

Джаналиев А. Б.¹, Касиев Н. К.¹, Кульжанов М.²**СТРУКТУРНЫЕ И ДИНАМИЧЕСКИЕ ОСОБЕННОСТИ БОЛЕЗНЕЙ ОРГАНОВ КРОВООБРАЩЕНИЯ В КЫРГЫЗСКОЙ РЕСПУБЛИКЕ**¹Кыргызско-Российский Славянский университет имени Б. Н. Ельцина, 720021, г. Бишкек, Киргизстан;²Казахский национальный медицинский университет имени С. Д. Асфендиярова, 050012, г. Алматы, Казахстан

Болезни органов кровообращения занимают ведущие позиции в структуре заболеваемости и смертности населения, оставаясь одной из ключевых проблем общественного здравоохранения. Целью настоящего исследования явилось изучение динамики первичной заболеваемости и распространенности болезней системы кровообращения по основным нозологическим формам среди взрослого и подросткового населения Кыргызской Республики за период 2018—2024 гг. В работе использованы официальные данные Центра электронного здравоохранения, проанализированные с применением ретроспективных, статистических и сравнительно-аналитических методов. Установлено, что показатели первичной заболеваемости и распространенности характеризовались выраженной вариабельностью с наибольшим ростом в 2022 г., на фоне снижения в период 2020—2021 гг., что может быть связано с изменением доступности медицинской помощи в условиях пандемии COVID-19. Наиболее высокие уровни заболеваемости и распространенности отмечены при гипертонической болезни, ишемической болезни сердца и цереброваскулярных заболеваниях. Отдельные нозологии, включая инфаркт миокарда и другие болезни периферических сосудов, демонстрировали резкие колебания показателей, указывающие на изменения выявляемости и обращаемости населения. Полученные результаты подтверждают необходимость совершенствования системы мониторинга, профилактики и раннего выявления сердечно-сосудистых заболеваний, особенно среди групп повышенного риска.

Ключевые слова: болезни органов кровообращения; гипертоническая болезнь; заболеваемость; инсульт; инфаркт миокарда; ишемическая болезнь сердца; ишемический инсульт; ревматическая болезнь сердца; цереброваскулярные болезни.

Для цитирования: Джаналиев А. Б., Касиев Н. К., Кульжанов М. Структурные и динамические особенности болезней органов кровообращения в Кыргызской Республике. Проблемы социальной гигиены, здравоохранения и истории медицины. 2026;34(3):748—753. DOI: <http://dx.doi.org/10.32687/0869-866X-2026-34-3-748-753>

Для корреспонденции: Джаналиев Азамат Болотбекович, преподаватель кафедры общественного здоровья и здравоохранения Кыргызско-Российского Славянского университета имени Б. Н. Ельцина, e-mail: djanalieff@mail.ru

Dzhanaliev A. B.¹, Kasiev N. K.¹, Kulzhanov M.²**THE STRUCTURAL AND DYNAMIC CHARACTERISTICS OF THE DISEASES OF BLOOD CIRCULATION ORGANS IN THE KYRGYZ REPUBLIC**¹The Kyrgyz-Russian Slavic University named after B. N. Yeltsin, 720000, Bishkek, Kyrgyz Republic;²The Kazakh National Medical University named after S.D. Asfendiarov, 050012, Almaty, the Republic of Kazakhstan

The diseases of circulatory system continue to occupy leading positions in structure of morbidity and mortality of population, remaining one of key public health problems. The purpose of the study is to investigate dynamics of primary morbidity and prevalence of diseases of circulatory system by main nosological forms among adult and adolescent population of the Kyrgyz Republic in 2018–2024. The study used official data from the Center for E-Health Care that was analyzed using retrospective, statistical and comparative analytical methods. It was found that indicators of primary morbidity and prevalence were characterized by pronounced variability with greatest increase in 2022, against the background of decrease in 2020–2021, that may be due to changes in availability of medical care in period of COVID-19 pandemic. The highest levels of morbidity and prevalence were found for hypertension, coronary heart disease and cerebrovascular diseases. Some nosologies, including myocardial infarction and other peripheral vascular diseases, demonstrated sharp increase in indicators, suggesting changes in disease detection and health care seeking behavior of population. The obtained results confirm necessity to improve system of monitoring, prevention and early detection of cardiovascular diseases, especially among high-risk groups.

Key words: circulatory diseases; hypertension; morbidity; stroke; myocardial infarction; ischemic heart disease; ischemic stroke; rheumatic heart disease; cerebrovascular disease.

For citation: Dzhanaliev A. B., Kasiev N. K., Kulzhanov M. The structural and dynamic characteristics of the diseases of blood circulation organs in the Kyrgyz Republic. *Problemi socialnoi gigieni, zdravookhraneniya i istorii meditsiny*. 2026;34(3):748–753 (In Russ.). DOI: <http://dx.doi.org/10.32687/0869-866X-2026-34-3-748-753>

For correspondence: Dzhanaliev A. B., the Lecturer of the Department of Public Health and Health Care of the Kyrgyz-Russian Slavic University named after B. N. Yeltsin. e-mail: djanalieff@mail.ru

Conflict of interests. The authors declare absence of conflict of interests.

Acknowledgment. The study had no sponsor support.

Received 14.12.2025

Accepted 16.03.2026

Introduction

The main medical and demographic problems of the global level include diseases of the circulatory system [1, 2], which occupy one of the leading places in the structure of morbidity and the first place in the structure of adult mortality [3–6].

Diseases of the circulatory system continue to be the most important problem of public health, taking into account the pronounced indicators of morbidity, mortality and disability of the population. Continuous monitoring of public health indicators for diseases of the circulatory system is necessary for current and long-term

За рубежом

planning of organizational measures to improve the efficiency of medical care for patients with this socially significant pathology [7].

The COVID-19 pandemic determined a decrease in primary morbidity in almost all classes of diseases [8]. According to N. P. Kirilenko et al. (2022) the frequency of detection of cardiovascular diseases increased naturally with increasing severity of COVID-19. Post-covid syndrome was present in 41.4% of COVID-19 survivors, developed more frequently in women, increased with age, severity of the disease, and depended on the presence or absence of cardiovascular diseases [9].

There are significant differences and growing trends in the risk factors for circulatory diseases, which highlights the need for targeted interventions, especially for high-risk groups [10, 11].

Living in rural areas is a significant factor associated with an increased risk of cardiovascular diseases and death, and the mortality gradient has been increasing over the past few decades [12].

Population mortality depends on timely detection of risk factors for cardiovascular diseases, circulatory system diseases and subsequent coverage of the population with medical care, including dispensary observation [13, 14].

The peculiarity of the organization of medical care for rural residents is due to the large service radius of paramedic-obstetric stations and central district hospitals, seasonality of work, specific conditions of agricultural production and living conditions, insufficient awareness of rural residents about their health status and risk factors for cardiovascular diseases [15]. The search for the most effective and available measures to improve the system of prevention of cardiovascular diseases among the rural population is an urgent task of modern healthcare.

In the Kyrgyz Republic, cardiovascular diseases are a very urgent social and medical problem due to high morbidity and mortality rates. Therefore, the most important task is to develop strategies, create new highly effective models and a modern system for organizing medical care for patients with cardiovascular diseases, based on the introduction of high-tech and innovative management approaches.

The aim of the study was to study the main trends in the spread of circulatory diseases among the population.

Materials and methods

Statistical data of the Center for E-Health of the Ministry of Health of the Kyrgyz Republic were used.

Dynamic series indicators (absolute growth, growth rate) have been calculated to evaluate the dynamics of the prevalence and primary morbidity of the circulatory system for the period from 2018 to 2024.

Analytical and static research methods were applied.

Research results

The primary disease morbidity of circulatory diseases (per 100,000 population) by nosology in adults and adolescents from 2018 to 2024 in the Kyrgyz Republic in dynamics is presented in Table 1. In the dynamics of the

primary incidence of rheumatic heart diseases, an unstable, undulating nature of changes was noted. In 2019 (17.5), compared to 2018 (21.3), there was a decrease of -17.8% in the rate of decline, which in 2020 (10.5) became more pronounced in its decrease by -40.5% . Starting from 2021 (13.8), there was an increase of $+31.4\%$, while in 2022 (19.4) there was also an increase of $+40.5\%$, which indicates a recovery in indicators. However, in the following years, a downward trend was formed again. So, in 2023 (14.6), the indicator decreased by -24.7% and in 2024 (12.2) by -16.4% , which indicates a general instability of the indicators of this nosology.

Hypertension was characterized by significant fluctuations in primary morbidity. In 2019 (719.7), there was an increase with an increase rate of $+23.3\%$ compared to 2018 (583.3), after which in 2020 and 2021 (107.8 and 349.2, respectively), there was a consistent and pronounced decrease of -24.8% and -35.4% , respectively.

In 2022 (447.7), an increase of $+28.2\%$ was again recorded, but in 2023 and 2024 (322.1 and 320.8, respectively), the dynamics again became negative with a decline rate of -28.0% and -0.4% . In general, hypertension is characterized by sharp fluctuations with a predominant downward trend.

The primary incidence of coronary heart disease in the first years of follow-up decreased by -29.8% in 2019 (149.3) compared to 2018 (212.8), in 2020 (107.8) a decrease of -27.7% . Starting from 2021 (126.6), there was an increase of $+17.4\%$, which in 2022 (200.3) became more pronounced by $+58.2\%$. In 2023 (139.8), a decrease of -30.2% was again recorded, but in 2024 (201.0), the prevalence of coronary heart diseases increased again with an increase rate by $+43.7\%$, which indicates a wave-like dynamics with periods of sharp growth.

Angina pectoris was characterized by a marked decrease in 2019 (57.0) compared to 2018 (77.7) by -26.6% , then in 2020 (40.6) by -28.7% . In 2021 and 2022 (47.1 and 61.8, respectively), there was a steady growth of $+15.9\%$ and $+31.2\%$, followed by a moderate decline of -11.6% in 2023 (54.6) 11.6% . In 2024 (85.8), a sharp increase in prevalence was again recorded with an increase rate of $+57.1\%$.

Myocardial infarction is characterized by the most pronounced variability of indicators in 2018 (18.5) cases of diseases, in 2019 (19.4) a slight increase of $+4.8\%$ was registered, followed by a decrease in 2020 (14.7) by -24.2% . In 2021 and 2022 (17.9 and 28.5, respectively), the primary incidence increased significantly by $+21.7\%$ and $+59.2\%$, respectively. In 2023 (20.3), a decrease of -28.7% was noted, while in 2024 (69.0), a sharp rise in the indicator was recorded in dynamics by $+239.9\%$, which may indicate a significant change in detectability.

Cerebrovascular diseases in 2018 (151.8), 2019 (136.4) and 2020 (108.1) were characterized by a decrease of -10.1% and -20.7% , respectively. In 2021 (130.2), there was an increase of $+20.5\%$, which in 2022 (84.2) was replaced by a significant decrease of -35.3% . In 2023 (115.8), an increase of $+37.5\%$ in terms of the

Table 1

Primary morbidity of circulatory diseases by nosology in adults and adolescents in the Kyrgyz Republic in dynamics (2018–2024) per 100,000 population

No.	Class of diseases	2018		2019		2020		2021		2022		2023		2024	
		n	P	n	P	n	P	n	P	n	P	n	P	n	P
1	Chronic rheumatic heart diseases	910	21,3	756	17,5	462	10,5	617	13,8	141	19,4	700	14,6	600	12,2
	growth/decline rate	—	—	—	–17,8	—	–40,5	—	+31,4	—	+40,5	—	–24,7	—	–16,4
2	Hypertensive diseases	24,906	583,3	31,243	719,7	23,861	541,0	15,653	349,2	3253	447,7	15,428	322,1	15,743	320,8
	growth/decline rate	—	—	—	+23,3	—	–24,8	—	–35,4	—	+28,2	—	–28,0	—	–0,4
3	Ischaemic heart diseases	9085	212,8	6482	149,3	4752	107,8	5677	126,6	1455	200,3	6697	139,8	9864	201,0
	growth/decline rate	—	—	—	–29,8	—	–27,7	—	+17,4	—	+58,2	—	–30,2	—	+43,7
	including angina pectoris	3319	77,7	2475	57,0	1789	40,6	2112	47,1	449	61,8	2615	54,6	4210	85,8
	growth/decline rate	—	—	—	–26,6	—	–28,7	—	+15,9	—	+31,2	—	–11,6	—	+57,1
	including acute myocardial infarction	790	18,5	842	19,4	649	14,7	799	17,9	207	28,5	972	20,3	3389	69,0
	growth/decline rate	—	—	—	+4,8	—	–24,2	—	+21,7	—	+59,2	—	–28,7	—	+239,9
4	Cerebrovascular diseases	6483	151,8	5922	136,4	4768	108,1	5837	130,2	612	84,2	5548	115,8	4553	92,8
	growth/decline rate	—	—	—	–10,1	—	–20,7	—	+20,5	—	–35,3	—	+37,5	—	–19,8
	including hemorrhagic stroke	542	12,7	399	9,2	333	7,6	420	9,4	124	17,1	458	9,6	399	8,1
	growth/decline rate	—	—	—	–14,5	—	–17,3	—	+23,6	—	+81,9	—	–43,8	—	–15,6
	including ischemic stroke	1078	25,2	1061	24,4	819	18,6	997	22,2	157	21,6	1308	27,3	988	20,1
	growth/decline rate	—	—	—	–3,1	—	–23,7	—	+19,3	—	–2,7	—	+26,3	—	–26,3
	including stroke, not specified as haemorrhage or infarction	623	14,6	475	10,9	550	12,5	521	11,6	169	23,3	385	8,0	220	4,5
	growth/decline rate	—	—	—	–25,3	—	+14,6	—	–7,4	—	+100,8	—	–65,6	—	–43,7
5	Other peripheral vascular diseases	222	5,2	162	3,7	1939	43,9	2381	53,1	298	41,0	3242	67,8	2384	48,5
	growth/decline rate	—	—	—	–29,8	—	+1086,4	—	+20,9	—	–22,7	—	+65,3	—	–28,4
6	Other diseases of the circulatory system	9629	225,5	9387	216,2	3671	83,2	4997	111,5	938	129,1	5128	107,1	5455	111,3
	growth/decline rate	—	—	—	–4,1	—	–61,5	—	+34,0	—	+15,7	—	–17,0	—	+3,9
Total:		51,235	1199,9	53,952	1242,8	39,453	894,6	35,162	784,4	6697	921,7	36,743	767,2	38,599	786,6
	growth/decline rate	—	—	—	+3,5	—	–28,0	—	–12,3	—	+17,5	—	–16,7	—	+2,5

Note: n is an absolute number, P is an intensive indicator of the incidence of cases. Other peripheral vascular diseases: phlebitis and thrombophlebitis of the superficial and deep vessels of the lower extremities, varicose veins of the lower extremities, endarteritis, thrombangiitis. Other circulatory diseases: pulmonary embolism, mitral valve prolapse, cardiomyopathy.

growth rate was again recorded, but in 2024 (92.8), the indicator again decreased by –19.8%, which shows an unstable dynamics of this group of diseases.

Hemorrhagic stroke in 2018 (12.7) 2019 (9.2), 2020 (7.6) In recent years, the index showed a decrease in dynamics of –14.5% and –17.3%, followed by significant growth of +23.6% and +81.9% in 2021 (9.4) and especially in 2022 (17.1) +23.6%, respectively. In 2023 and 2024 (9.6 and 8.1, respectively), the prevalence decreased again by –43.8% and –15.6%.

The primary incidence of ischemic stroke in the population from 2018 (25.2) and in 2019 (24.4) and 2020 (18.6) decreased by –3.1% and –23.7%. In 2021 (22.2) there was an increase of +19.3%, in 2022 (21.6) a slight decrease of –2.7%, then in 2023 (27.3) there was an increase of +26.3%, and in 2024 (20.1) again a pronounced decrease of –26.3% was registered.

The unspecified stroke was characterized by sharp fluctuations. In 2018, the indicator was 14.6 cases per 100 thousand population. In 2019 (10.9), a decrease of –25.3% was recorded, in 2020 (12.5), the indicator increased by +14.6%, in 2021 (11.6), a moderate decrease of –7.4%. In 2022 (23.3), there was a sharp increase of +100.8%, followed by a significant decrease of –65.6% and –43.7% in 2023 and 2024 (8.0 and 4.5, respectively).

Other peripheral vascular diseases were characterized by pronounced changes. In 2018, the indicator was 5.2 cases, in 2019 (3.7) there was a decrease of –29.8%, in 2020 (43.9) there was a sharp increase in the indicator with an increase rate of +1086.4%, which is the maximum value among all nosologies. In 2021 (53.1), growth

continued by +20.9%, followed by a decrease of –22.7% in 2022 (41.0) 22,7%. In 2023 (67.8), an increase of +65.3% was recorded, and in 2024 (48.5), a decrease of –28.4% was again revealed.

Other diseases of the circulatory system in 2018 accounted for 225.5 cases, in 2019 (216.2) the indicator decreased by –4.1%, in 2020 (83.2) the indicator sharply decreased by –61.5%. In 2021 and 2022 (111.5 and 129.1, respectively), the indicator grew by +34.0% and +15.7%, followed by a decrease of –17.0% in 2023 (107.1)17.0%, and a slight increase of +3.9% in 2024 (111.3)+3,9%.

In general, for all circulatory diseases in 2018 (1199.9) compared to 2019 (1242.8), there was a moderate increase of +3.5%, which in 2020 and 2021 (894.6 and 784.4, respectively) was replaced by a significant decrease of –28.0% and –12.3%, respectively. In 2022 (921.7), an increase of +17.5% was recorded, but in 2023 (767.2), a decrease of –16.7% was again recorded, and in 2024 (786.6), a slight increase of +2.5%.

Thus, circulatory diseases had a significant increase in 2022, as well as a slight increase in 2019 and 2024. Rheumatic heart diseases in dynamics, with a small indicator, had a significant increase in 2021 and 2022. The primary incidence of hypertension was characterized by high rates in 2019 and 2022. Coronary heart disease with an average increase in the indicator was significantly increased in 2021, 2022 and 2024, which was also characteristic of angina pectoris. Myocardial infarction with insignificant indicators had a very high dynamics of increase in 2024, as well as in 2022, 2021 and 2019.

За рубежом

Table 2

Prevalence of circulatory diseases by nosology in adults and adolescents in the Kyrgyz Republic in dynamics (2018-2024) per 100,000 population

№	Class of disease	2018		2019		2020		2021		2022		2023		2024	
		n	P	n	P	n	P	n	P	n	P	n	P	n	P
1	Chronic rheumatic heart diseases growth/decline rate	5990	140.3	5665	130.5	3846	87.2	4294	of 95.8	4983	106.4	4888	102.0	4752	96.9
		—	—	—	-6.9	—	-33.1	—	+9.8	—	+11.0	—	-4.1	—	-5.0
2	Hypertensive diseases growth/decline rate	173,693	4067.9	175,393	4040.2	140,399	3183.5	133,851	2986.0	155,101	3312.5	147,204	3073.6	149,187	3040.2
		—	—	—	-0.6	—	-21.2	—	-6.2	—	+10.9	—	-7.2	—	-1.0
3	Ischaemic heart diseases growth/decline rate	94,163	2205.3	90,282	2079.6	68,004	1542.0	69,699	1554.9	82,904	1770.6	82,283	1718.1	71,952	1466.3
		—	—	—	-5.6	—	-25.8	—	+0.8	—	+13.8	—	-2.9	—	-14.6
	including angina pectoris growth/decline rate	27,906	653.6	27,149	625.4	17,928	406.5	18,043	402.5	21,448	458.1	20,218	422.2	20,258	412.8
		—	—	—	-4.3	—	-35.0	—	-0.9	—	+13.8	—	-7.8	—	-2.2
	including acute myocardial infarction growth/decline rate	1179	27.6	1244	28.7	1057	24.0	1276	28.5	1773	37.8	1630	34.0	1145	23.3
		—	—	—	+3.9	—	-16.3	—	+18.7	—	+32.6	—	-10.0	—	-32.2
4	Cerebrovascular diseases growth/decline rate	32,355	757.8	30,246	696.7	22,095	501.0	24,633	549.5	27,097	578.7	26,939	562.5	22,027	448.9
		—	—	—	-8.0	—	-28.0	—	+9.6	—	+5.3	—	-2.7	—	-20.1
	including hemorrhagic stroke growth/decline rate	1103	25.8	958	22.1	688	15.6	830	18.5	1026	21.9	910	19.0	1073	21.9
		—	—	—	-14.3	—	-29.4	—	+18.5	—	+18.3	—	-13.2	—	+15.2
	including ischemic stroke growth/decline rate	1983	46.4	2238	51.6	1778	40.3	2307	51.5	3042	65.0	2906	60.7	2425	49.4
		—	—	—	-11.2	—	-21.8	—	+27.7	—	+26.2	—	-6.6	—	-18.6
	including Stroke, not specified as haemorrhage or infarction growth/decline rate	2114	49.5	1870	43.1	1721	39.0	1710	38.1	1803	38.5	1470	30.7	710	14.5
		—	—	—	-12.9	—	-9.5	—	-2.3	—	+1.0	—	+20.2	—	-52.7
5	Other peripheral vascular diseases growth/decline rate	497	11.6	427	9.8	3347	75.8	4131	92.2	5186	110.7	5599	116.9	5422	110.5
		—	—	—	-15.5	—	+673.4	—	+21.6	—	+20.0	—	+5.6	—	-5.4
6	Other diseases of the circulatory system growth/decline rate	29378	688.1	30189	695.4	14419	326.9	16798	374.8	19420	414.8	18451	385.3	26615	542.3
		—	—	—	+1.0	—	-52.9	—	+14.9	—	+10.6	—	-7.1	—	+40.7
Total:	growth/decline rate	336,076	7870.9	332,202	7652.2	252,110	5716.5	253,406	5653.1	294,691	6293.7	285,364	5958.4	279,955	5705.1
		-	—	—	-2.7	—	-25.7	—	-1.1	—	+11.3	—	-5.3	—	-4.2

Note: n is an absolute number, P is an intensive indicator of the incidence of cases. Other peripheral vascular diseases: phlebitis and thrombophlebitis of the superficial and deep vessels of the lower extremities, varicose veins of the lower extremities, endarteritis, thrombangiitis. Other circulatory diseases: pulmonary embolism, mitral valve prolapse, cardiomyopathy.

Cerebrovascular diseases with a significant indicator in dynamics increased in 2021 and 2023, hemorrhagic stroke in 2021 and 2022, and ischemic stroke had an increase in dynamics in 2021 and 2023, unspecified stroke increased especially sharply in 2022. Other peripheral vascular diseases had a significant increase in 2020, 2021 and 2023, and other diseases in 2021 and 2022.

An assessment of the prevalence of circulatory diseases by nosology in the Kyrgyz Republic from 2018 to 2024 in adults and adolescents per 100,000 population in dynamics was made according to the data of the Center for E-Health (Table 2).

In general, in the Kyrgyz Republic, there was a tendency to increase the prevalence of diseases of the circulatory system by nosology in 2022 alone by +11.3% (6293.7, n=294,691), with a high level of the indicator in all years, there was mainly the dynamics of decline, so in 2018 the number of cases was 7870.9 (n=336,076), in 2019. This year, the rate of decline decreased slightly by -2.7% (7652.2; n=332,202). A more significant decrease was observed in 2020 by -25.7% (5716.5; n=252,110), the same trend continued in 2021, 2023 and 2024, when the rate of decline was -1.1%, -5.3%, -4.2% (5653.1; n=253,406; 5958.4; n=285,364; 5705.1; n=279,955), respectively.

In the Kyrgyz Republic, there was a high prevalence of rheumatic heart disease by year. In 2019, 2020, 2023 and 2024, the dynamics were negative. In 2018, the indicator was 140.3 (n=5990) cases, in 2019, the absolute indicators decreased and, accordingly, the indicator was 130.5 (n=5665), the dynamics of a decrease of -6.9% in

terms of the rate of decline. Also in 2020, a similar situation was observed, when the indicator decreased by 1.5 times to 87.2 cases (n=3846) by -33.1%. In 2021 and 2022, the dynamics of an increase in the indicator by +9.8% and +11.0% in terms of the growth rate were revealed (95.8; n=4294 and 106.4; n=4983), respectively and in 2023 and 2024, as in previous years, there was a decrease of -4.1% and -5.0% with an indicator of 102.0 (n=4888) and 96.9 (n=4752) cases.

The prevalence of hypertensive diseases was very high and in dynamics in all years there was a decrease, except for 2022, when the number of diseases was 3312.5 (n=155,101) cases, an increase in the incidence by +10.9% in terms of the growth rate. In other years, especially, in 2018 and 2019, the prevalence rate was high. In 2018, the incidence rate was 4067.9 (n=173,693) cases, while in 2019 the indicator remained high at 4040.2 (n=175,393), but the dynamics of a decrease -0.6% compared to the previous year 2018. In 2022, the decline was more significant by -21.2% (3183.5; n=140,399), the same trend continued in 2021, 2023 and 2024, a decrease of -6.2%, -7.2% and -1.0% with an indicator of 2986.0 (n=133,851), 3312.5 (n=155,101), 3073.6 (n=147,204) and 3040.2 (n=149,187), respectively.

Coronary heart disease had a very high prevalence in 2018 of 2205.3 (n=94,163) cases, in subsequent years the indicator decreased, as the absolute number of patients, did the dynamics of decline was noted in 2019, 2020, 2023 and 2024, and only in 2021 and 2022 there was an increasing trend. In 2019, the indicator decreased by

–5.6% (2079.6; n=90,282) cases, and in 2020, the same trend continued by –25.8% (1542.0; n=68,004). In 2021, in comparison with 2020, the growth rate increased by +0.8% (1544.9; n=69,699), in 2022 by +13.8% (1770.6; n=82,904), in 2023, the dynamics of a decrease by –2.9% (1718.1; n=82,283) was revealed, and in 2024, the same indicator decreased by –14.6% (1466.3; n=71,952).

Angina pectoris in all years decreased in dynamics, except for 2022, when there was a sharp increase, the indicator was 458.1 (n=21,448) cases, an increase of +13.8%. In 2018, the highest rate of 653.6 (n=27,906) cases was observed, the number of patients decreased slightly in 2019 by –4.3% (625.4; n=27,149), in 2020 the rate decreased by –35.0% (406.5; n=17,928), in 2021 by –0.9% (402.5; n=18,043), in 2023 by –7.8% (422.2; n=20,218) and in 2024 by –2.2% (412.8; n=20,258).

As for the prevalence of myocardial infarction, the situation developed with its increase in 2019, 2021 and 2022, by +3.9%, +18.7%, +32.6% by the growth rate (28.7; n=1244; 28.5; n=1276; 37.8; n=1713), respectively. A decrease in the number of cases of myocardial infarction was observed in 2020 by –16.3% (24.0; n=1057), in 2023 by –10.0% (34.0; n=1630) and in 2024 by –32.2% (23.3; n=1145).

Cerebrovascular diseases increased in 2021 by +9.6% (549.5; n=24,633), and in 2022 by +5.3% (578.7; n=27,097). The prevalence of diseases in the population decreased in 2019 by –8.0% (696.7; n=30,246) compared to 2018 by 757.8 (n=32,355), as well as in 2020, with a high level of 501.0 (n=22,095), a decrease of –28.0%, in 2023 and 2024, a decrease of –2.7% and –20.1% (562.5; n=26,939; 448.9; n=22,027), respectively.

Of the total number of cerebrovascular diseases, hemorrhagic stroke did not have such high rates, but in dynamics there was an increase in 2021 by +18.5% (18.5, n=830), in 2022 by +18.3% (21.9, n=1026) and in 2024 by +15.2% (21.9, n=1073). There was a decrease in this nosology in 2018 (25.8, n=1103), in 2019 a decrease of –14.3% (22.1, n=958), in 2020 by –29.4% (15.6, n=688) and in 2023 by –13.2% (19.0, n=910) cases.

Ischemic stroke had higher incidence rates. In 2018, the indicator was 46.4 (n=1983) cases, in 2019 there was a decrease of –11.2% (51.6; n=2238) and in 2020 by –21.8% (40.3; n=1778). In 2021 and 2022, the incidence significantly increased by +27.7% (515.5; n=2307) and +26.2% (65.0; n=3042), and in 2023 and 2024, the incidence decreased by –6.6% and –18.6% (60.7; n=2906 and 49.4; n=2424), respectively.

Unspecified stroke by diagnosis generally decreased in all years, except for a slight increase in dynamics in 2022 by +1.0% (38.5, n=1803). A decrease in the number of diseases was registered since 2018 (49.5; n=2114), in 2019 a decrease of –12.9% (43.1; n=1870), in 2020 by –9.5% (39.0; n=1721), in 2021 by –2.3% (38.1; n=1710), in 2023 this year by –20.2% (30.7; n=1470) and in 2024 by –52.7% (14.5; n=710).

Other peripheral vascular diseases that include phlebitis, thrombophlebitis of the superficial and deep vessels of the lower extremities, varicose veins of the lower extremities, endarteritis, thrombangiitis had very high rates in dynamics in 2020 by +673.4% (75.8; n=3347), in

2021 by +21.6% (92.2; n=4131), in 2022 by +20.0% (110.7; n=5186) and in 2023 by +5.6% (116.9; n=5599). In 2018, these diseases accounted for 11.6 (n=497) cases, in 2019 they decreased by –15.5% (9.8; n=427) and in 2024 they decreased by –5.4% (110.5; n=5422).

Other diseases of the circulatory system include pulmonary embolism, mitral valve prolapse, and cardiomyopathy, which had a spasmodic spread. In 2018, the number of patients with these diseases was 688.1 (n=29,378) cases, in 2019 the indicator slightly increased by +1.0% (695.4; n=30,189), then in 2020 it decreased by –52.9% (326.9; n=14,419), and in 2021, 2022 and 2024 it increased the number of cases increased by +14.9% (374.8; n=16,798), +10.6% (414.8; n=19,420), +40.7% (542.3; n=26,615), respectively, and in 2023 a decrease of –7.1% (385.3; n=18,451).

Discussion

The results obtained indicate a complex and heterogeneous dynamics of primary morbidity and prevalence of circulatory diseases in the Kyrgyz Republic in 2018–2024. The marked decline in indicators in 2020–2021 is most likely due to limited access to medical care and a decrease in the detection of diseases during COVID-19 pandemic, which is consistent with data from other studies. The subsequent increase in indicators in 2022 may reflect both the recovery of the health system and the accumulated “deferred demand” for medical care.

The greatest contribution to the overall structure of morbidity and prevalence was made by hypertension, coronary heart disease, and cerebrovascular diseases, which confirms their leading role in the formation of cardiovascular pathology. The wave-like dynamics for individual nosologies, including myocardial infarction and strokes, indicates instability of detection and possible differences in the organization of diagnosis and accounting of diseases. Significant fluctuations in indicators for other peripheral vascular diseases may be associated with changes in diagnostic approaches and registration practices.

Conclusions

1. Diseases of the circulatory system remain of high importance for the health system of the Kyrgyz Republic, characterized by a high level of morbidity and prevalence.
2. In the dynamics of 2018–2024, pronounced fluctuations in indicators were noted with the maximum growth in 2022 and a decrease in the period 2020–2021.
3. The leading nosologies remain hypertension, coronary heart disease, and cerebrovascular diseases.
4. For a number of nosological forms, sharp changes in indicators were detected, which may indicate the influence of factors of detectability and accessibility of medical care.
5. The data obtained emphasize the need to strengthen preventive measures and follow-up, especially among high-risk groups.

Analysis of long-term dynamics of morbidity and prevalence of circulatory diseases in the republic

За рубежом

showed an unstable nature of prevalence with a high level of cardiovascular pathology. The results of the study can be used in planning preventive programs aimed at reducing the burden of cardiovascular diseases and improving the effectiveness of medical care for the population.

ЛИТЕРАТУРА

1. Улумбекова Г. Э. Здравоохранение России. Что надо делать. Состояние и предложения: 2019—2024. М.: ГЭОТАР-Медиа; 2019. 416 с.
2. Кикун П. Ф., Бениова С. Н., Морева В. Г., Горборукова Т. В., Измайлова О. А., Сухова А. В., Сабирова К. М., Богданова В. Д. Эколого-гигиенические факторы и распространенность болезней системы кровообращения. *Здравоохранение Российской Федерации*. 2019;63(2):9297. doi: 10.18821/0044-197X-2019-63-2-92-97
3. Ибраимова Д. Д. Заболеваемость и смертность от болезней системы кровообращения в Кыргызской Республике. *Вестник Кыргызско-Российского Славянского университета*. 2014;14(10):117—20.
4. Батыралиев Т. А., Махмудходжаев С. А., Кыдыралиева Р. Б. и др. Распространенность факторов риска неинфекционных заболеваний в Кыргызской Республике (исследование STEPS). *Кардиология*. 2016;56(11):86—90. doi: 10.18565/cardio.2016.11.86-90
5. Джорупбекова К. Ш., Кыдыралиева Р. Б. Болезни системы кровообращения как главная причина смертности населения Кыргызской Республики. *Вестник Кыргызско-Российского Славянского университета*. 2021;21(1):111—7.
6. Енина Е. Н., Вайсман Д. Ш., Богданова Т. Г. Динамика заболеваемости болезнями системы кровообращения и охвата диспансерным наблюдением взрослого населения Российской Федерации в 2019—2023 гг. *Социальные аспекты здоровья населения*. 2024;70(6):1.
7. Суслин С. А., Кирьякова О. В., Богатырева Г. П., Измаков Н. С., Садреева С. Х., Шешунова Р. А. Болезни системы кровообращения как современная проблема общественного здоровья. *Современные проблемы здравоохранения и медицинской статистики*. 2024;(1):540—60.
8. Хабриев Р. У., Шепин В. О., Калининская А. А., Алленов А. М., Лазарев А. В., Кизеев М. В., Васильева Т. П. Результаты анализа заболеваемости и смертности населения в условиях пандемии COVID-19. *Проблемы социальной гигиены, здравоохранения и истории медицины*. 2023;31(3):315—8.
9. Кириленко Н. П., Ильина Н. Н. COVID-19 и сердечно-сосудистые заболевания: сердечно-сосудистая коморбидность, частота выявления COVID-19, степень тяжести и постковидный синдром. *Профилактическая медицина*. 2022;25(5):79—85.
10. Концевая А. В., Мырзаматова А. О., Каширин А. К. Факторы риска сердечно-сосудистых заболеваний среди жителей сельской местности по данным эпидемиологических исследований: обзор литературы. *Кардиоваскулярная терапия и профилактика*. 2016;15(6):66—71.
11. Yasmin F, Moeed A, Ur Rahman H. A., et al. Trends and disparities in the prevalence of circulatory disease risk factors among U.S. adults from the National Health Interview Survey database (2019—2022). *Int. J. Cardiol. Cardiovasc. Risk Prev.* 2025;25:200393.
12. Singh G. K., Siahpush M. Widening rural-urban disparities in all-cause mortality and mortality from major causes of death in the USA, 1969—2009. *J. Urban Health*. 2015;92(2):272—92.
13. Будаев Б. С., Кицул И. С., Тармаева И. Ю., Богданова О. Г. Анализ показателей заболеваемости и смертности населения от болезней системы кровообращения. *Проблемы социальной гигиены, здравоохранения и истории медицины*. 2021;29(4):865—70.
14. Власова В. П., Лещанкина Н. Ю., Мышкина Н. А., Трифанова К. С. Факторы риска в развитии сердечно-сосудистой ко-

морбидности у жителей сельской местности. *Современные проблемы науки и образования*. 2021;(5):69—9.

15. Самородская И. В., Болотова Е. В., Тимофеева Ю. К. Распространенность факторов риска и программы профилактики сердечно-сосудистых заболеваний среди сельского населения. *Профилактическая медицина*. 2016;(6):21—5.

Поступила 14.12.2025
Принята в печать 16.03.2026

REFERENCES

1. Ulumbekova G. E. Health care of Russia. What to do. Status and offers: 2019—2024. Moscow: GEOTAR-Media; 2019. 416 p. (in Russian).
2. Kiku P. F., Beniova S. N., Moreva V. G., Gorborkova T. V., Izmailova O. A., Suhova A. V., et al. Environmental and hygienic factors and prevalence of circulatory system diseases. *Zdravooohranenie Rossijskoj Federacii*. 2019;63(2):92—7 (in Russian).
3. Ibraimova D. D. Morbidity and mortality from circulatory system diseases in the Kyrgyz Republic. *Vestnik Kyrgyzsko-Rossijskogo Slavjanskogo universiteta*. 2014;14(10):117—20 (in Russian).
4. Batoryaliev T. A., Mahmudhodzaev S. A., Kydyralieva R. B., Altymysheva A. T., Dzhakipova R. S., Zhorupbekova K. Sh., et al. Prevalence of risk factors for non-communicable diseases in the Kyrgyz Republic (STEPS Study). *Kardiologija*. 2016;56(11):86—90 (in Russian).
5. Dzhorupbekova K. Sh., Kydyralieva R. B. Diseases of the circulatory system as the main cause of mortality in the population of the Kyrgyz Republic. *Vestnik Kyrgyzsko-Rossijskogo Slavjanskogo universiteta*. 2021;21(1):111—7 (in Russian).
6. Enina E. N., Vajsman D. Sh., Bogdanova T. G. Dynamics of the incidence of diseases of the circulatory system and coverage of dispensary observation of the adult population of the Russian Federation in 2019—2023. *Social'nye aspekty zdorov'ja naselenija*. 2024;70(6):1 (in Russian).
7. Suslin S. A., Kirjakova O. V., Bogatyreva G. P., Izmailkov N. S., Sadreeva S. H., Sheshunova R. A. Diseases of the circulatory system as a modern public health problem. *Sovremennye problemy zdavooohranenija i medicinskoj statistiki*. 2024;(1):550—60 (in Russian).
8. Habriev R. U., Shhepin V. O., Kalininskaja A. A., Allenov A. M., Lazarev A. V., Kizeev M. V., Vasil'eva T. P. Results of analysis of morbidity and mortality of the population in the context of the COVID-19 pandemic. *Problemy social'noj gigieny, zdavooohranenija i istorii mediciny*. 2023;31(3):315—8 (in Russian).
9. Kirilenko N. P., Il'ina N. N. COVID-19 and cardiovascular diseases: cardiovascular comorbidity, COVID-19 detection rate, severity and postcoid syndrome. *Profilakticheskaja medicina*. 2022;25(5):79—5 (in Russian).
10. Koncevaia A. V., Myrзаматова A. O., Kashirin A. K. Cardiovascular risk factors among rural residents according to epidemiological studies: a review of the literature. *Kardiovaskuljarnaja terapija i profilaktika*. 2016;15(6):66—71 (in Russian).
11. Yasmin F, Moeed A, Ur Rahman H. A., et al. Trends and disparities in the prevalence of circulatory disease risk factors among U.S. adults from the National Health Interview Survey database (2019—2022). *Int. J. Cardiol. Cardiovasc. Risk Prev.* 2025;25:200393.
12. Singh G. K., Siahpush M. Widening rural-urban disparities in all-cause mortality and mortality from major causes of death in the USA, 1969—2009. *J. Urban Health*. 2015;92(2):272—92.
13. Budaev B. S., Kicul I. S., Tarmaeva I. Ju., Bogdanova O. G. Analysis of morbidity and mortality rates of the population from diseases of the circulatory system. *Problemy social'noj gigieny, zdavooohranenija i istorii mediciny*. 2021;29(4):865—70 (in Russian).
14. Vlasova V. P., Leschankina N. Yu., Myshkina N. A., Trifanova K. S. Risk factors in the development of cardiovascular comorbidity in rural residents. *Sovremennye problemy nauki i obrazovanija*. 2021;(5):69—9 (in Russian).
15. Samorodskaja I. V., Bolotova E. V., Timofeeva Ju. K. Prevalence of risk factors and cardiovascular disease prevention programs in rural populations. *Profilakticheskaja medicina*. 2016;(6):21—5 (in Russian).