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The future largely depends on how the next generation of people will be raised in society. To this end, efforts must be made, both in the sphere of the educational process and in the creation of an economic and medical infrastructure for the upbringing of children. This special issue of the journal, Global Academics is devoted to this topic. Its goal is to attract the attention of academic communities to the issue raised in the journal and mobilize researcher's efforts in this direction.

The journal's Editorial Board expects that the discussion raised in this issue will be further development and will become an important topic for the next issues of the journal.

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**PROFESSIONALIZATION OF THE MANAGERIAL CAPITAL IN THE
HEALTHCARE FIELD**

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Abstract

This paper aims to form the basis for professionalization processes of managerial capital in the healthcare field in Ukraine. Thus, the main challenges, priorities and trends of the national health care are analyzed in the paper. Regarding the state of the national healthcare system and health management we can say, that Ukrainian healthcare sector is in crisis, since the model, which remained from administrative-command historical period, has been destroyed (thus, the public healthcare model does not exist), but nevertheless, the main market principles have not been still implemented. And with the existence the crises in other economic, political and social spheres such situation is deepening.

The authors recommend applying the management approach to Ukrainian healthcare sector, which requires the formation of managerial capital. The general concept of managerial capital

was defined; its main sources were analyzed. In the paper it is argued, that the process of managerial capital formation is ongoing in the frameworks of managerial staff's professionalization. Thus, the main directions and variants of professionalization of managerial staff in healthcare field are proposed. But nevertheless, it is important to emphasize, that professionalization of managerial staff in Ukrainian health care is very complicated process, due to the lack of special training basis for its realization and, especially, understanding of government its necessity.

Key words: managerial capital, professionalization, health care, managerial staff, managerial intelligence.

1. Introduction

Modern Ukrainian society is characterized by the transformational processes in the economy, activation of political processes, and reformation in the social sphere, an important element of which is the national healthcare system. Today, reforming, and in fact, the creation of a new system of health care, which should occupy a leading position among the main priority areas of state policy, is actual. In our opinion, health policy should be a pivotal element of the state policy and development strategy of the country. Since the individual health and health of the nation are one of the most important criteria for the formation and development of the country's human capital.

Modern indicators of Ukrainian nation's health, namely life expectancy, physical and mental health, mortality and fertility, etc. are threatening. This demonstrates the urgent need for rethinking of the essential principles of social development. That is why understanding the value of human life and health should be the basis of the whole system of social governance, humanistic policy and the transformation of the national health system.

The development of the national economy has a significant impact on the forms and methods of regulation and management of the health sector. On the other hand, the contribution of health care to the economic development of any country is also evident. The volume of medical services provided to the population and expressed in value form has a positive impact on GDP. More resources are used in the production of medical services, higher are the qualifications of medical personnel and greater are the size of national income created by the industry. Medical staff is a provider of medical services and, thus, they prevent illness and treating patients, thereby

improving the socio-demographic situation and increasing the country's labor potential.

2. State of the national healthcare system and health management

National healthcare system and healthcare management, which were formed before the mid-1990s of the 20th century, focused on the extensive way and methods of development. Criteria for evaluating the effectiveness of functioning both the whole healthcare system and individual economic entities were based not on indicators of quality of treatment, prevention and diagnostic services, but first of all, on quantitative parameters of normative provision and health protection facilities.

Besides, the residual type of funding the social sphere in general, and in particular the health sector, has led to a deterioration of the state of population health. For the development of the national healthcare system in those years, no more than 3.3 % of GDP was allocated, while in economically developed countries, funding for this industry was directed from 8 to 14 % of GDP. In addition, the administrative-command health management system existed in a planned economy was focused on tight hierarchical vertical (subordinate) relationships and compulsory motivation to work. Horizontal (coordination) and feedback in the health management system were virtually absent. However, the theory and practice of management shows that without this type of communication (firstly, the reverse one) it is impossible to ensure the stability and efficiency of functioning any complex management system, more socio-economic one, in which it is difficult to formalize all resources flows and information links between system's elements.

From the management theory of complex systems, it is known that the feedback mechanism allows implementing in practice dynamic methods for assessing the system's effectiveness and monitoring the mode to compare the achieved results of medical care and the community resources' costs. Finally, the lack of feedback mechanisms has led to the alienation of the general public from participation in solving many social issues, including the one related to the environment and the population's health.

The reasons prevented the effective healthcare sector's development in a planned economy were the input-based financing of this sphere, based on state budget funds, the lack of necessary motivation and incentives for medical and administrative staff at all levels regarding the use of advanced world experience etc. Ultimately, all these factors together with the external factors of

organizing the country's economic system have caused the need for the transition of the national health system to market methods and modern management theory and practice.

Improving the managerial processes in the national healthcare sector has been yet carried out due to economic experiments, which allowed obtaining a certain socio-economic effect through the use of financial and economic mechanisms. But it is a main mistake of Ukrainian government. The economic components of the old public healthcare system with total state ownership do not take into account managerial approaches. The introduction of new progressive methods, techniques and management technologies faces the difficulties caused by the specifics of medical activity:

1) the sphere of public health is non-productive, when the process of providing and receiving services coincides in time and space; consequently, there is a problem in accounting for the contribution of health care to the growth of country's national wealth;

2) the labour subject in this field is a person, hence there are "subjective-subjective" relations;

3) the medical service is a "living labour", which complicates the definition of its cost, and hence the profit of the healthcare institution;

4) the subject to appropriation in the healthcare field is a specific labor activity of medical personnel;

5) effectiveness of the healthcare institutions and healthcare management is much more complicated, than in the industrial field, because of the necessity to analyze apart from the economic efficiency, social and medical one;

6) managerial staff in Ukrainian health care is formed spontaneously, without the existence of specific knowledge and education in the sphere of management, economic, financial and marketing.

Thus, the task of the modern stage of health sector's development is to create such a development strategy and adjust it so that this branch can balance the interests of the population, state and healthcare institutions. In this regard, it is necessary to focus on the formation and development of managerial capital of this branch.

3. Managerial capital

In recent years, special attention has been paid to the scientific management category, such as "managerial capital". This term is still not definitively defined.

So in [3] it is argued that a certain dominant force that forms a higher level of human and intellectual capital, is precisely the managerial capital. We understand that managerial capital is an effective management activity that creates an innovative format for the intellectual capital's active formation.

Hence, managerial capital is a “meta-capital” of any organization that is represented by an adequate quality of its management system.

Moreover, management capital, according to our opinion, is derived from human capital. However, it does not cover all the productive forces of the organization, but only includes a narrow category of human resources, whose activities are aimed at creating and operating an optimal management system of the enterprise (group of enterprises).

The concept of managerial capital is based on the understanding that managerial knowledge, competences and professional experience have to result the profit and to develop and use mechanisms for its extended reproduction using innovative social factors and economic growth.

Consequently, taking into account that managerial capital is a specific manifestation of human capital, we can determine its basic features: (1) it is inseparable from the leader; (2) its formation and development is impossible without additional efforts of the individual; (3) can be realized only through the work of its carrier and the creation of a company's quality management system; (4) provides organization with an increase in profits by increasing productivity, efficiency and effectiveness of management organization, that is, it is one of the factors enhancing the organization's economic security [2].

That is, the problem of the use and reproduction of managerial capital is not possible only at the individual, organizational, national or international level – it must be solved in a complex, providing a new quality of the management system as a whole.

The main sources of management capital are presented in Fig. 1.

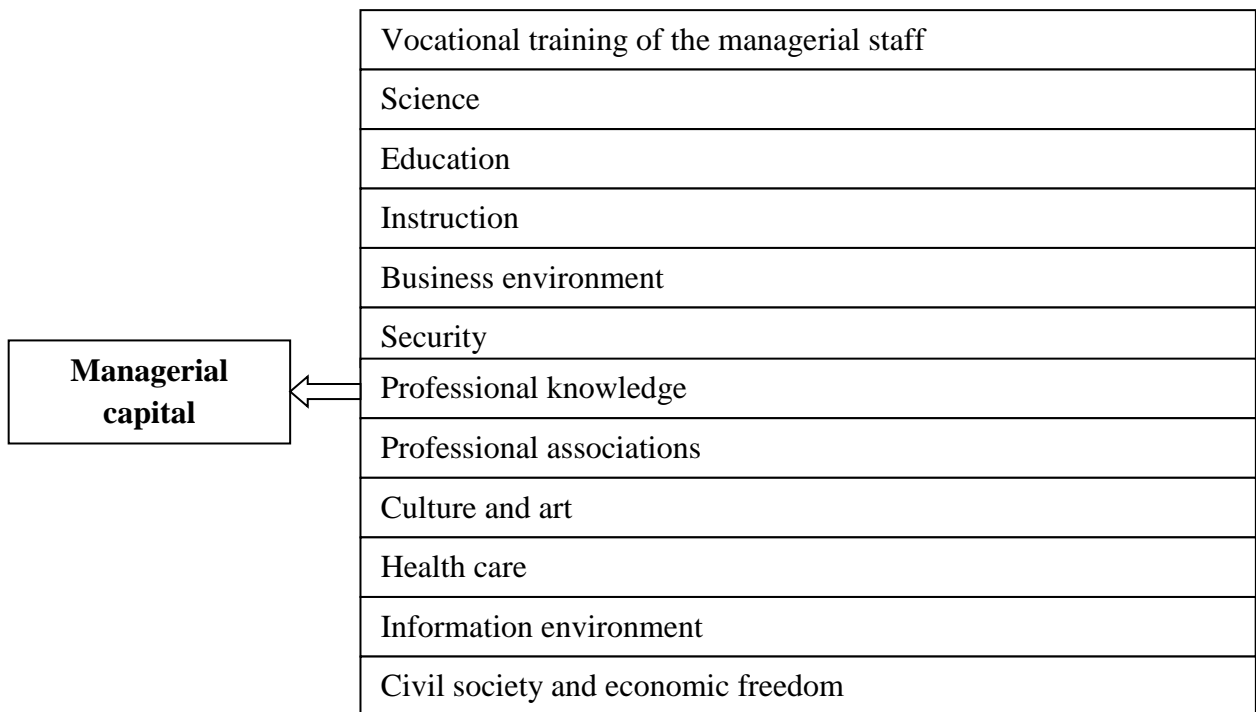


Fig. 1. Key sources of managerial capital formation

Source: [3].

The problem of forming managerial capital takes on its basis the development of an organization's professional management system. Only a well-formed professional management system in an organization can be a guarantor of the fact that, under the implementation of other conditions (i.e., the availability of managerial intelligence, managerial professional competence and experience, which are ensured by a continuous process of management professionalization, Fig. 2), it will generate managerial capital.

Objective processes of developing a professional management system in the organization and forming the managerial capital allow us to form the thesis that management activity is a highly intelligent system of a management team's activity headed by a highly effective leader.

Thus, within the framework of the forming organization's management capital the following tasks should be determined:

- 1) forming a qualitative system of organization's professional management;
- 2) forming an effective management team;
- 3) providing leadership and team-building processes, searching for a "golden" ratio of leadership with the organizational structure of management;
- 4) ensuring an effective process of functional training and professionalization of management personnel;
- 5) provision of innovative training and development of innovative thinking of organization's

all personnel;

6) ensuring the continuous development of the personnel as a guarantee for increasing the effectiveness of its activities;

7) forming a qualitative system of making a management decision as the main “product” of management activities [2].

According to [3] managerial capital is a professional and intellectual system of interaction between members of the management team in order to solve the problem, or a set of problems of socio-economic development of small and large organizational structures, which have basic resources, a system of priority goals and understandable mechanisms sustainable social and economic growth.

We consider managerial capital in the system of management professionalization (Fig. 2).

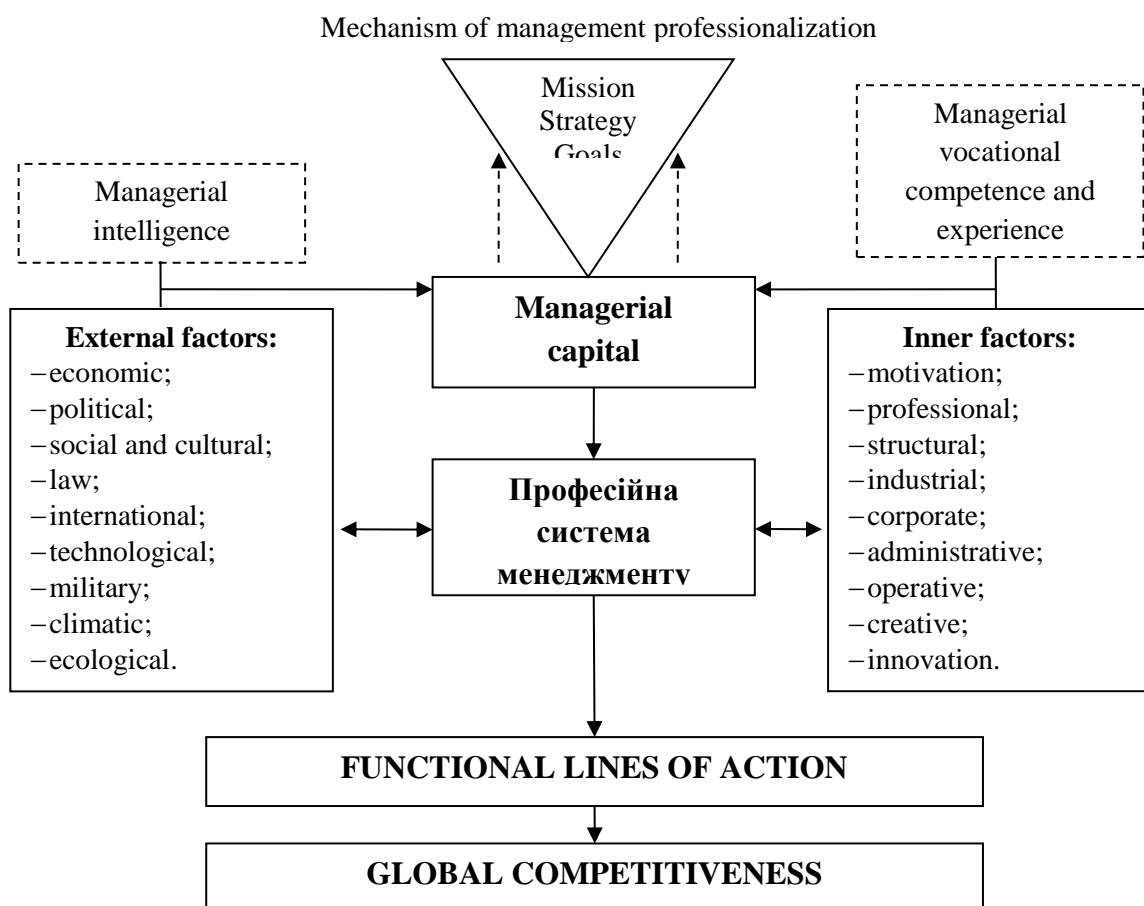


Fig. 2. Managerial capital in the professionalization mechanism

Source: [3].

From Fig. 2, we see that forming the organization’s managerial capital is influenced by two groups of factors: external and internal ones. In this case, the important elements that form the managerial capital are the mechanism of management professionalization, managerial

intelligence and managerial professional competence and experience.

The professionalization of management activity, in general terms, is defined as the formation of an individual as a professional manager, from the moment he has elected profession, until the moment of retirement.

4. Professionalization of managerial staff in health care

In the context of the national health system's reformation, when the issues of healthcare management are topical, the modern labor market in the health sector needs management specialists. Legally, such a need was defined in the framework of the implementation of the healthcare institutions' autonomization principle, which is guided by the Law of Ukraine [1], and on the basis of implementing market economy mechanism in the national health system. Thus, there is a need for the formation of proper medical management, which, in turn, requires the availability of a qualitatively new specialist in management, such as healthcare manager whose activities, unlike the chief physician of the healthcare institution (whose main function is the organization of the medical process) aims to ensure the quality, effective and efficient operation of the whole healthcare facility.

The problem of forming such a specialist is interdisciplinary, since it requires special training in the field of management and medicine. Consequently, the modern challenges of the of management professionalization process are the following:

- dynamically growing knowledge in the field of management and related sciences (such as finance, marketing, etc.), as well as medicine;
- multidisciplinary training;
- complicated decision-making processes;
- rapid growth of related health professionals;
- intensification of international mobility;
- the need to develop cognitive knowledge and soft skills in health care professionals;
- tendency to reduce costs both in the educational process and in the provision of medical care.

Consequently, the main task of the professionalization process is to build a process of training specialists in the field of healthcare management taking into account the above-mentioned challenges.

Such a process can be provided in two ways:

I. The first one is the situation, when the basic education is aimed at obtaining a diploma in medicine or pharmacy, and a master's degree in management or public health management.

II. The second one is the situation, when professionalization begins immediately with a diploma specialist in the field of management or public administration in the health sector.

The first variant is widespread in Ukraine, since there is still practice from the Soviet era, when senior management positions were occupied by medical professionals who grew up on a career ladder, but they did not receive any special education in management.

Today, the second option is still not popular, as the problem of management professionalization in the healthcare system is not relevant to modern society, since it is a leveled understanding that the management of a healthcare institution has a specialist in the management field rather than a specialist in the medical sector, which has got promotion to chair the healthcare institution.

Current changes in the national healthcare system and the existing international practice in medicine and management, dictate new requirements for a modern healthcare professional. He must have two main components:

1) practical intelligence (which is basic for assumption of office), which is formed on the basis of knowledge, practical skills and competencies in the field of management, economics, marketing, financial management, human resources management, management research, etc.;

2) emotional intelligence, which consists of cognitive and psycho-emotional components.

As a whole, the practical and emotional intelligence are the “executive intelligence”, under which we understand the system of intellectual or cognitive abilities as prerequisites for managerial success. At the core of this is the provision that the absolute majority of situations in the management of any organization imply the need to develop three main types of managers’ competencies: problem solving; interaction with people; managing yourself.

Consequently, the modern labor market places more and more high and specific demands on potential employees, these requirements become more specific for each professional group and the main requirement is the deepening or specialization of knowledge and skills. The labor market of medical workers is no exception and we tend to distribute the therapeutic (clinical) function and its organization and management by the healthcare institution itself. Such

specialization is aimed at increasing the efficiency of the medical institution, finding new ways to improve its activities, financial and managerial autonomy.

Thus, the task of training of highly skilled specialists in the field of management of healthcare institutions becomes a problem for modern higher education institutions.

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**INSTITUTIONAL PRECONDITIONS FORMING
COMPETITIVENESS MODEL OF THE NATIONAL ECONOMY**

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Abstract.

This article is devoted to the study of institutional conditions of the preconditions for the formation of a competitive model of the national economy. Among the tasks of the respective development strategy, one must highlight the task of creating a system of institutions that target the country's economy for success. In the modern Ukrainian economy, it is its institutional support - in the form of rules, economic mechanisms and instruments, as well as organizational forms - providing interaction between the market and the state. Existing experience proves that it is the institutions themselves, as regulators with subtle regulation and sentimental incentives, expanding the boundaries of the market, and enhancing the power and social orientation of both the market and the state. The main lines of formation of institutes with the ordering of which it is possible to propose the design of such an institutional environment that would meet the highest criteria of the present and function as a self-sustaining system. The mechanisms that ensure growth in the long run and strengthening of national competitiveness are determined.

Keywords: innovations, potential, activators, state regulation, evaluation, efficiency.

Introduction. From a theoretical and methodological point of view, the study of transformational processes in the national economy is due to the prevailing socio-economic proportions and disproportionality. In accordance, programs remain underfunded social and humanit tion al direction and, oddly enough, innovative development. As a result, quantitative and qualitative development of the national economy is restrained.

Further development of the economy is determined by the ability to find answers to challenges that have been formed under the influence of global trends in development, external and internal imbalances . External factors of influence were added to the circle of internal problems. After all,

a significant proportion of social processes are now regulated not only by Ukrainian legislation, but also by international norms and political and economic formations. Under conditions of comprehensive globalization, capital flight and labor flow to more developed countries (where conditions of stay and development are more comfortable). The inability to respond and to take into account global processes in our development policy leads to a decline in Ukraine's infrastructure and social sphere.

Research results. A modern strategy for the formation of a competitive model of the Ukrainian economy should be oriented towards a powerful overall economic and innovation breakthrough. At the same time, speaking about innovation, we understand it not only in the scientific and technological context, but also in economic reform.

We do not consider economic reforms to be innovative, and this is not accidental. Regarding reformation, Ukraine all the time was in the position of superficial copying of Western institutions and did not seek its own development ... Meanwhile, all successful countries, especially countries of economic miracle, escaped first of all by inventing their own, adapted to their country strategy (and models) of economic reformism [1, p.30].

The desire to implement an innovative approach to issues of economic reformation requires a comprehensive approach. This requires a detailed reflection of the mechanisms and means of achieving results, as well as the formation of intermediate stages.

Among the tasks of the respective development strategy, one must highlight the task of creating a system of institutions that target the country's economy for success. The problem is important because in the modern Ukrainian economy it is its institutional support - in the form of rules, economic mechanisms and instruments, as well as organizational forms - that ensure the interaction of the market and the state, because neither the market nor the state, taken on their own, with the development on the line of progress can not cope. Market mechanisms, which operate not in the system of institutions formed by the state, can serve only the "wild" and chaotic market and primitive, archaic economy. Market relations themselves failing exactly where begins the progress in science and technology, infrastructure, social sectors, and - in the knowledge economy, which connect the city and our future [2, p.112].

Likewise, the state with the missing and unfinished institutions (that is, exactly the same as ours) has a low cost in the modern world. In this form, it acts only administratively, through

"manual management"; and this influence opposes the market; it blocks and deforms market regulators, even in their primitive, like ours, state, not to mention the modern market option.

The existing evidence suggests that it is the institutions themselves, such as regulators with subtle regulation and sentimental incentives, extending the boundaries of the market, and increasing the power and social orientation of both the market and the state. And with this traditional for the past years market-state confrontation would be replaced by their complementarity and harmony. By the way, the famous Japanese economic miracle has a different name, namely, "a combination of forces of the market and the state" [3, p.267]. In such conditions, the state, using institutional instruments, gives market impetus a long-term character, that is, it binds these incentives to long-term strategic projects. There is also the opportunity to fully use market incentives in the social, scientific and technological and infrastructure areas, which is impossible in the "naked" market.

Characteristically, we see the greatest effect from the interaction of the market and the state at the institutional level in the United States, that is, in a country considered to be a purely market-based country, almost devoid of regulatory influence by the state. Therefore, it will be useful for us to find out that, according to the Nobel Prize winner, P. Samuelson, the US government is "the largest entrepreneur in the world" [4, p.615].

This is evident, for example, in the fact that the state contract system and government procurement in the United States covered 90-92% of the nomenclature of goods and services; that the state order annually reaches \$ 1,5-1,7 trillion. or about 20% of the total portfolio of industrial orders. Every year 15-17% of the able-bodied population of the country participate in the execution of orders. The customer base serves 1.5 million subcontractors and 300 thousand general contractors. At the same time, through such institutions as the Federal Contracting System and the Federal Budget, implementation of the largest national (mainly scientific, technological, environmental and infrastructural) programs, designed for 5, 10, 20 and more years [5, p.153] is provided. In this case, planned (indicative) regulation through the institutes of government contracts and government contracts is fueled by powerful incentives, encouraging entrepreneurs to "fight" for contracts. At the same time, targeted adjustments for the implementation of long-term national programs are introduced not only by the planning authorities, but also by institutions such as the stock market, the long-term interest rate (usually)

of long-term loans and other institutional mechanisms, which dictate the rules of the state-market game, and provide a balance between current and long-term development.

On the example of the United States, as well as other countries of the world avant-garde, it's easy to make sure that high-quality institutional provision of the economy is not just a necessary component but also the basis of the wealth of modern, advanced society. We still consider the wealth of the country to be anything but a system of institutions [5, p.228].

Of course, our wealth and to this day are design, engineering and scientific personnel; as well as famous black soil. And of course, the financial support of the country is convincingly on the forehead, without which the real sector is not functional .

However, on our own experience, we were sure that finances in a disadvantaged situation easily and quickly leave the country and, as a result, in a few weeks the once rich state became poor. The same should be said about the staff - the benefit from them is not guaranteed, and the move to other countries is becoming commonplace (during the years of independence only 28,000 professors left the universities abroad). In our institutionally unfavorable circumstances, black earths overgrown with weeds, becoming half-neglected.

These and other problems can not be overcome without reproducing a qualitative system of institutions that not only stimulate development, but also protect the economy from risks and disasters.

It should be borne in mind that without modern institutions, even the reproduction of high growth rates will not ensure sustainable movement on the path of economic and social progress; not even ensure that success should be accompanied not only by growth but also by development, especially in the innovation-technological and social spheres. And these results suggest the existence of institutions that provide such changes [6, p.81].

The complexity of the changes associated with the development and growth is the fact that the imminent replacement in Ukraine reproductive model, needs revision relation to absolute growth. High growth rates are also desirable here, but on condition of their optimization, that is , in correlation with highly dynamic structural shifts in line with innovations. It is possible that in order to redistribute funds and funds in favor of an innovative future, it would be expedient to slow down the pace. So, in working out criteria of the current and long-term effectiveness in circumstances of such changes can not do without complex institutional constructions. At the same time, as V. Gorbulin, A. Kaczynski talk, - the problem of developing the goals and criteria

of the effectiveness of the management of the system of ensuring national security is of particular importance [2, p.245]. As already noted, any system of governance, including the system of ensuring national security, should be focused and ensure the saving of social work. However, the problem lies in how to identify and determine the purpose of the future system and compare the levels of social spending before and after its implementation.

In the light of the above argument it is clear why the institutional provision of the economy should be given such great importance. First of all, because in Ukraine the system of institutions regulating the economy, in general, is in a germinal and extremely deformed state. This also applies to property relations, the stock market, and the system of contracts and transactions, incentives for the transformation of short money into long and much more. Therefore, the starting point is the elementary arrangement of more important institutions and the elimination of "black holes", which cut the institutional system of the country [7, p. 25].

At the same time, along with ordering, we can propose the construction of an institutional environment that meets the highest criteria of the present and functions as a self-sustaining system thanks to the synergy effect obtained through the interaction and complementarity of the respective institutions.

As for the main lines of formation of institutes, it is first and foremost about the following:

- about ordering, including in the interests of investors involved, property relations. Without these changes is risky to invest profits in new technologies and not worth restoring basic funds. And the fact that in Ukraine for 27 Independence years have been restored only 5-6% of the already extremely outdated funds, due in the first place, disorderly relations of ownership;

- on improvement of the organizational structure of the economy (which in advanced countries is 50% of the total production mass), which envisages the widespread distribution of cluster systems for the formation of powerful, including transnational, corporations, their networks on the basis of a mutually beneficial "connection" of small and medium, in number of venture business to large and multinational companies. Such transformations make the economy competitiveness capable of the highest global criteria and therefore contribute to the country's integration into the world economy;

- the achievement of high rates of monetization and capitalization of the economy through the application of mechanisms that ensure the accelerated development of financial markets;

- on institutes and, accordingly, incentives that promote macroeconomic maneuver and the unblocking of cross-sectoral capital flows in order to provide structural and innovation shifts. It is known that what we can conventionally consider a maneuver, we are usually considered to be destabilization. Stability is associated with reinforced concrete stability or with the "improvement" of certain important macroeconomic indicators .

Of course, the success of all these institutional changes is the inclusion in the orbit of the management of talented, professionally trained personnel, as well as a radical improvement of the moral and psychological climate in the country, including through the constitutional and legislative order. It is necessary to overcome today's managerial helplessness and chaos.

Particularly acute is the problem of structural and innovation changes, which are known to determine the chance of Ukraine to achieve a highly developed status [8, p. 25].

Of primary importance in this respect, above a full-fledged financial markets innovative elevation subsumed under adequate monetary base focused on durability. It is necessary to strengthen and maintain a multi-chain system of self-regulating mechanisms and incentives geared towards achieving long-term innovation. Among them, first of all, the state support of innovations is due to creation of such institutions as the Development Bank and the Development budget, as a system of state contracts and state contracts, as well as privileges that ensure the formation of Ukrainian scientific towns, industrial parks, etc.

Importance for innovations in Ukraine is the formation, on the basis of the relevant institutes, of mechanisms for the unblocking of cross-sectoral and interregional flows of capital and profits. The absence of such an unblocking not only hinders growth, but also hinders the implementation of such important structural and innovation shifts in the country. In the first place, mechanisms and incentives included in the fully functioning stock market, which comes into contact with other institutions (banks, pension, insurance, investment funds, etc.), have the support of the unblocking. In this case, priority will be given to mobilizing and redistributing (for innovation) the function for the general public (through the purchase of shares) in the stock market [9, p. 354]. It should be borne in mind that the positive side effect of the promotion of the stock market is an increase in capitalization, which is very important for our economy. In the event of such a change, it would be disadvantageous for Ukraine to shed its economy economically through the export of profits abroad.

At a time when modernization in line "earn" system of the stock market and other non-banking financial institutions - modernization will function to a greater degree realize and banks, as income from bank deposits accelerated move into action, bringing more profit. As a result, banks, having failed in this competition, will take advantage of the possibility of long-term lending to innovative projects, which will lead to further recovery of the economy. In the case of the operation of this chain, it is inevitable to reduce the lending rate and direct investment in long-term projects [10, p.254].

The deployment of an innovative model will ensure the transition to a higher model of time. Today, the country lives from budget to budget, from harvest to harvest, that inherent in the most backward countries of the world's periphery. This tradition of the period of independence - binding to the annual cycle, blocks and deprives meaning of all that concerns long-term design and, consequently, scientific and technological progress. Recall that investing in science and high-tech segments, as a rule, give a return only in a number of years. Therefore, mechanisms and incentives are needed (including government policy), which makes it profitable to redistribute funds in favor of future development and growth. In this, developed economies, due to the availability of long-term planning, backed by development institutes, are significantly different from our, now hopeless, situation. As stated in the doctrine of information security of Ukraine, "strategic planning should become a basic component of the state governance process of national security of the state. It is intended to identify the resources and stages of the approved tasks. On its basis, plans are being developed that are oriented towards the achievement of these goals, taking into account the actual situation in each of the stages of this strategy" [11, p. 457].

All of the above-mentioned transformations mean the replacement of a gross intrusion into economic processes by soft and subtle motivational interventions. Conditionally speaking, in such a system there are two main blocks.

The first block represents institutes that provide motivation for long-term. As noted, short-money transformation tools are long laid in the system of mutually supportive institutions, such as pension, insurance, investment funds and banks, which are "heated" by the stock market in the context of servicing motives of long-term sustainability. On this basis, a holistic, sufficiently motivated, multi-faceted financial-investment contour, aimed at the country's long-term development, is formed.

The second block is the institutions that provide the branching of the financial flow to separate streams, and these flows, thanks to stimuli, move by gravity [12, p. 153].

Among the mechanisms of self-regulation and this drift can be corporate investment priorities and state contracts and ensure growth in the long term and consequently strengthen national competitiveness.

Competitiveness in the modern world can not be ensured on a purely liberal, that is, purely market-based basis. In this case, the primary levers of influence belong to the state. It can contribute to national capital administratively, helping its development, or vice versa, selectively, and even clan, and this latter ultimately depresses competitiveness, because it improves their well-being, undermining the incentives for development and reducing the viability of those who are not covered by this care. When we talk about the care of business by the state, it should be pointed out that it should be moderate and diminishing as business-market interactions intensify. The current state of Ukrainian business is proof of the negative influence of the immediate state-administrative and, in particular, its mafia-clan guardianship.

And the methods underlying the growth and competitiveness of large Ukrainian capital are, after all, not support - and the brake for competitiveness. Therefore, it is not accidental, but logical for Ukraine is that scientific and technological developments are not used, which makes it impossible to conduct modern business in the world.

Another dangerous tendency of the current state policy in Ukraine is the current popular fiscal model for the transfer of capital from the country's economy to a temporary solution to social problems. Such a reorientation from the model of growth and use of funds is not at the expense of production, pulling the country back, which again will be an obstacle to the formation of scientific and technological segments [13, p.249].

Even more unattainable will be the relatively developed level that the Ukrainian economy had in the late 80's and early 90's of the last century. And in this case, in case of establishing the economy and, even ensuring high rates of its growth, the loss of scientific and technological personnel and the impossibility of innovation development in general will lead to the fact that our economy will be accelerated to lag behind the advanced countries of the West and the East according to criteria of global competition. Today's fiscal expansion of the state can not be justified by the humane goals that it covers, since it prevents the development and growth of the economy [13, p.145].

It is important to take into account that estimates of growth and development are based in the global economy on indicators not so much domestic, but on geo-economic, including relations with the achievements of other countries, first of all - highly developed, which, incidentally, increasingly dominate. The paradox of the backward countries lies in the fact that their economy in the period of record growth is hopelessly lagging behind its developed competitors, as a result of the reproduction of backward production by backward means.

The general course of Ukraine's current economic policy is, of course, positive. Today's production can not be developed without increasing human well-being. And not only because it creates a solvent demand. Increasingly important is the dependence of production on the level of skills of workers, and this requires a corresponding pay. Hence - the priority of social tasks.

But a generalization, rather than a differential approach without a sense of measure in combination with the revaluation of the national currency to meet western importers and removing barriers to imports, forms a strategy that makes it impossible not only for the competitiveness of the national economy, but also for further opportunities for its development [14, p. 1783]. Argentina has recently been moving in a similar way to the neo-liberal path, which, accordingly, led to the destruction of its economy.

Unsecured growth of the economy, the attempt to solve social problems limits further opportunities for growth of economic incentives, increases inflation and, in the end, offends social ideas.

Ukraine, which at the same time loses the inherited factors of the scientific and technological competitiveness of the USSR, has a chance to enter Europe as the location of cheap production, transit segments, the place of waste conservation and the localization of dirty production.

Conclusions. Highly developed countries are strengthening their dominant role through the use of advanced knowledge and the introduction of innovations. Other countries that do not possess this knowledge and skills are addicted to them. And this dependence consists in calculating the benefits of civilization by cheap labor with silt, natural resources and other national wealth.

Therefore, there is an urgent need to substantiate the new conceptual model of Ukraine's development. The latest model of development of our country should provide ways of reformatting the national economy, based on the existing material and technical base, natural-

geographical and climatic conditions, knowledge and intelligence. After all, only innovations can revive and develop the economy of Ukraine.

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WILLINGNESS OF TEACHERS TO INTRODUCE HEALTH CARE TECHNOLOGIES IN THE CONTEXT OF THE IDEAS OF THE “NEW UKRAINIAN SCHOOL”

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Abstract

The article clarifies various approaches to the definition of the concept of teachers' readiness for professional pedagogical activity. It also describes the different views of researchers on the readiness of the teacher to implement health care activities. In particular, the essence of the notion of the readiness of teachers to introduce health-sensitive technologies in the educational process is revealed.

Keywords: readiness, structural components, health care, technology, motivational component, cognitive component, emotional value component, practical activity component.

A problem statement.

The current state of education in Ukraine is characterized by the search for ways of a current response to changes in the educational space, because the requirements for studies and knowledge have changed. Modern light requires a teacher, with creative thinking and new approaches to teaching students, innovative forms of organization of the educational process in the institution of general secondary education, changing not only in type but also in content. These changes must be in-depth and require an innovative teacher who has projective thinking, promising pedagogical technologies, is the subject of personal and professional growth, and knows how to achieve a new pedagogical goal.

The development of science and technology gives teachers new forms of communication, types of solving abstract and specific tasks, transforming teachers from an authoritarian translator of ready-made ideas into an inspiration for the development of intellectual and creative potential of a student, therefore the need for high-skilled teachers, in the face of constant changes in

society, is one of the most urgent issues. What should be the teacher of the XXI century?

Currently, a teacher cannot be an absolute bearer of knowledge and supervisor for a student. He must become a person who “accompanies the process of self-knowledge and self-development of the child”. In the Concept of the New Ukrainian School determined that the main role of the modern teacher is “not only to give a certain amount of knowledge to the student, but also to teach him to study, independently acquire knowledge, apply it in practice, that is, to develop competence as a general ability based on knowledge, experience and the values of the individual”.

The purpose of the study: to analyze the readiness of teachers to implement healthcare technologies in the educational process of the institution of general secondary education.

Presenting the main material

One of the priority directions of education reform is to ensure that each institution of general secondary education has appropriate conditions for the education and upbringing of a physically and mentally healthy person. Meanwhile, there is a significant deterioration in the health of students, especially at the stage of studying students in the first-second grade.

Organized healthcare activities in educational institutions ensure the unity of the activities of pedagogical and psychological services to preserve and strengthen the health of each participant in the educational process.

The most up-to-date and effective form of implementation of the aforementioned health preservation education is the reorientation of the content of education to support and develop the natural needs of the child, her health and individual abilities.

Health-saving technology consists in the timely use of effective forms, methods and tools aimed at educating the students of the culture of health, positive motivation for a healthy lifestyle and promoting the preservation and strengthening of children's health.

The introduction of health-saving technologies is based on the principles of a holistic approach, a consistent, coordinated system of actions of the teaching staff, medical and psychological services of the educational institution, parents and students with the involvement of civic organizations, aimed at preserving and strengthening the health of students, forming a positive motivation for them Healthy Lifestyle.

The criterion for mastering this principle is the concrete and diverse actions of teachers, their creativity, creativity, professionalism, etc.

The main role in the implementation of health preservation of students belongs to the teacher V.O. Sukhomlynsky said: “The teacher must know and feel that, in his conscience, the fate of each child, which depends on his spiritual culture and ideological wealth on the mind, health, happiness of the person who is raised by the school” [17].

These ideas are relevant also nowadays, considering that special attention is needed to raise the competence of the teaching staff, to train teachers for the implementation of health-saving technologies.

The readiness of the teacher in pedagogical literature is considered from different positions, in particular, as: condition and regulator of activity, psychological state, setting, personality formation, attitude, availability of certain needs, synthesis of personality characteristics, etc.

We agree with the opinion of B. Ananiev that readiness begins to form before the beginning of professional (working) activity, and in the future develops together with professional ability to work as a potential of the main activity [1, p. 23].

In his writings on the study of the installation of personality D. Uznadze emphasized that readiness is an essential feature of the installation, which is manifested in all cases of the behavioral activity of the subject [18, p. 137]. Readiness is a complex personal formation, a multi-level and multi-faceted system of qualities and personality traits that together enable an individual to perform a concrete activity effectively, - says researcher V. Moliako [14, p. 12]. A. Linenko holds the view that readiness is a holistic, stable personality, characterized by the emotional-cognitive and volitional mobilization of the subject at the time of inclusion in a particular type of activity [12].

Given the ideas of I. Shaposhnikova, the readiness of the future teacher of elementary school for pedagogical activities is based on psychological, pedagogical and subject preparation, which involves, first of all, the formation of personal qualities of the teacher [19, p. 152]. The same opinion follows V. Ortynsky, who considers readiness for professional pedagogical activity as a professional qualification and a certain set of personal qualities and properties [15, p. 453].

According to V. Slastenin, readiness is a special mental condition, characterized by the presence in the subject of the image, the structure of a certain action and the constant direction of consciousness to its implementation. The researcher points out, in terms of professional readiness, firstly, psychological, psycho-physiological and physical readiness, and secondly - scientific-theoretical and practical readiness. The theoretical readiness is a system of knowledge

necessary for carrying out the activity, and practical readiness is the presence of analytical, predictive, projective and reflexive skills. At the same time, readiness, in his understanding, consists of different types of installations to realize a certain task, the model of probable behavior, the definition of special methods of activity, the assessment of their capabilities in their relationship with the difficulties and the need to achieve a certain result [16, p. 16].

I. Dychkivska's readiness for innovative pedagogical activity is understood as a special personal condition, which presupposes the presence of a teacher's motivation-value relation to professional activity, the possession of effective means and means of achieving pedagogical goals, the ability to creativity and reflection [5, p. 335]. The concept of "readiness" A. Kapska, interprets as a positive attitude, interest, stability of the motive of pedagogical activity, focus on activities; knowledge and ideas about the peculiarities of activity, the requirements for the teacher's personality; possession of knowledge, skills, processes of analysis, synthesis, comparisons, generalizations; self-assessment of their activity, level of preparation for it and adequacy of the decision of professional tasks [9].

Readiness is considered in the works of N. Kuzmina, who believes that psychological readiness covers the stock of professional knowledge, skills and abilities; as well as personality traits: beliefs, pedagogical abilities, interests, professional memory, thinking, attention, pedagogical orientation of thought, ability to work, emotionality, moral potential of an individual who must ensure the successful performance of professional functions [11, p. 22].

According to L. Kandybovych, readiness is not only a property or a sign of an individual, it is a concentrated indicator of the essence of the person, the degree of his professional abilities [6, p. 35].

Note: in psychological and pedagogical works, readiness is defined as the active-activity status of the individual, the installation of a certain behavior, the mobilization of forces to perform the task. The phenomenon of readiness was studied by I. Iakymanska, who identified long-term and situational readiness, which depends on the type of higher nervous activity, individual abilities of the individual and the conditions of the course of activity [20, p. 28]. The researcher considers the readiness to be a personal state that has three kinds: sufficient, elevated and lowered: a state of sufficient readiness inherent in man before everyday, habitual work; the state of high readiness is excited by the novelty and creative content of work, non-traditional stimulation, good physical well-being, etc.; inadequate personality emotionality, resulting in inability, abstraction of

attention, falsehood of action - a state of reduced readiness [20, p. 28].

Therefore, given the different approaches to defining the notion of readiness for professional pedagogical activity, most scholars regard it as the mastering and mastering of professional functions by a teacher. However, closer to our understanding of the readiness of teachers to implement health-saving technologies is the treatment of readiness based on a personal condition.

With this in mind, we believe that teachers' readiness for implementing health-saving technologies should be considered as part of their readiness for professional activity; This concept is interpreted as an activity state, formed on the basis of knowledge, needs and attitudes, skills and abilities, own experience in preserving and strengthening the health of children in the institution of education.

The teacher must have professional knowledge and skills, be able to creatively change his personality based on the use of psychological and pedagogical knowledge, mastering the objective spiritual and moral values of society, taking into account their individuality of the individual.

As I. Bekh notes, significant in the professional activity of the modern teacher is the in-depth self-knowledge, the correlation of their personal characteristics with the requirement of humanistic orientation in pedagogical interaction [4, p. 85]. Teacher training for the creation of a health-preserving environment of a comprehensive educational institution is aimed at forming such personality traits, knowledge and skills: moral virtues (citizenship, principledness, diligence, honesty); pedagogical skill, broad erudition, critical thinking, moral convictions); developed communicative qualities (sensitivity, kindness, ability to sympathize with and understand another person); high general culture (latitude of the horizons, understanding and knowledge of works of art, advanced speech, attractive appearance, ability to solve conflict situations), etc.

A teacher involved in the introduction of healthcare-saving pedagogical technologies, must itself have a system of healthcare-saving knowledge, to celebrate the value-oriented attitude to their own health as a higher value, to understand the need for its preservation and strengthening its own civic duty.

To objectively evaluate the readiness of teachers to implement health-saving technologies, it is necessary to determine its structure: components, criteria and indicators. Given the multidimensionality of the issue of readiness for vocational and pedagogical activities, most researchers note the complexity of the readiness structure, interpret it as an integral, stable system

of interconnected, interdependent, interdependent components. Taking into account the research area of professional and pedagogical activity, scientists determine the various components of readiness.

In the structure of readiness for professional activity D.Uznadze, distinguished three interrelated components: a) cognitive on the basis of his integration of the idea of different activities; b) motivational-informative, which provides the initiation of the process of activities; c) self-regulating on the basis of which the ability of a person to withstand the pressure of external circumstances is determined [18, p. 45].

The researchers M. Diachenko and L. Kandybovich in the structure of readiness distinguish the following interrelated components: motivational - expressed in the need to successfully accomplish the task, interest in the object of activity, the ways of its implementation, the desire for success; orientational - encompasses knowledge and understanding of the peculiarities and conditions of activity; operational - involves knowledge of methods and techniques of activity, skills and abilities; volitional - characterizes the internal need for the management of actions; estimated - involves self-esteem of its preparedness [6, p. 35]. In turn, N. Ippolitova in the structure of readiness of the future teacher for professional teaching distinguishes three interrelated components: personal - characterizes the degree of moral and teacher readiness of the teacher to professional activity, reflects the degree of formation of value orientations, interest in the profession, the level of development of motivation to pedagogical activity; cognitive reflects the teacher's awareness of the nature and content of teaching activity, the level of general pedagogical, methodological, special-subject knowledge necessary for the effective vocational and pedagogical activity; praxical - characterizes the professional skills and skills necessary for the implementation of functions of pedagogical activity and ensuring its effectiveness [8].

The researcher N. Mazur also advocates certain components of readiness. The cognitive component of teacher's readiness for monitoring student achievements is represented by a set of knowledge (general cultural, natural sciences, psychological and pedagogical, special); The practical component covers a set of knowledge that enables the teacher to determine the objectives of the monitoring procedures, choose the methodology and tools for conducting them, collect and analyze the data obtained, correct the individual trajectories of the student development and improve their own professional competencies. The motivational component of readiness ensures the integral nature of this formation, characterizing the vocational and

pedagogical orientation of the teacher's personality [13].

The scientist M. Kozub notes the readiness of the future teacher to implement health-saving activity understood as the integrative formation of a person having a system organization, a complex, multilevel structure, considered as integral interaction and interpenetration of physical, motivational, cognitive, practical (operational-activity) and reflexive components. Their formation determines the healthprotecting nature and logic of the organization and the implementation of pedagogical activities, the need and direction of professional and personal growth of the future teacher of physical culture [10].

From the standpoint of O. Bezpalko, readiness covers a complex of interrelated motivational-value, cognitive-intellectual and operational-activity determinants of continuous professional growth of the teacher, providing the optimal implementation of self-education, self-education, self-actualization in his professional activities [3, p. 19].

Consequently, the analysis of scientific literature on the issue of readiness for professional pedagogical activity showed that most researchers in the structure of readiness distinguish between knowledge, skills, certain experience of their application in practice, positive attitude to the profession of teacher, stable motives of pedagogical activity, the presence of professionally important personal qualities that are found in the daily activities of the teacher.

Taking into account these developments, we, in the readiness of our teacher to implement health-saving technologies, singled out the following components: cognitive, emotional, value, and practical.

The cognitive component of teachers' readiness for the implementation of health-saving pedagogical technologies is represented by a set of knowledge (general cultural, natural, psychological, pedagogical, special) necessary for the teacher to form a healthcare-saving environment, analysis of results and changes in the educational process. This component of preparedness involves raising the level of professional competence of the teacher in healthcare. We believe that in order to introduce health-saving pedagogical technologies, the teacher needs knowledge from various branches of science, integrated into a single system of representations about health and healthy lifestyles; knowledge about ways to strengthen and preserve health, basic among them is the knowledge of psychological and pedagogical and methodological profiles.

Effective healthcare-saving activity of the teacher is based on mastering the theory and

method of forming a culture of health, as well as a system of knowledge necessary for the implementation of a health-saving educational process and aimed at studying: the normative and legal provision of the system of preserving the health of children; regularities and peculiarities of their spiritual, physical and mental development; living conditions; risk factors for health; resources for preservation, strengthening and restoration of health; Health saving technologies. It is also important to know the teachers about the relationship of physiological and social maturity, structural and functional features of the musculoskeletal system, cardiovascular and respiratory systems. This knowledge is necessary for substantiation of the mode of motor activity, as well as solving issues related to the problems of intellectual and emotional overload, hypodynamia.

The emotional-value component is determined by emotions, values, needs, development of socially valuable and personally significant motives for action. He characterizes the vocational and pedagogical orientation of the teacher's personality on the basis of awareness of the social significance of the problem of introducing health-saving technologies and directs the teacher to a certain type of activity. Its components are the value orientations of the teacher, valuable and responsible attitude to their own health and health of others, the need for the introduction of health-saving technologies, the feeling and comfort and safety in a general education institution. This component covers targeted guidance, aims to achieve the goal, encourages collaboration, provides a prerequisite for creative activity.

The practical-activity component is defined as a set of skills and skills that enable them to solve problems during health-care activities with students: organization of healthcare-saving educational process; the ability to conduct diagnostics of the level of individual health, taking into account the psychosomatic, constitutional and socio-spiritual characteristics of the individual; to implement a system of recreational and corrective measures for the preservation of health; to implement health-saving technologies that take into account age, social and environmental environment; to provide social and hygienic conditions of pupils' life.

This component also covers communicative skills, the ability to use various mechanisms for the formation of interpersonal relationships of participants in the educational process, to create a favorable emotional atmosphere, to show flexibility in resolving conflict situations. Thus, readiness is determined in actions that are manifested through organizational and communicative skills.

The formation of components indicates a high level of readiness of teachers to implement

health-saving technologies, reflected in the teacher's professional competence. Therefore, the formation of teachers' readiness should take place in the directions that characterize the structural components: systematic updating and updating of the knowledge necessary for the implementation of the health-saving educational process and the formation of the foundations of the culture of health; increase motivation; planned work on acquiring appropriate skills and practical skills in solving problems during health care activities.

Understanding the essence of the components of teacher's readiness to implement health-saving technologies makes it possible to determine the relevant criteria.

The cognitive component of teachers' readiness for the implementation of health-saving technologies is the criterion "Knowledge of the basics of preserving the health of students in a general education institution", which is characterized by a real level of knowledge about sanitary and hygiene requirements for the organization of the educational process in a general educational institution, health-saving technology and the impact of the educational environment on students' health.

The criterion "Attitude to the health of students" corresponds to the emotional and value component and allows to determine the teacher's attitude to the health of students, a healthy lifestyle, as well as the degree of responsibility of the teacher to their own health and health of students.

This criterion makes it possible to determine the need for implementation of health-saving technologies and to consider it as a conscious and realized action of the teacher, aimed at ensuring the conditions of education, psychological comfort and safety of the educational institution.

The selection of the criterion "The formation of healthcare-saving environment" is conditioned by the understanding of the need to form a healthcare-saving environment in the institution of education, adherence to sanitary and hygiene requirements during the organization of educational process. Important indicators of this criterion are the introduction of health-saving technologies; intensifying cooperation with parents. On the basis of this criterion determines the degree of responsibility of the teacher for the health preservation of students.

Conclusions.

Thus, the components of the teacher's readiness for implementation of health-saving technologies (cognitive, emotional, value-oriented and practical-activity) ensure the formation of

a personally oriented position of the future teacher, his professional competence, productive style of pedagogical communication, that is, those factors on which the level depends the readiness of the teacher to introduce health-saving technologies into the educational process of the educational institution. Such a teacher is capable of constructing and implementing an effective strategy for the preservation and strengthening of children's health.

Hence, qualitative education is based on the high level of professional competence of the teacher, his spirituality, the ability to organize the educational process, to form healthy relations of communication in a team of students, colleagues, parents and create comfortable conditions in the institution of education.

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CHARACTERISTICS OF EXTRACURRICULAR ACTIVITIES AND THEIR INFLUENCE ON PROFESSIONAL READINESS OF STUDENT YOUTH

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Abstract

The article presents the results of anonymous questioning of medical students on the topic of organization of their extracurricular activities, its role in professional readiness.

The purpose of the work: the characteristics of extracurricular activities of medical students and its role in their further professional readiness and specialization.

Materials and methods: an anonymous questioning of 334 medical students of the medical faculty of V.N. Karazin Kharkiv National University was conducted; it included alternative questions relating to the characteristics of extracurricular activities, professional orientation, information literacy.

Results of the research: the main types of extracurricular activities of students - scientific, organizational, cultural, sports, secondary employment - are defined in the work. A detailed description of each variety of extracurricular activities is given with an assessment of the impact on academic performance, professional readiness.

Conclusions: The influence of scientific, organizational, cultural, sports, secondary employment on the further professional readiness of medical students has been established. Methods that will make it possible to interest students, to attract them to certain types of extracurricular activities are proposed.

Key words: extracurricular activities, professional readiness, students

ACTUALITY. In the conditions of the reform of the Ukrainian economy, there is a growing need for a high level of professional training for students, which, of course, raises the requirements to professional competences of the individual, to its ability to perform production tasks within a specified period of time, to maintain the appropriate level of health. The presence of high professional qualities, multilateral labor skills and abilities of the student - the future specialist increases his opportunities in the labor market as the owner of the workforce, makes him competitive and adaptive to the dynamic conditions of the market environment [3]. That is why the organization of vocational training in educational institutions is a relevant subject of research. Today it is not just about vocational education, but about a certain complex, which, in addition to the educational process, includes the general cultural development of the individual (including creative activity), mobility and adaptability to rapidly changing industrial and social requirements [3, 5]. In this, the extracurricular activity (EA) of the youth, which ensures the formation of interest in the chosen profession, the development of aesthetic-value orientations, a creative personality has a great importance. Therefore, it is necessary to create such forms of EW, in which the student will be able to implement not only their professional knowledge, but also the desire for professional growth, to develop a humanistic worldview, to enrich the aesthetic taste [4, 5, 7]. Thus, the EA is implemented in social, sporting and scientific activities of students, teachers, curators of academic groups of faculties. The main tasks of the EA are: the formation of ethical norms, spiritual needs, cultural values and generally accepted rules of conduct in the society, as well as public responsibility, patriotism, academic integrity, corporate culture, healthy lifestyle, organization of leisure by creating a favorable environment for creative development in the student's youth and self-realization of students, involvement of young people social experience gaining through participation in university, city and all-Ukrainian events. It is particularly important to solve these tasks among students studying in the "Medicine" faculties, as throughout the period of training ethical, aesthetic, research skills that will influence further professional readiness should be formed.

The purpose of the study is to characterize the peculiarities of extracurricular activity of medical students and its role in further professional readiness and specialization.

MATERIALS AND METHODS. The research was carried out within the research work "To develop medical and social measures for the prevention of study-caused diseases and professional incapacity of student youth" (State registration number 0115U005738). An anonymous

questionnaire was conducted for 334 students (179 boys and 155 girls) who study at the medical faculty of the Kharkiv National University named after V.N. Karazin. It was conducted with the use of questionnaires developed at the Kharkiv National University named after V.N. Karazin and SI “Institute for Protection of Children’s and Teenagers’ Health, NAMS”. The questionnaires included alternative questions regarding the characteristics of the EA, professional orientation, informational education of student youth. The statistical processing of the research materials was carried out using MS Excel, SPSS-17 packages.

RESULTS AND DISCUSSION. During the study, extracurricular work of the student youth was divided into a number of areas, which, in our opinion, have an influence on the professional orientation in the future:

1. Scientific (participation in research works, scientific forums at the state and international level, etc.).

2. Organizational (student self-government, participation in I and II stages of student medical contests, membership in medical associations, holding thematic seminars for junior students or school students, facilitating meetings with famous world scholars and politicians).

3. Production (professional employment in medical institutions on the profile of the future specialty).

4. Cultural (organization and implementation of certain events held at Alma Mater, at the faculty, participation in international, all-Ukrainian and city charity events, popularization of social and specialized medical activities, formation of a professional image, including linguistic culture).

5. Sports (sports achievements at faculty, university, city, all-Ukrainian and international levels; performance of health-improving sports events; promotion of a healthy lifestyle).

An important prerequisite for the theoretical and practical training of a specialist in medicine is the scientific basis for his activities. It is science that creates conditions for sustainable development of society, promotes the development of new technologies, improves production and opens up new perspectives. All modern theoretical and practical knowledge in medicine has been obtained thanks to numerous scientific studies. Today there is a wide involvement of students in scientific activity at the beginning of studies at a higher educational institution [2, 8]. Thus, during the analysis of the scientific component of the EA, it was determined that 48.5% of the respondents attend 2-3 scientific and practical conferences as listeners per academic year,

17.2% - as speakers in numerous scientific all-ukrainian and international forums, which is confirmed by the program of the forum, certificate and published materials. In addition, more than 10% of students, both domestic and foreign, are involved in the organization of the International Conference of Students, Young Scientists and Specialists "Current Issues of Modern Medicine" at the Faculty and other specialized academic activities held annually at the Faculty. An important aspect is not only participation in the implementation of various scientific tasks, but also the importance of scientific products in learning. Thus, scientific medical information in the form of articles and theses is used by 13.1% of students, 27.7% of respondents use scientific results provided in monographs. In general, scientific work, according to the students themselves, promotes logic, consistency in the study of the material, easier formation of short-term and long-term goals, a more detailed and serious approach to learning, as well as self-determination regarding the choice of professional route and specialization.

Student self-government is an integral part of student life - an important component of public administration of any institution of higher education (IHE) of Ukraine in the educational and EA of students. Thus, 7,2% of the interviewed students take part in solving a number of issues concerning the promotion of active cultural life, the dissemination of useful information, the protection of students' rights and compliance with the norms of the educational process, the implementation of the program of cooperation with public organizations outside the faculty, etc. An important sign of interest in the further specialty is participation in competitions held with the aim of improving the quality of specialists training, finding gifted student youth, as well as stimulating their creative work. Thus, about 5% of the interviewed students take part in these events every year, preparation for this events requires not only a considerable amount of time, but also the inspiration and desire to master specific theoretical and practical knowledge, so it indicates a certain professional purpose.

Regarding membership in medical profile associations, it currently has about 40 in Ukraine. Citizens of Ukraine, foreigners and stateless persons who have reached the age of 18 and have higher education, scientists, scientific and pedagogical and other workers, engaged in the activities of the Association, which have worked in the specialty of at least a year can be members of the association, which practically makes it impossible for students to participate. However, there is the Ukrainian Medical Students Association, whose purpose is to protect the interests of medical students and to promote the effective realization of their capabilities in

modern conditions. Within the framework of the activities of this association, 9.2% of the interviewed students take part in a number of extracurricular professional-oriented events during the year, for example:

- "The Teddy Bear Hospital" project at boarding school №55 (Kharkiv) aims to familiarize children with a fun and interactive way to overcome any fear or anxiety associated with health care staff;

- World Stroke Day (World Stroke Day), during which the skills for calculating the body mass index, measuring blood pressure, assessing the risk of possible stroke development in the next 5 years have improved;

- social-medical action "Fighting with breast cancer! Say "NO" to cancer", dedicated to the All-Ukrainian Breast Cancer Day, where everybody had the opportunity to learn about the technique of breast self-examination, the causes and risk factors of the disease;

- organization and conduction of a cycle of lectures for children-pupils of boarding school №55 (Kharkiv), which were devoted to the formation of healthy lifestyle skills for children;

- "The World with your own eyes" event dedicated to healthy vision, during which everybody had the opportunity to test visual acuity, learn basic methods of prevention of eye diseases.

An important element of professional orientation in extracurricular time is the secondary activity in medical institutions at the positions of junior or middle medical personnel. It was found that 18.4% of the interviewed students work by profile of studying, among which 13.9% consider this extracurricular professional activity type important for obtaining permanent practical skills in the chosen specialty, 5.2% - necessary for further employment in this medical establishment. In general, secondary professional activity certainly contributes to the more active involvement of the student in the actual further occupation, early adaptation to its features and realities, and the outline of a range of important issues. On the other hand, this minimizes the time for rest and preparation for classroom studies in the given students. Thus, 14.8% of respondents showed that they do not have the time and power to study the theory thoroughly; therefore, they rely more on the practical skills of objective research and medical support provided to patients already acquired during secondary employment in medical institutions; however, 13.1% of the students stressed that they were rationally organizing the time of studying and work, the schedule of which was adjusted precisely for academic needs. Another 17.6% are

temporarily not working on the profile of studying. It should be noted that, in general, 48.2% of respondents noted the material component of secondary activity.

To the question what may hinder the pursuit of the chosen profession in the future, 38.8% of the interviewed students optimistically pointed out that such factors do not exist today, but 32.5% noted the low level of material security of young specialists, 25.1% doubt their actual knowledge, 6.7% - believe that if they fail to work in the medical sector, then it will happen due to the state of health. In general, 93.7% of the students already have priorities for certain specialties. Thus, 21.7% of respondents wish to work in the specialty of surgery, internal diseases - 20.7%, obstetrics and gynecology - 9.6%, pediatrics - 8.4%, anesthesiology and intensive care - 4.8%, orthopedics and traumatology - 4.7%, dermatovenereology - 4.2%, otolaryngology - 2.8%, neurology - 2.3%, clinical oncology - 1.7%, ophthalmology - 1.4%, pathological anatomy - 1.1%. Moreover, 10.3% of the respondents said that after receiving a specialty they will have the opportunity to undergo specialization in cardio rheumatology (7.1%), gastroenterology (1.2%), narcological (1.1%) and endocrinological (0.9%) profile.

An essential requirement for the EA is the formation of common to all mankind values. The spiritual renewal of Ukraine, the process of democratization of the society, which greatly affects all spheres of life, involves the creation of favorable conditions for the establishment of the atmosphere of creativity and cooperation, the multifaceted development of personality, its abilities and talents, the emergence of deep respect for their specialty [1, 6], especially in the medical field. Thus, 9.8% of the respondents are actively solving issues regarding charity assistance to different groups of the population. During the year, they held a number of events, for example, students from Africa with the support of the Ukrainian-African academic center visited the Regional Children's Psycho-Neurological Sanatorium No. 1, within the framework of the action orphans, children from dysfunctional families and children with diseases of the central nervous system from the age of 4 to 17 years were given a number of sports equipment, developing toys and sweets; medical students also visited the patients of Kharkiv Oblast Clinical Psychiatric Hospital No. 3 with fun games to improve reaction and dexterity, dancing, adding bright colors to the lives of children; students are active blood donors at the Kharkiv City Clinical Hospital of Emergency Medicine named after prof. AI Meshchaninov - within this event, more than 5 liters of blood was collected for the surgical department of the hospital, and the student council plans to develop this direction of work, attracting students to the donation and forming

the most important features of future doctors - nobility and sensitivity; the annual charitable University Winter Ball was held, the main purpose of which was to raise funds for the purchase of ultrasound equipment for the children's scientific and medical institution SI "Institute for Protection of Children's and Teenagers' Health, NAMS"; also students visited children from Kharkiv Regional Center for Social and Psychological Rehabilitation "Nadia" with gifts and entertainment program before the new year. This is just a small list of charitable events held by students from the faculty.

Medical students are involved not only in professional orientation activities, but also actively participate in the extracurricular life of their university. As Kondratenko A.P. says (2011) the formation of professional motivation of the future specialists' personality is significantly influenced by the creative atmosphere, historical traditions, formed in IHE the identity of the socio-cultural environment. Moreover, the preservation of the best traditions of the university forms professional motives of the individual, promotes the establishment of a civilian position, improves the culture of communication, develops the desire for self-education and creative expression [5]. Forms of the implementation of this direction are different, for example, the university contest "Mr. University", "Beauty of the University", "Miss freshman of Karazin 2017", the annual All-Ukrainian action "For clean environment", an art action of the university - the most massive spiritual anthem of Ukraine performance in the format open-air "Prayer for Ukraine"(words by O. Ya. Konyskogo, music by M. V. Lysenko), annual vocal competition "Karazina Karaoke Kings ", day of faculty, day of knowledge, day of medical worker etc.

In addition, the EA must also enrich not only the general, but also linguistic culture [3, 6], a certain indicator of which is the frequency of use of abnormal vocabulary. According to this study, obscene words appear in some statements every day in 10.3% of the respondents, mostly boys ($12.8 \pm 2.5\%$ versus $6.5 \pm 1.9\%$, $p < 0.05$), almost daily 25,2% of students allow themselves to use this obscene words, again mostly guys ($30,8 \pm 3,5\%$ versus $19,3 \pm 3,1$, $p < 0,05$), randomly obscene words are used equally often by both girls and boys (37.5%), 27% of the student youth do not use obscene language at all, both girls and boys. A certain indicator of cultural development is the simplest action - reading books. Thus, 58.2% of them noted that they read one or more books a week, but 41.8% did not have the opportunity to read a single work at all - the reasons for this include academic load and a rather busy extracurricular life.

The priority task of organizing of a healthy lifestyle is physical education. And first of all the university's task is to create conditions and attract young people to certain sporting events. According to statistics, the problem of modern society is hypodynamia. In IHE hypodynamia develops mainly due to inefficient organization of study and recreation, educational overloads, ignoring physical education as an important component of life quality, despite numerous organizational measures for its prevention (sports complexes at universities, preventive clinics, sports competitions, etc.) [9]. Almost every day 18.6% of the respondents do sports (mainly in gyms), several times a week - 53.4%, but almost one third of students (27.9%) do not perform physical exercises both among girls and among boys, especially this refers to girls ($35.5 \pm 3.8\%$ vs. $20.5 \pm 3.1\%$, $p < 0.05$). It should be noted that medical students are actively involved in a number of sports competitions, such as the annual university basketball, badminton, the medical faculty dean's mini-football cup, annual regional beach volleyball competitions, student volleyball league, bowling tournament "The Trade Union Cup", basketball competition "The Profkom Cup", streetball competitions, etc.

Despite a significant amount of EA, a significant academic load, during this survey, it has been shown that basic subjects grades in 69.9% are good and/or excellent. 15.9% of students receive only "excellent" evaluation. Moreover, 87.2% of students indicated that getting good grades is very important for them as a point to stimulate learning. Why is the significance of assessments so high? 65.7% of respondents noted that the level of assessment depends on the level of possession of the actual material on the topics of classes and is an indicator of the quality of their further professional activities. This is the main goal of the desire for good grades. 12.7% of students express certain doubts about the level of their knowledge, and a good assessment by the teacher convinces them of a sufficient level of knowledge. The positive aspect about the quality of teaching and general attitude towards the IHE is the emotional state, the desire to go to university to study. Thus, 78.8% of students noted a positive mood in terms of attending academic classes, with 52.2% of them see it as their direct responsibility, which directly indicates the leading importance of the chosen profession in subsequent life.

In order to stimulate those students who do not participate in the EA in the IHE of our country there is a rating system for the formation of student success, which takes into account educational, organizational, scientific, sports achievements, etc. However, it mainly affects students who are studying for public funds and receive scholarships, and, of course, they are most

interested in an active EA, which provides rather high scores. According to official figures, 55.2% of budget students will receive points for various achievements (max-7, min-0). Among them 41.9% have from 6 to 7 points, 28.4% - from 3 to 5.9 points and 29.7% to 2.9 points. However, 44.8% of students have 0 points for additional EA, while it is necessary to note that they have lower marks for their success. Obviously, this fact is associated with the fact that these students, relying on the rating and its scores, realistically assessing their factual knowledge, do not see a significant need to participate in a number of extracurricular activities without additional incentives or specific preferences (eg singing, dancing etc).

CONCLUSIONS. Thus, the conducted research showed that the IHE created top conditions for the realization of the individual potential of each medical student. All spheres of creative approach to professional education of youth are involved - scientific, cultural, organizational, production, sports. These components on the background of academic training are the basis for the formation of professional readiness. Sport helps to organize a healthy lifestyle, reduces the spread of bad habits, etc. The scientific, organizational, and cultural components of the EA help in revealing certain personal qualities, help to choose the right direction for further work. However, nevertheless, a certain number of students have low interest in EA, which requires the development of a number of rating measures not only for budget students, but also those who study under the contract, including foreign ones. In addition, there is a need to create conditions for educational work in relation to raising the level of interest in those extracurricular activities offered by the university and the faculty, promoting "pure language" as signs of a truly educated and cultural person. Certainly, in this case, special role is played by curatorial supervision as an important element of the interaction of the educational and personal components of learning, which is the prospect of further research.

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CHARACTERISTICS OF PUBERTAL DEVELOPMENT IN MODERN GIRLS IN UKRAINE

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Abstract

The purpose of our research was to study the peculiarities of initiation and progressing of puberty in girls living in urban and rural areas and to compare them with data of world literature.

The results. The multipurpose research allowed to reveal that pubertal development proceeded at a more intensive rate in girls from urban area in comparison with their contemporaries from rural area.

The duration of transition from one stage to the next one in breast development is essential. This process is substantially protracted if disorders in menstrual function are subsequently formed.

4.1% of schoolgirls in rural area and 4.8% in urban area entered puberty by the pubarche pathway. Pubertal development by the thelarche pathway was detected in 79% of girls in urban schools and in 75.6% of girls in rural schools. Synchronous pathway of pubertal development was detected in 17.1% of adolescents in urban area and in 20.3% in rural area (breast augmentation occurred simultaneously with the appearance of pubic hair).

At early stages of puberty asynchrony between development of breasts and pubic hair is observed. As a rule pubertal development becomes more synchronous at later stages.

Average age at menarche remains stable and corresponds to the data in industrially developed countries. Early menarche (before 11 years) was substantially more frequently registered among schoolgirls in urban area, and late menarche (after 15 years) was more frequent in rural area.

The conclusion. Normative landmarks for onset of puberty have been defined. Differences between rural and urban child population in regard to terms and timing of pubertal development have been revealed.

Further monitoring of trends in pubertal development is needed to specify normative changes

for each separate population, to derive the latest and reliable reference data, to observe closely and to work out managerial decisions for early detection of deviations.

Key words: pubertal development, girl health, reproductive function, preventive therapy.

According to the *State Statistics Service* the current female population of Ukraine is estimated at 23 million, including 3.9 million girls from 0 to 18 years old (16.9 %). Adolescent girls aged 15-18 who can be regarded as the proximate reproductive potential of the country amount to as few as 716502, which is 3.4 % of the total female population of the country and 7.1 % of *women of reproductive age*. That is why health of every girl, preservation of her reproductive potential is one of the main tasks in modern society. Timely diagnosis of deviations in pubertal development and menstrual disorders facilitates prescription of adequate medical and preventive therapeutic complexes, helps in dynamic monitoring, prevents development of serious complications and related reproductive losses and in this way contributes to improving the demographic situation.

Social and economic changes, acceleration of scientific and technological progress, transformations in information technologies of the first decade of the 21st century have a significant impact on physical and sexual development processes in modern children and teenagers and can both accelerate and delay physical and sexual maturation.

Puberty is one of the most important stage in a girl's life. It occupies the second place after neonatal period in regard to intensity of processes and unique vulnerability. Along with physiological changes that take place in adolescents, their lifestyle and behavioural patterns are developed including sexual and reproductive ones. All this raises the risk of deterioration of their reproductive health.

Today, age of entering into puberty is one of much debated problems in the medical community which is associated with a revealed tendency towards earlier *onset of puberty* [1, 2]. Lack of factual data about the physiology of puberty in modern conditions can lead to late diagnosis and detection of risk factors for gynecological diseases on the one hand, and on the other hand to over-diagnosis of deviations in actually normal physiological processes. Not only chronological age is relevant for assessment of normal sexual development but temporal sequence of biological events in pubertal development as well (breast development, appearance of pubic hair, menarche).

Taking into account that puberty timing is influenced by dwelling location, availability and

quality of food products, initiation and timing of puberty in girls should be associated with their place of residence. This will help to identify changes in regard to onset and progressing of pubertal development.

The purpose of our research was to study the peculiarities of initiation and progressing of puberty in girls living in urban and rural areas and to compare them with data of world literature.

Materials and methods. The research was conducted up to the year 2015 in the framework of the National programme "Reproductive health" by the research staff of the department of pediatric gynecology of the State institution "Institute for Protection of Children's and Teenagers' Health of the National Academy for Medical Sciences of Ukraine", who had passed training in standards based methods of assessment of pubertal development. 1573 schoolgirls in urban and 936 girls in rural area from 7 to 17 years old living in the Northeast region of Ukraine were observed. The evaluation of sexual development, maturation of secondary sex characteristics was carried out on the basis of visual examination and palpation of breasts – Ma, analysis of appearance and development of pubic hair – P, axillary pilosis – Ax, initiation of menarche – Me. Assessment of maturation of secondary sex characteristics was based on the staging introduced by *James M. Tanner* [3]. Individual coefficients were used for each characteristic: breasts – 1.2 points, pubic hair – 0.3 points, axillary pilosis – 0.4 points, menarche – 2.1 points. The total scale of secondary sex characteristics was calculated according to the *sexual formula* (Ma+P+Ax). Age at menarche was assessed using the "status quo" and the "recall or retrospective" methods. The subjects were asked about the order of appearance of secondary sex characteristics and about deviations in development of menstrual function.

The research complies with ethical norms.

All the materials were statistically processed basing on classical methods of descriptive variation statistics using the Statistica-6 package (StatSoft Inc.). Variations between groups were assessed on base of the one-way analysis of variance and were considered statistically significant with $p < 0,05$ (95% significance level).

Results and discussion. The larche и menarche are usually used as puberty markers. Puberty in girls is considered as physiologically normal when it starts at an age of between 8 and 12 years. Initiation of pubertal development at an age earlier than the indicated interval is assessed as an early or precocious puberty and when it starts later it is considered as a delayed puberty.

Presence of secondary sex characteristics (Ma2) before the age of 8 years was more often

registered in rural area (12.5 % vs 6.3% in urban area, $p<0.01$). Absence of secondary sexual characteristics after 12 years was observed in 4.5% of girls in rural schools and in 1.2 % in urban schools ($p<0.0001$). These data do not contradict with results demonstrated in studies of foreign researchers [4, 5].

The majority of modern publications indicate an earlier initiation of pubertal development in girls [6, 7, 8, 9]. Age changes in onset or attainment of secondary sex characteristics have great importance. They can be connected with social and environmental problems, with growth of number of children with overweight, etc. Timing of physiological entering into puberty allow to detect girls with deviations in it and timely and adequately prescribe appropriate measures for prevention of such disorders progressing.

Breast development is connected with processes of maturation in hypothalamic-pituitary-gonadal system (gonadarche). This is one of its earliest markers. Changes in timing of thelarche in last decades became a subject of debate in the medical community.

Based on the analysis of the resulting data obtained by the Herman-Giddens group in an extensive research in the framework of the Pediatric Research in Office Settings (PROS) and National Health and Nutrition Examination Survey (NHANES) programmes, President of the American Pediatric Endocrine Society Named in Honor of Lawson Wilkins put forward the initiative to analyze comprehensively the findings and give recommendations concerning the new standards of timing of puberty onset [10, 11]. These recommendations were worked out and published. It was suggested to reduce the age of thelarche to 7 years for *white Americans* and to 6 years for *African Americans* [12, 13]. But many experts queried these recommendations. Additional examination of 223 girls with presence of breasts at 7 years allowed to reveal that 47.1% of them had started pubarche as well, which indicates at a real precocious puberty in compliance with generally accepted recommendations. Other endocrine diseases such as congenital adrenal hyperplasia, McCune-Albright syndrome, growth hormone deficiency, hypothyroidism, pituitary adenoma, hyperinsulinism, neurofibromatosis were detected in more than 12% of girls. Bone age advancement by 2 or more years was observed in 35.2% of examined girls [14, 15]. Results of another research held from 1993 to 2008 showed that 66.8% of 449 girls with early pubertal development had various disorders. Central precocious puberty was detected in 20%, and in 14% of them it was of organic nature [16]. All these mentioned made it impossible to reduce age criteria for normal puberty but raised a question of a top significance

about search of comprehensive methods for differential diagnosis of precocious puberty [17, 18].

Analysis of our research findings shows that average age at stage Ma2 of breast development in urban area equaled to 11.1 ± 0.1 years (10.5-11.8), in rural area 11.3 ± 0.2 years (10.4-13.0), and these data are slightly higher in comparison with published results of examination of girls in developed countries [19, 20, 21, 22].

Average duration of transition from stage Ma2 to stage Ma3 was estimated at 1.75 years in urban area and at 1.98 in rural area. These data can be more informative in regard to development of possible deviations in the *progression of* puberty. So in those cases where girls had gynecologic disorders stage-to-stage transition in breast development (from Ma2 to Ma3) was on average much more longer and equaled to 3 years in urban area and to 3.15 years in rural area.

Average age of girls at stage Ma3 of breast development did not vary substantially in urban and rural areas (13.0 ± 0.09 and 13.1 ± 0.1 years respectively). Achievement of the definitive stage in breast development was slightly delayed in girls in rural area. Average age at Ma5 in girls in urban area equaled to 15.1 ± 0.04 , in rural area 15.3 ± 0.05 years ($p < 0.0001$). Overall process of breast development from starting to final stage took from 4.1 years in girls in urban area to 4.7 years in rural area. These data are comparable to data from literature [7].

Body hair: pubic hair and axillary hair development depends upon increase in adrenal androgen production. Pubarche is anticipated by progressive growth in production of such androgens as DHEA and $\Delta 4$ -androstenedione. This event is physiologically called adrenarche and it occurs independently of the pituitary-gonadal complex (gonadarche).

Pubarche was detected 4-7 month after the onset of breast development. Average age of pubarche at stage P2 did not have substantial differences and equaled to 11.6 ± 0.2 years in girls from urban schools and to 11.8 ± 0.2 years in girls from rural schools. These figures are somewhat higher in comparison with data from world literature [20, 21, 23]. Achievement of the next stage in public hair development took 1.2 years in urban area and 1.3 years in rural area. Average age of pubarche at stage P3 equaled to 12.8 ± 0.09 years in girls from urban schools and was positively higher in girls from rural area (13.1 ± 0.1 years; $p < 0.01$). The analogous tendency was observed at the final stage of pubic hair development (15.1 ± 0.04 in urban area vs 15.3 ± 0.05 in rural area; $p < 0.001$).

In accordance with the first event in the pubertal development girls were qualified as those who had entered into puberty starting with the breast development (the thelarche pathway), those

who started with the pubic hair development (the pubarche pathway) and those in whom thelarche and pubarche appeared simultaneously (synchronous pathway). Only 4.1% of schoolgirls in rural area and 4.8% in urban area entered puberty by the pubarche pathway. These figures are comparable to data from Denmark, Norway, but are much less than in girls from Great Britain and the USA [7,22]. At the same time these girls require constant medical monitoring because they constitute a risk group for possible development of polyendocrine and metabolic syndromes [17,24]. Pubertal development by the thelarche pathway was detected in 79% of girls in urban schools and in 75.6% of girls in rural schools. Synchronous pathway of pubertal development was detected in 17.1% of adolescents in urban area and in 20.3% of adolescents in rural area (breast and pubic hair development were simultaneous). It is noteworthy that average age at onset of puberty starting with breast development was 10.3 ± 0.1 years both in urban and rural areas. Average age at onset of puberty starting with pubic hair development was 10.3 ± 0.5 years in urban area and 10.9 ± 0.4 years in rural area. When breast and pubic hair development started simultaneously average age at onset of puberty was substantially higher and equaled to 11.4 ± 0.2 years in urban area and to 11.6 ± 0.2 years in rural area.

As a rule we observed asynchrony between stages of development of breasts and pubic hair at early stages of puberty. Pubic hair development lagged behind the mammary gland. At the stage Ma3 of mammary gland development pubarche had not achieved its third stage in 21.9% of girls in urban area and in 20.3% of girls in rural area. At later stages the development as a rule became more synchronous. Pubic hair development lagged behind only in 4.89% of girls in urban area and in 5.3% of girls in rural area. Though the formation of breasts started earlier accomplishment of breast and pubic hair development was achieved at the same age approximately because body hair in the *genital area* develops quicker than breasts do.

Menarche is one of the most important stages of pubertal development and a marker of maturation representing the transition from childhood to adult life. It is associated with the onset of reproductive capability. Timing of menarche as well as appearance of other sex characteristics depends upon many criteria such as heredity, climatic and geographic peculiarities, social and economic conditions including nutrition, degree of urbanization, etc. [25]. Publications about influence of family upbringing and father absence have appeared. Girls who suffered in their childhood from absence of parental care, support and attention as a rule start menarche at a younger age and achieve maturity earlier [26, 27, 28]. Onset of menarche is also associated with

birth characteristics (height and weight at birth), high weight velocity in the first 6 to 9 months of life, BMI at 8-9 months, family income, family size, etc. [29, 30, 31, 32].

Improvement of social and economic conditions in many developed countries in the twentieth century has led to an earlier onset of pubertal development and to a drop in age at menarche. It has been calculated that during the greater part of the twentieth century age at menarche was dropping by 3 months approximately per each decade [8, 33]. This process had stopped in economically developed countries by the end of the twentieth century supposedly due to a higher stability in the social and economic development, nutritional conditions, etc.

Average age at menarche among the examined girls was analogous to the age in industrially developed countries and was 12.5 ± 0.03 years in the urban area and 13.0 ± 0.05 years in the rural area ($p < 0.00001$). The interval between the first appearance of breasts to menarche constituted 1.6 years in schoolgirls from the urban area and 1.7 years in schoolgirls from the rural area. These results are analogous to data given in foreign researches [6,8,21,22].

Younger age at menarche (before 11 years) was detected in 3.5% of girls in urban schools and in 1.3% of girls in rural schools ($p < 0.003$). According to literature data early menarche is a risk factor for cardiovascular diseases, mammary gland cancer, overweight, and it is noted that early menarche is associated with negative psycho-social phenomena (such as depressive disorders, delinquent behaviour, misuse of psychoactive substances), early sexual intercourse and probability of teenage pregnancy [34, 35, 36]. Menarche at an age from 11 to 15 years was recorded in 95.3% of girls in urban area and in 93.7% of girls in rural area. Later age at menarche (15 years and older) was recorded more often among adolescents in rural area (5.0% vs 1.7% in urban area; $p < 0.00001$). It should be noted that with menarche before 11 years age of final breasts and pubic hair formation was significantly less than with menarche at 11 to 14 years. It was to the same extent applicable to schoolgirls from both urban and rural areas (see Table #1).

Table #1. Average age of schoolgirls in urban and rural areas at Stage 5 of breast and pubic hair development associated with menarche, years

Menarche	Schoolgirls in urban area		Schoolgirls in rural area	
	Ma5	P5	Ma5	P5
before 11 years	14.6±0.3	14.7±0.3	13.5±1.2	15.1±1.01
11-14 years	15.2±0.04*	15.3±0.04*	15.7±0.06**	15.7±0.06

*p< 0.02

** p<0.0001

Having analyzed association between age at menarche and breast development timing at different stages we did not reveal any stronger correlation dependence between age at menarche and breast development at later stages [7]. Though we tracked a more intensive association between age at menarche and age at thelarche at early stages of breast development ($r=0.51-0.47$ at stage Ma3, vs $r=0.33-0.25$ at stages Ma4-5).

The most extensive study of association between menarche and BMI was conducted under the aegis of WHO/EURO in the joint cross-national research Health Behaviour in School-aged Children (HBSC) in which 43 countries took part [37]. The results indicated that overweight and obesity are risk factors for early pubertal development and menarche.

Our findings also prove to the existence of the inverse dependence between age at menarche and body weight, age at menarche decreases with BMI ($r=-0.35$; $p<0.00001$).

Average age at menarche was highest with underweight body. And it was significantly higher in rural area than among girls in urban schools ($13.65±0.14$ vs $12.82±0.11$ years respectively; $p<0.00001$; see Figure #1).

The earliest age at menarche was detected in girls with obesity. It should be noted that menarche was significantly earlier in girls in urban area than in rural area with all variations of body mass. Thus BMI can be used as a prognostic index in timing of menarche.

Clinicians working with adolescents must consider physiological criteria in regard to the duration of cycle and menstruation in the first years after menarche. According to data of cross-

national multi-center researches average menstrual cycle lasts from 28 to 32 days, and length of menstruation itself varies between 3 and 7 days [38, 39]. Data of our research indicate that average menstrual cycle duration among schoolgirls in urban area is from 29.3 ± 0.1 to 32.1 ± 0.5 days. In rural area it is somewhat longer, from 29.6 ± 0.2 to 33.4 ± 0.5 days. In 1% of girls in rural area cycle duration is less than 20 days and in 2.4% it is more than 45 days. In urban area cycle duration less than 20 days was registered in 0.5% of girls and more than 45 days was much more rare and was registered only in 1% ($p<0.01$). Average length of menstruation among girls in urban area was from 4.8 ± 0.05 to 5.9 ± 0.2 days. In rural area it was significantly shorter and varied from 4.6 ± 0.05 to 5.4 ± 0.08 days ($p<0.004$). Menstruation lasted less than 3 days in 1.5% of schoolgirls in urban area and in 1.9% in rural area, more than 7 days — 10.9% in urban and 7.7% in rural area.

The conclusion. Results of this research are necessary for orientation in normal timing of first appearance of secondary sex characteristics and formation of menstrual function during pubertal development. They will help to identify children with atypical changes in sexual development and menstrual function.

Further monitoring of trends in pubertal development is needed to specify normative changes for each separate population, to derive the latest and reliable reference data, to observe closely and to work out managerial decisions for early detection of deviations.

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