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**Optimization of primary health care (PHC) for the disabled population of the  
South Kazakhstan**

6D110200 – Public Health

Annotation submitted for the degree of Philosophy Doctor (PhD)

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## **Relevance**

An aging population is the focus of the scientific community. In the demographic structure of the population, a steady increase in the proportion of older people creates a new perspective on aging, as well as the changing role of older people in the development of society. According to the WHO, the world's population in the next 40 years, by 2050 will increase from 6.9 to 9.7 billion people i.e. by 40%, and this figure will increase due to increased life expectancy of people, rather than fertility. On the one hand, longevity is a breakthrough in the 21st century, and on the other hand, aging populations and low birth rates in developed countries are an acute social problem that causes social maladaptation. The main causes of social dysfunction are elderly people for several reasons - medical, psychological and social reasons, which are associated with organic disorders of brain activity. In addition to providing medical and social services to older people and solving psychological problems, they also deal with the issues of facilitating their active aging, their participation in professional and social activities and the benefits of working in a living environment. This puts serious pressure on health care, since for this part of the population long-term medical care, sanitary-hygienic care and rehabilitation assistance are necessary.

“The leader of the nation, President N.A. Nazarbayev, in his address to the people of Kazakhstan in September 2018 clearly indicated the need to strengthen the quality of medical care and the availability of primary health care, including medical services for the rural population. The country's demographic indicators, that is, population growth (more than 18 million inhabitants) and their life expectancy (72.5 years), will increase the demand for medical care. The President noted that the main factor in Kazakhstan's entry into the 50 developed, and further to the 30 most developed countries of the world is public health and people's health, and the development of primary health care is the main priority in healthcare.

Further development of the gerontological service in the Republic of Kazakhstan and the improvement of geriatrics care help solve the problem of organizing care for the elderly. All of the above is a prerequisite for determining the relevance of the problem. The topic of the dissertation is aimed at solving this problem with a scientific and theoretical approach and is directed in practice in the form of effective preventive programs, sound medical, social and economic aspects.

### **Study aim**

Scientific substantiation of measures aimed at improving the health of the working population of South Kazakhstan (Turkestan) region based on the results of a comprehensive analysis of the level, composition, dynamics of development and management of malignant diseases and the quality of medical care.

### **Study objectives**

1. The study of the dynamics and trends of morbidity, disability and mortality among the population of working age in the South Kazakhstan (Turkestan) region for 1999-2017.
2. Assessment of the quality of life of the population of the Turkestan region depending on age, gender and state of health according to the international questionnaire Sf-36, taking into account the specifics of this social group.
3. To analyze and determine the role of diseases of the cardiovascular system as the main risk to the health of the working-age population.
4. Assessment of the effectiveness of socio-medical, organizational innovation measures aimed at preventing mortality from socially significant cardiovascular diseases among older people, development of recommendations for treatment and preventive measures in PHC organizations.

### **Scientific novelty of the research**

1. The demographic characteristics of older people and their share in the South Kazakhstan (Turkestan) region and areas were determined.
2. The main socio-hygienic, economic and biomedical causes of aging and increased mortality of the elderly were identified.
3. Cardiovascular diseases were identified as the main cause of death among disabled people, and an innovative system of socio-hygienic, organizational and medical-technological measures to increase life expectancy using preventive and therapeutic measures was proposed.
4. Was determined the level of technology implementation in the organization of primary health care in rural areas for the early detection, quality treatment and rehabilitation of cardiovascular diseases.

### **Provisions for protection:**

1. in the regions of Turkestan (South Kazakhstan) region, the share of the population older than working age is rapidly increasing. The main reason for this is the increase in urban migration of the population of working and reproductive age.
2. the share of diseases of the cardiovascular system in the morbidity, disability and death of older people is increasing. To improve the health of this social group, first of all, it is necessary to improve their cardiac care and provide them with the necessary resources.
3. with the age of the working-age population, the quality of life of a chronic non-specific disease progresses with increasing age.
4. there is a need for timely regulation of geriatric care in accordance with the standards recommended by the Ministry of public health for timely solution of social and medical problems of the elderly population.

### **Practical significance**

The research work «ОҚО еңбекке қабілетті жасынан асқан халыққа біріншілік медициналық-санитарлық көмекті (БМСК) оңтайландыру» ("Optimization of Primary Health Care (PHC) for the able-bodied population of SKR") was carried out as part of a research grant dated June 23, 2015 No. 15/1164 of registration funded by the Khoja Ahmed Yasawi International Kazakh-Turkish University. In the period from 04/01/2015 April 01, 2017. The study was conducted in outpatient organizations of districts and cities of the South Kazakhstan (Turkestan) region.

Due to the fact that the majority of the region's elderly population suffers from cardiovascular diseases with a high risk of developing serious complications and mortality from them, an innovative system of socio-hygienic, organizational and medical-technological measures to increase life expectancy using preventive and therapeutic actions.

Based on the materials of the thesis, it was prepared, registered in the register of the scientific library of the International Kazakh-Turkish University named after K.Ya. Yasavi and the teaching aid "Optimization of primary health care (PHC) for the disabled population of the South Kazakhstan (Turkestan) region" was introduced into the educational use on May 23, 2018.

Changes in the demographic situation in the region, a dynamic increase in the proportion of older people lead to radical changes in the level and composition of health indicators. Morbidity, disability and mortality from diseases of the cardiovascular system, diseases of the musculoskeletal system, and chronic social diseases are increasing from year to year. Therefore, since the majority of the region's population suffers from high-risk cardiovascular diseases and their serious complications, it is extremely important to strictly control the level and development of these pathologies and increase the effectiveness of preventive measures.

Textbook «Егде және қарт жастағы тұрғындардың жүрек қан айналу жүйесі ауруларының біріншілік пен екіншілік профилактикасын жетілдіру және кардиологиялық қызметті қажетті қорлармен қамтамасыз етуді ұйымдастыру» ("Improving the primary and secondary prevention of diseases of the cardiovascular system in the elderly and the elderly and the organization of the provision of cardiology services with the necessary resources ") was approved and published on the basis of the examination and the conclusions EMA RTMC MES RK on specialty group health and social security (medicine) (Minutes No. 7, November 1, 2018). The rights to copyright objects are certified by certificate 29.05.2020 No. 3703 on entering data into the state register (copyright object: literary work) and is recommended for use by doctors of primary health care organizations.

### **Discussion of the results of research materials and testing**

The materials and basic principles of the dissertation were discussed and presented for defense at the scientific and methodological seminar in the field of medicine Of the international Kazakh-Turkish University named after K. A. Yasavi (Protocol No. 2. 11. 03. 2020).

### **Publication information by dissertation**

19 scientific publications on the topic of thesis:

- 3 articles in foreign scientific and practical journals included in the Scopus database "National Journal of Physiology, Pharmacy and Pharmacology", "Drug Invention Today", "Electronic Journal of General Medicine» ;
- 4 articles in magazines recommended by the Committee for control in the field of education and science of the Republic of Kazakhstan;
- 3 articles in domestic scientific journals;
- 7 articles were presented in the proceedings of the international scientific and practical conference, 1 publication report from abroad "International occupational and environmental diseases congress", 27 – 29th March, 2017 in Antalya;
- According to the results of the dissertation, 2 textbooks were written.

### **Volume and structure of the dissertation**

The dissertation is presented on 131 pages of computer text, consists of an introduction, a review of the literature, materials and research methods, research results, conclusions, practical recommendations, a list of sources used. The dissertation presents 17 tables, 13 formulas, 37 figures and 3 applications. The list of references includes 227 sources.

### **Material and methods and research**

The research program is based on a comprehensive method for determining public health.

Research work the project "Optimization of primary health care (PHC) for the able-bodied population of the South Kazakhstan region" was registered 06/23/2015 under number 15/1164 as part of grant research projects of the International Kazakh-Turkish University named after Khoja Ahmet Yassawi. 04/01/2015 - 04/01/2017 held in local clinics of districts and cities of the South Kazakhstan (Turkestan) region. The study was carried out in 5 stages (table 1).

The studied sample was studied on the basis of primary medical documentation - outpatient records, copies of medical records, copies of surveys of old and old people using specially prepared questionnaires.

The object of the study was old and old respondents according to WHO criteria (1982) - 60 years old - the boundary of transition to old age, 65 years old - an indicator of old age, 60-74 years old - old age, 75-89 years old - old age, people over 90 years have been classified as

centenarians. In addition, when analyzing labor resources from an economic point of view, groups of the population were divided into 3 groups: 1) under the working age, 2) at the working age, and 3) over the working age. This classification is accepted in international practice.

The study was conducted using a sociological survey. The survey was conducted in 2017 on the territory of the South Kazakhstan (Turkestan) region. Respondents older than 60 years, suffering from chronic and healthy diseases, formed 2481 people, were taken specially designed sociological surveys. Among the respondents of the first selection group, data on the quality of health of 791 residents were obtained using specially developed who international social questions MOS-SF-36(Ware, Sherbourne, 1992). Chronic diseases, age, and permanent residence directly affect the quality of life. The study found that the quality of life of the elderly and senile population suffering from concomitant chronic diseases will significantly decrease than the relatively healthy elderly.

The impact of the most common cardiovascular diseases among diseases in medical and preventive organizations and on mortality rates was evaluated. To evaluate the program for improving medical care for patients with diseases of the cardiovascular system, a comparative work with the indicators of 2015, and then 2 years later, i.e. after the implementation of the program in practice, 2017, was carried out using mathematical modeling. Using this method, comparing the indicators of morbidity and mortality from diseases of the cardiovascular system, a number of areas were identified that primarily need access to cardiological care and provision of specialists. At the last stage of the study, recommendations were developed aimed at improving the quality of life and health of the elderly and senile population, including primary and secondary prevention of diseases of the cardiovascular system.

## **Conclusion**

1. Demographic characteristics of the population of the South Kazakhstan (Turkestan) region the increase in the share of elderly and elderly people - by 1.79% disability (from 60.38% in 1999 to 61.46%) and by 1.39% mortality (from 72.41% to 73.42% before 1999) - increases. According to the results of the study, the main cause of death in this social group is diseases of the cardiovascular system. The increase in the proportion of the elderly and senile population led to an increase in the proportion of morbidity among this social group in the overall structure of morbidity among the population (from 1002.75% in 1999 to 1019.35% in 2017) by 1.65%, disability (from 60.38% to 61.46% in 1999) by 1.79%, and the mortality rate (from 72.41% to 73.42% in 1999) leads to an increase of 1.39%. The main cause of death in this social group is diseases of the cardiovascular system (60.93%).

2. As a result of the study, quality of life indicators, especially physical activity, were low in the elderly and elderly people with chronic diseases. Concomitant chronic diseases, age and place of residence correlate with quality of life indicators. The survey showed that the need for outpatient, inpatient and emergency care for this population group will increase, due to a decrease in all indicators of quality of life, such as social activity, self-service, etc.

3. The Overall incidence rate among the non-working-age population (1969.22%) was 12.7 times higher than among the working-age population (729.34%). In terms of the overall incidence of these social groups, diseases of the circulatory system (34.7%) and 20.37% are in the first place. The share of cardiovascular diseases in the disability indicators of the disabled population in the region was 52.35%, the share of oncological diseases reached 25.36%. The share of cardiovascular diseases in the total mortality of the disabled population has reached 60.93%, and the share of cancer is up to 17.42%. Therefore, preventive measures for these pathologies occupy a special place.

4. The Effectiveness of improving medical and organizational measures implemented in the region was evaluated using the method of mathematical modeling. It is determined that the most effective results can be achieved only as a result of the overall strengthening of all the resources of the cardiology service. It was found that an increase in the share of special beds by

5.0 per 10 thousand people, the provision of cardiologists by 0.3, the share of cardiologists of the highest category by 70% reduces mortality from coronary heart disease by 74% and mortality from cerebrovascular diseases by 46%. As a result of improving medical and organizational measures for the elderly and old people, from 2016 to 2018, the total mortality rate in this social group decreased from 1652.87 to 1577.99, i.e. by 4.5%.

### **Practical guidelines**

1 Due to the aging population of the region, it is necessary to make changes to the primary health care system (PHC) and add specialists in the field of gerontology and specialists in the treatment of socially significant pathologies to the staff of medical specialists.

2 For the formation of doctors in primary health care organizations in accordance with the needs of the population, it is necessary to monitor the demographic situation through systematic social and hygienic monitoring and analyze its structural features.

3 Due to the high prevalence of diseases of the cardiovascular system, which are of great gerontological and social significance, and their mortality from severe complications, it is necessary to establish strict control over their level and direction of development, and increase the activity of medical and social medical services.

4 Priority should be given to improving the skills of primary care physicians in the field of gerontology and the development of diseases of the cardiovascular system and ways to organize treatment and prevention.

5 To assess the quality of life of older people and older people over working age, a version of the international sociological questionnaire Sf 36 was developed and implemented, adapted to the socio-medical characteristics of this age group.

6 It is recommended to use mathematical methods when analyzing complex systems, modeling the management of regional medical information and expert centers, and developing a clear algorithm for their operation.

7 The Data obtained in the course of the study can be used at the regional level and in other regions of the country in the organization of care for cardiovascular diseases.