Nazarbayev University School of Medicine

Master of Public Health Program

Determinants of nonadherence to hypertension treatment among patients in Astana city: A pilot study

Master of Public Health Thesis Project Utilizing Professional Publication Framework

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Abstract

Introduction: The purpose of this study was to assess the level of nonadherence to hypertension treatment and to identify the associated factors among patients with hypertension.

Methods: This was a cross-sectional study. 48 participants were recruited at the urban polyclinic #8 in Astana city for this pilot study. The study participants were patients enrolled to the therapeutics appointment with diagnosis of hypertension. Overall, 48 patients consented to participate and filled out the self-administered questionnaires. The survey consisted of five sections, including questions on socio-demographic characteristics, health lifestyles, dietary habits, antihypertensive drug adherence, and perceptions of severity and susceptibility to hypertension, perception of barriers and benefits of hypertension treatment. Descriptive, bivariate and multivariate logistic regression analyses were conducted in Stata 12.

Results: The prevalence of poor adherence among study population was 43.75%. Less duration of hypertension (p=0.088) and shorter length of treatment (0.005) were associated with poor adherence, as well as the higher quantity of antihypertensive medications (p=0.011) and higher frequency of its intake (p=0.046). According to the HBM, low perception of severity of the disease (0.043), low self-efficacy to comply with antihypertensive treatment (0.105) and high perceived barriers (p=0.006) were also associated with poor adherence to antihypertension treatment.

Conclusion: The findings of this pilot study need to be further explored in a study with a bigger sample size. The factors identified according to HBM model can serve as a baseline data for further development and evaluation of programs aimed to improve the adherence to antihypertension treatment.

LIST OF ABBREVIATIONS

ARF	Acute renal failure
CVD	Cardiovascular diseases
HBM	Health Belief Model
NCD	Noncommunicable diseases
MI	Myocardial infarction
SD	Standard deviations
WHO	World Health Organization

Introduction

The burden of noncommunicable diseases (NCD) raises large concern and become major public health challenge. The hypertension is a major cause of cardiovascular diseases (CVD) morbidity and mortality rate. Hence, the adherence to antihypertensive pharmacotherapies is a basis of preventing the risks of hypertension and improving population's quality of life.

Nowadays the NCD is the issue of not only developed and rich countries, but it has global pattern and causes growing threat for public health. Hypertension is one of the most significant treatable causes of morbidity and mortality. Currently, the number of deaths due to the consequences of high blood pressure was estimated to be 7.5 million worldwide (Global Health Observatory, 2008). According to statistical collection of the Ministry of Health (2013) of the Republic of Kazakhstan, the hypertension rate among Kazakhstani people was estimated to be 13391.6 per 100 000 people. In addition, the mortality rate related to the elevated blood pressure ranks on the first place among all deaths (Shinbolatova, 2014). The course of the disease can pass without symptoms during some periods of time, and individuals with high blood pressure may fail to seek the treatment or follow the medical prescriptions, thus leading to the greater risk of complications such as stroke, cardiovascular and renal diseases (Dusing, 2006). This makes adherence to antihypertensive therapy crucial to achieve controlled blood pressure among the population.

Poor adherence to antihypertensive drug therapy is a widespread issue worldwide, accounting for 36.6% to 63.5% (Abegaz, 2017), with particularly high levels of poor adherence presented in Asian (43.5%) and African countries (63.5%). Very few studies of poor adherence were conducted in Kazakhstan, mainly concentrating on factors such as the presence of heart diseases and comorbidities (Mussina, 2017), while behavioral factors influencing to the poor management of antihypertensive therapy were not fully investigated.

Recent study in East Kazakhstan show complete non-compliance of 26.9% and partial compliance of 32% to the antihypertensive drug, resulting overall in 58.9% of population failing to manage the prescribed regimen of drug intake. This study investigated the sociodemographic status and clinical characteristics of the patients such as the presence of comorbidities and complications from heart and circulatory system diseases. However, no barriers to the antihypertension treatment adherence were investigated, while according to worldwide experience the barriers largely reflect patient's level of knowledge, control and attitude to medications, making these factors critical for reducing poor adherence.

Barriers to the optimal management of the prescribed medications mostly include dosing frequency, the number of the prescribed medications, lifestyle factors and satisfaction with medications (Osterberg, 2005). Other studies emphasized the importance of the patient's perceptions about the severity, susceptibility, benefits and barriers of hypertension and its treatment, and evaluated their behaviors related to antihypertensive therapy based on the Health Belief Model (HBM) (Venkatachalam, 2015).

Poor adherence to hypertension pharmacotherapy is a major cause of mortality due to increased risk of complications. Solely in Kazakhstan, mortality rate related to high blood pressure has a leading position among deaths from other causes and it also ranks on the second place in premature mortality caused by the hypertension within European countries (Shinbolatova, 2014). Numerous researches have demonstrated the significance of antihypertensive therapy on the reduction of mortality and morbidity. However, the determinants of poor adherence to antihypertensive medications have been deeply investigated mostly in western countries (Friedman, 2010 & Esposti, 2011), while in Asian countries there is a lack of such studies.

Study of patients' health beliefs is crucial for systematic assessment of its influence on hypertension management. The Health Belief Model (HBM) is aimed to explain the

significance of behavioral constructs related to certain health problems and their interactions with each other, which can be useful in designing effective health behavior interventions. This theoretical framework states that in order to drive behavior people should have intention generated from motivation, while motivation is a result of expectation and magnitude in our case to the treatment consequences. In general, HBM construct include six components including: (1) perceived susceptibility, (2) perceived severity, (3) perceived benefits, (4) perceived barriers, (5) cues to action, and (6) self-efficacy. Few studies have investigated the behavioral determinants of poor adherence with antihypertensive treatment. According to Iranian study, patients with low perceived susceptibility, severity, benefit had poor adherence to antihypertensive treatment (Kamran, 2014). In Chinese population, perceived susceptibility, barriers, cue to action and self-efficacy were associated with hypertension management (Zhao et all, 2015).

In terms of Kazakhstan, there are almost no investigations about nonadherence with validated measures of its prevalence, and no studies on the behavioral patterns that influence the nonadherence. Therefore, the aims of our study were: (1) to identify the prevalence of nonadherence to hypertension treatment among patients with hypertension in Astana city; and (2) to examine the association of nonadherence to hypertension treatment with patient's socio-demographic characteristics, self-perceived health status, health lifestyle factors, and perceived susceptibility, severity, benefits and barriers of hypertension and its treatment using the Health Belief Model (HBM).

Thus, this study's finding will provide physicians and health care organizations with valuable information that possibly will generate useful measures to improve clinical outcomes of NCDs related to elevated blood pressure.

Methods

Study population

This pilot study had cross sectional study design and was conducted in the City Policlinic №8 in Astana. The study participants were patients enrolled to the therapeutics appointment with diagnosis of hypertension. Overall, 48 patients consented to participate and filled out the survey questionnaires. The Questionnaire consisted of five sections, including questions on socio-demographic characteristics, health lifestyle and dietary habits, Hill Bone compliance test (Culig, 2014), a scale measuring adherence to antihypertension treatment, and questions based on HBM (Onouriza, 2015). The Table 1 illustrates the eligibility criteria for this study.

Table 1. Inclusion and exclusion criteria

Inclusion criteria:
- patients diagnosed with hypertension for at least one year - the prescription of drug therapy - availability of informed consent of the patient to participate in the study
Exclusion criteria:
- age younger than 25 years and over 80 years; - the presence of acute conditions such as myocardial infarction (MI), stroke, acute renal failure (ARF) - the presence of a mental pathology that prevents a complete examination;

Study variables

The outcome variable in this study was the measure of drug adherence as assessed by Hill-Bone compliance scale. Hill-Bone compliance test a validated scale that specifically focuses on hypertensive patients. A Korean study showed a good internal consistency of this scale with Cronbach's alpha =0.80 (Song et all, 2011). The original version of the scale contains 14 questions which are divided to the three domains; and 1) medication taking; 2) appointment keeping; and 3) reduced sodium intake. For our study purposes, we have

modified this scale by removing the domain on reduced sodium intake, because the questions from this section were included in the other section of our questionnaire, aimed to assess the dietary habits of participants in more detail. In addition, we omitted 1 more question from the scale on appointment keeping, because it is not relevant to our local primary healthcare system and patients faced difficulties with understanding this question during the pre-test of the questionnaire. Thus, our translated and adopted version of the Hill-Bone scale in Russian and Kazakh languages was comprised of 10 questions, with four-point Likert type response scale, such as "None of the time = 1", "Some of the time = 2", "Most of the time = 3" and "All the time = 4". The cut-off score of the Hill-Bone compliance scale was 16, based on the estimated mean among study participants. Hence, people who scored more than 16 were considered to have poor adherence to antihypertensive drugs, while participants who scored less than or equal to 16, had good adherence to hypertension treatment.

The independent variables for this study included age, gender, marital status, ethnicity, education level, the occupation status, the average monthly income, the perceived health status, smoking status, the time starting the antihypertensive drug intake, the presence of comorbidities, the number of medicines prescribed and the frequency of drug intake, dietary habits, and HBM constructs.

Dietary habits were measured by the scale including 9 questions, cut-off score was 6. Hence, participants who scored more or equal to 6, were considered to have healthy dietary habits.

The five HBM constructs included perceived susceptibility (2 questions) and severity (2 questions) of hypertension, perceived benefits (2 questions), barriers (4 questions) and self-efficacy (3 questions) related to hypertension treatment and management. A Likert-type response scale for these questions ranged from "Totally agree" to "Totally disagree". These scales were dichotomized for the analysis, by combining "Totally agree" and "Agree" in one

category (“agree=1), and “Disagree” and “Totally disagree” – in another (“disagree=0). For all HBM components, except to self-efficacy and perceived barriers, the score of “2” was coded as “high perception”, while scores “1” or “0” were coded as “low perception” (with one reversed scored item for perceived susceptibility). For the perceived self-efficacy a score of “3” was coded as “high self-efficacy” and scores less than 3 were coded as “low self-efficacy”. For perceived barriers, a score more than or equal to 3 was coded as “high perceived barriers”, and score less than 3 was coded as “low perceived barriers”.

Ethical considerations

The study was approved by the Nazarbayev University School of Medicine Research Ethics Committee (NUSOM REC). Potential participants were recruited among patients enrolled to the therapeutics appointment. Interviewer approached consecutive participants in a queue to doctor appointment, described the study purpose and procedures, and took the oral consent. The oral consent was chosen because it mostly favors the interests of participants by collecting data anonymously and not forcing them to reveal any of the personal identifiable information.

Statistical analysis

The Stata version 12.0 was used for statistical analysis. Descriptive analysis was performed, with percentages for categorical variables and means with standard deviations (SD) for continuous variables. Chi-squared test was used bivariate analysis of the associations between independent variables and poor adherence to antihypertensive drug. Logistic regression was performed for multivariate analysis. The statistical significance level was set at p-value < 0.1.

Results

Socio-demographic characteristics

The mean age of subjects was 61 years with the range from 39 to 80 years. More than a half of the sample were female, and the majority were of Kazakh ethnicity (Table 2).

Table 2. Socio-demographic characteristics of the study subjects (n=48)

Demographics	n (%)
Age	
Mean age (SD)	61 (9.66)
>55 years old	11 (22.92)
56-70 years old	28 (58.33)
>70 years old	9 (18.75)
Gender	
Male	15(31.25)
Female	43(68.75)
Marital status	
Married	37(77.08)
Not married (widowed, divorced)	11(22.91)
Ethnicity	
Kazakh	39 (81.25)
Others	9 (18.75)
Education level	
High school	4 (8.33)
College	18(37.5)
Bachelor degree	25(52.09)
Post graduate	1 (2.08)
Income level	
>100 000 tg	18 (37.50)
≤100 000 tg	30 (62.50)

Bivariate analysis

The mean score of Hill bone compliance test was 16.44, ranging from 10 to 40. 43.75% of patients obtained scores higher than 16 and were classified as "poorly adherent" patients. The total number of patients with good adherence was 27 (56.25%).

According to the Table 3, some patient characteristics were significantly different in these two groups of patients with good and poor adherence. Patients with poor adherence to

hypertension treatment were more likely to have less duration of hypertension (p=0.088) and treatment (p=0.005); to have 2 or more drugs per day (p=0.011), and more frequent intake of medications per day (p=0.046); to have less healthy dietary habits (p=0.001), and low perceived severity (p=0.043), high perceived barriers (-=0.006), and low self-efficacy in regard to ability to comply with antihypertension medications, regular doctor appointments and recommendations on salt reduction, compared to patients with good adherence (p=0.105).

Table 3. Patients' characteristics by adherence to antihypertension medication

Variables	Good adherence (n=27) n (%)	Poor adherence (n=21) n (%)	p - value
Sex			0.724
Male	9 (33.33)	6 (28.57)	
Female	18 (66.67)	15 (71.43)	
Health status			0.741
Poor	3 (11.11)	4 (19.05)	
Satisfactory	14 (51.85)	10 (47.62)	
Good	10 (37.04)	7 (33.33)	
Hypertension diagnosis (years)			0.088*
1-5	7 (25.93)	12 (57.14)	
6-10	12 (44.44)	5 (23.81)	
11-15	8 (29.63)	4 (19.05)	
Other chronic diseases			0.959
No	23 (85.19)	18 (85.71)	
Yes	4 (14.81)	3 (14.29)	
The length of treatment			0.005*
≤5 years	8 (29.63)	16 (76.19)	
6-15 years	14 (51.85)	3 (14.29)	
≥16 years	5 (18.52)	2 (9.52)	
Quantity of medications			0.011*
1	5 (18.52)	12 (57.14)	
2	15 (55.56)	4 (19.05)	
3	7 (25.93)	5 (23.81)	
Frequency of medications			0.046*
Once a day	9 (33.33)	15 (71.43)	
Twice a day	16 (59.26)	6 (28.57)	
Three times or more	2 (7.41) 0	0	

Income (tenge)			0.499
Low	18 (66.67)	12 (57.14)	
High	9 (33.33)	9 (42.86)	
Employment			0.315
Yes	9 (33.33)	10 (47.62)	
No	18 (66.67)	11 (52.38)	
Ethnicity			0.149
Kazakh	20 (74.07)	19 (90.48)	
Other	7 (25.93)	2 (9.52)	
Education			0.125
High school	15 (44.44)	7 (33.33)	
Bachelor degree	12 (55.56)	14 (66.67)	
Age			0.317
>55	5 (18.52)	6 (28.57)	
55-70	15 (55.56)	13 (61.90)	
>70	7 (25.93)	2 (9.52)	
Diet Score			0.001*
High	4 (14.81)	13 (61.90)	
Low	23 (85.19)	8 (38.10)	
Smoking			0.439
No	25 (92.59)	18 (85.1)	
Yes	2 (7.41)	3 (14.29)	
Marital Status			0.574
Married	20 (74.07)	17 (19.05)	
Not married	7 (25.93)	4 (80.95)	
Perceived susceptibility			0.289
High	12 (44.44)	5 (23.81)	
Low	15 (55.56)	16 (76.19)	
Perceived Severity			0.043*
High	27 (100)	18 (85.71)	
Low	0	3 (14.29)	
Perceived Benefits			0.401
High	8 (29.63)	7 (33.33)	
Low	19 (70.37)	14 (66.67)	
Perceived Barriers			0.006*
High	2 (7.40)	8 (14.29)	
Low	25 (92.6)	13 (85.71)	
Self-Efficacy			0.105*
High	23 (85.18)	13 (61.9)	
Low	4 (14.82)	8 (38.1)	

Multivariate analysis

Table 4. Results of the multivariate analysis

Variables	Adjusted OR	CI 95%	P-value
Perceived Barriers			
High	ref		
Low	0.14	(0.015;1.29)	0.083
Self-efficacy			
High	ref		
Low	2.71	(0.27; 27.27)	0.395
Duration of Hypertension			
< 5 years	ref		
5-15 years	5.24	(0.75; 36.70)	0.095
>15 years	4.53	(0.38; 53.77)	0.231
Medications Quantity			
1	ref		
2	7.45	(0.79; 70.28)	0.079
3 or more	1.14	(0.12; 10.13)	0.903

Discussion

The purpose of this study was to determine the level of nonadherence to hypertension treatment in patients attending the city polyclinic, and to find out the factors associated with poor adherence using self-administered questionnaire. Less than half of the sample was nonadherent to antihypertensive treatment in our study (43.75%), which is consistent with the range that was indicated for Asian countries (Abegaz, 2017), but is higher, compared to the prevalence of complete non-adherence as reported by the study that has been conducted in East Kazakhstan (26.9%) (Mussina and Tuleutayeva, 2017). The difference in the non-adherence level with Kazakhstani study could be explained by the differences in methods used for assessing the adherence rates. In our study we used the scale that has been validated in several countries such as Korea, Persia, Malaya and etc., while the study by Mussina and Tuleutayeva (2017) was based on self-reported single-item questions, not tested for validity

and reliability properties. On the other hand, there could be other factors influencing to the differences observed in adherence level, such as differences in the population characteristics, quality of medical services, population awareness and perceptions about hypertension and its treatment, health behaviors and social support (Lee, 2013).

A plenty of studies were carried out to determine the factors associated with poor adherence to antihypertensive medications and treatment. Majority of the studies have reported that the age, sex, the presence of comorbidities with hypertension, the number of antihypertensive drugs and socioeconomic status were mostly associated with antihypertensive mediations adherence (Abegaz, 2017; Lee, 2013). Similar results were reported by the East Kazakhstani study where the age, sex and comorbidities or disability were associated with poor adherence to hypertension treatment (Mussina, 2017). In our study, we did not find statistically significant association of the poor adherence with any of the socio-demographic factors. However, the association between sociodemographic factors and poor adherence is complex, and may differ due to the population type and cultural variations. Moreover, given the small sample size of our pilot study these results need to be further explored and refined.

However, other factors in our study, including the disease duration, the length of antihypertensive treatment, the quantity of medications prescribed, and the frequency of the medications' intake were compatible with findings from previous studies conducted in the Asian and Western countries (Lee, 2013).

In addition, interesting results were found in our study regarding dietary habits of the participants that illustrated strong association with poor adherence to antihypertensive treatment. Particularly, the more healthy dietary habits were reported to be practiced by patient, the higher was his adherence to antihypertensive treatment as well. However, the

association of poor adherence to antihypertensive treatment with dietary habits was not extensively investigated by previous researches, mostly focusing on the salt intake only.

Health behavior plays crucial role in evaluating the reasons of poor adherence to antihypertensive agents. Results of this study demonstrated that most of HBM components had significant associations with poor adherence to antihypertension treatment. Particular, the strongest predictor of poor adherence were high perceived barriers towards the treatment, making the results consistent with the majority of previous studies in this field (Kamran, 2014). Other two constructs that showed relationship with poor adherence were low perceived severity of the disease and low self-efficacy to comply with hypertension treatment. In contrast to perceived barriers, the association of poor adherence with perceived severity of the hypertension had a borderline significance in our study and has rarely been reported by previous studies (Joho, 2012). The perceived high self-efficacy, in other words, positive beliefs regarding the future possibilities in treatment, was found to contribute for the good adherence.

Strengths and limitations

This is a first study that measures adherence level to hypertension treatment using a validated scale on medications adherence among Kazakhstani patients. In addition, the assessment of adherence to hypertension treatment using Health Belief Model constructs have not been previously investigated in studies from Kazakhstan and most Asian countries. Finally, the dietary habits other than reduction of salt intake recommended to hypertension patients were not explored in other studies from Asian countries, thus making it unique for our study. The findings of this study can be used for the improvement of existing policies by focusing on identified issues. The effective strategies may possibly include the development of educational programs based on HBM model findings.

The study had several limitations as well. First of all, the small sample size of this pilot study could influence the power of the study to detect statistically significant results, and in further studies it is recommended to increase it to valuable numbers. Second, the research was carried out in only one polyclinic, making the results not completely generalizable for all other polyclinics in the city. The geographical area of study probably should be extended including both urban and rural regions. Thirds, because of the self-report survey the participants could have recall bias during the completion of questionnaire.

Conclusion

In conclusion, some factors associated with adherence to hypertension treatment using the Hill-Bone compliance test were unique for Kazakhstan and other Asian countries. In addition, since there are few studies on the determinants of poor adherence among Kazakhstani population, it is important to investigate Hill-Bone compliance test as a tool of adherence measurement for the applicability and psychometric properties within country. By considering the factors associated with antihypertensive drug adherence the further evaluation of public health programs can be launched using HBM model.

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Appendix 1

Questionnaires in English, Russian and Kazakh languages

Questionnaire

1. **How do you assess your health status?**
   - ☐ excellent
   - ☐ good
   - ☐ not good and not bad
   - ☐ poor
   - ☐ very poor

2. **When you were diagnosed with hypertension?**
   - ☐ less than 1 year
   - ☐ 1-5 years ago
   - ☐ 6-10 years ago
   - ☐ 11-15 years ago
   - ☐ more than 16 years

3. **Do you have any other comorbidity (chronic diseases other than hypertension)?**
   - ☐ Yes
   - ☐ No
   - ☐ If you have any, please indicate it _____

     _____

4. **How long have you been receiving antihypertensive medications?**
   - ☐ less than 1 year
   - ☐ 1-5 years ago
   - ☐ 6-10 years ago
   - ☐ 11-15 years ago
   - ☐ more than 16 years

5. **How many antihypertensive medications do you take?**
   - ☐ 1
   - ☐ 2
   - ☐ 3 and more

6. **How often do you take antihypertensive medications?**
   - ☐ Once a day
   - ☐ Twice a day
   - ☐ Three times or more

Instructions: For each of the following questions regarding your medication, please choose one response on a scale from "None of the time" to "All the time".

7-1. How often do you forget to take your high blood pressure (HBP) medicine?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-2. How often do you decide not to take your HBP medicine?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-3. How often do you miss scheduled appointments?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-4. How often do you leave the dispensary without obtaining your prescribed pills? (due to long line, closure of the clinic, forgot)

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-5. How often do you run out of HBP pills?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-6. How often do you skip your HBP medicine 1–3 days before you go to the clinic?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-7. How often do you miss taking your HBP pills when you feel better?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-8. How often do you miss taking your HBP pills when you feel sick?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time ☐

7-9. How often do you take someone else's HBP pills?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

7-10. How often do you miss taking your HBP pills when you care less?

☐ None of the time ☐ Some of the time ☐ Most of the time ☐ All the time

Instructions: Indicate your agreement or disagreement with each of the following statements regarding your opinion about hypertension, on a scale from "Totally Agree" to "Totally Disagree."

8-1. At my age I have no risk that I can get sick due to hypertension.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-2. I probably can get very sick due to hypertension.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-3. I know that hypertension can lead to the stroke.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-4. I know that hypertension can lead to the ischemic heart disease and other serious complications.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-5. When I take my antihypertensive medications regularly, I feel good, don't have headaches; I don't feel thirsty or heavy headedness.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-6. When I have high blood pressure, I wonder that something bad will happen to me at a time when I'll be alone. However, when I take antihypertensive drugs, I feel better.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-7. I should take drugs till the end of life, making myself worried all the time. It is difficult for me to follow treatment regimen.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-8. When I feel better, I think there is no need to continue medication intake.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-9. Sometimes there is not enough money to purchase antihypertensive medications, so I cannot take medications regularly.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-10. I think that antihypertensive medications have a number of side effects that outweigh their benefits in treating hypertension.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-11. I am confident that I can take antihypertensive medications all the time following the prescribed regimen.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-12. I'm sure I can follow a diet low in salt, fat and cholesterol all the time.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

8-13. I'm sure that I can visit physician regularly to monitor my blood pressure all the time.

☐ Totally agree ☐ Agree ☐ Disagree ☐ Totally disagree

9. **What dietary habits do you follow?**

#	**Indicate/mark your agreement or disagreement with each of the following statements (yes = 1, no = 2)**	**Yes**	**No**
1	I think that I use low fat meal	1	2
2	I try to eat more fruits and vegetables	1	2
3	I prefer to add less salt in my food	1	2
4	A high-fiber diet is being a main part of my diet continuously	1	2
5	I try regularly to decrease animal fats from my meal	1	2
6	I try regularly to eat Omega-3 fatty acids such as fish oil weekly	1	2
7	I like to replace whole milk with low-fat milk to reduce total fat intake.	1	2
8	I think that I keep a healthy diet	1	2
9	I think that healthy diet alone is not effective to control hypertension	1	2

10. **Do you smoke?**
    - □ Yes, I smoke
    - □ No, I have quit smoking (move to the 13th question)
    - □ No, I have never smoke (move to the 13th question)

11. **How many cigarettes *per day* do you smoke?**
    - □ Less than 10 cigarettes
    - □ 11-20 cigarettes
    - □ More than 20 cigarettes

12. **How long have you been smoking (years)** (please write it up) _____

13. **What is your education level?**
    - □ High-school
    - □ College
    - □ High level
    - □ Post-graduate

14. **What is your employment status?**
    - □ Full-time work
    - □ Part-time work
    - □ Temporary work
    - □ Retired
    - □ Unemployed
    - □ Housewife
    - □ Other (please specify) _____

15. **What is your average personal income per month?**
- ☐ Less than or equal to 50 000 tenge
- □ 50 001 - 100000
- □ 100 001 - 150,000
- □ 150 001 – 200 000
- □ more than 200 000 tenge

16. **Your marital status**?
- ☐ single
- □ married
- □ divorced or separated
- □ widowed

17. **Please specify your ethnicity:**
- □ Kazakh
- □ Russian
- □ Ukrainian
- □ German
- □ Other _____

18. **Indicate your gender:**
- □ male
- □ female

19**. How old are you?**

_____

Вопросник

1. **Как Вы оцениваете свое здоровье?**
   - □ отличное
   - □ хорошее
   - □ удовлетворительное
   - □ плохое
   - □ очень плохое

2. **Когда Вам поставили диагноз гипертонической болезни?**
   - □ Менее 1 года назад
   - □ 1-5 лет назад
   - □ 6-10 лет назад
   - □ 11-15 лет назад
   - □ 16 лет назад или раньше

3. **У Вас есть сопутствующие заболевания (любые другие хронические заболевания, кроме гипертонии)?**
   - □ Да
   - □ Нет
   - □ Если да, то какие (укажите) _____

     _____

4. **Когда долго Вы уже принимаете лекарства от гипертонии?**
   - □ Меньше 1 года
   - □ В течение 1-5 лет
   - □ В течение 6-10 лет
   - □ В течение 11-15 лет
   - □ В течение 16 или более лет

5. **Сколько лекарств от гипертонии Вы принимаете?**
   - □ 1
   - □ 2
   - □ 3 или больше

6. **Как часто Вы принимаете свои противогипертензионные лекарства?**
   - □ 1 раз в день
   - □ 2 раза в день
   - □ 3 раза в день или чаще

Инструкции: На каждый из нижеследующих вопросов, касающихся Вашего приема лекарств, пожалуйста, выберите один ответ по шкале от «Никогда» до «Всегда».

7-1. Как часто вы забываете принимать свои противогипертензионные лекарства?

□ Никогда □ Редко □ Часто □ Всегда

7-2. Как часто вы принимаете решение НЕ пить свои лекарства?

□ Никогда □ Редко □ Часто □ Всегда

7-3. Как часто вы пропускаете назначенный прием?

□ Никогда □ Редко □ Часто □ Всегда

7-4. Как часто вы не приобретаете рецепт на лекарство? (возможно из-за долгих очередей, или просто забываете)

□ Никогда □ Редко □ Часто □ Всегда

7-5. Как часто у вас заканчиваются таблетки от гипертонии?

□ Никогда □ Редко □ Часто □ Всегда

7-6. Как часто вы перестаете принимать лекарства за несколько дней до прихода в поликлинику?

□ Никогда □ Редко □ Часто □ Всегда

7-7. Как часто вы пропускаете прием лекарств из-за хорошего самочувствия?

□ Никогда □ Редко □ Часто □ Всегда

7-8. Как часто вы пропускаете прием лекарств из-за плохого самочувствия?

□ Никогда □ Редко □ Часто □ Всегда

7-9. Как часто вы принимаете чужие противогипертензионные лекарства?

□ Никогда □ Редко □ Часто □ Всегда

7-10. Как часто вы пропускаете прием лекарств по небрежности?

□ Никогда □ Редко □ Часто □ Всегда

Инструкции: Отметьте Ваше согласие или несогласие с каждым из нижеследующих утверждений, касающихся Вашего мнения о гипертонии, по шкале от «Полностью согласен» до «Совершенно не согласен».

8-1. В моем возрасте, я возможно не рискую сильно заболеть вследствие гипертонии.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-2. Возможно, что я могу сильно заболеть вследствие гипертонии.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-3. Я знаю, что гипертония может привести к инсульту.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-4. Я знаю, что гипертония может привести к ишемической болезни сердца или другим серьезным осложнениям.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-5. Когда я регулярно принимаю лекарства, я чувствую себя хорошо, без головных болей; я не чувствую жажды или тяжести в голове.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-6. Когда у меня высокое давление, я беспокоюсь что со мной случится что-то плохое, в то время, когда я буду один. Но когда я пью лекарства, я чувствую себя спокойно.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-7. Я должен принимать лекарства от гипертонии до конца жизни, заставляя себя беспокоиться. Мне трудно следовать режиму лечения.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-8. Когда мне становится лучше, я думаю, что нет необходимости продолжать прием лекарств.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-9. Иногда не хватает денег на покупку лекарств от гипертонии, из-за этого я НЕ могу регулярно принимать лекарства.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-10. Я думаю, что лекарства имеют ряд побочных эффектов, которые перевешивают их преимущества в лечении гипертонии.

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-11. Я уверен, что смогу принимать лекарства от гипертонии, следуя назначенному режиму все время

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-12. Я уверен, что смогу придерживаться диеты с низким содержанием соли, жиров и холестерина все время

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

8-13. Я уверен, что смогу регулярно посещать врача для мониторинга моего давления все время

□ Полностью согласен □ Согласен □ Не согласен □ Совершенно не согласен

9. Какие диетические привычки Вы соблюдаете?

	Отметьте Ваше согласие или несогласие с каждым из нижеперечисленных утверждений (да=1, нет=2)	**да**	**нет**
9-1	Я думаю я употребляю пищу с низким содержанием жира	1	2
9-2	Я стараюсь есть больше фруктов и овощей	1	2
9-3	Я предпочитаю добавлять мало соли в мою пищу	1	2
9-4	Пища с высоким содержанием клетчатки является основной частью моей диеты в течение продолжительного времени	1	2
9-5	Я регулярно стараюсь уменьшить количество животного жира в моей диете	1	2
9-6	Я стараюсь регулярно употреблять Омега-3 жиры в виде рыбьего жира каждую неделю.	1	2
9-7	Я предпочитаю заменять домашнее молоко на молоко с низким содержанием жира.	1	2
9-8	Я думаю у меня здоровое питание	1	2
9-9	Я думаю, что не только здоровое питание способствует контролю высокого давления	1	2

10. Курите ли вы?

□ да, я курю
□ нет, я бросил(а) курить *(перейдите к вопросу 13)*
□ нет, я никогда не курил(а) *(перейдите к вопросу 13)*

11. Сколько сигарет в день Вы курите?

- □ 10 или меньше сигарет
- □ 11-20 сигарет
- □ Более 20 сигарет

12. Сколько лет Вы уже курите? (впишите)_____

13. Ваше образование?

- □ Среднее
- □ Средне-специальное
- □ Высшее
- □ Последипломное

14. Ваш статус занятости?

- □ Полный рабочий день
- □ Неполный рабочий день
- □ Временная работа
- □ Пенсионер
- □ Безработный
- □ Домохозяйка
- □ Другое (укажите)_____

15. Ваш средний доход за месяц?

- □ меньше чем 50,000 тенге
- □ 50,000 - 99,000
- □ 100,000 - 149,000
- □ 150, 000 – 200, 000
- □ больше чем 200,000

16. Семейное положение?

- □ холост/не замужем
- □ женат/замужем
- □ разведен (-а)
- □ вдовец (-а)

17. Укажите Вашу национальность:

- □ Казах (-шка)
- □ Руский (-ая)
- □ Украинец (-ка)
- □ Немец (-ка)
- □ Другая (впишите)_____

18. Укажите Ваш пол:

- □ мужской
- □ женский

19. Ваш возраст на данный момент?

_____

Сауалнама

/___ /___ /2018 /__ __ __

1. Өзіңіздің денсаулығыңызды қалай бағалайсыз?

□ өте жақсы
□ жақсы
□ қанағаттандырарлық
□ нашар
□ өте нашар

2. Сізге гипертония диагнозін қашан қойды?

□ 1 жыл бұрын
□ 1-5 жыл арасында
□ 6-10 жыл бұрын
□ 11-15 жыл бұрын
□ 16 жыл бұрын, не одан да бұрын

3. Сізде жоғары қан қысымнан басқа қосалқы ауруларыңыз бар ма (созылмалы аурулар)?

□ Бар
□ Жоқ
□ Егер бар болса, қандай созылмалы ауру (аңықтаңыз)_____
_____

4. Қанша уақыт бойы гипертонияға қарсы дәрілерді қабылдап жүрсіз?

□ 1 жылдан кем
□ 1-5 жал аралығанда
□ 6-10 жал аралығанда
□ 11-15 жал аралығанда
□ 16 жылдан артық

5. Гипертонияға қарсы қанша дәрілерді қабылдап жүрсіз?

□ 1
□ 2
□ 3 және одан көп

6. Гипертонияға қарсы дәрілерді қандай жиілікпен қабылдап жүрсіз?

□ күніне 1 мезгіл
□ күніне 2 мезгіл
□ күніне 3 мезгіл және одан көп

Нұсқаулық: Дәрілерді қабылдауыңызға байланысты төменде келтірілген сұрақтарға жауапты "Ешқашан"-нан "Әрдайым"-ға дейінгі шкаладан таңдаңыз.

7-1. Қаншалықты жиі сіз гипертонияға қарсы дәрілеріңізді қабылдауға ұмытып кетесіңз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-2. Қаншалықты жиі сіз дәрілеріңізді ішпеймін деп шешім қабылдайсыз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-3. Қаншалықты жиі сіз дәрігер қабылдауын жіберіп тұрасыз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-4. Қаншалықты жиі сіз дәрілер рецептін алмайсыз? (мүмкін, үлкен кезектер үшін, не ұмытып кеткендіктен)

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-5. Қаншалықты жиі сіз дәрілеріңіздің бітіп қалған уақыттары болды?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-6 Қаншалықты жиі сіз емханаға келердің алдында дәрілеріңізді ішуді бірнеше күн бұрын тоқтатасыз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-7. Қаншалықты жиі сіз өзіңізді жақсы сезінгендіктен дәрілеріңізді ішуді қоясыз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-8. Қаншалықты жиі сіз өзіңізді нашар сезінгендіктен дәрілеріңізді ішуді қоясыз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-9. Қаншалықты жиі Сіз басқа біреудің гипертонияға қарсы дәрісін ішесіз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

7-10. Қаншалықты жиі өзіңіздің немқұрайлығыңыздықтан сіз дәрілеріңізді қабылдамайсыз?

□ Ешқашан □ Сирек □ Жиі □ Әрдайым

Нұсқаулық: Төменде келтірілген гипертония туралы пайымдауларға өзіңіздің пікіріңізді "Толығымен келісемін"-нен " Мүлдем келіспеймін" деген шкаласымен жауабыңызды көрсетіңіз.

8-1. Менің жасымда гипертонияның салдарынан аурып қалу қауіпі жоқ деп есептеймін.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-2. Мен гипертонияның салдарынан ауырып қалуым мүмкін деп ойлаймын.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-3. Мен гипертонияның инсультқа алып келетінін білемін.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-4 Мен гипертонияның жүректің ишемиялық ауруларына және басқа да асқынуларға алып келетінін білемін.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-5. Мен дәрілерді ұдайы ішкенде, өзімді жақсы сезінемін, шөл сезімі болмайды және есім анық болады.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-6. Дәріліерді ішпегендіктен өзім жалғыз қалғанда бір нәрсе болып қалама деп қорқамын. Алайда, дәрілерді ішкен уақытта өзімді байсалды сезінемін.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-7. Маған гипертонияға қарсы дәрілерді өмір бойы қабылдау қажет. Осы рәсімді сақтау маған қиындық туғызады.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-8. Жағдайым жақсарған кезде дәрілерді қабылдау қажеттілігі жоқ деп есептеймін.

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-9. Кейбірде гипертонияға қарсы дәрілерді алуға ақшам жетпейді, сол себептен дәрілерді қабылдай алмаймын

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-10. Гипертонияға қарсы дәрілердің жағымсыз әсерлері оның емдеу артықшылықтарынан асып түседі деп есептеймін

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-11. Мен гипертонияға қарсы дәрілерді белгіленген рәсімге сай қабылдай алатынына сенімдімін

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-12. Мен тағамда тұз, май және холестерин мөлшерлері төмен диетаны ұстанатынына сенімдімін

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

8-13. Мен дәрігерлерді қан қысымын ұдайы мониторингтеу үшін әрдайым қабылдауын келіп тұратынына сенімдімін

□ Толығымен келісемін □ Келісемін □ Келіспеймін □ Мүлдем келіспеймін

9. Қандай диеталық дағдыларды ұстанасыз?

#	**Төменде келтірілген пайымдаулармен келісетініңізді, не келіспейтініңізді таңдаңыз (иә=1, жоқ=2)**	**иә**	**жоқ**
9-1	Мен майлылығы аз тағамдарды қолданамын деп ойлаймын	1	2
9-2	Мен жеміс пен көкөністерді көбірек жеуге тырысамын	1	2
9-3	Мен тағамға тұзды аз мөлшерда салғанды қалаймын	1	2
9-4	Жасұныққа бай тағам менің рәсімімнің негізгі бөлігі болып саналады, яғни мен көбінесе жарма, көкөністер мен жемістерді қолданамын	1	2
9-5	Әрдайым тағамның құрамында жануар майын азайтуға тырысамын	1	2
9-6	Мен үнемі тамақта Омега -3 майларының болуын қадағалаймын, басқаша айтқанда балық өнімдерін апталық рәсімге косуға тырысамын	1	2
9-7	Үй сүтінен көрі майлылығы аз сүтті ішуге тырысамын	1	2
9-8	Мен пайдалы тағам жеймін деп ойлаймын	1	2
9-9	Тек қана пайдалы тағам жақсы денсаулықтың себепкері деп ойламаймын	1	2

10. Темекі шегесіз бе?

□ Иә, темекі шегемін
□ Жоқ, темекі шегуді тастадым (бірден 13 сұраққа көшіңіз)
□ Жоқ, темекі шекпеймін (бірден 13 сұраққа көшіңіз)

11. Күніне қанша темекі шегесіз?

□ 10 немесе одан кем
□ 11-20 темекі
□ 20 темекіден көп

12. Темекі шекеніңізге қанша жыл болды?(аңықтаңыз)_________

13. Сіздің білім деңгейіңіз:

□ Орта мектебі
□ Орташа арнаулы (техникум, колледж, училище)
□ Жоғары
□ Дипломнан кейінгі

14. Профессиональдік мәртебеңіз:

□ Толық күндік жұмыс
□ Жарты күндік жұмыс
□ Уақытша жұмыскер
□ Зейнеткер

□ Жұмыссыз
□ Үй шаруасындағы әйел
□ Басқасы_____

15. Орташа айлығыңызды нұсқаңыз:
□ 50 000 теңгеден кем
□ 50 000 - 99 000
□ 100 000 - 149 000
□ 150 000 – 200 000
□ 200 000 жоғары

16. Отбасылық жағдайыңызды көрсетіңіз:
□ Бойдақ
□ Үйленген/тұрмыста
□ Ажырасқан
□ Тұл/жесір

17. Өзіңіздің ұлтыңызды таңдаңыз
□ Қазақ
□ Орыс
□ Украин
□ Неміс
□ Басқа _____

18. Жынысыңызды аңықтаңыз
□ ер адам
□ әйел адам

19. Қазіргі уақыттағы жасыңызды жазыңыз

_____

Appendix 2

Informed Consent Forms

NAZARBAYEV UNIVERSITY

Verbal Informed Consent

The topic: Determinants of poor adherence to antihypertensive treatment among patients in Astana city

This pilot study is aimed to assess the level of adherence to antihypertensive medications and determine possible barriers to nonadherence among patients in Astana city.

The participation in study will take approximately 20 minutes. The questionnaire mostly comprise of questions with several options, where you can choose only one answer. It has five sections: questions on sociodemographic characteristics, lifestyles, antihypertensive drug adherence, and perceptions of severity and susceptibility to hypertension, perception of barriers and benefits of hypertension treatment.

Your participation is voluntary and you can withdraw from the interview at any stage that will have no consequences on you.

All information will be anonymous. You will not be asked to sign or to put your name. Every questionnaire will have unique number or code for further evaluation. Following the transfer of answers to database, the hard copies of your questionnaires will be destroyed. The database will be saved in the computer of PI under the password.

There are no potential risks involved in this study and you always can stop participation at any stage of interview without any consequences. There are no direct benefits for you; however your participation in this study will help to develop programs on improvement of the adherence to antihypertension treatment in patients.

The study is conducted by Botagoz Salkhayeva, Master of Public Health student at the School of Medicine of Nazarbayev University.
Contact information: E-mail: bsalkhaeva@nu.edu.kz, Tel: 87758198075

The project is controlled by Dr. Raushan Alibekova, raushan.alibekova@nu.edu.kz

Do you agree to participate in this study knowing that you can withdraw at any point with no consequences to you?

[If YES, begin the interview.]

[If NO, thank the participant for his/her time.]

Информированное согласие

Название темы: Факторы связанные с низкой приверженностью к антигипертензивному лечению среди пациентов города Астаны

Это пилотное исследование нацелено на изучение уровня приверженности пациентов к приему антигипертензивных препаратов и выявление факторов, связанных с несоблюдением режима приема лекарственных средств.

Участие в данном опросе займет приблизительно 20 минут. Вопросник в основном состоит из вопросов с множественным вариантом ответов, из которых нужно будет выбрать один подходящий для вас ответ. Вопросник состоит из пяти разделов: вопросы о социально-демографических характеристиках, образе жизни и диетических привычках, приверженности к антигипертензивной терапии, о восприятии подверженности к гипертонии и ее серьезности, о выгодах и препятствиях касательно лечения гипертонии.

Ваше участие является добровольным, и Вы имеете право прекратить участие в любой момент, что не повлечет за собой никаких последствий.
Вся информация будет анонимной. Вас не попросят написать свое имя или подписать что-либо. Каждому вопроснику будет присвоен уникальный идентификационный номер для дальнейшего анализа. После того, как вопросники будут переведены в базу данных, письменные анкеты будут уничтожены. База данных будет хранится на компьютере исследователя, который защищен паролем.

Потенциальных рисков от участия в данном исследовании нет. Прямой выгоды для вас также не существует, однако, Ваше участие в данном исследовании поможет в разработке программ по улучшению приверженности к антигипертензивной терапии среди пациентов.

Ответственным за этот проект является Ботагоз Салхаева, студентка магистратуры по общественному здравоохранению Школы Медицины Назарбаев Университета. Контактные данные: E-mail” bsalkhaeva@nu.edu.kz, тел: 87758198075.
Научный руководитель проекта: Др. Раушан Алибекова raushan.alibekova@nu.edu.kz

Вы согласны участвовать в этом исследовании, будучи информированным о том, что вы можете выйти из исследования в любой момент без каких-либо последствий для вас?

[Если Да, то начните опрос]

[Если НЕТ, поблагодарите участника за его время]

NAZARBAYEV UNIVERSITY

Ауызша ақпараттандырылған келісім

Тақырыбы: Астана қаласының тұрғындары арасында гипертонияға қарсы ем қабылдау бейілділігінің бөгеттері

Бұл жоба жоғары қан қысымы бар науқастардың дәріге деген бейілділігін, яғни дәріні нұсқаулықпен жән тура уақытымен қабылдау деңгейін және де оны қабылдамауға алып келетін бөгеттерді зерттейді.

Сауалнаманы толтыруға шамамен 20 минут кетеді. Сұрақтар көбінесе бірнеше жауаптармен келеді, ішінен біреуін таңдау керек. Сауалнама бес тараптан турады: әлеуметтік және демографиялық сұрақтар, өмір салтыңыз және диета жайлы сұрақтар, дәрілерге қаншалықты бейімділігіңізді, және гипертонияға бейімділік пен оның қауіптілігі қабылдануы туралы, сондай-ақ гипертонияны емдеудің пайдасы мен соның жолындағы кедергілер туралы сұрақтар.

Бұл сауалнамаға қатысу ерікті болып табылады, және кез-келген уақытта сауалнамаға қатысуды тоқтатуға құқығыңыз бар, осы жағдайда ешқандай салдар болмайды.

Барлық ақпарат анонимді турде жиналады. Сізден атыңызды жазуыңыз немесе құжатта қолыңыз сұралмайды. Барлық сауалнама қағаздарына жеке реттік сан беріліп, компьютерге еңгізіледі. Еңгізіліп біткен соң, қағаз сауалнамалары жойылады. Компьютерге көшкен файл зерттеушінің компьютерінде сақталады. Компьютерде құпия сөз тұрады.

Бұл жоба ешқандай тәуекел туғызбайды. Сондай-ақ сіз үшін тікелей жеке пайда қарастырылмаған, алайда сіздің осы зерттеуге қатысуыңыз емделушілер арасындағы гипертонияға қарсы емге деген бейілділікті жақсарту бойынша бағдарламаларды әзірлеуге көмегін тизіседі.

Жобаға жауапты тұлға: Ботагөз Салхаева, Назарбаев Университеті Медицина мектебінің қоғамдық денсаулық сақтау магистратурасының студенті. Байланыс ақпараты: E-mail: bsalkhaeva@nu.edu.kz; телефоны: 87758198075.

Жоба жетекшісі: Др. Раушан Әлібекова, raushan.alibekova@nu.edu.kz

Сіз қандай да бір салдарсыз зерттеуден кез келген уақытта шығып кете алатыныңыз туралы мағлұмат ала тұра осы зерттеуге қатысуға келісіміңізді бересіз бе?

[Егер ИӘ деп жауап берсе, сауалнаманы бастаңыз]

[Егер ЖОҚ деп жауап берсе, қатысушыға уақытын бөлгені үшін алғыс айтыңыз]