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STRATEGIC AUDIT OF THE DEVELOPMENT OF THE HEALTH CARE SYSTEM OF UKRAINE IN THE CONTEXT OF THE IMPLEMENTATION OF THE CONCEPT OF SOCIO-ETHICAL MARKETING

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ABSTRACT

In the article shows the stages of strategic audit of the health system in Ukraine context of the concept of social-ethical marketing. It was concluded on trends in the relationship between the reduction of specialized medical facilities and the reduction of the population based on the results of multivariate correlation and regression analysis. A survey of the population on access to health services shows that the majority of respondents do not have the opportunity to receive adequate medical care, which is exacerbated by declining incomes and the economic crisis. It was concluded that the health care system of Ukraine does not comply with the socio-ethical norms and principles of the marketing strategy of medical services. It was proposed to improve the reform of the health care system of Ukraine in terms of its compliance with socio-ethical principles.

KEYWORDS

marketing audit, strategic audit, medical industry, healthcare system, European integration

INTRODUCTION

Ukraine's healthcare system is in the process of reforming and bringing operating standards up to the requirements of the European Union. The state of the healthcare system affects the well-being of the population and the economic development of the state, regions, and cities [15, 16]. Situational analysis of the medical sector in the field of medical services shows dynamic changes, which was confirmed by the transition to international requirements, both in the field of treatment and in the field of financing. The establishment of the NSSU created the basis for the application of transparent mechanisms for financing and use of funds in accordance with European regulations. In these conditions, the question of compliance of the quality of medical services with the requirements of consumers and society becomes relevant. This contributes to the actualization of the issue of strategic audit of the development of the health care system of Ukraine in the framework of socio-ethical marketing. This approach is also due to the aggravation of social problems caused by the pandemic COVID-19. All these general trends have contributed to the application of the principles of the concept of socio-ethical marketing in the field of health care.

The unconditional and fundamental principle of marketing is the target orientation of the consumer and the complexity of solving market problems, in which all the activities of producers of goods and services merge into a single process. If we distribute all existing approaches to the definition of marketing, it should be recognized that they are divided into the following main areas: the use of the concept of socio-ethical marketing as a philosophy of doing business; formation of tools of social and ethical marketing as the main approach to the implementation of market activities; use of the concept of marketing based on ethical principles of doing business. In order to determine the aspects of application of the principles of social and ethical marketing in the health care system of Ukraine, there is a need to conduct a strategic audit of this area.

The aim of the study is of the strategic audit Healthcare System of Ukraine to use the principles of social-ethical marketing as a tool adjustment challenges to society in terms of European integration. This will allow developing the practical principles of application of the concept of socio-ethical marketing in the field of medical services and solving social problems of society, considering the specifics and standards of European integration.

The methodological basis of the research are the scientific works of scientists who have made a significant contribution to the development of theoretical and methodological foundations of the concept of socio-ethical marketing. The following well-known scientists have made a significant contribution to the improvement of marketing theory: Aaker D. [1], Drucker P. [5], Kotler F. [10, 11, 12], Keller K. [8, 10], Lamben J.-J. [13], Mintzberg G. [14], Oklander M. [20, 21], Porter M. [24], Pererva P. [23], Chukurna O. [2, 3, 4, 17, 20] etc.

However, new factors affecting the medical sector of Ukraine and the COVID-19 pandemic have influenced the development of theoretical and applied approaches to the implementation of the concept of socio-ethical marketing in the health care system and the provision of medical services. In this aspect, there is a need for systematic research on the development and transformation of the medical sector, which is strengthened by the process of European integration of Ukraine and requires compliance with social standards of medical services and social responsibility of doing business.

Result of the study. The profound socio-economic transformations that are taking place today require the solution of fundamentally new tasks in terms of social responsibility and compliance with EU standards. That is why the system of health care and provision of medical services was chosen as the object of strategic audit. At the first stage of the strategic audit were assessed the state of development of the health care system of Ukraine and the degree of its transformation.

Today's reform of Ukraine's health care system is taking place in the context of European integration and under the supervision of the WHO and the World Bank. During April-July 2019, the WHO and the World Bank conducted a joint evaluation of the implementation of the health care financing reform from 2016 to analyze and summarize the interim results of the reform. The assessment of Ukraine's health care reform process is detailed in a joint WHO and World Bank Report [26].

The assessment was conducted to record the results of the impact of the reform on the declared goals of health care reform and to determine compliance with international standards. According to the WHO and World Bank Report, at the beginning of the

reform, at the beginning of 2016, the health care system in Ukraine had the following characteristics:

- significant lag behind European countries in terms of life expectancy and mortality: in 2017, the difference in average life expectancy in Ukraine and the European Union was almost ten years – 71,7 and 81,9 years, respectively;
- low level of GDP per capita, which does not allow to ensure the necessary level of expenditures on health care and leaves patients without vital medical services and medicines;
- obsolescence and inefficiency of the health care system with strict centralized management and financing procedures (Semashko model), which led to a high level of corruption in all areas of the health care system, including procurement, education, certification and employment of doctors, medical care in the absence of a transparent state-guaranteed package of medical services [26].

Ukraine's budget expenditures on health care accounted for about 51% of the total (approximately 4% of GDP). Private health care costs in Ukraine, compared to public expenditures, were among the highest in the EU and Eastern Europe. Most of these costs - 95% - were paid by households, but only 5% accounted for insurance payments and international donor assistance.

Budget expenditures mainly consisted of health care costs on salaries and utilities (75%). Under such circumstances, there are very few financial opportunities left for the actual provision of services, i.e., treatment of patients, purchase of medicines and consumables, renewal of technological funds, and so on.

Most household health expenditures, ranging from 3% of GDP (about UAH 43 billion) in 2012 to almost 4% of GDP (about UAH 95 billion) in 2016, were paid directly to service providers. This level of private spending often has catastrophic consequences for household budgets. Accordingly, most patients cannot afford modern expensive medical care. They are forced to delay the start or postpone the continuation of treatment, which leads to high mortality, disability, and reduced quality of life of Ukrainians with chronic conditions. In turn, this leads to low demand for such assistance and prevents the development of the health care system. During 2012-2017, total health care expenditures in Ukraine averaged 7,7% of GDP per year (approximately 4,1 % from the state budget and about 3.6% from the private sector, mainly household expenditures), which is not really very different from the global and European trend. In the European region, total health costs is 8.9%, and in the world as a whole – 8,6%. However, due to the low level of GDP, this figure in per capita expenditures is only about \$ 200, which is much lower than the average of \$ 3340 in the EU, which also includes Poland - \$ 809, Bulgaria - \$ 612 and Romania - \$ 476 [26, 7].

The health care budget is the lowest in comparison with other social sectors of Ukraine. The expenditures of the Ministry of Social Policy are two and a half times higher than the expenditures of the Ministry of Health. Two thirds of these expenditures are pensions. Expenditures of the Ministry of Education and Science of Ukraine also exceed the expenditures of the Ministry of Health. It should be noted that the training of specialists in the field of health care is the responsibility of the Ministry of Health and is accordingly funded from its budget, while other specialties - from the budget of the Ministry of Education and Science (Fig. 1).

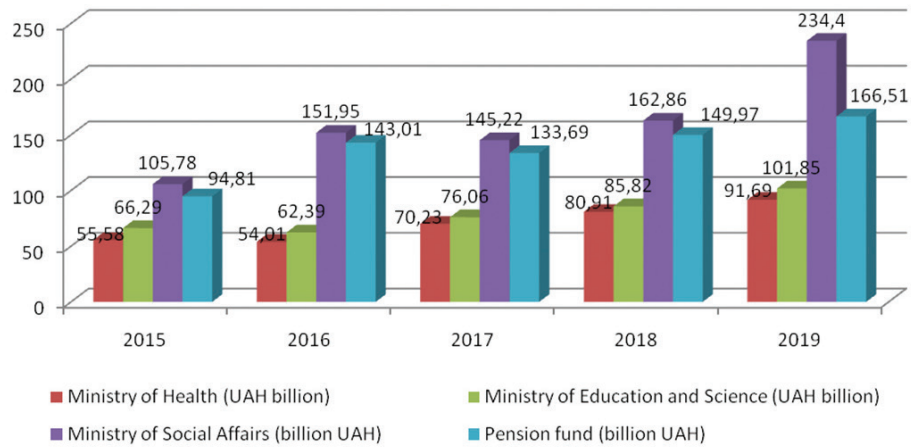


Figure 1. - Expenditures of line ministries of Ukraine for the period 2015-2019. Source: compiled according to data [7, 18, 19]

The reform of the medical system of Ukraine provides for a change in the principles of health care financing. Ukraine has introduced a model of state solidarity health insurance, which considers the best modern practices and experience in the transformation of health care systems in the world, in particular in Central and Eastern Europe. The main source of funding for the updated health care system is the State Budget of Ukraine, received from national taxes. Payments for an individual's treatment are not tied to their individual contributions. Budget funds for medical financing are distributed through a new, modern mechanism of strategic procurement of medical services. There is a transition from the financing of item budgets of budgetary health care institutions to the payment of the result (i.e. according to the actually treated cases, services provided or the number of signed declarations with the family doctor) to institutions that become autonomous non-profit providers of these service. This system is called „money follows the patient“. To effectively transition to the new funding system, a platform for the collection and exchange of medical and financial information in electronic form - the eHealth system - has been created. This electronic system implements the principle of „money follows the patient“, and also allows you to analyze the situation with the health of the population, in order to quickly form a plan for the purchase of medical services and make an effective estimate for the purchase of medicines.

It will be planned to reform the medical sector gradually. Gradual reform involves the introduction of the following steps:

- ensuring adequate social protection;
- introduction of a system of retraining of employees for health care;
- development of information systems;
- consolidation of resources for investment in the development of promising health care facilities in the newly formed hospital districts;
- consolidation of new functions of communities and local self-government in the health insurance system;
- ensuring effective social communication and explaining the essence, mechanisms and expected results of transformation to the general population.

It will be envisaged to create hospital districts, which acquire the functions of uniting health care facilities located in the relevant territory, providing secondary (specialized) medical care to the population of this territory. The purpose of their creation is to guarantee patients timely access to specialized medical care and ensure the highest possible quality of medical care under the condition of rational and economical use of budget funds [18, 19, 26].

The main laws and regulations governing the implementation of all stages of health care reform in Ukraine are presented in Table 1.

With the adoption of laws and regulations, the rapid introduction of a new system of health care financing began. On April 1, 2018, the Government of Ukraine created a single customer of medical services - the National Health Service of Ukraine (NHSU). The provisions necessary for its functioning have been approved.

The established National Health Insurance Fund is a national insurance body that provides coverage of the population with a certain guaranteed package of medical services within the available fiscal space. The introduction of the National Health Insurance Fund has made it possible to start implementing a strategy for financing the health care system, focusing on primary health care.

Table 1. - The main laws and regulations governing the reform of the health care system in Ukraine [compiled by the authors]

№ document	Document name	Date of approval	The level of approval
1013-p	Order of the Cabinet of Ministers of Ukraine „On approval of the concept of reform of the health care financing system”	30.11.2016	CMU
180	Resolution of the Cabinet of Ministers of Ukraine “On Amendments and Repeal of Certain Resolutions of the Cabinet of Ministers of Ukraine (Reimbursement Program“ Available Medicines”)	16.03.2017	CMU
2168-VIII	Law of Ukraine „On state financial guarantees of medical care”	19.10.2017	Supreme Council of Ukraine
2206- VIII	Law of Ukraine «On improving the availability and quality of health care in rural areas»	14.11.2017	Supreme Council of Ukraine
1101-2017-n	Resolution of the Cabinet of Ministers of Ukraine «On the establishment of the National Health Service of Ukraine»	27.12.2017	CMU
503	Order of the Ministry of Health of Ukraine „On approval of the Procedure for selection of a doctor who provides primary care and the form of declaration on the selection of a doctor who provides primary care”	19.03.2018	Ministry of Health
504	Order of the Ministry of Health of Ukraine „On approval of the procedure for providing primary health care”	19.03.2018	Ministry of Health
407	Resolution of the Cabinet of Ministers of Ukraine „On approval of the Procedure for implementation of state guarantees of medical care for the population under the program of medical guarantees for primary health care	25.04.2018	CMU

The population has the right to freely choose primary care providers (PCP) and can sign a declaration with any primary care provider. In order to be able to sign contracts, PCP providers have changed their legal status and become autonomous entities. Ninety-seven percent of all primary health care facilities and more than 100 private primary care practitioners have signed contracts with the National Health Insurance Fund. According to the Ministry of Health, as of February 2019, more than 26 million Ukrainians have signed declarations with their doctors to provide PCP. The results of a recent survey show that 76% of the population is satisfied with the quality of primary care [18].

Another problem of the medical industry in Ukraine is the system of training doctors and the demand for doctors of certain specialties. Provision of junior specialists in 2018 with medical education in Ukraine is 74,7 per 10 thousand population (2017 – 78,3). The ratio between doctors and nurses is 1: 2,5 [7, 18].

According to statistics, in 2018 the number of doctors was 103,783 people or 24,7% per 10,000 population. In 2017, this figure was 105,111 doctors or 24,9%, the dynamics indicates a decrease in doctors in preventive care (Table 2).

Table 2 - Network and staff of health care institutions of Ukraine [7, 9]

Reference information	Years		
	2016	2017	2018
Total hospitals:	1743	1714	1671
including the system of the Ministry of Health	1506	1475	1416
other ministries and departments	147	135	124
private property	90	104	131
Institutions that provide outpatient care	10165	10373	10502
including the system of the Ministry of Health	8182	8318	8437
other ministries and departments	220	207	201
private property	1763	1848	1864
in addition, private offices	5046	5344	6437
Total doctors	186776	186178	185675
Provision for 10 thousand population	44,0	44,1	44,2
including the system of the Ministry of Health	160912	159600	156863
Provision for 10 thousand population	37,9	37,8	37,4
Staffing of full-time medical positions by individuals (total)	82,2	81,7	81,7
including in treatment and prevention facilities	78,6	78,2	78,0
% of certified persons	68,3	68,8	68,9
% of persons who have undergone advanced training	н/д	н/д	н/д
% % Of pensioners	24,1	24,5	24,6
Of the total number of doctors - in institutions of other ministries and departments	10360	9907	9968
private doctors	15504	16671	18844
Number of paramedics, total	366756	360416	345364
Provision for 10 thousand population	86,5	85,4	82,3
including the paramedical system of the Ministry of Health	337703	330444	313412
Provision for 10 thousand population	79,6	78,3	74,7
Staffing of paramedics by individuals, total	94,6	93,3	91,1
including in treatment and prevention facilities	88,6	87,9	86,3
% certification	71,0	71,5	72,5

The experience of the European Union shows that the provision of doctors per 10 thousand population in the European region is – 32,2 people according to 2014. The provision of medical personnel in the EU is 104,0 for 10 thousand population, including doctors (only general practitioners are taken into account) – 35,2 for 10 thousand population, nurses – 73,1 for 10 thousand population [7, 9]. At the same time, the rate of providing the population with medical practitioners is 27,0 per 10 thousand population, which is lower than in the EU [22]. The principles of family medicine are actively implemented in health care facilities. The number of family doctors in 2018 is 14,814 and in 2017 - 14,728. Of the total number of family doctors at the end of 2018 - 9,238 or 62,4% were certified. In the health care system, the network of institutions continued to be reorganized, mainly due to the reorganization of district and low-capacity city hospitals into outpatient clinics with their subsequent introduction into the Centres of Primary Health Care (CPMS). Medical and obstetric points were introduced into the CPMSD as separate structural units.

The staffing of rural outpatient clinics as a whole with doctors (individuals) is 67,6%, while in 453 outpatient clinics no medical position at the end of the year was staffed by the main employee (in 2017 - 412). The staffing of FAPs with junior specialists with medical education in 2018 is – 88,9%, in 2016 – 90,7%. At the same time, in 1221 FAPs at the end of 2018, no full-time position of a junior specialist with medical education was filled by a main employee, in 2017 - 841 [25]. A weak link in the field of management remained personnel services, which failed to establish an effective system of early selection, personal and professional development, multilateral training of the reserve of management, to provide them with priority in the promotion to management.

Inattention to the problem of management personnel was most acutely affected by increasing the economic independence of managers, work in the use of market mechanisms. Today's situation is characterized by a decrease in public satisfaction with the organization

The next stage of the strategic audit of the health care system of Ukraine involves assessing the factors of the marketing environment for the activities and development of this industry and identifying specific factors of influence.

To analyze in more detail the impact of social and economic factors on the activities of the medical service, the data of the State Statistics Committee of Ukraine and the results of the population survey were analyzed. The sample of respondents was 9,400 people. The sample is stratified by main categories of the population in proportion to the number of each selected category. The survey involved people working in various industries, agriculture, non-manufacturing and services, officially registered unemployed, unemployed retirees, full-time students of higher education institutions of III-IV levels of accreditation.

The results of the survey in 2019-2020 characterize the socio-economic protection of 18098,7 thousand people, of which residents of urban settlements are 75,3%, rural areas - 24,7%. Of the total number of respondents: 37,0% - unemployed pensioners; non-productive workers – 19,5%; industry workers – 16,3%; agriculture workers – 6,6%; services workers – 8,4%; students – 6,8 %; unemployed – 5,4% (Fig. 2).

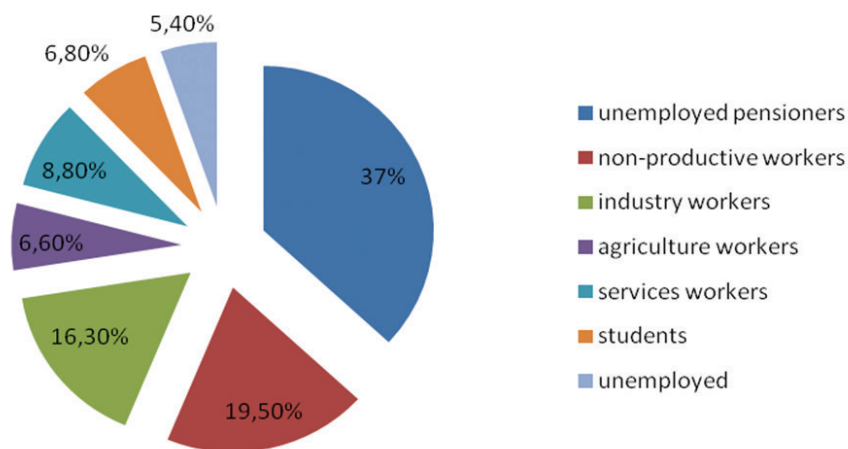


Figure 2. - Distribution of respondents by field of activity [developed by the author]

The average age of respondents was 49 years; among the respondents 58,5% are women and 41,5% are men. According to marital status, the largest share was accounted for by married people – 61,7%; 22,3% of unmarried or divorced; 13,2% - widows and 2,8% are in unregistered marriages.

70,6% of respondents have higher, incomplete higher and secondary special education. Among the respondents, 43,7% of the urban and 42,2% of the rural population changed their place of residence after graduating from high school due to the impossibility of continuing their education at the place of residence. The majority (79,3%) of respondents live in a private apartment, 11,7% - in a rented.

Among those employed in the economy, 14,7% hold the positions of managers, 37,0% are qualified specialists, and 24,5% hold specialists whose positions require secondary special education.

724,7 thousand people employed in the economy have additional work, of which 8,7% are working in the non-productive sphere, 8,2% - in the service sector, 7,2% - in industry, 6,6% - in agriculture.

Social stability in society is a necessary condition for sustainable development. Economic growth largely depends on the strategy and tactics of state regulation, on the definition of priorities and directions of social policy adequate to market relations, aimed at ensuring social protection and security of the population. The attitude of citizens to the implemented reforms depends on the effectiveness of social policy, the action of which is aimed at protecting people in society from various forms of social and economic risks. An unconditional tool for improving public relations in these conditions is the implementation of the principles of socio-ethical marketing in the private-public sphere, which becomes the medical system.

In this regard, the issues of this section are formulated in such a way that it is possible to track and analyze the views of various social groups on the degree of „protection” or „insecurity” as the basic principles of socio-ethical marketing in the medical field.

The questions of the section determine both the structure of the respondents' needs and the sufficiency of their income for normal nutrition, the ability to pay for housing and medical services, education, and to buy clothes; opportunity to receive appropriate education and medical care at the place of residence; sources of support in case of social risks; the level of trust in government agencies that solve social problems; efficiency of activity and professionalism of state law enforcement bodies on maintenance of public peace in the state, protection by them of human rights and freedoms, maintenance of interests of the state and citizens in a public life of the country.

Most respondents in March 2020 said that their income was not enough to meet priority needs: food, health care, clothing, recreation. There are slight deviations in the answers of respondents belonging to different socio-demographic groups.

The unemployed feel the most disadvantaged in 2019-2020. Respondents feel the greatest lack of income to meet the needs of education (62,2%), the purchase of durable goods (74,8% of respondents) and to meet the needs of recreation (75,3%), and the least - to meet the needs of payment housing and food purchases, respectively 35,0% and 38,4% of respondents.

Thus, the low level of wages and, accordingly, the low level of social transfers remain the main factor of basic insecurity of the population. The low level of wages determines the poverty of the working population and, accordingly, has a negative impact on the income of the disabled. Most respondents (75,3%) noted that they did not have enough income to rest and receive health services and only 5,6% indicated that they had enough or more than enough income to meet this need. Human health is one of the highest values of society, which is the basis of economic and spiritual development of the state. The results of the survey show that in Ukraine as a whole 56,0% of respondents do not have the opportunity to receive adequate medical care. The majority of respondents rated their health as satisfactory (57,7%), 17,7% said they had a chronic illness that required constant medical care. The ability to receive appropriate medical care and education at the place of residence is an important component of the social security of an individual, the region and the state as a whole (Table 3).

Table 3. - Assessment of opportunities to receive appropriate medical care and education at the place of residence (y %)

	Do you can receive appropriate medical care at your place of residence?		Do you can receive appropriate education at your place of residence?	
	Yes	No	Yes	No
2018	42,8	57,2	43,9	56,1
2019	51,3	48,7	46,8	53,2
2020	50,4	49,6	48,9	51,1
2018	19,5	80,5	11,6	88,4
2019	21,4	78,6	7,4	92,6
2020	24,4	75,6	8,2	91,8

Respondents' responses indicate that while most health services remain officially free, the main problem with access to the health care system is the lack of funds for the population. Due to the generally low level of income, medical services remain inaccessible to a large group of the population. In addition, insufficient incomes are exacerbated by the imperfection of health care systems, which limits access to health care for many segments of the population, especially those who live far from large cities.

The situation with the imperfection of health care systems and limited access to health services for many segments of the population is explained by the decline in key indicators of the health care system. The decline in these indicators is reflected in the main indicators of human development, which violates the socio-ethical principles. According to State Statistics Service of Ukraine, the number of doctors of all specialties and the number of paramedics in Ukraine is constantly declining (Fig. 3).

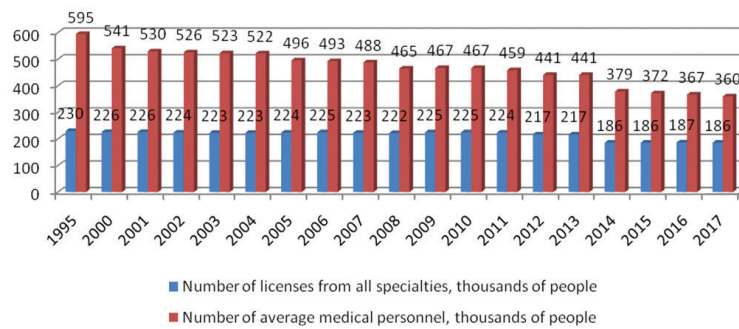


Figure 3 - Statistics on the number of doctors and medical staff in Ukraine for the period 1995 -2017 [developed on the basis of [25]]

Statistics show a slow decline in the number of health professionals. This process is also accompanied by a reduction in the number of hospitals for the period from 1995 to 2017, their number decreased by almost 2 times. The number of hospital beds has also decreased by almost 2 times, but the number of outpatient clinics has increased. This process was accelerated by medical reform, after 2013 (Fig. 4).

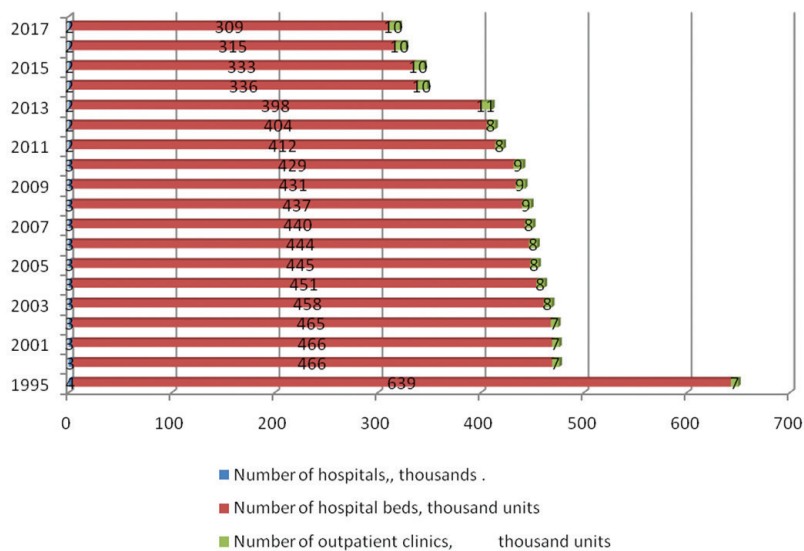


Figure 4 - Statistics on the number of hospitals and outpatient clinics for the period 1995 -2017 [developed on the basis of [25]]

The third stage of the strategic assessment of the health system environment involved SWOT analysis and PEST analysis.

According to the results of the SWOT analysis, the points of development of the health care system of Ukraine in terms of the introduction of new medical services and areas of specialization of doctors, the introduction of innovative methods of treatment were identified. Disaster points for realizing opportunities are a high degree of centralization in decision-making; lack of independence in decision-making.

According to the results of the assessment of the impact of environmental factors of the health care system of Ukraine, the most important factors that have a significant impact on the development of the medical sphere were identified (Table 4).

Table 4. - Summary table of factors according to the degree of their importance according to the results of PEST - analysis of the health care system of Ukraine

POLITICAL FACTORS		ECONOMIC FACTORS	
The large number of regulations and their inconsistencies	0,056	Economic downturn due to coronavirus disease	0,059
Effectiveness of the government in relation to emerging threats	0,045	The large share of the „shadow economy”	0,049
Slow decentralization reform	0,045	High inflation	0,049
Corruptibility	0,041	The level of wages of medical workers	0,045
Unstable political situation	0,037	Limited energy resources	0,037
SOCIAL FACTORS		TECHNOLOGICAL FACTORS	
Employment	0,075	The use of new technologies in the medical field	0,045
The level of consumer competence in health care reform	0,059	Development of the IT sector and its impact on the medical sector	0,045
Level of medical and educational services	0,059	Influence of digitalization and robotics on surgical operations	0,045
The growing number of people of retirement age	0,045	New approaches to treatment methods	0,029
The level of public activity and control	0,045		
The level of satisfaction of medical needs of the population	0,029		

The most influential factors that are essential for the health care system of Ukraine are the following: a large number of regulations and their inconsistencies; the effectiveness of government with emerging threats; employment; the level of consumer competence in health care reform; economic downturn due to coronavirus disease; a large share of the „shadow economy”; use of new technologies in the medical field; development of the IT sector and its impact on the medical sector.

According to the estimates and results of the PEST analysis for the health care system of Ukraine, it can be concluded that the factors of social and economic influence on the strategic state of the medical sphere have the greatest influence.

The next stage of the strategic audit should be the use of economic and mathematical apparatus to identify correlations between population and quantitative values of health care development in Ukraine based on correlation and regression analysis.

The calculated regression equation will provide an opportunity to build predictive values for the further development of the medical sphere of the country and to identify the relationships between the factors influencing its continued existence.

The hypothesis of the study, on the basis of which the regression equation was built, is to identify the impact on the population of the country of the following factors: the number of hospitals, the number of outpatient clinics, the number of newly registered cases.

According to State Statistics Service of Ukraine, a table of values of these indicators was built and the correlations between the population of the country and the factors in the field of health care that may affect this indicator were calculated. The results of the calculation performed using Excel (table 5).

Table 5. - Correlation analysis between the factors influencing the health sector on the population [developed on the basis of [25]

	Population, thousand people	Number of hospitals, thousand	Number of outpatient clinics, thousand	Number of newly registered cases of diseases, thousand - total
1990	51 556,5	3,9	6,9	32188
1991	51 623,5	3,9	7,0	
1992	51 708,2	3,9	7,1	33214
1993	51 870,4	3,9	7,2	33833
1994	51 715,4	3,9	7,2	31455
1995	51 300,4	3,9	7,2	32547
1996	50 874,1	3,7	7,1	30169
1997	50 400,0	3,4	7,1	31158
1998	49 973,5	3,3	7,2	31974
1999	49 544,8	3,3	7,3	32959
2000	49 115,0	3,3	7,4	33471
2001	48 663,6	3,2	7,4	33192
2002	48 240,9	3,1	7,4	32233
2003	47 823,1	3,0	7,6	32585
2004	47 442,1	2,9	7,7	32573
2005	47 100,5	2,9	7,8	32912
2006	46 749,2	2,9	7,9	32240
2007	46 465,7	2,8	8,0	32807
2008	46 192,3	2,9	8,8	32467
2009	45 963,4	2,8	8,8	33032
2010	45 782,6	2,8	9,0	33080
2011	45 598,2	2,5	8,2	32381
2012	45 453,3	2,4	8,3	31162
2013	45 372,7	2,2	10,8	31024
2014	45 245,9	1,8	9,8	26881
2015	42 759,7	1,8	10,0	26789
2016	42 590,9	1,7	10,2	27361
2017	42 414,9	1,7	10,4	26615
correlation coefficient		0,971023526	-0,883706654	0,604234674

The pairwise correlation coefficient allowed us to establish the degree of relationship between the variables Y and X on the sample values (xi, yi), $i=1, n$, which was evaluated by the following formula (1):

$$r = r_{xy} = \frac{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2} \cdot \sqrt{\frac{1}{n} \sum_{i=1}^n (y_i - \bar{y})^2}} = \frac{xy - \bar{x} \cdot \bar{y}}{S_x S_y}, \quad (1)$$

where: \bar{x} , \bar{y} - average values; S_x, S_y - standard values of deviations of the corresponding sample.

The even correlation coefficient varies from +1 to - 1. The closer it is in absolute value to unity, the closer the statistical dependence between Y and X to the linear functional. A positive value of the coefficient indicates that the relationship between the features is direct (with increasing X, the value of Y increases); a negative value indicates feedback (as X increases, the value of Y decreases). You can give the following qualitative interpretation of the possible values of the correlation coefficient: if $|p| < 0,3$ - the connection is almost absent; $0,3 \leq |R| < 0,7$ - average connection; $0,7 \leq |R| < 0,9$ - strong connection; $0,9 \leq |R| < 0,99$ - the connection is very strong.

The calculations confirmed the presence of a high degree of dependence of the impact on the population of such a factor as the number of hospitals $|R| = 0,97$. The number of newly registered cases of the disease has an impact on the population above the average value, $|R| = 0,60$.

A factor such as the number of outpatient clinics and the population has a high correlation rate equal to $|R| = - 0,88$. However, this indicator assumes a negative value, indicating the presence of feedback between factors. Thus, the population affects the number of outpatient clinics.

To construct the regression equation, factors were selected that have a direct impact on the population and a high value of R, namely: the number of hospitals and the number of newly registered cases.

Regression statistics are presented in tables 6 - 8. The results of regression statistics of the obtained model are presented in table 6.

Table 6. - Results of regression statistics [developed by the authors]

Multiple R	0,971650586
R2	0,944104862
Normalized R2	0,939633251
Standard error	721,1378949
Observation	28

Regression statistics reflect the accuracy and reliability of the obtained model. The accuracy of the model is characterized by the coefficients R - correlation coefficient, R2 - coefficient of determination and standard error. These coefficients take values from 0 to 1 (modulo) and characterize R - the strength of the relationship between the data, R2- the percentage of situations analyzed. In our case: multiple R = 0,971650586, a R2= 0,944104862. These indicators take high values, which confirms the high accuracy of our model. The value of the standard error should not exceed 30% of the absolute value of the difference between the maximum and minimum values of the time series.

In our case, the difference between the values is equal to: $42\,414,9 - 51\,556,5 = -9141,6$. Standard error value = 721,1378949. So, $(721,1378949 / -9141,6) * 100 = 7,8\%$ and this is enough to make sure of the accuracy of our model. Dispersion statistics are presented in table 7.

Table 7 - Dispersion statistics [developed by the authors]

Analysis of variance	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	219595202,2	109797601,1	211,1330473	0,021987516
Remainder	25	13000996,59	520039,8634		
Total	27	232596198,8			

The reliability of the model is characterized by the values of the significance factor *F* and *P* - values. The model is considered reliable if these coefficients do not exceed the absolute value of 0,05.

In our case, the reliability parameters are equal to the *F*-criterion ($0,02 < 0,05$). According to the *P*-values, one of them (for $Y = 211,3 > 0,05$), which in turn indicates sufficient reliability of the model, and hence the possibility of its further use for forecasting. The indicators of the equation are presented in the table 8.

Table 8 - Indicators for the forecast function [developed by the authors]

	<i>Coefficients</i>	<i>Standard error</i>	<i>t- statistics</i>	<i>P- value</i>	<i>Lower 95%</i>	<i>Top 95,0%</i>
Y-section	36274,27	903,9028892	40,13071158	3,20205	34412,64	38135,89
Change X1	4029,42	196,2876605	20,52814517	3,65455	3625,15	4433,684
Change X2	-0,0162	0,02194216	-0,738138348	0,467303	-0,061387	0,028994

Using the linear regression equation, which was obtained, the estimated values of population change were calculated.

Thus, we obtain the following projected population values using the following equation (2):

$$Y = 36274,27 + 4029,42 * X_1 - 0,0162 * X_2 \quad (2)$$

$$Y_{2018} = 36274,27 + 4029,42 * 29 - 0,0162 * 29 = 153126,9302 \text{ thousand people}$$

$$Y_{2019} = 36274,27 + 4029,42 * 30 - 0,0162 * 30 = 157156,384 \text{ thousand people.}$$

$$Y_{2020} = 36274,27 + 4029,42 * 31 - 0,0162 * 31 = 161185,6978 \text{ thousand people.}$$

According to the obtained values, if the reduction of medical institutions and the growth of diseases will occur at such a rate, the reduction of the country's population will be significant, at the level of 15-16 million citizens.

It can be concluded that the effectiveness of health care reform will depend not only on the optimization of hospitals, but also on the availability of health care to citizens.

CONCLUSIONS

The results of the study show a tendency to reduce the profile of state medical institutions with an increase in the number of outpatient clinics. This is accompanied by a reduction in newly registered cases. However, the further reduction of specialized medical institutions contributes to the reduction of medical coverage, which will lead to a reduction in the country's population in the future. At the same time, a survey of the population on access to health services made it possible to determine that almost 56% of respondents do not have the opportunity to receive adequate medical care, which is exacerbated by declining incomes and the economic crisis. For most respondents, private medical services remain inaccessible. Thus, the reduction of specialized medical institutions is accompanied by a tendency to reduce incomes and inaccessibility of medical services, due to their concentration in large cities. This is confirmed by the results of the PEST analysis of the health care system of Ukraine, according to which the conclusion was made that the factors of social and economic impact on the medical sphere have the greatest impact.

It was concluded that the research indicates the problem of non-compliance of the health care system of Ukraine with socio-ethical norms and principles of marketing strategy in the service sector. Socio-ethical principles of doing business should create opportunities for human development and provide the social basis for the future of society. The concept of socio-ethical marketing involves meeting the needs of consumers in accordance with the social and ethical norms prevailing in society. It was considered appropriate to use social and ethical principles in reforming the health care system of Ukraine to ensure its compliance with European standards, sustainable development goals and creating affordable conditions for human development and social protection.

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AUDYT STRATEGICZNY ROZWOJU SYSTEMU OCHRONY ZDROWIA UKRAINY, W KONTEKŚCIE REALIZACJI KONCEPCJI MARKETINGU SPOŁECZNO-ETYCZNEGO

STRESZCZENIE

W artykule przedstawiono etapy strategicznego audytu systemu ochrony zdrowia w Ukrainie, w kontekście koncepcji marketingu społeczno-etycznego. Na podstawie wyników wielowymiarowej analizy korelacji i regresji sformułowano wnioski, dotyczące trendów, w związku między redukcją wyspecjalizowanych placówek medycznych, a redukcją populacji. Z badania ankietowego, dotyczącego dostępu do świadczeń zdrowotnych wynika, że większość respondentów nie ma możliwości uzyskania odpowiedniej opieki medycznej, co jest pogłębiane przez spadające dochody i kryzys gospodarczy. Stwierdzono, że system opieki zdrowotnej Ukrainy nie spełnia norm społeczno-etycznych i zasad strategii marketingowej usług medycznych. Zaproponowano poprawę reformy systemu opieki zdrowotnej Ukrainy, pod kątem zgodności z zasadami społeczno-etycznymi.

SŁOWA KLUCZOWE

audyt marketingowy, audyt strategiczny, branża medyczna, system ochrony zdrowia, integracja europejska.



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