

STUDY OF CARDIOVASCULAR DISEASE MONITORING IN THE NAMANGAN REGION

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Abstract: This article examines the prevalence and characteristics of heart diseases in the Namangan region. The primary goal is to safeguard and monitor public health through systematic data collection and analysis, ultimately enabling the automation of the healthcare system. The necessity of ongoing research to enhance the prevention and management of cardiovascular diseases is thoroughly discussed. The article emphasizes the importance of a unified system for monitoring cardiovascular risk factors and delivering specialized care to patients. A distinctive aspect of such monitoring lies in the effective use of collected data to inform strategies and policies in healthcare. Monitoring also serves as a tool to evaluate the impact of preventive and therapeutic interventions. By combining research insights with practical monitoring, policymakers can improve the effectiveness of health-related decisions and validate monitoring methodologies.

Keywords: cardiovascular disease, public health interventions, statistical research, polygenic risk scores, personalized medicine, healthcare automation.

Introduction

Cardiovascular diseases continue to be one of the leading causes of death in Uzbekistan. Between January and September 2024, 131.7 thousand deaths were recorded, of which 57.2% were attributed to cardiovascular conditions. Although the national cardiovascular mortality rate declined by 56.2% in the first nine months of 2022, ischemic heart disease remains significantly more prevalent in the Namangan region. This may be due to genetic predisposition, lifestyle choices, and limited access to preventive healthcare. Over 200 patients have undergone successful heart surgeries at the Namangan Regional Cardiology Center. The newly constructed facility is equipped with advanced technology and supports complex cardiac procedures. These statistics underscore the pressing burden of cardiovascular diseases in the region. Globally, cardiovascular disease—including a broad spectrum of heart and blood vessel disorders—remains a critical public health issue. Lifestyle habits such as poor diet, lack of physical activity, and smoking are well-established contributors. The COVID-19 pandemic has further catalyzed the adoption of remote monitoring and digital healthcare solutions for cardiovascular disease management [3]. Individuals with a family history of heart attacks or strokes are at an increased risk of developing cardiovascular disease. This familial risk suggests a genetic component; however, identifying the specific genes involved remains complex due to multifactorial interactions between genes and the environment. Numerous gene variants that elevate cardiovascular risk have been identified. These affect various biological mechanisms central to disease development. Local studies by the Ministry of Health and regional institutions reveal a rising trend in cardiovascular disease in Namangan. In 2022, the cardiovascular mortality rate was 5.2 per 1,000 residents—significantly higher than in other regions of Uzbekistan. Most Common Cardiovascular Conditions in Namangan Region: Ischemic Heart Disease (40%) – Caused by the narrowing or blockage of coronary arteries. Hypertension (30%) – A major contributing factor to heart conditions. Stroke (15%) – Resulting from vascular blockage or hemorrhage. Cardiomyopathy (10%) – Involving structural or



functional abnormalities in heart muscles. The high incidence of these conditions highlights the urgent need for enhanced public health measures [1-3].

Methodology

The first study evaluating the impact of remote cardiovascular monitoring was published in 2007 and gained increased relevance during the pandemic. The decline in routine outpatient services during COVID-19—due to patients' fear of infection—necessitated a restructuring of outpatient monitoring and surveillance systems. Early detection is crucial, as delayed diagnosis significantly reduces treatment outcomes. Hypertension treatment efficacy in Uzbekistan has reportedly increased by 22%, yet outpatient care in Namangan still requires improvement to meet international standards. For example, in Western countries, over 40% of hypertension cases are effectively managed—an achievable benchmark for Uzbekistan, especially with consistent screening and adherence to treatment. Russian studies (2003–2009) on hypertension monitoring support this by revealing widespread prevalence, underscoring the value of preventative care and healthy lifestyle promotion. Similar initiatives in Uzbekistan could reorient the healthcare system toward prevention, improve patient care, ensure access to quality medications, and raise public awareness.

Result and Discussion

The Role of Remote Monitoring and Technologies. Remote monitoring for patients with cardiovascular disease has been in use for over 15 years. The 2007 Cochrane review confirmed the effectiveness of telehealth and telephone support for chronic heart failure. Collaborative patient follow-up by physicians and nurses via telephone has shown significant results.

Dynamic health surveillance programs aim to detect early signs of health deterioration and adjust treatment accordingly. This includes scheduled phone check-ins and, if necessary, follow-up clinical appointments. Primary and specialized healthcare providers in Namangan are tasked with organizing these efforts. Comprehensive cardiovascular strategies, integrated into universal health coverage, are crucial. However, many health systems require significant investment and systemic reform to adequately respond to the growing burden. Evidence from 18 countries supports the cost-effectiveness of primary-level hypertension programs, with demonstrated reductions in heart disease and stroke. Access to essential medicines is vital. Key drugs include:

- Aspirin
- Beta-blockers
- ACE inhibitors
- Statins

Severe cases often require advanced procedures such as:

- Coronary artery bypass surgery
- Valve replacement
- Heart transplantation
- Artificial heart surgery

Medical devices like pacemakers and artificial valves are also necessary in specific cases. WHO Activities and Recommendations; In 2013, WHO Member States adopted the Global Action Plan for the Prevention and Control of NCDs (2013–2020), aiming to reduce premature mortality by 25% by 2025. Among the nine voluntary global targets, two focus on cardiovascular disease. WHO's goals include: Reducing global high blood pressure prevalence by 25% by 2025. Ensuring 50% of eligible individuals receive therapy and counseling to prevent heart attacks and strokes. Achieving 80% availability of essential medicines and technologies in both public and private sectors. Implementing these targets demands substantial investment and robust health system support. WHO is also developing new guidelines for acute coronary syndrome and stroke treatment [5-6].

Conclusion

Regional comparative studies, such as this one in the Namangan region, are essential for understanding trends and designing targeted interventions. Automating healthcare processes can enhance efficiency and response time. The analysis of cardiovascular disease data among individuals



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aged 40 and older reveals strong associations with lifestyle and socio-economic factors, such as smoking, alcohol consumption, and low income.

References

1. Kurbaniyazov Z.B., Davlatov S.S., Rakhmanov Q.E., Mardonov B.A. Thoracic, Cardiovascular and Endocrine Surgery. Samarkand: Samarkand State Institute of Foreign Languages Publishing House, 2022.
2. Yakubova Go'yokhon Ko'chkarovna. Physical Education in the Treatment of Cardiovascular Diseases. Galaxy International Interdisciplinary Research Journal, 2022.
3. Artman M., Benson D.V., Srivastava D., Steinberg J.B., Nakazawa M. Cardiovascular Development and Congenital Defects: Molecular and Genetic Mechanisms, 2005.
4. Dzau V.J., Duke J.B., et al. Cardiovascular Genetics and Genomics for the Cardiologist. Blackwell, Malden, 2007.
5. <https://cyberleninka.ru/article/n/yurak-qon-tomir-kasalliklari-diagnostikasi-uchun-texnologiyalar-algoritmlar-va-vositalar>
6. <https://www.sciencedirect.com/topics/medicine-and-dentistry/cardiovascular-monitoring>

