

RESEARCH ARTICLE

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Health Capital in Kazakhstan and Factors of its Development

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Abstract

This article discusses the essence of health capital based on the theoretical analysis of the scientific works of various scholars of the past centuries and modern times. The analysis of its development factors reveals negative trends in life expectancy in Kazakhstan exacerbated by the pandemic. Our previous studies related to marketing studies conducted by interviewing patients expressed, for the most part, their dissatisfaction with the quality of medical services provided. The results of the expert survey made it possible to identify problems in healthcare in the context of COVID-19 and determine ways to solve them. On the base of previous work, this study was conducted to show the concept formation based on scholars' works. The identified negative trends in the development of health capital in Kazakhstan indicate the objective need to increase healthcare costs, which are profitable investments that contribute to both increasing the productivity of workers and promoting the health of an individual. It was found that the average remuneration or salary of medical workers in the Republic of Kazakhstan in comparison to OECD countries is incompetent low, thus leading to the low motivation of healthcare system workers to demonstrate high performance. This phenomenon leads to the dissatisfaction of the public with the delivered services. Therefore, to improve the quality of health capital, it is necessary to move from the concept of improving health care to the concept of monitoring, premature prevention and promoting public health.

Keywords: Economics, Health Capital Factors, Human Capital Life Expectancy, Medicine, Mortality, Medical Services Business, Investment, Expert Survey, Quality of Health Services

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1. INTRODUCTION

Health capital is a basic component of human capital and has a direct influence on the economic performance of any organization, which makes it possible to consider it as a factor in increasing labor productivity and production efficiency. The qualitative and quantitative characteristics of health capital affect not only the quality of life of an individual but, through increased productivity in the workplace, benefit the economy and contribute to the country's competitiveness. In this regard, this topic becomes especially relevant as well as with the deterioration of public health and the increase in the mortality rate in the context of the COVID-19 pandemic. The increase in mortality associated with the pandemic reduced the life expectancy of the population of Kazakhstan in 2020 compared with 2018 by 1.75 years. Therefore, the presented article analyses the factors characterizing the state of health capital in Kazakhstan and on this basis, makes specific proposals.

The qualitative and quantitative analysis made it possible to reveal not only the state of development of health capital in Kazakhstan but also to identify problems in the health economy as a whole and the quality of medical services.

Aim and objectives of the research: If we consider the main indicator characterizing the state of health capital - the average life expectancy of the population, then why and due to what factors have it decreased over the past two years? This is the problem of research, which requires its study. The goal of the study is to analyze the factors affecting the state of health capital in Kazakhstan in the context of the COVID-19 pandemic, identify problems in the provision of medical services and make recommendations to improve their solution. The objective of the article is to conduct a comparative analysis of the state of health capital in Kazakhstan, as well as determine the factors influencing its development, conduct marketing research based on a survey, interview to identify problems in the area under study and make recommendations on their solution.

2. LITERATURE REVIEW

The concept of human capital was developed by economists T. Schultz (1971) and G. Becker (1994). For the first time, the term "human capital" was used by Schultz, meaning a set of investments in a person that increase his ability to work (Schultz, 1971). G. Becker, developing Schultz's idea, defines human capital as "a set of innate abilities, acquired skills, knowledge, and motivations embodied in a person, which are used to produce goods and services and are sources of income for a person and society" (Becker, 1994). K. Sagadiev emphasizes the important role of human capital in increasing the competitiveness of the country (Sagadiev, 2013). The article by Glazyev and Voronov is devoted to measuring human capital in the context of structural economic changes (Glazyev et al., 2020). Such a relationship is shown based on the integration of multidisciplinary approaches and parameters for assessing human capital.

Until recently, researchers considered education capital as the main factor in the formation of human capital. However, there is an increasing focus on health capital. The American scientist M. Grossman contributed significantly to the development of the concept of health capital. In his opinion, health is on one hand, a consumer good for which there is demand, and on the other hand, an investment good, which is determined

by the net value of the benefits derived from this good (Grossman, 1972).

I. Ilyinsky made a significant contribution to the development of the theory of health capital. According to I. Ilyinsky, health capital is an investment in a person, carried out to maintain and improve his health and efficiency (Demidov et al., 2015). It should be noted that investments in health will not only reduce morbidity and mortality but also increase productivity and production efficiency in general.

A. Schneider-Kamp, in the article on the conceptualization of health capital, is based on the theory of human capital associated with the Chicago School of Economics and Bourdieu's concept of social capital. A. Schneider-Kamp notes the importance of social and cultural aspects in building individual health. It considers health capital as a collection of actual or potential agent resources affecting the position of other agents in the social field of health (Schneider-Kamp, 2020).

T. Verulava by health capital means the investment in a person necessary to maintain their health and well-being. As proxy indicators for measuring health capital and its development factors, the author used life expectancy, overall morbidity, maternal and child mortality, outpatient focus, public health expenditure, and their share in gross domestic product. Based on the analysis, the author showed the impact of these indicators on the economic growth of Georgia (Verulava, 2019).

La Torre D., Marsiglio S., Mendivil F., Privilrggi F. using a simple two-sector stochastic dynamic model of economic growth in work shows that the accumulation of physical and health capital jointly contributes to long-term economic growth. However, health services are subject to accidental shocks due to changes in behavior. The economy is more or less likely to face negative consequences, which negatively affect long-term economic growth (Torre et al., 2019).

In their work, Forrester and Verevkina (2016), substantiated the factors affecting human health, including heredity, medical provision, an environmentally friendly environment, and human lifestyle. It can be noticed that S. Forrester and D. Verevkina added a favorable environment and lifestyle to the factors affecting health capital, unlike T. Verulava.

In this work, the main distinction from the previous works and researchers, based on the above statements, the author also considers “health capital as an investment in a person aimed at improving health and well-being”. This investment will contribute not only to reducing morbidity and mortality but also to improving health, as well as improving labor productivity, and economic growth in general.

In conclusion, the study of scientific papers on this topic shows gaps in a more comprehensive study of factors affecting capital health. In addition, this aspect of the chosen topic is not considered in the publications available in Kazakhstan. Thus, Kazakhstani authors studied the influence of social and economic factors on the readiness of the population to maintain and accumulate health capital (Spankulova et al., 2021). There are several works on this topic. However, they were not eligible enough to cover the topic of health investment in terms of economic perspectives.

3. METHODOLOGY

The results of the article are based on conducting interdisciplinary research in

medicine and marketing. In the process of preparing the study, general scientific methods were used: analysis, synthesis, systematization, and generalization of concepts of human capital.

The study of theoretical material is based on content analysis of existing perspectives on developing human and health capital concepts. To clarify the goal of the study, this article uses both quantitative and qualitative methods of analysis.

The research uses the method of expert assessments, which involves obtaining a generalized opinion of experts on the study issue, based on the experience and recommendations of competent specialists. The main goal of this survey was to clarify the problems associated with coronavirus infection. An expert survey was conducted in the form of online discussions among respondents in the amount of 30 people who were ready to share their answers in research aims by "Google Forms" online survey tools and online discussions via "Zoom." The number of participants were selected from the 65 polyclinics from available experts in Almaty city, Kazakhstan. In expert studies, the number of competent respondents allows for obtaining the representativeness of the sample (Orlov, 2002). Experts selected the leading managers of the Office of Public Health, as well as experienced doctors of polyclinics and hospitals in Almaty. The study was conducted between November 2021 and March 2022.

The study used a semi-structured questionnaire. The questions were divided into certain thematic blocks. Previously, a pilot survey of experts was carried out, after which adjustments were made to the questionnaire questions.

Quantitative assessment of expert responses and qualitative analysis made it possible to understand the importance of existing problems with the situation of coronavirus for making informed decisions on them. These results were published in more detail in the journal of Turan University (Yessimzhanova, 2021). Therefore, this article presents only the final data.

The article also presents the results of marketing research conducted to examine patient satisfaction with the quality of health services. This survey was conducted based on personal interviewing of patients at polyclinics No. 17, No. 8, and No. 4, as well as using the tools of the Google Forms online survey in 2020. The sample size was 248 people, and its representativeness was determined by the statistical method.

For the study, materials from the Ministry of Health of the Republic of Kazakhstan, data of the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, reports of the World Health Organization (WHO) and the World Bank were used.

4. FINDINGS AND DISCUSSION

In the process of transforming the concept of human capital and capital of health, the problem of investing in its reproduction is emphasized. Classics of this theoretical direction Schultz and Becker noted that education and investment in education determine the value of human capital in a market. Developing Schultz's theory, Becker justified the productive nature of investments in education, healthcare, and social programs and proved that these investments contribute to obtaining no less and possibly more significant economic effect than investments in manufacturing and technological

processes.

The definition of “capital” implies its application in the production process. Therefore, in the realization process, human capital generates income in the form of increased wages and profits. The concept of "capital" assumes its application in the production process. Therefore, in the process of implementation, health capital brings on the one hand, income to a person in the form of wages and on the other hand, contributes to an increase in labor productivity. In a global pandemic, we see the paramount importance of investing in human health (Forrester & Verevkina, 2016).

The quality of health capital is influenced by social, economic, demographic, environmental, and other factors. Consider certain factors directly affecting the formation and development of health capital in Kazakhstan. The author adheres to the opinion of Verulava (2019), Egorova (2015) and refers to such factors as healthcare costs, life expectancy, the morbidity of the population, disability, mortality, and preventive examinations.

Consider the characteristics of some of these factors based on the availability of information. In 2016-2020 the health expenditure in Kazakhstan did not exceed 3.0-4.0% of GDP (Table 1).

TABLE 1. Factors influencing the formation and development of health capital in Kazakhstan

Indicator	2016	2017	2018	2019	2020	2020 to 2016
Number of incidents in the main classes of diseases, ‘000 persons	105,096.7	107,164.8	105,056.2	104,133.8	103,113.2	98.1
Mortality rate per 100 000-person, person	737.50	715.22	713.75	719.08	860.24	119.6
Life expectancy, years	73.30	72.95	73.15	73.18	71.37	-1.93
Health expenditure in % of GDP	3.7	3.2	3.0	3.0	4.0	+0.3
<i>Note:</i> Complete by authors Based on Bureau of National Statistics (2020)						

Over the past two years, billions of tenge have been allocated to the development of the health system and the treatment of coronavirus. However, the level of its financing remains low – 4.0% of GDP in 2020 (Bureau of National Statistics, 2020). This is insignificant compared to other countries where spending averages 5-15% (with higher spending in the USA and Western Europe). WHO recommends allocating 5 – 5.5% of annual GDP to countries’ healthcare systems. Low funding for health also affects the level of remuneration of medical personnel. In 2020, the average monthly salary of doctors amounted to 246 thousand tenge. However, a 30% increase from 2019, is still considerably lower than the national average (Bureau of National Statistics, 2020). As you can see, during the analyzed period, there is a slight decrease in the incidence of the population in the main classes of diseases. If the value of the first indicator for 2016-2020 increased by almost 17%, then the life expectancy of the population decreased by 2.6 %. Along with social and economic factors such as rising unemployment and population poverty, the COVID-19 pandemic significantly impacted the dynamics of these indicators.

Preventive examinations are an important factor contributing to the accumulation of health capital. Data from the Organization for Economic Co-operation and Development (OECD) for high- and middle-income countries show that 19-53% of women aged 50-69 did not undergo screening mammography examinations (OECD, 2022). In Kazakhstan, according to experts, only 40-45% of the population aged 60 and above are screened.

According to the Ministry of Health, from 2016 to 2020, mortality from diseases of the circulatory system, respiratory organs, and infectious diseases increased. In 2020, compared to 2019, mortality from infectious diseases more than doubled, almost 40% from respiratory diseases. Their growth is attributed to COVID-19 (Report of the Minister of Health of the Republic of Kazakhstan (2021).

Compare data on life expectancy in Kazakhstan with other countries. In 2019, its value was 73.2, while in Belarus – 74.8, Kyrgyzstan – 74.2, Japan – 84.5, the UK – 81.5, and Turkey – 78.8 (see Table 2).

TABLE 2. Life expectancy at birth

Country	Year	Population, age	including	
			man	women
Kazakhstan	2020	71.4	67.1	75.5
	2019	73.2	68.8	77.3
Russia	2019	73.0	68.0	78.0
Belarus	2019	74.8	69.7	79.6
Azerbaijan	2019	71.4	68.8	74.1
Kyrgyzstan	2019	74.2	70.7	77.3
Tajikistan	2019	69.5	67.6	71.5
Uzbekistan	2019	73.0	70.8	75.2
Ukraine	2019	72.9	68.0	77.8
Japan	2019	84.5	81.5	87.1
Great Britain	2019	81.5	80.0	85.0
Turkey	2019	78.5	76.5	80.5
China	2019	71.4	74.7	80.5
Hungary	2019	76.4	73.1	79.6
Latvia	2019	75.4	70.6	79.8

Note: Complete by authors Based on Bureau of National Statistics (2020)

The increase in mortality during the pandemic reduced the population's life expectancy: in 2020, compared to 2019, the decrease was 1.8 years and compared to 2018 (73.15) – 1.75 years. The life expectancy of women is higher than that of men (67.1) by 8.4 years and 75.5 years. However, mortality among women over the past two years has been much higher than among men, which caused a sharp decline in women's life expectancy (by 2.2 years).

Mortality, disability, and morbidity lead to loss of public health, which ultimately reduces the productivity and efficiency of work and, accordingly, the amount of GDP of the country. The macroeconomic review of the Eurasian Development Bank notes that the level of Kazakhstan's GDP under the influence of the pandemic has decreased by 2.6% (Vinokurov & Kuznetsov, 2021).

Therefore, there should be a continuous assessment of the loss of health capital based

on the analysis of indicators of morbidity, disability, and mortality, as well as the economic costs associated with them. This assessment is practically not carried out in the country.

To clarify the situation with coronavirus infection, as well as the quality of medical care, an expert survey was conducted among specialists and medical workers in Almaty. According to the purpose of the research, respondents were asked several questions. When asked: “What are the problems in the prevention and treatment of coronavirus?” 70% of respondents said there is no clear drug for the treatment of COVID-19 and that the treatment protocols are constantly changing, 20% - complications of comorbidities after a coronavirus infection, an increase in the burden on medicine, 10% - a shortage of personnel and their outflow abroad, low motivation of doctors.

When asked: “What are the main factors that will contribute to improving the quality of medical services?” 1/3 of respondents consider it necessary to competent medical personnel and increase the motivation of doctors, 30% of experts recommend reducing the burden on doctors and paperwork. The rest propose improving the regulatory framework of medicine that does not meet modern realities and requirements

Kazakhstan also lags behind most countries, including Russia, in terms of providing the population with medical personnel. According to 2020 statistics, Kazakhstan has 39.6 doctors and 95.5 medical personnel per every 10,000 of the population. The shortage of doctors in Kazakhstan amounted to 4,244 (Report of the Minister of Health of the Republic of Kazakhstan (2021)). Therefore, there is an acute shortage of doctors and nurses in health facilities, especially in rural areas.

Government guarantees free medical care within its guaranteed scope (GAFMC). However, only some receives this amount of free medical care under compulsory social health insurance (CSHI), the unemployed and the self-employed are left behind. All this affects the quality of health capital and the availability of health services.

According to research by the Ministry of Health in 2019, patient satisfaction with the quality of medical services in Kazakhstan amounted to 48% (Report of the Minister of Health of the Republic of Kazakhstan (2021)). The results of marketing research by interviewing patients of clinics No. 4, No. 17, and No. 5, conducted by the author and researcher Akhpanbayeva (2016), showed a similar value of this indicator - 46% (Akhpanbaeva & Esimzhanova, 2016). Economic and social losses due to harm to patients (long-term disability, incapacity for work, and reduced productivity) in the world reach trillions of dollars annually (OECD, 2022).

Contribution of research findings to science and society. Based on the research conducted by the author, the following conclusions and proposals can be drawn that will make a certain contribution to the development of science and society.

1. The study of literature on this topic shows that in Kazakhstan, there are practically no publications on health capital. The theoretical conclusions obtained during the study allowed the author to conclude the significance of investments in improving human health, and to identify the factors affecting this capital. Based on the conducted quantitative and qualitative studies, the author identified the existing problems in general in the health care of Kazakhstan, and the quality of medical services. Addressing these issues at both the public and private levels should lead to improved health capital.

The author hopes that this article will make a certain contribution to the science and

society of Kazakhstan, the results of which are aimed at improving the health of people in the post-coronavirus period and further.

2. Kazakhstan is significantly lagging in health financing, both from individual CIS countries and developed countries. In addition, the allocated funds are not always used effectively. According to the results of an expert survey conducted by the author in the period from November 2021 to March 2022, it revealed that the main reasons for this situation are the incorrect prescription and use of drugs, the lack of an effective structure, excessive supplies of equipment, corruption, etc.

3. Low quality of health services contributes to the poor health of the general population in the country resulting in significant economic loss and impacting the longevity of society overall.

For quality to become one of the foundations of the health care system, government and policymakers, leadership, and physicians must strive to ensure, through joint efforts, that: the high qualification of medical personnel, the high quality of health care services in all health care institutions; safe and effective use of drugs, devices, technologies and information (OECD, 2022). Quality requirements should be incorporated into the policies and processes of healthcare facilities.

The qualifications and competencies of medical personnel are important in improving the quality of health services. 30% of all those surveyed during this study believe that their treating doctors have low or very low levels of competence (Akhpanbaeva & Esimzhanova, 2016). The government must create an environment where medical personnel can update their skills in the field continuously and provide a forum for best practices exchange both domestically and with an advanced global institution.

The quality of the services provided is significantly influenced by the material incentives of medical workers. According to the Ministry of Health, in 2022, the average monthly salary of doctors in Kazakhstan amounted to 415 000 tenge (within 800 dollars) (“Kazinform” International News Agency, 2022), which is almost 15 times lower than the countries of the Organization for Economic Cooperation and Development, 22 - than in the USA, 25 times less than in Switzerland and 10 - in the UK (OECD Healthcare Salary Index, 2022). Such conditions of remuneration and stimulation of labor largely determine the non-consistency of the profession and the low labor motivation of medical workers in Kazakhstan.

This reduces the motivation of medical professionals for their work. Therefore, the government and private health institutions should look for opportunities to further increase the remuneration of doctors. It is necessary to develop financial mechanisms that support the constant improvement of the quality of services and incentive measures (tangible and intangible) based on the performance of medical workers.

4. The high workload of doctors leads to a decrease in the quality of medical care. The burden on one doctor currently exceeds 15-20% of approved norms. Therefore, it is necessary to revise the planned load of district doctors. Expert surveys revealed that 40-45% of doctors' time is attributed to doing paperwork leaving only 55-60% of their time for actual patient care. As a result, doctors have less time to examine patients, which sometimes leads to erroneous diagnoses and the prescription of improper treatment.

The government plans to increase the availability of a doctor to patients by reducing the burden on one GP from 1860 in 2021 to 1,700 of the attached population in 2023.

5. The level of professionalism of medical personnel capable of meeting the needs of the population for high-quality medical services should be maintained. The results of surveys revealed a huge disparity between the doctor qualifications and patient expectations of health care quality. At the global level, the annual costs associated with errors in prescribing or taking drugs are estimated at 42 billion US dollars, excluding wage losses, lost income due to lack of productivity improvements, and health system costs (OECD, 2022). It is necessary to create conditions for advanced training and the level of categorization of medical personnel. In this regard, it is necessary to study the best foreign experience, organize online meetings, forums, and conferences, invite well-known specialists from different countries, and create conditions for foreign internships. All this requires investment and allocation of funds from the state and private medical institutions.

6. In improving the quality of health services, including in a pandemic, the introduction of digital technologies that contribute to the availability of health services, as well as increasing the productivity and efficiency of doctors, is essential. Such technologies in medicine include means of monitoring the health of patients. These mobile applications provide medical support to the population, telemedicine, artificial intelligence, etc. It is necessary to create the infrastructure to study international best practices and provide technical support and management of information bases (Report of the Minister of Health of the Republic of Kazakhstan (2021).

7. To reduce mortality and increase life expectancy, it is necessary to carry out preventive measures such as timely laboratory studies, passing mandatory screening tests, and promoting a healthy lifestyle and proper nutrition. The experience of Western countries shows that timely prevention can reduce mortality from non-communicable diseases by 2-3 times (Prohorova & Medvedeva, 2019). Therefore, it is necessary to move from the concept of health care to the concept of monitoring, preservation, and promotion of public health. Effective management systems and organizations are needed for its implementation, including all patient routes - prevention, diagnosis, treatment, disease management, rehabilitation, and palliative care. To respond to existing threats to human health on time, it is necessary to create appropriate conditions for their detection and timely prevention.

8. Due to the increase in mortality and a decrease in the population's life expectancy in the context of the COVID-19 pandemic, this topic is of particular relevance. Therefore, the author intends to continue studying this topic in the future, especially in the direction of studying the degree of detection of factors in the development of human capital on the population's life expectancy.

5. CONCLUSIONS

This study examined the health care system as a health capital and found that it refers to investments in a person necessary to maintain and improve their health and performance.

The pandemic and its consequences have seriously affected both the country's economy and the quality of human capital, reducing life expectancy and increasing mortality. The low motivation and unattractiveness of the doctor profession led to their

shortage.

The results of the respondents' survey in Almaty showed that only 46% of patients receiving treatment in medical institutions are satisfied with the quality of medical services received. Research has established that increased financing for healthcare, digitalization and the introduction of artificial intelligence in the industry, increased pay and advanced training of doctors, the use of modern medical equipment, staffing of medical personnel, and measures to increase the prestige of the doctor's profession, timely prevention and promotion of a healthy lifestyle will contribute to the improvement of the quality of medical services.

To ensure improvements in the quality of health capital, the priority for the state should be to revolutionize the healthcare system by investing in modern technology and educational support for the workers in the field. This should be accompanied by the continuous assessment of the loss of health capital based on an analysis of morbidity, disability, and mortality rates and any associated economic costs.

Based on collected and interpreted data, the further research agenda will be related to studying the factors that are related to life expectancy of the population. Because of the increased mortality rate, the life expectancy of the people was decreased in 1.7 years. The practical implementation of these studies will help with the policies in health care system, as well as in preventing activities to reduce the diseases leading to mortality.

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