

Original Research

Perspectives for the research of herbal preparations used for the treatment of cardiovascular diseases in pharmaceutical practice

Sayora Jabarkulova , Clara Shertaeva , Gulnara Utegenova , Galiya Umurzakhova , Malik Sapakbai, Akmaral Zhanbyrbayeva , Dinar Murzanova , Maria Bubeshova , Aidana Orynbayeva , Botagoz Toishiyeva 

Received (first version): 11-Mar-2026

Accepted: 28 May 2026

Published online: 29-Jul-2026

Abstract

The purpose of the study: To study the questions of pharmacists and pharmacy visitors regarding the use of medicinal and herbal preparations for the treatment of cardiovascular diseases in Kazakhstan, the Republic of Belarus and the Russian Federation.

Materials and methods: The survey method was used. In Kazakhstan, pharmacists working in pharmacies were surveyed, exclusively first-line pharmacists (75.3%), as well as pharmacy managers and their deputies (16%). The respondents had professional experience from 3 to 25 years. The survey covered the issues of demand, efficiency and preferences in the use of synthetic and herbal preparations. In the Republic of Belarus, the survey was conducted among pharmaceutical specialists, mainly pharmacists-prescriptionists (63.3%) and managers/deputies who are heads of pharmacies (20%) with work experience from 13 to 25 years. The question concerned the range of products used, the level of professional awareness and customer preferences. In the Russian Federation, the study involved visitors to pharmacies in Pyatigorsk, women exclusively (66.7%) aged 60–81 years and with a low income. Below are questions about the choice of drugs, including herbal and synthetic drugs, as well as factors influencing the choice of therapy.

Results: The obtained data are processed using statistical methods. The main trends in the use of drugs for the treatment of cardiovascular diseases, differences in professional approaches and preferences among pharmacists in different countries, as well as factors determining the choice of drugs by patients, are identified.

Conclusions: The study will help to establish regional characteristics and the use of pharmacotherapy for cardiovascular diseases, as well as take into account the innovativeness of the opinions of both specialists and consumers when changing the pharmacy assortment and training programs for pharmacists.

Sayora Jabarkulova. Senior Lecturer of the Department of Organization and Management of Pharmaceutical Business, South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. Sayara_f@mail.ru

Clara Shertaeva. Doctor of Pharmaceutical Sciences, Professor, Head of the Department of Organization and Management of Pharmaceutical Business, South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. klara_shertaeva@mail.ru

Gulnara Utegenova. PhD, Associate Professor of the Department of Organization and Management of Pharmaceutical Business, South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. gulnara64.64@mail.ru

Galiya Umurzakhova*. Corresponding author Associate Professor of the Department of Organization and Management of Pharmaceutical Business, South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. galiaum@mail.ru

Malik Sapakbai. PhD, Associate Professor of the Department of Organization and Management of Pharmaceutical Business, South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. malikmed@mail.ru

Akmaral Zhanbyrbayeva. PhD Student at South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. akmaralzhanbyrbaeva945@gmail.com

Dinar Murzanova. Head of the Department of Topographic Anatomy and Histology Associate Professor South

Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. dina.murzanova@gmail.com

Maria Bubeshova. PhD student at South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. idkazmaria@gmail.com

Aidana Orynbayeva. Senior lecturer of the Department of Organization and Management of Pharmaceutical Business, South Kazakhstan Medical Academy, Shymkent, Republic of Kazakhstan. aidana_orynbayeva@mail.ru

Botagoz Toishiyeva. Lecturer in the Department of Pharmaceutical Sciences at the Medical College affiliated with South Kazakhstan Medical Academy. botagoztoishiyevna@gmail.com

INTRODUCTION

The health of each person, as a component of the entire population's health, becomes a factor determining not only the full value of their existence but also the potential of their capabilities. The level of health of the people, in turn, determines the measure of socio-economic, cultural and industrial development of the country. The population's health is an integral indicator of the social orientation of society, social guarantees characterizing the degree of responsibility of the state to its citizens. In the Republic of Kazakhstan (RK), which experienced optimization in the social sphere during its formation, including in the healthcare system.

Cardiovascular diseases (CVD) have now become the main cause of death in economically developed countries and are the



leading cause of morbidity, disability and mortality in adults. It is well known that hypertension is the leading risk factor for the development of strokes, myocardial infarctions, vascular and organ damage, vision loss and many other dangerous diseases. Cardiovascular diseases (CVD) remain the most serious public health problem in many countries of the world, remaining the leading cause of death worldwide: more people die from them every year than from any other disease^{1,2}. CVD ranks second among the main diseases of the residents of the Republic of Kazakhstan. The incidence of CVD is growing with an average annual growth rate of 5.3% during the period 2017-2020. In 2016, the incidence of the population in this segment (with a newly established diagnosis) in the Republic of Belarus amounted to 268,644 registered cases^{2,3,4}. Thus, the issues of treatment and prevention of this group of diseases are relevant. More than 80% of CVD mortality cases in the world occur in low and middle-income countries. People with low and middle incomes are more susceptible to risk factors for CVD and are less covered by preventive measures to combat them. In 2011, 17.3 million people died from CVD, which accounted for 30% of all deaths in the world. Of these, 7.3 million died from ischemic heart disease and 6.2 million from stroke. 7.5 million annual deaths, or 13% of all deaths, are primarily attributable to high blood pressure. This includes 51% of stroke deaths and 45% of ischemic heart disease deaths³.

By 2030, about 23.3 million people will die from CVD, primarily from heart disease and stroke, which are projected to remain the single leading causes of death. 9.4 million annual deaths, or 16.5% of all deaths, may be attributable to high blood pressure⁴. This includes 51% of stroke deaths and 45% of ischemic heart disease deaths. Today, cardiovascular diseases consistently occupy the first place among the causes of death in Kazakhstan (50.3%). During the implementation of the State Program for Reform and Development of Health Care for 2005-2010, certain results were achieved in the field of treatment of cardiovascular diseases. Minimum standards for the guaranteed volume of free cardiological and cardiac surgical care in the Republic of Kazakhstan for 2007-2009 were established¹. Within the framework of the State Program for Development of Health Care of the Republic of Kazakhstan "Salamatty Kazakhstan", one of the priority tasks is significant progress in improving the personal and public health of Kazakhstanis. Thus, the study of the state of drug care for these categories of patients is relevant². The task of improving the drug supply to patients with socially significant diseases (one of the main problems of domestic healthcare) cannot be solved without real support from the state and significant investments in the pharmaceutical industry.

In accordance with Article 247 of the Code of the Republic of Kazakhstan "On Public Health and the Healthcare System", support for domestic production is one of the main areas of activity, and State Programs outline ways to solve the problem of import substitution in the domestic pharmaceutical industry. In this regard, providing necessary

cardiovascular drugs is a priority task for the state¹. Due to their broad acceptance across all age groups, herbal preparations are recognized as a vital element of international trade and the global economy⁵. In 2005, the global market for plant-based medicines was valued at approximately \$18 billion. By 2019, this figure had risen to \$83 billion, and according to Globe Newswire, it is anticipated to reach \$550 billion by 2030^{6,7}. Unsurprisingly, China and India are the leading exporters in the global herbal trade. China is estimated to export over 120,000 tonnes of herbal medicines annually, while India exports around 32,000 tonnes. In contrast, Europe is the largest importer of medicinal plants, importing nearly 400,000 tonnes each year from various countries to satisfy domestic demand for herbal products^{8,9}. A medicinal plant refers to any plant utilized in the production of drugs or their precursors, aimed at treating, preventing, or altering pathological and physiological conditions.

Herbal preparations, also known as herbal medicines, are therapeutic products derived entirely from plant sources, either as processed pharmaceutical formulations or in their raw, natural form¹⁰⁻¹⁵. Medicinal plants serve as critical resources for the development of pharmaceutical products and other health-related goods across the globe; however, they are disappearing at an alarming rate^{16,17}. Among the key economic benefits of biodiversity is the commercial value of medicinal plants¹⁸. Recognized as the most valuable non-timber forest products, herbal remedies play a crucial role in ensuring access to affordable healthcare, supporting livelihoods, and contributing to economic stability^{19,20}. In recent decades, there has been an increased interest in herbal medicines (HM) and herbal medicine in general. Herbal medicine is effective in the treatment of coronary and heart failure, atherosclerosis and other cardiovascular diseases. HM have their characteristics: a wide spectrum of action, gradual, slow development of the therapeutic effect, mild, moderate action, and practically no side effects. These characteristics are the factor that determines the indications for the use of herbal medicine: treatment and prevention of cardiovascular diseases^{3,10,11}.

Objective: to conduct a study of the HM market for the treatment of cardiovascular diseases in the CIS market.

METHODS AND MATERIALS

Study design

The study was designed as a cross-sectional descriptive survey conducted among pharmacy professionals and pharmacy visitors in three countries: the Republic of Kazakhstan, the Republic of Belarus, and the Russian Federation.

Study setting and participants

The survey was carried out in community pharmacies. Two target groups were included:



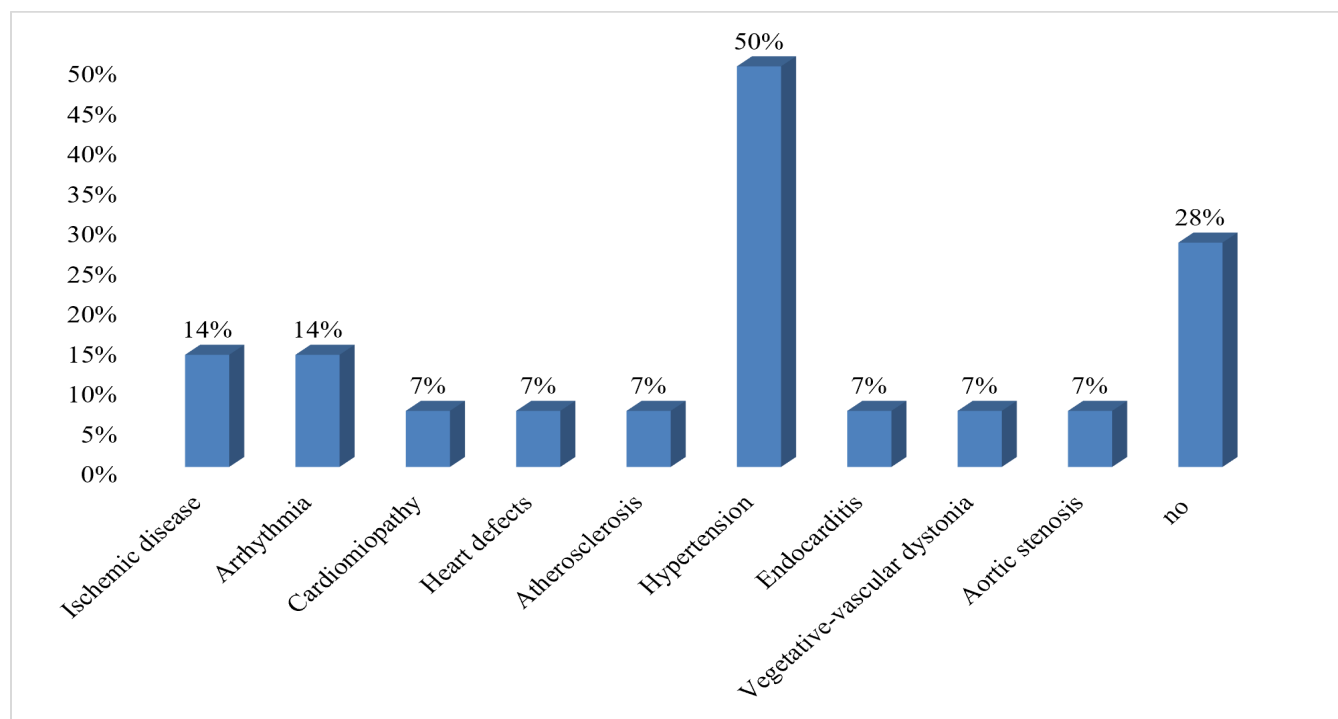


Figure 1. Cardiovascular Disease Prevalence Among Respondents

1. Pharmacists and pharmacy managers working in community pharmacies;
2. Pharmacy visitors purchasing medicines, including those used for the treatment or prevention of cardiovascular diseases (CVD).

Sampling technique

A non-probability convenience sampling method was applied. Pharmacies that agreed to participate in the study were included. Pharmacists were surveyed during their working hours, while pharmacy visitors were invited to participate at the time of their pharmacy visit.

Inclusion and Exclusion criteria

Inclusion criteria for pharmacists: licensed pharmacists and pharmacy managers employed in community pharmacies with at least 3 years of professional experience and directly involved in pharmaceutical care. **Exclusion criteria for pharmacists:** pharmacy staff with less than 3 years of work experience and those not involved in patient counselling.

Inclusion criteria for pharmacy visitors: adults aged 45 years and older who visited the pharmacy to purchase medicines and agreed to participate in the survey.

Exclusion criteria for pharmacy visitors: individuals under 18 years of age, visitors unwilling to participate, and respondents unable to complete the questionnaire.

Questionnaire development and validation

Structured questionnaires were developed by the authors based on a review of scientific literature and previous studies on pharmaceutical care and the use of herbal medicines in cardiovascular disease management. The questionnaires included sections on socio-demographic characteristics, types of cardiovascular diseases, medicines used (synthetic and herbal), dosage forms, duration of use, factors influencing choice, and the role of pharmacists' recommendations.

Prior to the main survey, the questionnaires were pilot-tested on a small group of pharmacists and pharmacy visitors to assess clarity, relevance, and comprehensibility of the questions. Based on the feedback received, minor linguistic and structural adjustments were made. The final versions of the questionnaires were used for data collection.

Ethical considerations

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Participation was voluntary. All respondents were informed about the purpose of the study, and verbal informed consent was obtained prior to questionnaire completion. The survey was anonymous, and no personal identifiable data were collected.

Statistical analysis

The collected data were entered into a database and analyzed using Microsoft Excel and IBM SPSS Statistics (version XX).

Descriptive statistical methods were applied, including calculation of absolute and relative frequencies, percentages, and graphical presentation of the results.. Due to the research nature of the study, no statistical tests were conducted to deduce the results.

RESULTS

In Kazakhstan, drugs for maintenance therapy for CVD are in high demand. Some of the most frequently purchased groups of drugs:

- Antihypertensive drugs:

These are drugs that lower blood pressure. These include:

- § Beta-blockers (eg, bisoprolol, atenolol)

- § ACE inhibitors (eg, ramipril, enalapril)

- § Angiotensin II receptor blockers (eg, losartan, valsartan)

- § Diuretics (eg, hydrochlorothiazide, indapamide)

- § Calcium channel blockers (eg, amlodipine)

- Antiplatelet agents:

- o These drugs prevent blood clots from forming. Aspirin is the most commonly used.

- Statins:

- o These drugs lower blood cholesterol, which helps prevent atherosclerosis.

Additionally, people often take:

- Omega-3 fatty acids

- Vitamins and minerals

- Various herbal extracts and supplements that are thought to support heart health

Based on the results of a survey of pharmaceutical workers, the most popular over-the-counter drugs used for cardiovascular diseases were identified. Analysis of the data obtained made it possible to identify several stable groups of drugs that are in demand among the population.

The most frequently mentioned were herbal sedatives and cardi tonic agents, in particular:

hawthorn tincture and tablets,

heart drops,

valerian and motherwort tincture,

lemon balm (in the form of herbal tea).

These drugs are traditionally used to improve overall well-being, reduce anxiety, normalize sleep and maintain the function of the cardiovascular system.

Combined herbal preparations were also noted among the popular remedies:

- "Hawthorn Plus"
- herbal sedative drops
- Novo-Passit

Cardiovascular herbal teas, including teas with hawthorn and lemon balm.

Along with herbal remedies, pharmacists also mentioned some over-the-counter medications, such as:

- Validol
- Nitroglycerin
- Valocordin
- Cardiomagnyl
- Aspikard

Some respondents indicated interest in antihypertensive drugs, such as losartan, valsartan, amlodipine, bisoprolol, candesartan, ramilong, but it should be noted that in most cases these drugs require a doctor's prescription and, depending on the country/region, may be available strictly by prescription.

Thus, pharmacists note a high interest from customers in natural and sedative remedies that can have a beneficial effect on the cardiovascular system. This emphasizes the importance of the availability of such drugs, as well as the need for pharmaceutical advice when choosing them.

Among the dosage forms of herbal preparations, the most popular are herbal teas and infusions (70.4%), as well as tablets (33.3%), while alcohol tinctures are chosen much less often (7.3%). Patients, as a rule, undergo long courses of treatment with herbal preparations, lasting from 7-14 days to one month. When choosing herbal preparations in pharmacies, buyers are mainly guided by the recommendations of pharmacists, preferring drugs in the price range from 200 to 1000 tenge, and purchase them with a frequency from once a week to 1-2 times a month.

We also surveyed buyers in pharmacies in Pyatigorsk (RF).

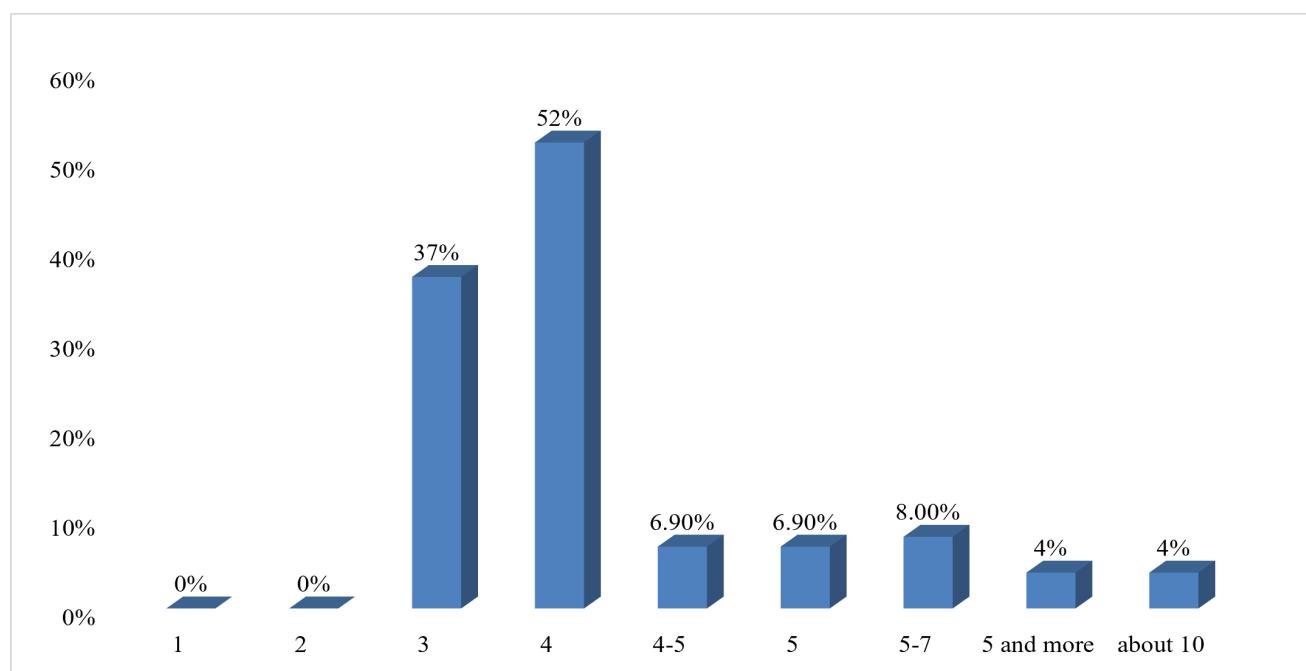


Figure 2. Daily Medication Burden in Cardiovascular Disease Patients

66.7% of respondents were women (Figure 1) aged 45 and older, with the majority falling between 60 and 81 years of age with a low (60%) income level.

Occupation, as can be seen from the figure, is varied, represented by different segments of the population, of which 53.3% are employed (including employed/retired). Pensioners on pension make up 33.3%, mainly employees (Figure 1).

As can be seen from the figure 1, the most common diseases among respondents are hypertension (50%), coronary heart disease, arrhythmia (14.3%). 28.6% of respondents indicated that they do not suffer from cardiovascular diseases.

To the question "Have you had a stroke, heart attack?", 2% of respondents noted a massive heart attack, 20% - a stroke.

Pharmacy visitors also noted the drugs they most often purchase for maintenance therapy:

- asparkam, betaserk, bisoprolol, digoxin, indamide, cardiket, xarelto, torasemide
- Preductal
- antihypertensive, Indopamide, Concor, Diovan-80, Cardiomagnyl, Tricor
- verapamil, physiotens
- concor
- noopept, glycine

- cardiomagnyl
- visoprolol

Herbal preparations are of considerable interest to the population, in particular for maintenance therapy of cardiovascular diseases. Respondents noted the dosage forms and names of the herbal preparations used.

Thus, 21.4% of respondents indicated herbal teas as their preferred form. Individual plants are taken by 14.3% of respondents, herbal infusions and decoctions - 7.1%; drops, tablets - 7.1%; and other forms - 21.4%. Preferences in dosage forms, in our opinion, are connected, on the one hand, with the price (for example, herbal teas are cheaper than tablets and drops), on the other hand, with convenience and traditional perception of herbal preparations (the need to brew, and at the same time, dosage forms (herbal tea) are easier to drink (tea is easier to drink than tablets, drops, especially for elderly patients)).

Of the specific names of herbal preparations, respondents indicated such plants as chamomile, calendula, lemon balm, mint, rose hips, and motherwort.

In addition, the questionnaire contained separate questions "In what dosage form is it convenient for you to take herbal preparations" and "When choosing herbal preparations, do you take into account the price?" These questions overlap with the question above. These questions 35.7% of respondents noted herbal tea as a convenient form of administration 21.4% of respondents - drops, tablets. And 64.3% of respondents indicated that they take price into

account when choosing herbal remedies.

Then pharmacy visitors indicated for what diseases they take herbal remedies:

- disease prevention
- acute respiratory infections
- cardiovascular diseases
- Prevention
- diabetes, cough and colds
- cough
- ENT
- auxiliary
- chronic pancreatitis
- no

This list also included cardiovascular diseases.

Many patients noted the duration of taking Herbal preparations. It is noteworthy that some respondents take Herbal preparations for years (from 6 to 12 years), and some even noted that they take them all their lives. But, there were also answers where respondents indicated that they drink them symptomatically, and constantly add them to tea.

It is noteworthy that respondents take herbal remedies in most cases on the advice of a doctor (35.7). Or a pharmacist (14.3%). Of the rest of the respondents, neighbours, friends, family members, and themselves were noted. The average price range for purchasing herbal preparations is around 100-200 tenge.

The frequency of visiting a pharmacy to purchase drugs for the treatment of cardiovascular diseases is mainly once a month (35.7%), 2 times a month was noted by 28.6% of respondents.

Thus, according to the results of the survey in pharmacies in Pyatigorsk (RF), the pharmacy is visited mainly by women (66.7%) aged 45 years and older (60%) with low and average income, workers (53.3%) and pensioners (33.3%). Of the chronic diseases that served as the reason for visiting a pharmacy, in most cases of respondents we note hypertension of the 2nd degree (5%), ischemic heart disease, arrhythmia (14.3%). In addition, 2% of respondents indicated that they had suffered a massive heart attack, and 20% - a stroke. In accordance with the doctor's recommendations, patients take the drugs that they indicated in the questionnaire. But, in addition, respondents also purchase herbal remedies for the treatment of CVD. The most preferred form of taking Herbal preparations, according to respondents, is herbal tea (35.7%).

When purchasing herbal remedies, 64.3% of respondents take into account the price, which is mainly 100-200 rubles. The respondents take Herbal preparations for a long time, for years. They buy them mainly on the advice of a doctor or pharmacist.

Next, we surveyed pharmacists working in pharmacies of the Republic of Belarus. 63.3% of respondents held the position of pharmacist-receptor, 20% - pharmacy managers and their deputies. The work experience of the majority is 13-25 years. Respondents noted that visitors most often go to pharmacies to purchase drugs for the treatment of cardiovascular diseases, the musculoskeletal system, the upper respiratory tract, and allergic diseases.

Of the cardiovascular diseases, pharmacists indicated the following, the most common diseases among visitors: hypertension, arrhythmia, atherosclerosis, and coronary heart disease.

The frequency of requests for drugs by the population who have suffered a myocardial infarction, stroke, or other cardiovascular diseases is from 2 to 100 people per month, on average, 2-3 people per day.

In their answers to the questionnaire, respondents indicated the most frequently purchased drugs for maintenance therapy for CVD:

- diuretics, sartans, vafarin
- acetylsalicylic acid 75 mg, antihypertensives, ACE inhibitors, beta-blockers
- aspicard, cardiomagnyl
- cardiomagnyl, panangin, sapikard, digoskin, mildr

Based on the presented diagram (Figure 2), we can draw a conclusion about the number of medications that people with cardiovascular diseases take per day. The data were distributed as follows:

- 4 medications per day — 15 people (51.7%)
- 3 medications per day — 11 people (37.9%)
- 4–5 medications per day — 2 people (6.9%)
- 5–7 medications per day — 2 people (6.9%)
- 5 or more up to 10 medications per day — 1 person (3.4%)
- 6–7 medications per day — 1 person (3.4%)

At the same time:

Not a single person surveyed takes less than 3 medications per day.

The most common intake is 3–4 medications per day, which accounts for almost 90% of cases.

This indicates multicomponent pharmacotherapy in the treatment of cardiovascular diseases, which corresponds to modern clinical recommendations.

Among the herbal preparations, the following were noted: Hawthorn Trio, Hawthorn, Hawthorn and Motherwort Tincture.

The number of drugs taken per day by people suffering from CVD, according to the responses of the majority of respondents (6.9%) was 5-7, and 3.4% indicated up to 10 drugs.

Further, pharmacists indicated in the questionnaires drugs that are in demand for CVD and are sold without a doctor's prescription.

Based on the results of the survey of pharmacists, the drugs were identified that, according to their observations, are in the greatest demand among people with cardiovascular diseases and are available for sale without a prescription.

Herbal and combination drops

The most frequently mentioned were heart drops (including combination drops), Zelenin drops, hawthorn tincture, as well as herbal sedative drops:

- Heart drops
- Hawthorn tincture
- Zelenin drops
- Valerian and motherwort drops
- Trikardin
- Sedanol, Novo-Passit
- Combined herbal tinctures
- Collections "For the heart and blood vessels", Cardiomed, Hawthorn plus, Hawthorn trio
- Magnesium drops

These drugs are traditional remedies for mild heart rhythm disturbances, increased nervous excitability and autonomic disorders.

Synthetic drugs and antihypertensive agents

Some pharmacists noted the demand for certain antihypertensive and cardiotonic drugs, despite the fact that many of them are usually available by prescription:

Aspikard, Cardiomagnyl, Captopril, Indapamide,

Bisoprolol, Amlodipine, Valsartan, Candesartan, Losartan, Metoprolol, Rosuvastatin, Canvers Plus, Ramilong

Classic symptomatic drugs

Interest was noted in drugs for the relief of acute cardiac symptoms:

- Validol

- Nitroglycerin
- Corvalol
- Valocordin
- Carvalol
- Valocordil
- Valoserdin

These drugs are often used by patients on their own to relieve pain in the heart area and anxiety. Of the medicinal forms of HMW, respondents from Belarus noted the most popular herbal teas, drops (76.7%), individual plants (70%), infusions (63.3%), tablets (43.3%), and alcohol tinctures.

According to respondents, the average duration of taking herbal preparations in patients with CVD ranges from 10-14 days to 1 month.

Patients purchase herbal preparations on the advice of a pharmacist (73.3%), advertising (70%), friends (56.7%), a doctor (50%), and others (neighbours, family members).

When choosing herbal preparations, 96.7% of respondents answered that visitors take their price into account. The price range of herbal preparations purchased from pharmacies in the Republic of Belarus ranges from 5 to 50 rubles. On average, this figure is 10-15 rubles.

According to respondents, the frequency of purchasing drugs for the treatment of cardiovascular diseases is 1 time per week (43%), 2 times per month (26.7%) and 1 time per month (23.3%).

Thus, pharmacists-respondents in pharmacies of the Republic of Belarus are competent specialists with an average of 13 to 25 years of work experience, working as pharmacists-receptors, the head of the pharmacy and deputy heads of the pharmacy noted a significant demand (from 2 to 100 people per month) for herbal preparations for the treatment of cardiovascular diseases, such as hypertension, arrhythmia, atherosclerosis, ischemic heart disease. Of the herbal preparations with cardiotonic action purchased by visitors, the most frequently in demand are hawthorn preparations (fruits, tincture, Hawthorn-trio), valerian (tablets, tincture), motherwort, Novo-Passit. The preferred dosage forms of herbal preparations are herbal teas, drops (76.7%), individual plants (70%), infusions (63.3%), tablets (43.3%), and alcoholic infusions (3.3%).

Patients take herbal preparations for a long time, on average from 10-14 days to 1 month. Buyers choose herbal preparations in a pharmacy mainly on the advice of a pharmacist in the price range of 10-15 rubles and buy them with a frequency of 1 time per week to 1-2 times per month.

DISCUSSION

The data obtained during the study confirm the widespread use of multicomponent pharmacotherapy in the treatment

of cardiovascular diseases (CVD), which aligns with current clinical recommendations. According to the survey results, most patients (almost 90%) take 3 to 4 medications daily. This polypharmacy approach, on the one hand, reflects the need for comprehensive control over blood pressure, heart rhythm, cholesterol levels and concomitant conditions, and on the other hand, requires a careful approach to drug interactions and adherence to the therapy regimen.

The structure of the over-the-counter range of products in demand among patients with CVD is also of interest. Pharmacists noted the high popularity of both herbal and synthetic products. Among herbal preparations, the most popular were tinctures of hawthorn, valerian, and motherwort, as well as combination drops (for example, Zelenin, Trikardin, Novo-Passit), along with herbal infusions. These drugs are traditionally used for functional disorders of the cardiovascular system, accompanied by anxiety, increased excitability and sleep disorders, which is especially important for elderly patients.

Among synthetic drugs, pharmacists have identified a high demand for antihypertensive drugs (captopril, bisoprolol, amlodipine, losartan, indapamide), antiplatelet agents (aspicard, cardiomagnyl), as well as drugs used in acute conditions (nitroglycerin, corvalol, validol). Although most of these drugs require a prescription, in some cases, patients continue to buy them on their own, which emphasises the need for educational work on the part of pharmacists.

Data obtained in pharmacies of the Republic of Belarus indicate that the choice of Herbal preparations is mainly made on the advice of a pharmacist (73.3%), as well as under the influence of advertising and recommendations from the social environment. Patients prefer inexpensive drugs in the average price range of 10-15 rubles. This demonstrates both trust in the professional opinion of pharmacists and the financial constraints of consumers. The frequency of drug purchases (from once a week to twice a month) reflects the regularity of their use and, probably, the chronic nature of the diseases. The average duration of herbal therapy courses is from 10-14 days to one month, which corresponds to the recommendations for the use of herbal preparations for functional cardiac neuroses and mild hypertension. The data obtained in Pyatigorsk (RF), where the majority of consumers were elderly women with a low income, deserves special attention. This confirms the findings of other studies on the feminisation of drug consumption for CVD in the elderly, and also emphasises the importance of access to drug therapy in socially vulnerable groups of the population.

Therefore, the identified trends confirm the relevance of the problem of complex therapy of cardiovascular diseases, the need for a wide range of both synthetic and herbal drugs in pharmacies, as well as the key role of pharmacists in consulting and helping to choose safe and effective drugs. The obtained

results can be used in forming the range of products of pharmacy organisations, planning educational programs for pharmacists and developing measures to increase the availability of CVD treatment in the elderly and socially vulnerable groups of the population.

CONCLUSION

The results of the study showed that among the drugs used to treat CVD, the most popular are antihypertensive agents (beta-blockers, ACE inhibitors, angiotensin II receptor blockers, diuretics, calcium channel blockers), antiplatelet agents (acetylsalicylic acid) and statins. In addition to these drugs, patients often buy omega-3 fatty acids, vitamins and mineral complexes, as well as herbal preparations. The preference for herbal teas and infusions may be explained by their lower cost and traditional perception, especially among elderly patients, for whom liquid dosage forms are easier to use.

Among over-the-counter drugs, heart drops, herbal teas, hawthorn, valerian and motherwort tinctures, and sedative drops are in particular demand. Most buyers are guided by pharmacists' recommendations when choosing drugs, preferring products in the price range of 200-1000 tenge. The duration of treatment courses with herbal preparations ranges from 7-14 days to one month.

Survey data in Pyatigorsk (RF) confirmed that the main consumers of drugs for the treatment of CVD are women over 45 years old, mainly aged 60-81, with a low income. Of the respondents, 53.3% are employed, including pensioners who continue to work, and 33.3% are pensioners who do not work.

The findings of this study are consistent with international data demonstrating widespread use of herbal medicines in cardiovascular disease management, particularly among elderly patients and individuals with low or middle income. Similar trends have been reported in European and Asian countries, where hawthorn, valerian, and motherwort are commonly used for functional cardiovascular disorders and anxiety-related symptoms^{7,10,11}.

However, despite their widespread use, herbal medicines are unsafe. Some herbal preparations, including hawthorn, valerian, and motherwort, may interact with traditional cardiovascular medications such as beta blockers, calcium channel blockers, anticoagulants, and antiarrhythmic agents. These interactions may enhance or weaken the pharmacological effects, increasing the risk of hypotension, bradycardia, or bleeding.

Therefore, it is necessary to take into account the potential risks of using herbal and synthetic medicines, especially in elderly patients receiving multicomponent pharmacotherapy.

An important finding of the study is the long-term use of herbal medicines by patients, in some cases for several years or even throughout life. Prolonged unsupervised use may lead to



delayed medical consultation, masking of disease progression, and accumulation of adverse effects. This highlights the necessity of professional monitoring and patient education regarding appropriate duration and indications for herbal therapy.

Thus, the study revealed the main preferences of patients in choosing drugs for the treatment of CVD and confirmed the important role of pharmacists in their consultation. The obtained data can be used to further improve recommendations for drug therapy and optimize the pharmacy assortment.

References

1. Anke Weber, Veronika Reisig, Andrea Buschner, Joseph Kuhn Avoidable mortality-a new indicator version for prevention reporting *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*. 2022 Jan;65(1):116-125. <https://doi.org/10.1007/s00103-021-03458-y>.
2. PharmNewsKZ. Vo Vsemirnyy den' serdtsa – o tom, kak zashchitit' uyazvimye gruppy naseleniya Kazakhstana. PharmNewsKZ. 2023 Sep 29. Available from: https://pharmnewskz.com/ru/news/vo-vsemirnyy-den-serdca--o-tom-kak-zaschitit-uyazvimye-gruppy-naseleniya-kazakhstana_21798
3. Bahk J, Jung-Choi K. The contribution of avoidable mortality to the life expectancy gains in Korea between 1998 and 2017. *Int J Environ Res Public Health*. 2020 Sep 7;17(18):6499. <https://doi.org/10.3390/ijerph17186499>.
4. Boisclair D, Décarie Y, Laliberté-Auger F, Michaud PC, Vincent C. The economic benefits of reducing cardiovascular disease mortality in Quebec, Canada. *PLoS One*. 2018 Jan 4;13(1):e0190538. <https://doi.org/10.1371/journal.pone.0190538>
5. Leonti M, Casu L. Traditional medicines and globalization: Current and future perspectives in ethnopharmacology. *Front Pharmacol*. 2013;4:92. <https://doi.org/10.3389/fphar.2013.00092>
6. Saklani A, Kutty SK. Plant-derived compounds in clinical trials. *Drug Discov Today*. 2008;13(3-4):161-71. <https://doi.org/10.1016/j.drudis.2007.10.010>
7. Willison KD, Andrews GJ. Complementary medicine and older people: Past research and future directions. *Complement Ther Nurs Midwifery*. 2004;10(2):80-91. [https://doi.org/10.1016/s1353-6117\(03\)00106-9](https://doi.org/10.1016/s1353-6117(03)00106-9)
8. Briskin DP. Medicinal plants and phytomedicines: Linking plant biochemistry and physiology to human health. *Plant Physiol*. 2000;124(2):507-14. <https://doi.org/10.1104/pp.124.2.507>
9. Khan H. Medicinal plants in light of history: Recognized therapeutic modality. *J Evid Based Complementary Altern Med*. 2014;19(3):216-9. <https://doi.org/10.1177/2156587214533346>
10. Rates SM. Plants as source of drugs. *Toxicon*. 2001;39(5):603-13. [https://doi.org/10.1016/s0041-0101\(00\)00154-9](https://doi.org/10.1016/s0041-0101(00)00154-9)
11. Booker A, Johnston D, Heinrich M. Value chains of herbal medicines: Research needs and key challenges in the context of ethnopharmacology. *J Ethnopharmacol*. 2012;140(3):624-33. <https://doi.org/10.1016/j.jep.2012.01.039>
12. Kala CP, Dhyani PP, Sajwan BS. Developing the medicinal plants sector in northern India: Challenges and opportunities. *J Ethnobiol Ethnomed*. 2006;2:32. <https://doi.org/10.1186/1746-4269-2-32>
13. Hishe M, Asfaw Z, Giday M. Review on value chain analysis of medicinal plants and the associated challenges. *J Med Plants Stud*. 2016;4(2):45-55.
14. Hamilton AC. Medicinal plants, conservation and livelihoods. *Biodivers Conserv*. 2004;13(8):1477-517. <https://doi.org/10.1023/B:BIOC.0000021333.23413.42>
15. Semwal DK, Chauhan A, Kumar A, Aswal S, Semwal RB, Kumar A. Status of Indian medicinal plants in the International Union for Conservation of Nature and the future of Ayurvedic drugs: Shouldn't think about Ayurvedic fundamentals? *J Integr Med*. 2019;17(4):238-43. <https://doi.org/10.1016/j.joim.2019.04.008>
16. Raseth MT, Semenya SS, Maroyi A. Medicinal plants traded in informal herbal medicine markets of the Limpopo Province, South Africa. *Evid Based Complement Alternat Med*. 2019 Apr 16;2019:2609532. <https://doi.org/10.1155/2019/2609532>
17. Williams VL, Victor JE, Crouch NR. Red listed medicinal plants of South Africa: Status, trends, and assessment challenges. *S Afr J Bot*. 2013;86:23-35. <https://doi.org/10.1016/j.sajb.2013.01.006>
18. Kumar P. Valuation of medicinal plants for pharmaceutical uses. *Curr Sci*. 2004;86(7):930-7.
19. Mipun P, Bhat NA, Borah D, Kumar Y. Non-timber forest products and their contribution to healthcare and livelihood security among the Karbi tribe in Northeast India. *Ecol Process*. 2019;8:1-21. <https://doi.org/10.1186/s13717-019-0194-4>
20. Chirwa P, Syampungani S, Geldenhuys C. The ecology and management of the Miombo woodlands for sustainable livelihoods in southern Africa: The case for non-timber forest products. *South Forests J For Sci*. 2008;70(3):237-45. <https://doi.org/10.2989/SF.2008.70.3.7.668>