a year

8) A couple of time a year
9) Never
10) Other (specify) _____

*Now think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.*

7. During the last 7 days, on how many days did you do physical activities such as brisk walking or walking?
   _____Days per week **(If O – GO TO QUESTION 9)**
   88.  Don't Know/Not Sure/Refuse to answer

8. On the days that you exercised, how many minutes did you usually spend exercising per day? *(**Do not read the options, check one answer)**
   1)  Less than 30 minutes
   2)  From 30 minutes to 1 hour
   3)  More than 1 hour
   4)  Other (specify)_____
   88)  Don't Know/Not Sure/Refuse to answer

9. Do you currently smoke cigarettes?
   1)  Yes
   **2)  No   (GO TO QUESTION 12)**

10. How long do you smoke?

    _____years_____month

    88) Don't Know/Not Sure/Refuse to answer

11. How many cigarettes do you currently smoke per day?

    _____Cigarettes

    88) Don't Know/Not Sure/Refuse to answer

    **GO TO QUESTION 14**

12. Have you smoked cigarettes daily in the past?
    1)  Yes
    2)  No **(GO TO QUESTION 14)**

13. How many cigarettes did you smoke on the days you smoked?

    _____ Cigarettes

    88) Don't Know/Not Sure/Refuse to answer

14. On average, how often do you usually drink alcohol (one portion of alcohol is having at least 1 glass of wine, can/bottle of beer, a shot (50g) of cognac or vodka)? *(**Read all options, check one answer)**
    1)  Less than one drink a week
    2)  One to three drinks a week

    3)  Four to six drinks a week
    4)  Seven or more drinks a week
    5)  Never  **(GO TO QUESTION 17)**

15. During the last 30 days how many times did you drink 5/4 (man/woman) or more portions of alcoholic drinks in a single day?

    _____portions **(If not such time write 0)**

    88) Don't Know/Not Sure/Refuse to answer

16. Was there ever a time or times in your life when you drink 5/4 (man/woman) or more portions of any kind of alcoholic beverage almost every day?
    1)  Yes
    2)  No

*17.* How often do you add salt to your food without trying it? *(Read all options, check one answer)*
    1)  Never
    2)  Rarely
    3)  Sometimes
    4)  Often
    5)  Always

*18.* How much salt do you think you consume?  *(Read all options besides 88 and check one answer)*
    1)  Far too much
    2)  Too much
    3)  Just the right amount
    4)  Too little
    5)  Far too little
    88) Don't Know/Not Sure/Refuse to answer

19. Do you do anything on a regular basis to control your salt intake?
    1)  Yes
    2)  No **(GO TO QUESTION 21)**

20. If answer is "Yes" in 19 above, what do you do?
    (specify) _____

*For each type of food check one response*

| 21. *Please, can you specify how often do you usually eat:* | 1) Per day | 2) Per week | 3) Per month | 4) Per year | 5) Never | 6) Don't know/not sure |
|---|---|---|---|---|---|---|
| 15)  Fruits (including fresh fruits and dried without sugar fruits) | 1 | 2 | 3 | 4 | 5 | 88 |
| 16)  Fresh vegetables | 1 | 2 | 3 | 4 | 5 | 88 |
| 17)  Cooked or BBQ vegetables | 1 | 2 | 3 | 4 | 5 | 88 |
| 18)  Grains (rice, oat, wheat) | 1 | 2 | 3 | 4 | 5 | 88 |
| 19)  High-fat dairy products (milk, cheese, cottage cheese etc.) | 1 | 2 | 3 | 4 | 5 | 88 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 20) Fat-free/low fat dairy products | 1 | 2 | 3 | 4 | 5 | 88 |
| 21) Butter | 1 | 2 | 3 | 4 | 5 | 88 |
| 22) Margarine, Hydrogenated oil such as "Aftab", "Reddy", "Gonche" | 1 | 2 | 3 | 4 | 5 | 88 |
| 23) Vegetable oils | 1 | 2 | 3 | 4 | 5 | 88 |
| 24) Fried meat, poultry, fish | 1 | 2 | 3 | 4 | 5 | 88 |
| 25) Boiled or BBQ meat, poultry, fish | 1 | 2 | 3 | 4 | 5 | 88 |
| 26) Sausages, ham | 1 | 2 | 3 | 4 | 5 | 88 |
| 27) Sugar/Sweets, jams, pastries | 1 | 2 | 3 | 4 | 5 | 88 |
| 28) Nuts, legumes | 1 | 2 | 3 | 4 | 5 | 88 |

*Knowledge*

| *Please indicate whether you agree or disagree with the following statements:* | Agree | Neither agree, nor disagree | Disagree | Don't know |
|---|---|---|---|---|
| 22. Physically inactive lifestyle can contribute to increase of blood pressure. | 1 | 2 | 3 | 88 |
| 23. Alcohol abuse is one of the promoting reasons of blood pressure. | 1 | 2 | 3 | 88 |
| 24. Smoking cigarettes can lead to blood pressure increase. | 1 | 2 | 3 | 88 |
| 25. Salt rich diet is one of the factors contributed to hypertension. | 1 | 2 | 3 | 88 |
| 26. High vegetable and high fruit diet can increase blood pressure. | 1 | 2 | 3 | 88 |
| 27. Usage of high fat dairy products can cause increase of blood pressure. | 1 | 2 | 3 | 88 |
| 28. Excess use of fats and oils CANNOT increase blood presuure. | 1 | 2 | 3 | 88 |
| 29. Decrease of excess weight at least by 5 kg will let to control high blood pressure more effectively. | 1 | 2 | 3 | 88 |

30. Compared with persons of your own age and sex, who do not have high blood pressure, how would you rate your risk of developing CVD? *(Read all options besides 88 and check one answer)*
    1) High
    2) Average
    3) Low
    88) Don't Know/Not Sure/Refuse to answer

31. Can hypertension cause other health related problems, in case of absence of treatment or not following to treatment?
    1) Yes
    2) No **(GO TO QUESTION 33)**

*32.* If answer to 31st question is "yes", to what problems can it bring? *(Do not read the options, check all that apply)*
    1) Stroke

2) Heart disease
3) Kidney disease
4) Eye disease
5) Other (specify) _____

*Attitude*

| In what extent do you believe that? | Agree | Neither agree, nor disagree | Disagree | Don't know |
|---|---|---|---|---|
| 33. Eating healthy food will help you to decrease your blood pressure. | 1 | 2 | 3 | 88 |
| 34. Reducing salt intake in food is important for controlling your high blood pressure. | 1 | 2 | 3 | 88 |
| 35. Using doctors prescribed medicine will help you to control your blood pressure more effectively. | 1 | 2 | 3 | 88 |
| 36. During the treatment, people who have high blood pressure have not to stop the usage of prescribed medicines even in case of short term improvements. | 1 | 2 | 3 | 88 |
| 37. Main responsibility for ensuring your blood pressure balanced is yours. | 1 | 2 | 3 | 88 |
| 38. Main responsibility for ensuring your blood pressure balanced is your doctor's. | 1 | 2 | 3 | 88 |

***Ask 39<sup>th</sup> question, if the answer of 3<sup>rd</sup> question is "yes"; f it is "no" GO TO QUESTION 45.***
39. Have your doctor ever recommended you to follow a healthy lifestyle?
    1) Yes
    **2) No (GO TO QUESTION 41)**


**40.** What recommendation gave you doctor? (*Do not read the options, check all that apply*)
    1) Do not smoke
    2) Use fruit reach diet
    3) Use vegetables reach diet
    4) Use low-fat containing food
    5) Use not salty food
    6) Decrease the usage of alcohol
    7) Increase physical activity
    8) Other (specify)_____

**Treatment adherence:** *Next couple of questions is about treatment adherence.*

41. Has your physician prescribed medication for hypertension?
    1) Yes
    2) No **(GO TO QUESTION 45)**

42. Did your doctor explain you clearly how to take your blood pressure medicine (time of day and dosage)?
    1) Yes

2) No

43. Are there some cases/days when you do not take the drugs according to the doctor's prescription?
    1) Yes
    **2) No (GO TO QUESTION 45)**

44. What is the reason for not following the prescription? **(Do not read the options, indicate all possible reasons)**
    1) I am unable to get medicine(s)
    2) I cannot afford to buy medicine(s)
    3) Side effects/fear of side effects
    4) I forget to take medicine(s)
    5) I feel better and stop take medicine(s)
    6) I feel worse and stop take medicine(s)
    7) The prescribed medicine was not helpful at all
    8) Do not trust the doctor
    9) Get different advice from another doctor
    10) Other (specify) _____

45. During the last 12 months did you take any medicine to lower your high blood pressure without the doctor's prescription?
    1) Yes
    2) No **(GO TO QUESTION 47)**

46. How did you receive information about those medicines? **(Do not read the options, check all that apply)**
    1) From other physician (non PHC, cardiologist)
    2) From friends/neighbors
    3) From newspapers/journals
    4) From TV advertisements
    5) Other (please, specify) _____

**Socio-demographic questions:**

47. Date of birth?      _____year

48. Gender: *(if sure, check by yourself)*
    1) Male
    2) Female

49. Your nationality:
    1) Armenian
    2) Russian
    3) Yezidi
    4) Kurdish
    5) Other (specify): _____

50. Marital Status:
    1) Married
    2) Divorced
    3) Widowed

4) Single
5) Other (specify): _____

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

52. Indicate the highest level of education that you have completed:
   1) School (less than 10 years)
   2) School (10 years)
   3) Professional technical education (10-13 years)
   4) Institute/University/Postgraduate

53. Do you have a medical education (medicine/nursing)?
   1) Yes
   2) No

54. How many members of your household including yourself are currently employed, include self-employment, also those who are in farming, and seasonal/migrant work?
   _____

55. How would you rate your family's general standard of living? **(Read all options, check one answer)**
   1) Substantially below average
   2) A little below average
   3) Average
   4) Little above average
   5) Substantially above average

56. Last month, the approximate amount of household income spent by all of your household members was: **(Read all options, check one answer)**
   1) Less than 50,000 drams
   2) From 51,000 - 100,000 drams
   3) From 101,000 - 200,000 drams
   4) From 201,000 - 300,000 drams
   5) Above 301,000drams
   88) Don't know/ Not sure/ Refuse to answer

**Thank you for your participation!**


**Ending time _____/_____**

*Appendix 2: Consent forms in Armenian and English*

Հայաստանի ամերիկյան համալսարան

Գիտահետազոտական էթիկայի թիվ 1 հանձնաժողով

Իրազեկ համաձայնության ձև

Բարև Ձեզ, իմ անունը Անժելա Թադևոսյան է։ Ես սովորում եմ Հայաստանի Ամերիկյան Համալսարանի Հանրային առողջապահության ֆակուլտետի ավարտական կուրսում։ Մեր ֆակուլտետն իրականացնում է հետազոտություն, որի նպատակն է ավելի լավ հասկանալ Գավառի շրջանում բնակվող և արյան բարձր ճնշում ունեցող բնակչության գիտելիքները, վերաբերմունքը և վարվելակերպը ոչ դեղորայքային մեթոդներով արյան բարձր ճնշման կարգավորման վերաբերյալ և հասկանալ, թե որքանով են նրանք հետևում իրենց նշանակված դեղորայքային բուժմանը։ Այս հետազոտությունը նպատակն ունի նաև հասկանալու, թե որքանով են արյան բարձր ճնշում ունեցող Գավառի և շրջակա գյուղերի բնակիչները ընկալում սիրտանոթային հիվանդություններ ձեռք բերելու իրենց հավանական վտանգը։

Դուք հրավիրված եք մասնակցել այս հարցազրույցին, քանի որ Հայաստանի Հանրապետության քաղաքացի եք և ապրում եք Գավառի շրջանում։ Ձեր տվյալները մենք ընտրել ենք պատահականության սկզբունքով՝ Գավառի շրջանի հեռախոսագրքից։

Ձեր մասնակցությունը սահմանափակվում է միայն ներկայիս հարցազրույցով, որը կտևի ոչ ավել քան 15-20 րոպե։ Ձեր անունը չի արձանագրվի հարցաթերթիկում և

60

չի ներկայացվի ոչ մի ցեկույցում: Ձեր պատասխանները մեր հարցերին կնպաստեն այս հետազոտության իրականացմանը, բայց միևնույն ժամանակ Ձեր պատասխանները կրնդարացվեն մյուս մասնակիցների պատասխանների հետ: Դուք լինելու եք այն 236 մասնակիցներից մեկը, ովքեր մասնակցելու են այս հետազոտությանը:

Ձեր մասնակցությունն այս հետազոտությանը կամավոր է: Ձեզ ոչինչ չի սպառնում, եթե Դուք հրաժարվեք մասնակցել այս հետազոտությանը: Դուք կարող եք հրաժարվել պատասխանել ցանկացած հարցի կամ ցանկացած պահի ընդհատել հարցազրույցը:

Դուք չեք ստանալու որևէ ֆինանսական հատուցում կամ պարգևատրում հետազոտությանը մասնակցելու դեպքում: Դուք ոչ մի ռիսկի չեք դիմում մասնակցելով այս հետազոտությանը: Ձեր անկեղծ պատասխանները կoգնեն իրականացնել այս հետազոտությունը, որի արդյունքները կարող են կիրառվել այլ հետազոտողների և Հայաստանում հանրային առողջապահության ոլորտում աշխատող քաղաքականություն մշակողների կողմից:

Այս հետազոտության վերաբերյալ հարցեր ունենալու դեպքում կարող եք զանգահարել հետազոտության համակարգողին՝ Ծովինար Հարությունյանին (37410) 51 25 92 հեռախոսահամարով: Եթե Դուք կարծում եք, որ Ձեզ լավ չեն վերաբերվել կամ այս հետազոտությանը մասնակցելու դեպքում Ձեզ վնաս է հասցվել, կարող եք

61

զանգահարել Հայաստանի ամերիկյան համալսարանի Էթիկայի հանձնաժողովի քարտուղար՝ Հռիփսիմէ Մարտիրոսյանին (37410) 51 25 61 հեռախոսահամարով:

Համաձա՞յն եք մասնակցել (այո կամ ոչ):

Շնորհակալություն:

Կարո՞ղ ենք շարունակել:

## Consent form

Hello, my name is Anzhela Tadevosyan.  I am the graduate student of the Master of Public Health program at the College of Health Sciences of the American University of Armenia. Our college conducts a study to better understand the knowledge, attitude and practice about non-drug control of hypertension and the level of adherence to hypertension drug therapies among people who have hypertension in Gavar region. Also, it will examine the perceived risk for cardiovascular disease among hypertensive people in Gavar and neighborhood villages.

I am inviting you to participate in an interview for this project because you are a citizen of Armenia and reside in Gavar region. We randomly chose your contact information from the phone books of Gavar region. Participating only involves this interview today. It should take no longer than 15-20 minutes to complete. Your name will not be recorded on the questionnaire and not appear in any presentation of the project. Your responses to our questions will contribute to this project but your answers will be put together with the answers of other participants.  You will be one of approximately 236 people who participate in this project.

Your participation in this study is voluntary. There is no penalty if you decline to take part in this project. You may refuse to answer any question or stop the interview at any time.

There is no financial compensation or other personal benefits from participating in the study and there are no known risks to you resulting from your participation in the study. Your participation will help us to gain better knowledge about hypertension issues in Gavar region and will provide evidence to other researchers and PH policy makers in Armenia.   Nobody except research team

will have access to the data provided by you.

If you have any questions regarding this study you can call the Principal Investigator Dr. Tsovinar Harutyunyan at (37410) 51 25 92. If you feel you have not been treated fairly or think you have been hurt by joining the study you should contact Dr. Hripsime Martirosyan, the Human Subject Protection Administrator of the American University of Armenia (37410) 51 25 61.

Do you agree to participate? Please say YES or NO.

Thank you.

If yes, shall we continue?