

REPUBLIC OF AZERBAIJAN

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**A B S T R A C T**

of the dissertation for the degree of Doctor  
of philosophy in pharmacy

**STUDY OF SOME ASPECTS OF INNOVATIVE POLICY  
IN THE STRATEGIC DEVELOPMENT OF THE  
PHARMACEUTICAL SECTOR OF AZERBAIJAN**

Speciality: 3400.01 – Technology of purchase of drugs,  
organization of pharmaceutical work

Field science: Pharmacy

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The dissertations work was performed at the Department of Pharmaceutical Technology and Management of Azerbaijan Medical University

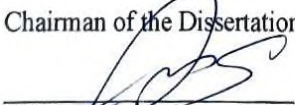
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## **GENERAL CHARACTERISTICS OF THE DISSERTATION**

The relevance of the research. It is a well-known fact that education cannot develop without science, and science cannot develop without education. These two strategic areas are the object of research and application for each other. It is impossible to achieve sustainable development in society without ensuring their unity, mutual enrichment, and common goals<sup>1</sup>. For the sustainable development of the society, the development of all the fields of agriculture serving it, including the pharmaceutical sector, is of particular importance. In the independent Republic of Azerbaijan, the pharmaceutical sector is developing in a comprehensive and unique way. In each country, a national strategy of pharmaceutical activity is formed for the development of pharmacy. In developed countries, based on the requirements of the World Health Organization, the National Drug Policy is developed, approved at the state level, and becomes a legal, guiding document for the development of pharmacy as a law.

The development of the national pharmaceutical sector is of strategic, social and economic importance. Therefore, one of the strategic priorities of our state is to successfully resolve the policy related to the strategic development of the pharmaceutical sector in our country and provide our population with uninterrupted, efficient, high-quality and safe medicines.

Until now, the policy of innovation carried out consistently in the pharmaceutical sector of our country has been of a fragmentary nature, mainly related to the increase of the competitiveness strategy of the pharmacy business or the modernization of the state structures in the drug supply system of the population.

Accordingly, the scientists of our department conducted one or another scientific-based research and studied the methodical approaches of management in the pharmaceutical sector (Veliyeva M.N., 1997-2024; Naibov N.M., 1986; Gasimova G., 2004; Maharramova S.N. 2007; Madatli FI, 2010; Zulfugarova N.S., 2011;

Jalilova K.I., 2011; Bagirova A.B., 2013; Khalilov N.G., 2024, Abdullayev E.Z., 2024, etc.).

The obtained results made it possible to characterize the innovative processes in drug policy in various infrastructure systems, to analyze the influence of the internal environment on it and the innovative legality of the pharmaceutical sector in our country.<sup>1</sup>

Currently, the pharmaceutical market of Azerbaijan is characterized by a fairly high level of competition. It is observed that the effectiveness of pharmaceutical activity depends on its internal potential. The basis of its internal potential is a pharmaceutical specialist.

The improvement of the system of formation of a pharmacist specialist shows its relevance already at the initial stage - the stage of receiving special pharmaceutical education. Pharmacists are calling for reforms in pharmacy education, as the gap between the classically acquired knowledge of pharmacy school graduates and the demands of the modern pharmaceutical market is widening.

The transition to market relations has fundamentally changed the pharmaceutical business of Azerbaijan. The range of pharmaceutical products has increased dramatically, which has led to fierce competition. The pressure on pharmaceutical workers has increased many times, which has led to occupational stress, emotional burnout syndrome, and in some cases, the desire to change their profession.

In such cases, the question of professional improvement of the specialist in the field of pharmacy throughout his entire activity is extremely urgent. This includes the acquisition of basic knowledge and skills in higher education as well as the acquisition of practical experience and competence. There is a need to search for new scientific approaches and develop professional methods of pharmacists in their work. On the basis of modern concepts, progressive and foreign experience, as well as non-standard

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<sup>1</sup> Misir Mardanov. Azerbaijan education: a vision of the future, Azerbaijan 2020 - a new stage of development, Baku, 2012, pp. 609-617.

approaches in this process, specialists should not only be interested in increasing professionalism, but also ensure the harmony of personal, collective and public interests. Taking into account the above, we had to define the main goal and tasks of the research we presented.<sup>23456</sup>

### **The Purpose of the research:**

In the strategic development of the pharmaceutical sector of Azerbaijan, it consists of studying some aspects of innovative policy, developing a management model of 1a pharmaceutical specialist, and forming scientifically based complex methodical approaches.

### **The Tasks of the research:**

1. Analysis the innovative policy in the strategic development of the pharmaceutical sector in Azerbaijan;
2. To study the problem of specialist management in the pharmaceutical market of Azerbaijan;
3. To systematically analyze the formation of pharmacists as professionals and personalities during their education;
4. To study the process of specialty formation in the stage of adaptation and specialization of pharmacists in the Republic of Azerbaijan;
5. Develop an innovative organizational model of modern pharmacists taking into account the development characteristics of the pharmaceutical market;

**Scientific novelty of the research:** for the first time:

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<sup>2</sup> Atakishizade S.A., Valiyeva M.N. Innovative approaches in pharmaceutical and medical supplies in Azerbaijan. Journal: Modern achievements of Azerbaijani medicine. 2015. Baku, No. 1, pp. 142-145.

<sup>3</sup> Aizman R.I. Fundamentals of medical knowledge and a healthy lifestyle / R.I. Aizman V.B. Rubanovich, M.A. Subotyalov. - Novosibirsk: Sibirsk. university. publishing house, 2009. - 214 p.

<sup>4</sup> Armstrong M. Practice of human resource management: trans. from English / M. Armstrong. - St. Petersburg: Peter, 2012. - 848 p.

<sup>5</sup> Atakishizade S.A., Velieva M.N. Innovative development of pharmaceutical education in Azerbaijan. European Journal of Biomedical and Life Sciences, Austria, Vienna, 2016 No. 4, 49-53 p.

<sup>6</sup> Atakishizade S.A. Strategy of pharmaceutical ethics in innovative scientific and practical activities of pharmacists. Western University Scientific Bulletin, magazine, Baku, 2015, No. 1, 92-97 p.

- In the stages of development of a pharmacist, its improvement in the process of gaining professional management experience throughout the entire labor activity, starting from the acquisition of pharmaceutical education, has been proven from a theoretical point of view.

- through comparative studies, differences in the content of the professional and personality development of students of the Faculty of Pharmacy of the Azerbaijan Medical University, the Faculty of Veterinary and Pharmacy of the Azerbaijan State Agrarian University, the Pharmacy Department of the Baku Medical College No. . Students of the Faculty of Pharmacy of AMU have higher free decisions towards pharmaceutical science and pharmaceutical entrepreneurship.

- With the change in the dynamics of the modern pharmaceutical market, the workload of pharmacists changes. therefore, the factor of emotional blackout syndrome was found in experts. For the first time, new methods and ways of their elimination are shown.

- The management of pharmaceutical personnel was studied and it was proved that the innovative policy of modern Azerbaijani pharmacy was formed: a normative-legal base was created, the management system was centralized, new, efficient and convenient management technologies were applied, a modern concept was developed in the training of pharmaceutical personnel. As an innovation, a single price (reference) policy for medicines has been adopted in our country.

- The structural analysis of the management system of the pharmacist, the conditions for the formation of professional competence in the course of the pharmacist's career were revealed: it was determined that the decisive position in the management of wholesale and retail enterprises belongs to the graduates of the Faculty of Pharmacy of AMU.

- Acquiring the professional experience of specialists in the field of pharmaceuticals, taking into account the development characteristics of the pharmaceutical market of Azerbaijan, their ability to accept the innovations of the pharmaceutical market; the

role of specialists working in the pharmaceutical field in strengthening individual and public health; it has been shown that public organizations, associations, including the Pharmaceutical Scientific Society, have a role in improving the professional qualities and increasing the competence of pharmacists.

- An innovative organizational model has been developed for the training of highly qualified specialists in the pharmaceutical market of our country

### **Provisions submitted to the defense:**

- The state of the specialty training system of pharmacists in the Republic of Azerbaijan was studied.

- Professional and personality characteristics of students were studied depending on the demand for pharmacists in the pharmaceutical market of the Republic of Azerbaijan and the educational environment.

- Possibilities of using foreign models in the management of specialists and technological innovations in pharmaceutical organizations were assessed.

- The effect of production stress on the occurrence of emotional exhaustion syndrome in pharmaceutical workers and ways to eliminate it were analyzed.

- The model of personnel training from a professional point of view was proposed with the participation of pharmaceutical establishments of the Republic of Azerbaijan and pharmaceutical professional organizations, educational institutions that train pharmacists.

**The theoretical importance of the research** consists in the development of a comprehensive approach to improving the qualification of specialists in drug behavior.

**The scientific-practical significance of the reserach** is that the results obtained on the basis of scientific-based dissertation research for the first time have been approved by the health management bodies of the Republic of Azerbaijan and can be used by organizations engaged in wholesale and retail sales, which is a

high productivity of pharmacists, will provide motivation for the harmony of personal, collective and public interests.

### **Application of research results to practice**

Based on the results of the conducted research, lectures were developed and prepared in the "Pharmaceutical technology and management" department of the Faculty of Pharmacy of the Azerbaijan Medical University and were included in the teaching of the subjects "Bioethics of Pharmacy" and "Problems of Modern Pharmacy" for students studying at the master's level. These include: "Formation of psychological stability in communication with patients", "Mental self-regulation habits", "Increasing resistance to stress", "Modern pharmaceutical valeology", "Benefit of pharmaceutical bioethics to specialists". Methodical works were prepared for those lectures and acted for application.

### **The approval of research**

Various fragments of the dissertation work were presented at the Baku Science Festival held in the Republic of Azerbaijan (Baku, 2015, 2016), At the "IVEK2" International Medicines and Pharmacy Congress held in Istanbul (Istanbul, 2015), "Current issues of modern pharmaceutical technology" of the All-Russian scientific and practical conference with international participation dedicated to the memory of the outstanding scientist, Honored Scientist of the RSFSR, Doctor of Pharmaceutical Sciences, Professor I.A. Muravyova (Pyatigorsk, 2016), "Current issues of modern pharmaceutical technology" of the All-Russian scientific and practical conference with international participation dedicated to the memory of the outstanding scientist, Honored Scientist of the RSFSR, Doctor of Pharmaceutical Sciences, Professor D.A. Muravyova (Pyatigorsk, 2017), International scientific and practical conference "Modern technological platform in the creation of dosage forms, cosmeceuticals and dietary supplements" (Pyatigorsk, 2018), "At the XXIII Republican scientific conference of doctoral students and young researchers" (Baku, 2018), at the scientific conference held at the Department of Pharmaceutical Technology and Management (Baku, October 26, 2018), II International Conference



on Global Practice of Multidisciplinary Scientific Studies (Batumi, 2022), Scientific and practical conference of the State Educational Institution "TSMU named after. Abuali ibni Sino" "Modern medicine: traditions and innovations" with international participation reported and discussed (Dushanbe 2022).

**Publications:** 22 scientific works have been published on the subject of the dissertation. 11 of them are scientific articles (6 abroad, 5 in the republic), 11 theses (3 abroad, 8 in the republic).

**The scope and structure of the reserach** is explained in 189 computer printed sheets: 16 tables, 17 figures. The research work consists of introduction, six chapters, summary, conclusions, practical recommendations, list of references, appendices and abbreviations. 172 sources are included in the bibliographic index.

Dissertation work corresponds to the direction of the scientific work carried out in the department. (State registration number 01114105).

## **CONTENTS OF THE DISSERTATION**

### **Materials and methods of research**

The dissertation work was carried out in 2015-2018 at the department of pharmaceutical technology and management of Azerbaijan Medical University. Research students of the Faculty of Pharmacy of the Azerbaijan Medical University, students of the Faculty of Pharmacy and BSE of the Azerbaijan State Agrarian University, students of the Department of Pharmacy of Baku Medical College No. 1, students of the Department of Pharmacy of Baku Base Medical College No. 2 (425 students in total) under the supervision of "Zeytun Pharmaceutical" company includes pharmacists with higher and secondary education working in pharmacies and pharmacists with higher and secondary education working in pharmacies under "DOKTA" LLC operating under "Avromed" company (500 in total). The researches were conducted by means of questionnaires composed of several questions, the results of which were statistically processed using modern computer programs.

**The material of the research:** the object of the study is the existing system operating in the field of preparation and use of personnel of the pharmaceutical market of the Republic of Azerbaijan; sources of information: statistical reports of the Ministry of Health of the Republic of Azerbaijan; Report documents of Azerbaijan Medical University; Report documents of Azerbaijan State Agrarian University; Empirical basis of Baku Medical Colleges No. 1 and 2, as well as the dissertation research itself; There were questionnaires of pharmacists and students of the Faculty of Pharmacy. Surveys were conducted in 2016-2018 (a total of 925 surveys).

**Methods of the research:** methodologically, the principle of the system approach to the study of the pharmaceutical market in our country, the general principle of decision-making, the theory of statistics, comparison, sociological (survey, survey, conducting tests, interview), documentary analysis, modeling, and the preparation of pharmacists by Azerbaijani and foreign scientists. works were used. Scientific researches were conducted in higher and secondary education bases and active pharmaceutical institutions of the Republic of Azerbaijan.

#### **Development of research algorithm.**

Individual attention was paid to the issue of professional training of pharmacists. Taking into account this important issue and taking into account the methodical approaches developed earlier on the study of the state of specialist service in our country and the optimization of existing models, starting from the training of specialists, their formation from a professional point of view throughout the pharmaceutical service and their entire activity, to the issue of effective use of human resources within the country. the algorithm of the scientific research of the dissertation on the issue of expert policy was developed.

#### **Research algorithm**

| <b>Stages of research</b> | <b>Composition of research stages</b> | <b>Source of information</b> |
|---------------------------|---------------------------------------|------------------------------|
|---------------------------|---------------------------------------|------------------------------|

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|---|---|---|
| <b>PHASE I</b><br><b>Analysis of innovative policy in the strategic development of the pharmaceutical sector</b>              | 1.1 Characteristics of traditional methods of expert management in pharmaceutical enterprises<br>1.2. Innovation changes in the management system of specialists in pharmaceutical organizations.<br>1.3. Some aspects of the innovative policy of modern Azerbaijani pharmacy.<br>1.4. Formation of innovative approaches in pharmaceutical management in our country<br>1.5. Professional training of pharmacists.<br>1.6. The formation of innovation policy in pharmaceutical science has been studied. | Literature data<br>Analytical reports<br>Internet resources<br>Information from the Ministry of Education of the Republic of Azerbaijan |
| <b>PHASE II</b><br><b>Analysis of the management of pharmaceutical specialists in the pharmaceutical market of Azerbaijan</b> | 2.3. Analysis of the problem of emotional exhaustion in the professional activity of pharmacists.<br>2.4. Studying the stress resistance and burnout syndrome of pharmacists.   | In order to solve this task, the information was theoretically obtained using the literature we obtained.                               |
| <b>PHASE III</b><br><b>Systematic analysis of professional and personality formation</b>                                      | 3.1. Study of the innovative development of pharmaceutical education in our country.<br>3.2. Analysis of the training system of pharmaceutical specialists in Azerbaijan.<br>3.3. Studying the level of professional and personal   | Indicators of the statistical reports of the Ministry of Health of the Republic of Azerbaijan<br>Questionnaires of requirements         |

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|---|---|--|
| during the period of education of pharmacists   | training of students in higher and secondary pharmaceutical education institutions of our country   | of graduate schools and colleges of pharmacy   |
| <b>STAGE IV</b><br><b>Analysis of the process of formation of pharmaceutical specialists at the stage of innovative qualification in Azerbaijan</b> | 4.1. Studying the managerial activity of pharmaceutical specialists in Azerbaijan.<br>4.2. Studying the conditions for the formation of professional competence in the development of the activities of pharmaceutical specialists in our country.  | Questionnaires of pharmacist-leader and employees<br>Internet resources  |
| <b>PHASE V</b><br><b>Development of the model of formation of highly qualified specialists in the pharmaceutical market of our country</b>          | 5.1. Studying the ability of a pharmacist to acquire professional experience under modern conditions in Azerbaijan.<br>5.2. Studying ways of applying the foreign model to the management ability of pharmaceutical specialists prepared by our state<br>5.3. Analysis of the ability of pharmacists in our country to accept the innovations of the pharmaceutical market<br>5.4. Evaluation of measures aimed at forming, protecting and strengthening the health status of specialists engaged | Indicators of the analysis of foreign and domestic experience in the creation of public pharmaceutical societies<br>Internet resources |

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|  | <p>in pharmaceutical activities in Azerbaijan</p> <p>5.5. Studying the formation of Azerbaijani pharmaceutical societies and their role in the pharmaceutical sector.</p> |  |
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According to the presented scheme, the main stages of the research and the sequence of their implementation have been determined.

In the first stage, literature sources, analysis of the problem of managing a modern specialist in the pharmaceutical market in the Republic of Azerbaijan, characteristics of traditional methods of specialist management in pharmaceutical enterprises, innovation changes in the management system of specialists in pharmaceutical organizations, professional and personal training of pharmacists, study of the emergence of the problem of emotional exhaustion in the professional activity of pharmacists was.

In the second stage, indicators of regulatory and legal documents and analytical reports on the training system of pharmaceutical specialists of Azerbaijan and their use in our country were analyzed. The main issues of that analysis were: analysis of the characteristics of the professional training of pharmacists, training of pharmacists at Azerbaijan Medical University, Azerbaijan State Agrarian University, Baku Medical Colleges No. 1 and 2, analysis of the characteristics of

existing management models applied in our country, study of the characteristics and methods of activities of pharmacists.

The purpose of the third stage is the comprehensive study of the system of training specialists in pharmaceutical education in the Republic of Azerbaijan. It includes: professional-personal formation of specialists with the help of psychological tests, depending on the educational institution; analyzing the motivational factors that help to choose a higher school; study of psychological characteristics of students and their personality characteristics.

In the fourth stage, the results obtained from the study of placement of specialists in the pharmaceutical organizations of the Republic of Azerbaijan were summarized. Based on these, ways of increasing the efficiency of labor resources in the pharmaceutical service in our country have been developed.

The fifth stage is devoted to the analysis of local and foreign sources of information about the role of the public pharmaceutical society in the formation of pharmacists as specialists.

As a result of the generalization of the obtained experience, a model of the system of formation of specialists in the field of pharmacy at the republican level was proposed, this model is aimed at obtaining new professional qualities that can be obtained only in practical activity.

First, a social survey (using the questionnaire method) of secondary pharmacy students was conducted. The purpose of the survey was to find out the motivation of those students to continue their education in higher schools in order to receive higher pharmacy education. 110 graduates of 2016 and 2018 participated in the survey. In the questionnaire, there were questions on the subject of management, and a block related to education was also included.

In the next stage of our research, the motivational features of the choice of majors of higher school students in our country were studied, for this purpose 50 graduates of AMU and 10 graduates of ASAU participated in the survey (2017).

In 2016 - 2018, the characteristics of self-determination of students receiving secondary education in higher education and medical colleges on the basis of AMU and ASAU were

experimentally studied. 230 students participated in the study. 100 of them were students of ATU, 80 students of ADAU and 50 students of the pharmacy faculty of the medical college.

When characterizing the composition of experimental options, we should note that these students of these educational institutions are mainly inclined to study natural sciences, medical-biology and somewhat economically oriented sciences. 3rd and 4th year students of AMU and ASAU, 2nd and 3rd year students of medical college were involved in the survey. The composition of the selection was equal in terms of gender composition. The pharmacy specialty at AMU attracted more boys than at ASAU. There are very few boys in the pharmacy departments of medical colleges. The achieved division of labor was typical of the student contingent of the mentioned institutions.

The experimental phase of the research is dedicated to professional training of specialists studying pharmacy.

The analysis of the characteristics of the professional-personality formation of the student in the pharmacy profile was carried out within the interpretation phase, dedicated to the comparison of the professional and personality characteristics of the students of the Faculty of Pharmacy of AMU, ASAU and the medical college.

The comparative characterization of students' specialist-personality characteristics was carried out according to the following parameters: motivational characteristics of the choice of specialty; initial level of personality resources; personality and specialist orientation; profession, interests and imaginations; characterization of the emotional-volitional sphere; communicative properties of personality.

### **Calculation methods**

Later, social surveys were conducted among the employees of pharmacy organizations. Random unreplicated selections were made in the course of social research to obtain indicator results. The

formula used in pharmaceutical economics was used to calculate the required number of respondents:<sup>78</sup>

$$n = \frac{1}{\frac{\Delta}{p(1-p) \times t^2} + \frac{1}{no}}$$

**n** – the number of persons to conduct the survey;

**no** – number of the total group (number of specialists and pharmacists);

**t** – reliability coefficient (when threshold level = 0.05) is defined as 1.96;

**p (1-p)** – selective variance (0.2-constitutes);

**Δ** – margin of error of selection (confidence limit is usually taken equal to 95%, and if it exceeds 5%, it is considered 0.05).

Based on the number of senior pharmacists and pharmacists working in Azerbaijan, the number of persons to be surveyed should be calculated according to the above formula.

### **Statistical calculation**

Statistical analyzes were performed using MS EXEL, SPSS and S-PLUS software, and the mode and median were calculated using the following formulas.

$$M_0 = x_0 + n \frac{f_m - f_{m-1}}{(f_m - f_{m-1}) + (f_m - f_{m+1})},$$

**M0** - Mode value

**X0** - the lower limit of the mode interval

**n** - interval value

**f<sub>m</sub>** - frequency of the mode interval

**f<sub>m-1</sub>** - the frequency of the pre-mode interval

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<sup>7</sup> Ostapenko Yu.M. Labor Economics: textbook. allowance / Yu.M. Ostapenko. - M.: Infra-M, 2007. - p. 272.

<sup>8</sup> Vasiliev S.V. Comparative management: educational method. allowance / S.V. Vasiliev. - Veliky Novgorod: Publishing House of NovGU named after. Yaroslav the Wise, 2012. - 159 p.



$f_{m+1}$  - frequency of the post-mode interval

$$M_{\varepsilon} = x_0 + h \frac{\frac{\sum f_i}{2} - S_{m-1}}{f_m},$$

Me - any median

$x_0$  - the lower bound of the interval with the median

h - interval value

$\sum f_i$  - sum of frequencies or number of median members

$S_{m-1}$  - the sum of the accumulated frequencies of the intervals before the media

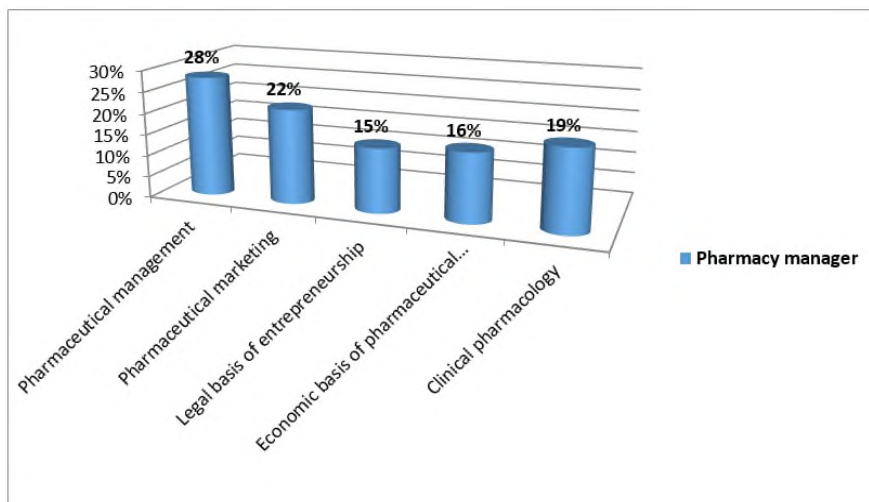
$f_m$  - the frequency of the median interval

## RESEARCH RESULTS AND THEIR DISCUSSION

**Analysis of pharmaceutical personnel management in the pharmaceutical market of Azerbaijan.** The characteristics of the traditional methods of specialist management in pharmaceutical institutions, innovative changes in the personnel management system in pharmaceutical organizations, professional and personal training of pharmacists, and the problem of emotional exhaustion in the professional activity of pharmacists have been studied.

As a result of research, it was determined that 5747 pharmacists work in the field of pharmaceuticals of our country, 52% of them are specialists with higher education, and 48% are specialists with secondary education. It was possible to prepare average statistical indicators from the sociological research conducted among pharmacists. Specialists with higher education prevailed in hospitals and large pharmacies in the Republic. The city's private pharmacies are mainly staffed by students and graduates of the Faculty of Pharmacy of AMU and medical college. These are mostly young women with an average age of 40. When studying the conditions of professional competence development throughout the career, it was

found that there are information gaps among pharmacists. Pharmacy managers need additional knowledge about pharmaceutical management, pharmaceutical marketing, legal foundations of entrepreneurship, and economic foundations of pharmaceutical entrepreneurship (Picture 1).



**Picture 1. Pharmacy managers' need for additional knowledge**

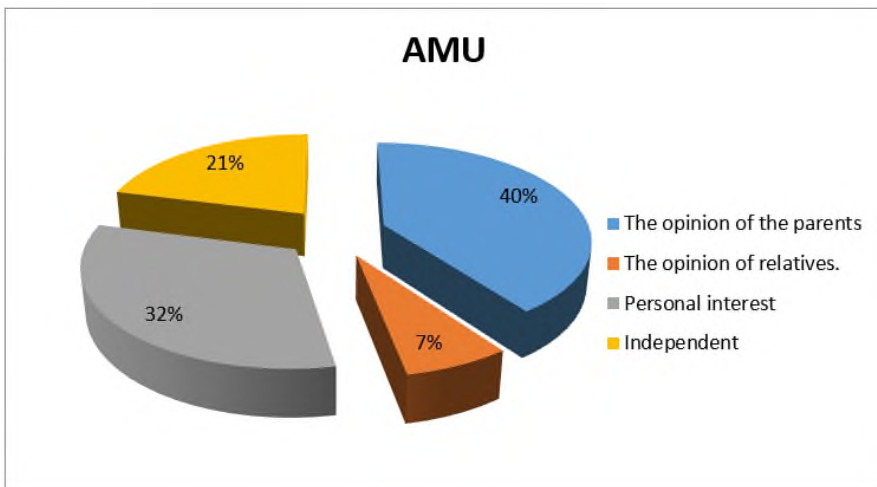
From the surveys on the future state of extemporaneous preparation and development of medicinal preparations, it was found that the activity or desire of pharmaceutical specialists in the preparation and expansion of medicinal preparations in extemporaneous production is non-existent.

When stressogenic factors affecting the work of pharmacists were determined, it was found that "professional burnout syndrome" was more common among people who provide medicines to the privileged population, 35%, and relatively less, 32%, among other professionals.

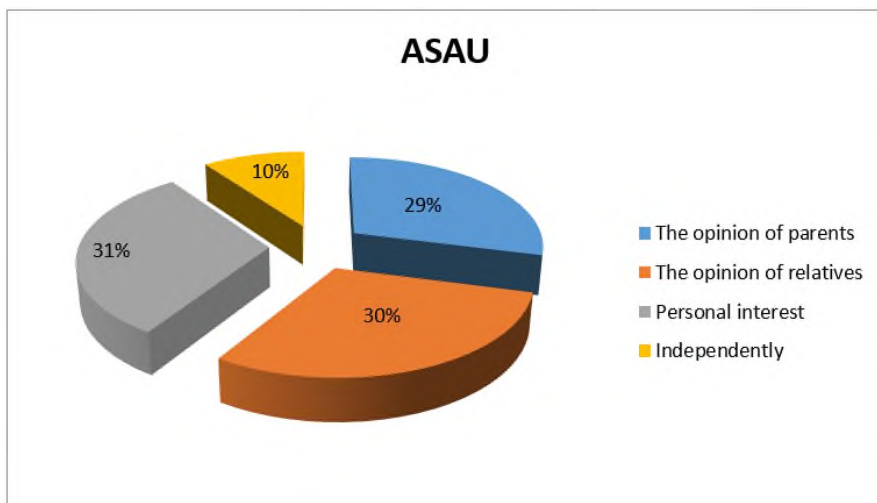
From the survey of senior students (34 students), it was found that only 18 students have knowledge about the realities of their

specialty and its high stressogenicity. This shows that there is a need to develop a teaching program for the formation of stress resistance qualities in students. Preventive measures should be taken to eliminate professional burnout with experts.

**Analysis of professional and personality formation of pharmacists in Azerbaijan during their education.** The analysis of the system of training of pharmacists in the Republic of Azerbaijan, the diagnosis of professional and personal training of students in pharmaceutical educational institutions was studied. Taking into account the existing methodological approach to studying the state of the pharmaceutical personnel service and current models, a research program was developed for the training of pharmaceutical personnel and the management of the pharmaceutical specialist in order to effectively use the human resources of the pharmaceutical service. The personnel training system was analyzed and it was determined that the faculties of Pharmacy of Azerbaijan Medical University and Azerbaijan State Agrarian University deal with the training of highly educated personnel. Pharmacists with secondary education receive secondary education at Baku Medical College No. 1 and Baku Basic Medical College No. 2. By using psychological test packages that allow to evaluate the professional-personality formation of pharmacists in the preparatory stage in higher schools and colleges, it was determined that the formation of a specialist in the field of pharmacy takes place against the background of changes in the social environment, rhythm of life, type of activity, and life values of young people. There are differences in the content of the formation of higher school students and students of the pharmacy faculty of medical colleges in the field of pharmacy from the point of view of professional identity. Thus, when choosing a pharmacist specialty, students make their choices mostly under the influence of their parents and relatives (pictures 2, 3).



**Picture 2. Distribution of requirements for pharmacy specialty selection factors at AMU**



**Picture 3. Distribution of requirements for the selection factors of pharmacy specialty at ASAU**

It has been learned that the formation of the educational environment in higher educational institutions influenced the professional activity of future pharmacists and determined their attachment to the trade or production of drugs. Students on the scale of creativity and value orientation made their choice correctly, they chose to help people by connecting themselves to this specialty. It was found that the students of the pharmacy faculty of medical colleges have low qualities such as will, self-control, stubbornness, self-regulation, and the tendency to contact people, which are necessary for pharmacists, which indicates that they will create obstacles for their entrepreneurial or scientific activities. AMU students had higher indicators regarding the level of subjective control over both emotional-psychological situations and negative events. It was found that the students of the Faculty of Pharmacy of AMU had higher opportunities in pharmaceutical business, pedagogical activity, pharmaceutical science.

#### **Analysis of the process of organization of pharmaceutical personnel in the stage of innovative qualification in Azerbaijan.**

In the Republic of Azerbaijan, the structural analysis of the management system of the pharmacist, the study of the conditions for the formation of professional competence during the career of the pharmacist, the resistance to stress of the pharmacists and the syndrome of professional burnout were studied. It was found that in our country, the basic provisions, principles, methods and technologies of the management of the pharmaceutical specialist in connection with the selection of the pharmaceutical specialist, evaluation of business skills, career, adaptation and motivation of employees, conflict management have not been developed at a high level. At the same time, in the practical work of pharmaceutical personnel management, it is necessary to remember the modern requirements and the intricacies of pharmacy specialist management, which are closely conditioned by the main trends and regularities of relations in the sphere of personnel processes and circulation of medicinal products and interact with them. Currently, the basic training of pharmacists in Azerbaijan is carried out by higher and secondary pharmaceutical educational institutions, therefore,

pharmaceutical education should be reviewed in a general way as the training of pharmacists. Modern pharmaceutical educational institutions prefer entrepreneurial knowledge along with traditional knowledge, but the pharmaceutical market requires specialists with more sophisticated economic thinking, who should be well versed in clinical pharmacology, pharmaco-economics, interchangeability and adaptation of medicinal products. In this regard, in the adoption of new educational standards, secondary and higher pharmaceutical education is required to be created in accordance with innovative changes. Consolidation of secondary and higher pharmaceutical educational institutions in modern times is considered a basic condition for innovative reforms in pharmaceutical education. It has been determined that the development of a pharmaceutical personality requires the use of numerous social influence measures on the personality. It refers to different types of activities for the purpose of formation of the necessary qualities from a professional point of view, which goes through several stages: preparation stage, adaptation stage, improvement and reduction of professional activity. Although, on the one hand, the status of pharmaceutical organizations as a health care organization has been established legally, on the other hand, pharmacy organizations are commercial enterprises, which create the basis for the sale of medicinal preparations without a prescription in markets, online stores, and special terminals (vending machines). These can be considered as innovation innovations for pharmaceutical business and pharmaceutical organizations management system reconstructions. It has been found that employee stress leads to emotional exhaustion of employees in professional activities, including employees working in pharmacy organizations. Employees working in modern pharmacy organizations are exposed to greater workloads than employees of the 80s and 90s. In addition to this, the problem of studying worker stress and prevention of professional burnout among employees working in pharmaceutical organizations is growing.

**Development of an innovative model of formation of highly qualified specialists in the pharmaceutical market of our country.**

Taking into account the development characteristics of the pharmaceutical market, the first development of the model of the organization of specialists in the field of pharmacy, including the study of the ability of pharmacists to acquire professional experience in modern conditions, the study of the attitude of the pharmacist to the foreign model of the specialist's management, the analysis of the ability of pharmacists to accept the innovations of the pharmaceutical market, pharmacy It talks about problems and their solutions, such as assessing the fact that specialists working in the field are aimed at the formation, protection and strengthening of both individual and public health, studying the possibilities of revising the role of public pharmaceutical unions in the professional organization of pharmaceutical specialists, and their solutions, which have been consistently scientifically-based and proven that in recent years, the preparation and education of pharmacists in the form of in-company training, apart from the part based on the requirements of the state and field documents, normative acts, has taken a special place.

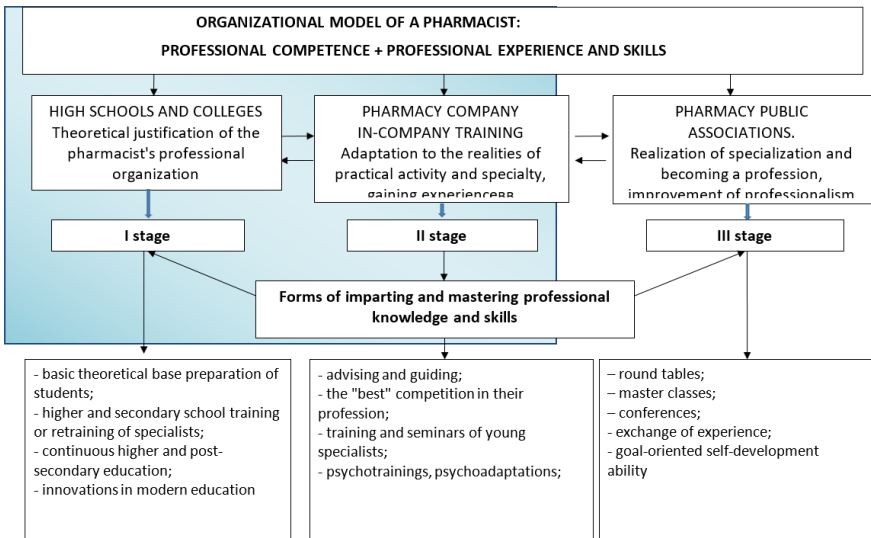
From the sociological surveys of pharmacy managers, it became known that the management of the specialist is carried out in accordance with the Azerbaijani mentality. In addition, it is necessary to adopt the international experience in the release of medicinal products, taking into account the characteristics of the pharmaceutical market in our country, in accordance with the legislation in force. At the same time, it was found that the pharmaceutical personnel are ready to apply innovations in the field of pharmaceuticals. At the same time, it was found that the pharmacist fully understands his place and role in solving the issue of protecting the health of the population in the health care system, the necessity of the social function of pharmacies, and that the patient's interests are superior to the commercial interests of the organization.

The role of pharmaceutical organizations in the organization of educational work on the application and concretization of knowledge about the development and protection of public health among pharmaceutical students with higher and secondary education was shown. Proposals were made for the prevention of emotional exhaustion syndrome and providing psychological support to the

pharmacist. It has been found that the role of pharmaceutical public organizations in actualizing the regulatory and legal framework for pharmaceutical activity as a whole, and in correcting educational and professional standards will be great. When analyzing information about the role of public pharmaceutical organizations in the professional formation of pharmacists, the special role of the Azerbaijan Pharmaceutical Scientific Society in the formation of specialists, the need for organizations and specialists in the expansion of the process of increasing their qualifications was revealed. These processes are aimed at gaining new professional qualities. Pharmacists can acquire this knowledge only in practical activities. Taking into account the requirements of the International Pharmaceutical Federation, the main directions of the activity of the newly formed Pharmaceutical Association in the Republic of Azerbaijan have been determined. An innovative model of the professional-organizational system of a modern pharmacist has been developed to generalize the experience of foreign and domestic pharmaceutical public organizations (picture 4).

This model is divided into two subsystems: management subsystem I, which consists of 3 institutional components of the professional organization - universities and colleges, pharmaceutical companies, pharmaceutical public associations. Managed subsystem II - these are a set of taught contingents: students and pharmacists engaged in pharmaceutical activities.





## RESULTS

1. Based on the analysis of the scientific literature we obtained, the ways of formation and improvement of pharmaceutical specialists according to our modern times were studied. The problem of emotional exhaustion was revealed in the professional activity of pharmacists. Based on scientific studies of foreign countries, the different and similar aspects of the symptoms of stress and emotional exhaustion problems were systematized and it was shown that the elimination of both negative effects is the most important issue in modern times. In Azerbaijan, it was studied the presence of stress resistance and occupational burnout syndrome in pharmacists. For this purpose, surveys were conducted in pharmacies from different regions. Factors affecting the pharmacist's work and causing stress were identified and it was proved that the "occupational extinction syndrome" was more common among those engaged in the sale of drugs to the privileged population. The analysis of the persistence of stress and the burnout syndrome of pharmacists revealed that there is a burnout syndrome in those who are engaged in giving medicines to the population - 32%, those who are engaged in the provision of privileged persons - 35%, and those who are engaged in accounting - 33%.
2. 5747 pharmacists work in the pharmaceutical market of our country, 52% of them are specialists with higher education, and 48% with secondary education. The management of pharmacists was studied and it was proved that the innovative policy of modern Azerbaijani pharmacy was formed: a normative-legal base was created, the management system was centralized, new efficient and convenient management technologies were applied, and a modern concept was developed in the training of pharmacists. As an innovation, a single price (reference) policy was adopted for the republic in order to regulate the prices of medicines in our country.
3. The problem of modern specialist management in the pharmaceutical market of Azerbaijan was analyzed, including specialist management methods, the state of the specialist

management system, innovative changes in the specialist management system in pharmaceutical organizations, professional and personal training of pharmaceutical specialists. It was revealed that although the preparation of modern specialists in the pharmaceutical market in Azerbaijan is positive, there are a number of problems in their management system, and practical recommendations are given to eliminate them.

4. The analysis of the process of specialty formation of pharmaceutical specialists in Azerbaijan was studied in detail at the stage of adaptation and specialization. The structural analysis of the pharmacist's management system, the conditions for the formation of professional competence in the course of the pharmacist's career were studied in detail. It has been determined that the decisive position in leading the pharmacies and wholesale enterprises in the pharmaceutical market of the republic belongs to the graduates of the Azerbaijan Medical University.
5. The stressogenicity of pharmacy students was studied. From the survey of senior students of AMU, it was found that only 52% of students have knowledge about the realities of their major and its high stressogenicity. This shows that there is a need to develop a teaching program for the formation of stress resistance qualities in students. Preventive measures should be taken to eliminate occupational burnout with experts.
6. Taking into account the development characteristics of the pharmaceutical market of Azerbaijan, the ability of specialists in the field of pharmacy to acquire professional experience, the ability of pharmacists to accept the innovations of the pharmaceutical market; evaluation that specialists working in the field of pharmaceuticals are focused on the formation, protection and strengthening of both individual and public health; the possibilities of revising the role of public pharmaceutical society and associations in professional formation of pharmaceutical specialists have been studied.
7. Taking into account the diversity of the pharmaceutical market of our country, based on the results of the dissertation, an

innovative organizational model was developed for the training of modern pharmaceutical specialists.

### **PRACTICAL RECOMMENDATIONS**

1. For the complete formation of pharmaceutical specialists in modern times or for professional specialization, there is a great need for the creation of public pharmaceutical organizations, which at the same time led to the acquisition of new, professional qualities and plays an important role in the training of modern pharmaceutical specialists.
2. Azerbaijan Medical University, Azerbaijan State Agrarian University, medical colleges No. 1 and No. 2, pharmaceutical firms, pharmaceutical companies engaged in the training of higher and secondary qualified specialists in pharmacy worked on a single program, training of pharmaceutical specialists in our country and should help its development.
3. "Pharmacist" standards should be developed as a structural part of the pharmacist's management system in the Republic of Azerbaijan, and those standards should be approved in the relevant state structures as a normative document. In the standards of the pharmacist, the specialist needs to know: to know the normative-legal acts that regulate the circulation of medicinal products; recognition of the range of medicinal products for different pharmacotherapeutic groups; modern methods and approaches of compliance with the quality of medicinal products; basics of business communication, culture and professional psychology, pharmaceutical management; knowledge of pharmaceutical marketing, sales regulations and product acceptance regulations.

## **LIST OF PUBLISHED SCIENTIFIC WORKS ON THE TOPIC OF THE DISSERTATION:**

1. Innovative approaches in pharmaceutical and medical supply in Azerbaijan // Modern achievements of Azerbaijani medicine, Quarterly scientific-practical journal, Baku, 2014, #4, 142-145 p. (co-author: Valiyeva M.N.)
2. Some aspects of the innovative policy of modern pharmacy // Modern achievements of Azerbaijani medicine, Quarterly scientific-practical journal, Baku, 2015, No. 1, 176-180 p. (co-authors: Abilova V.K., Aliyeva A.H., Valiyeva M.N.)
3. Organization of the drug supply of the population of the republic // Contemporary pharmacy: «Problems and perspectives of development» Materials of the V Interregional scientific-practical conference with international participation. Vladikavkaz, 2015, pp. 295-299.
4. Разработка методических проходов к инновационной деятельности аптечный предпринимательский в Азербайджане // Contemporary pharmacy: «Problems and perspectives of development» Materials of the V Interregional scientific-practical conference with international participation. Vladikavkaz, 2015, pp. 299-302. (co-author: Valiyeva M.N.)
5. State regulation of pharmaceutical activity in the Republic of Azerbaijan // Contemporary pharmacy: «Problems and perspectives of development» Materials of the V Interregional scientific-practical conference with international participation. Vladikavkaz, 2015, pp. 253-256.
6. Innovative development of pharmaceutical education in Azerbaijan // European Journal of Biomedical and Life Sciences Austria, Vienna, 2016, No. 4, p. 49-53 (co-author: Valiyeva M.N.)
7. Materials of the scientific-practical conference dedicated to the 90th anniversary of the birth of Agil Alirza oglu Aliyev, corresponding member of ANAS, honorary scientist, doctor

- of economic sciences, professor, on the effective development of the national pharmaceutical sector. Baku, 2016, 216-219 (co-authors: Valiyeva M.N, Khyavi R.)
8. Strategy of pharmaceutical ethics in practical activity of pharmacists // *Biomedysina, Ezhekvartalnyi nauchnyj zhurnal*, Baku, 2017, No. 2, 90-93p.
  9. Marketing research on drug provision in the Republic of Azerbaijan // *European Journal of Biomedical and Life Sciences Austria*, Vienna, 2017 No. 1, 95-98 p. (co-authors: Velieva M.N., Magherramov V.A. Magherramova S.G.)
  10. On the formation of innovative policy in national science // *Modern achievements of Azerbaijani medicine, Quarterly scientific-practical journal*, Baku, 2017, No. 1, 260-261 p. (co-author: Valiyeva M.N.)
  11. Innovative management in the pharmaceutical market of Azerbaijan // *Health, Scientific-practical magazine*, Baku, 2017, No. 4, 133-136 p.
  12. Prospects for the development of pharmaceutical education in Azerbaijan // *Astana medical journal, Kazakhstan*, No. 4, 2017, p. 263-268.
  13. Innovation in the policy of drug evaluation // *Modern problems of medicine, materials of the scientific-practical conference dedicated to the 25th anniversary of the restoration of state independence of Azerbaijan*, Baku 2017, 111 p.
  14. Development of a method of strategic innovation development of pharmaceutical education in Azerbaijan // *Siberian medical journal, Irkutsk*, 2018, No. 2 (co-author: Velieva M.N.)
  15. Studying the managerial activity of a pharmacist in Azerbaijan // *International scientific-practical conference dedicated to the 100th anniversary of the establishment of the Faculty of Medicine*, April 18-19, 2019, 205 p.
  16. The formation of the pharmaceutical society and the study of its role in the field of pharmacy // *International scientific-practical conference dedicated to the 100th anniversary of the*

- establishment of the Faculty of Medicine, April 18-19, 2019, 206 pages.
17. Reviewing the conditions for the formation of professional competence in the development of the activities of pharmaceutical specialists in our country // Materials of the international scientific-practical congress on the topic "Actual Problems of Medicine-2020" dedicated to the 90th anniversary of the Azerbaijan Medical University, December 19-20, 2020, 409 pages.
  18. The problem of emotional exhaustion in the professional activity of pharmacists // Azerbaijan Journal of Pharmacy and Pharmacotherapy, No. 2, 2020, p. 20-23.
  19. The reality of modern pharmaceutical business // Proceedings of the 5th International Scientific Congress on "Modern Problems of Pharmacy" dedicated to the 80th anniversary of higher pharmaceutical education of Azerbaijan Medical University 90, Azerbaijan, April 23-24, 2021, 275-276 p.
  20. Studying the Conditions for the Formation of Professional Competence in Developing the Activities of Pharmacists in our Country// II International Conference on Global Practice of Multidisciplinary Scientific Studies, Batumi, July 26-28, 2022, 38 p.
  21. Study of the system of preparation of personnel of the pharmaceutical market in Azerbaijan // scientific-practical conference GOU «MGMU im. Abuali ibni Sino" "Modern Medicine: traditions and innovations" with international participation. November 25, 2022. g. Dushanbe, Tajikistan, st. 564-567
  22. Studying the role of pharmaceutical associations in pharmaceutical practice // SURGERY Scientific-Practical Journal, Materials of the Scientific-Practical Conference dedicated to the 80th anniversary of Professor Bahram Mammadrasul Ashurov, No. 3, 2023

## **ABBREVIATIONS**

ASAU – Azerbaijan State Agrarian University  
AMU – Azerbaijan Medical University  
IPF –International Pharmaceutical Federation  
MF – Medicine Forms  
MP – Medicine Preparation  
DMP – Demand for Medicinal Products  
MM – Medicine Means  
CAEM – Center for Analytical Expertise of Medicines  
TPP – Trusted Pharmacy Practice  
PTM – Pharmaceutical technology and management  
FIP – Federation Internationale Pharmaceutice  
FA – Pharmacopoeia Article  
FA – Pharmacological Agent  
GPEP – Good Pharmacy Education Practice  
ISC– Innovation Supply Center  
PPA – Provisional Pharmacopoeia Article  
LLC –Limited Liability Company  
NS – Normative Documents  
NTD – Normative And Technical Documents  
PHU – Subject-Accounting  
SOP – Standard Operating Procedure  
MH – Ministry of Health  
WHO – World Health Organization

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