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## THE SCIENTIFIC DISCUSSION OF SPECIFICITIES OF PHARMACIST OCCUPATIONAL AND HIGHER MEDICAL-PHARMACEUTICAL EDUCATIONAL MANIFESTATION OUTLOOKS IN GEORGIA

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საქართველოში ფარმაცევტის პროფესიული თავისებურებებისა და უმაღლესი სამედიცინო-ფარმაცევტული განათლების პერსპექტივების მახასიათებლების სამეცნიერო განხილვა

<sup>1,2,4,5</sup>მხითარ ჰერაცის სახელობის ერევნის სახელმწიფო სამედიცინო უნივერსიტეტი, სომხეთი  
<sup>1,3,6,7,8,9,10</sup>თბილისის სახელმწიფო სამედიცინო უნივერსიტეტი, თბილისი, საქართველო

### რეზიუმე

კვლევის მთავარი მიზანი იყო ფარმაცევტის პროფესიის სპეციფიკისა და უმაღლესი სამედიცინო-ფარმაცევტული საგანმანათლებლო პერსპექტივების გამოწვევების ანალიზი საქართველოში. კვლევა წარმოადგენდა საქართველოში ფარმაცევტის პროფესიის სპეციფიკისა და უმაღლესი სამედიცინო-ფარმაცევტული პროფესიის პერსპექტივის გამოწვევების რაოდენობრივ გამოკვლევას და ანალიზს. კითხვარების გამოყენებით ჩატარდა გამოკითხვა. კვლევაში გამოყენებული იყო რესპონდენტთა სიღრმისეული ინტერვიუს მეთოდი. გამოყენებული იქნა 7 ტიპის კითხვარი (რესპონდენტები შეირჩა შემთხვევითობის პრინციპით): კითხვარი მენეჯერ ფარმაცევტებისთვის: კვლევაში მონაწილეობდა 410 მენეჯერ ფარმაცევტი. კითხვარი პაციენტებისთვის: კვლევაში მონაწილეობდა 1506 პაციენტი. კითხვარი ფარმაცეის ფაკულტეტის დასაქმებული სტუდენტისთვის: კვლევაში მონაწილეობდა 222 დასაქმებული ფარმაცეის ფაკულტეტის სტუდენტი. კითხვარი ჯანდაცვის სპეციალისტებისთვის: კვლევაში მონაწილეობდა 307 საზოგადოებრივი ჯანდაცვის სპეციალისტი. კითხვარი ფარმაცევტის სპეციალისტისთვის, კვლევაში მონაწილეობდა 810 ფარმაცევტი. გამოყენებული იყო სისტემური, სოციოლოგიური გამოკითხვა, შედარებითი, მათემატიკურ-სტატისტიკური, გრაფიკული ანალიზის მეთოდები. მონაცემები დამუშავდა და გაანალიზდა SPSS პროგრამით. ჩვენ ჩავატარეთ აღწერიითი სტატისტიკა და რეგრესიული ანალიზი ცვლადებს შორის კავშირის გამოსავლენად. სტატისტიკური ანალიზი ჩატარდა SPSS ვერსიით 11.0. სტატისტიკური მნიშვნელობისა და განსხვავებების შესაფასებლად გამოყენებული იქნა Chi-square ტესტი. ჩვენ განვსაზღვრეთ  $p < 0.05$ , როგორც მნიშვნელოვანი ყველა ანალიზისთვის. კვლევის შედეგების მიხედვით, ფარმაცევტების საბაზისო მომზადების დონე უნდა შეესაბამებოდეს ჯანდაცვის თანამედროვე მოთხოვნებს. აუცილებელია ფარმაცევტებსა და ექიმებს შორის ღრმა თანამშრომლობა ფარმაცოთერაპიისა და ჯანდაცვის საკითხებზე, რათა უზრუნველყოს პაციენტების ჯანმრთელობის მდგომარეობის ეფექტიანი გაუმჯობესება, ასევე საუკეთესო უკუკავშირის რეგულირება ჯანდაცვის სპეციალისტების გუნდურ მუშაობის კოორდინირებისათვის. ფარმაცევტი ასევე პასუხისმგებელია წამლის გვერდითი ეფექტების რეგისტრაციაზე. ფარმაცევტს უნდა ჰქონდეს ღრმა ცოდნა ფარმაცოლოგიაში, ფარმაცოთერაპიაში, ტოქსიკოლოგიაში, ფარმაცევტულ ბიოქიმიაში, კლინიკურ ფარმაცეიაში, ფარმაცოკინეტიკაში, ფარმაცოდინამიკაში, მედიცინის საფუძვლებში და სხვა პრეკლინიკურ და კლინიკურ მიმართულებებში. ასეთი ცოდნის მიღება შესაძლებელია მხოლოდ უმაღლეს სასწავლებლებში. ამიტომ ავთორები მომუშავე ფარმაცევტს უნდა ჰქონდეს მხოლოდ უმაღლესი ფარმაცევტული განათლება.

**Introduction.** Clinical pharmacists work directly with physicians, other healthcare professionals, and patients to ensure that medications prescribed to patients contribute to the best possible health outcomes. Clinical pharmacists work in healthcare settings, where they communicate frequently and

regularly with physicians and other healthcare professionals, which contributes to better coordination of care. Clinical pharmacists are educated and trained in many direct patient care settings, including medical centers, clinics, and many other healthcare facilities. Clinical pharmacists are often granted patient care privileges by collaborating physicians and/or healthcare systems, which allows them to perform the full range of drug decision-making functions within the team. medical condition of a patient. These privileges are based on the clinical pharmacist's demonstrated knowledge in pharmacotherapy and on his clinical experience record. This specialist knowledge and clinical experience is usually acquired through residency training and specialist certification.

**Aim of the research** was to study and analyse specificities of pharmacist occupation and higher medical-pharmaceutical educational outlook in Georgia.

**Methodology:** The study was a quantitative investigation and analysis of the challenges of specificities of pharmacist occupation and higher medical-pharmaceutical educational outlook in Georgia, by using questionnaires. Were conducted a survey study. The in-depth interview method of the respondents was used in the study. The 7 types of approved questionnaires were used (Respondents were randomly selected): Questionnaire for manager pharmacists: 410 manager pharmacists participated in the study. Questionnaire for patients: 1506 patients (customers of drug-stores) participated in the study. Questionnaire for the employed pharmacy faculty-student: 222 employed pharmacy faculty students participated in the study. Questionnaire for health-care specialists: 307 public health specialists participated in the study.

**Results and Discussion:** The most impacting factors influencing on the young pharmacists' work satisfaction were found and evaluated during the research. These factors included the correspondence of qualification to work, correspondence of the work nature to capabilities of personality, existence of perspective for professional promotion, possibility to qualifications enhancement, existence of high degree of responsibility for the result of work, information about affairs of the company and of the staff activity, working conditions, existence of the labor contract of working regimen and salary, existence of benefits' scheme for employees, support and assistance of the chief, direct relations with manager(s), relations with colleagues, possibility for the career enhancement.

The study of the professional adaptation of pharmacists indicated that inadequate professional knowledge, improper performance of the acquired professional skills were the main reasons for imperfect pharmaceutical care supply. The majority of the pharmaceutical organizations' heads and also the young specialists considered the coexistence of a mentor (experienced professional pharmacist) as the main factor of professional improvement for pharmacists' professional adaptation. The pharmacists' personnel must show stirring involvement in sharing their cognition, understanding, science, skill and contributing partnership and cooperation within the colleagues and other health care professionals in pharmacy direction.

Mostly essential pharmaceutical activity issues for the respondents' pharmacists' majority were: new drugs, generic drugs, chemical and brand names of them; psychology of communication (relationships) with customers; issues of pharmacotherapy of certain diseases, pharmacology, pharmacodynamics, pharmacokinetics and pharmaceutical care. It is apparent, that in the higher pharmaceutical education universities programs should be emphasized on the following subjects: pharmacotherapy, pharmacology, pharmaceutical care, clinical pharmacy and drugs toxicity.

It is quite significant, that pharmaceutical companies regularly perform study of pharmacists' work satisfaction. The pharmaceutical companies should determine combination of factors that effect on the pharmacists' work satisfaction. Pharmaceutical companies should create favorable working conditions for pharmacists to enable the maximal realization of the pharmacists' professional capabilities, skills and habits. A balance between the workload and pharmacists' personal life should be more harmonized, convenient, resourceful and more poised. This will increase the quality of pharmaceutical care in pharmacies.

It should be noted, that pharmacist's satisfaction with income is a very sensitive factor that has a significant impact on the quality of pharmaceutical services performed in pharmacy, so the pharmacists' salary should be revised and increased.

It should be noted that in developed countries and in many developing countries pharmaceutical specialty is regulated profession alike the family medicine. In western countries pharmacist as a family doctor need higher pharmaceutical education, diploma and continuous pharmaceutical education, pharmaceutical license and periodic accreditation. Only pharmacists with higher pharmaceutical education have the right to work as pharmacists' position in the pharmacies. On the pharmacists' certification programs should be only involved pharmacists who have graduated pharmaceutical faculties from state recognized and accredited universities.

The majority of higher pharmaceutical education pharmacists' specialists were female; among them the largest majorities were working on the pharmacist position at pharmacies. The Government and pharmaceutical companies should create promotional conditions for males to make pharmacist profession attractive for men. It is very important for career advancement and satisfaction to provide a balance between the workload and man personal life for the satisfaction by income, for pharmacists' professional satisfaction, for pharmacist job satisfaction, and also for the career promotion perspectives.

The Government should take care of the profession of pharmacist authority. The pharmacist's profession in the health care system should increase the authority and social importance by the state support. Pharmacist's profession should become of more power and authority; a pharmacist should have a much higher status in the healthcare system. Therefore, the role of a pharmacist is significantly increased in the healthcare system and is directly related to his professional education level. Therefore, pharmacist should have appropriate higher pharmaceutical education. All the mentioned is achieved then, when the pharmacist profession will move into the health-regulated professions list.

The level of basic training of pharmacists should be in compliance with the contemporary requirements. The pharmacist should have deep knowledge in pharmacology, in pharmacotherapy, in toxicology, in pharmaceutical care, in clinical pharmacy, in pharmacokinetics, in pharmacodynamics, in basic of medicine and in other pre-clinical and clinical directions. Such knowledge can be obtained only in the higher pharmaceutical education institutions. Therefore, pharmacist working in pharmacy must have only higher pharmaceutical education.

To increase the pharmacist's professional qualification, professionalism, professional knowledge and competency the higher pharmaceutical education universities programs should more emphasize the mentioned subjects. It is too important, that a pharmacist should realize and understand that qualification upgrading study courses, professional trainings and professional workshops are of great necessity for further professional advancement. Thus, the Government should develop continuous pharmaceutical education programs accessible to all pharmacists. The qualification upgrading study courses, professional education or training courses should be available for all pharmacists. Pharmacist's education process should not be stopped. Developing a continuous pharmaceutical education system will enhance the professionalism of the pharmaceutical personnel. Experiential education should encourage perfection of critical opinion and the problem resolving processes along with the medicine discovery.

Pharmacy faculty students should take part in the patient care practice in hospitals, society proceeding settings and in other practical experiences. Students should have the possibility to apply the clinical and pharmaceutical information taught in classes when studying in medical facilities by working under the supervision of volunteer mentors (the healthcare specialists or professionals). The research activity of the pharmaceutical faculty students in all fields of pharmaceutical practice should be encouraged.

Quality reliance refers to the necessity to improve higher pharmaceutical education to guarantee a useful, sustainable and steady activity and appropriate skills and competencies of the tomorrow's labor resources. The pharmacy degree programs should be proposed at the higher pharmaceutical institution level and entire experimental constituent element in the clinical facilities.

It is necessary to provide a deep cooperation between pharmacists and physicians on the issues of pharmacotherapy and healthcare to ensure the patients' health state effective improvement, and also to provide the best feedback regulation and revision in the healthcare specialists' team work. Pharmacists also should be responsible for registration of the drugs' side effect, as well as be attentive in case of improperness and professional defects of drugs they provide. To achieve that it is necessary to raise

awareness of specialists on the essence of pharmacists' profession and functions among the medical personnel and general public.

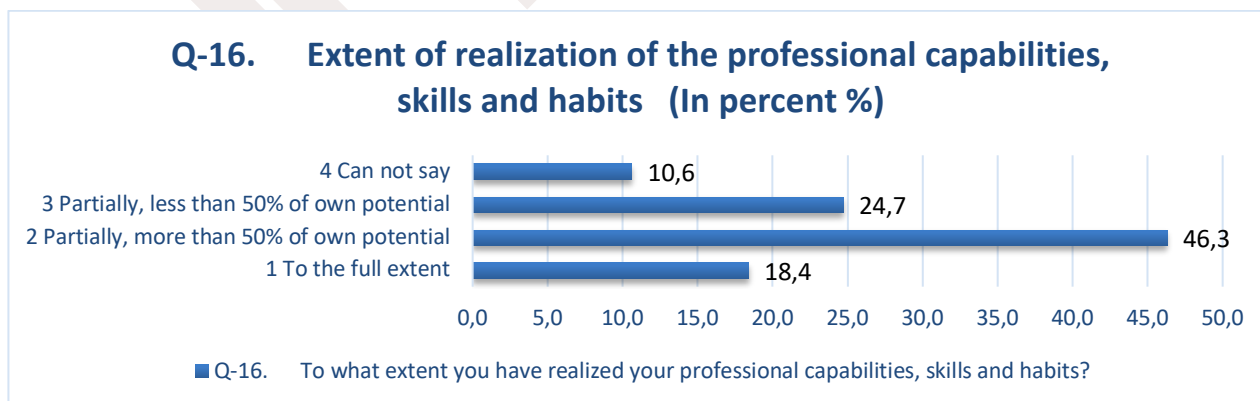
On the basis of the theoretical and logical analysis the structure and composition of the factors have been developed, considering the objective (external), subjective (internal) and universal factors, which influence on the professional formation of the pharmacist. These factors comprised the content of work, position, correspondence of qualification and nature of work to capabilities, aspirations and inclinations of the pharmacist, the existence of perspective for professional promotion. The existence of perspectives for career promotion, the possibility to enhance qualifications, a high degree of responsibility for the work results, regimen, labor salary and the system of benefits scheme for employees, support and assistance of a manager, direct relations with manager and colleagues serve the essential base for the pharmacists' successful work. The unity of criteria for pharmacist professional formation, for the common professional formation (characteristic to all stages) and the specific professional formation (characteristic to the separate stage) had been developed.

The main underlying motives, while making professional (occupational) choice of respondent pharmacist were the following: desire to obtain high-quality professional education (training) – 44.8%, guarantee to be employed – 42.6%, interest in a profession-39.4%, the desire to care for the health of people – 43% (table 1.).

About a quarter of respondent pharmacists have realized professional capabilities, skills and habits partially – less than 50% of their own potential; about half of them have realized professional capabilities, skills and habits partially – more than 50% of their own potential (fig.1). Pharmaceutical companies should create constructive working conditions for pharmacists to maximally realize their professional capabilities, skills and habits for improving the quality of pharmaceutical care in pharmacies.

**Table 1.** Factors, mostly influenced on the respondents' (pharmacists) profession choice

The most influence on the profession choice (one answer is accepted)	Frequency	Percent (%)
1. Parents' advices (will)	186	23.0
2. Teachers' advices	32	4.0
3. Advice of an expert-specialist of professional orientation (of career guidance)	28	3.5
4. The desire to obtain a profession in compliance with own trends, aspirations and inclinations	108	13.3
5. There was nowhere to go	15	1.9
6. Dissatisfaction with the previous education	18	2.2
7. Personal desire	306	37.8
8. Specialty love from childhood	117	14.4
Total	810	100.0



**Fig. 1.** Extent of the respondents' (pharmacists) realization of the professional capabilities, skills and habits

The chief pharmacists' majority considered that the most effective forms of professional assistance while adaptation of the specialist to work were an independent practical activity and personal conversation. Less than half part of the respondents considered that to be a discussion on work of young

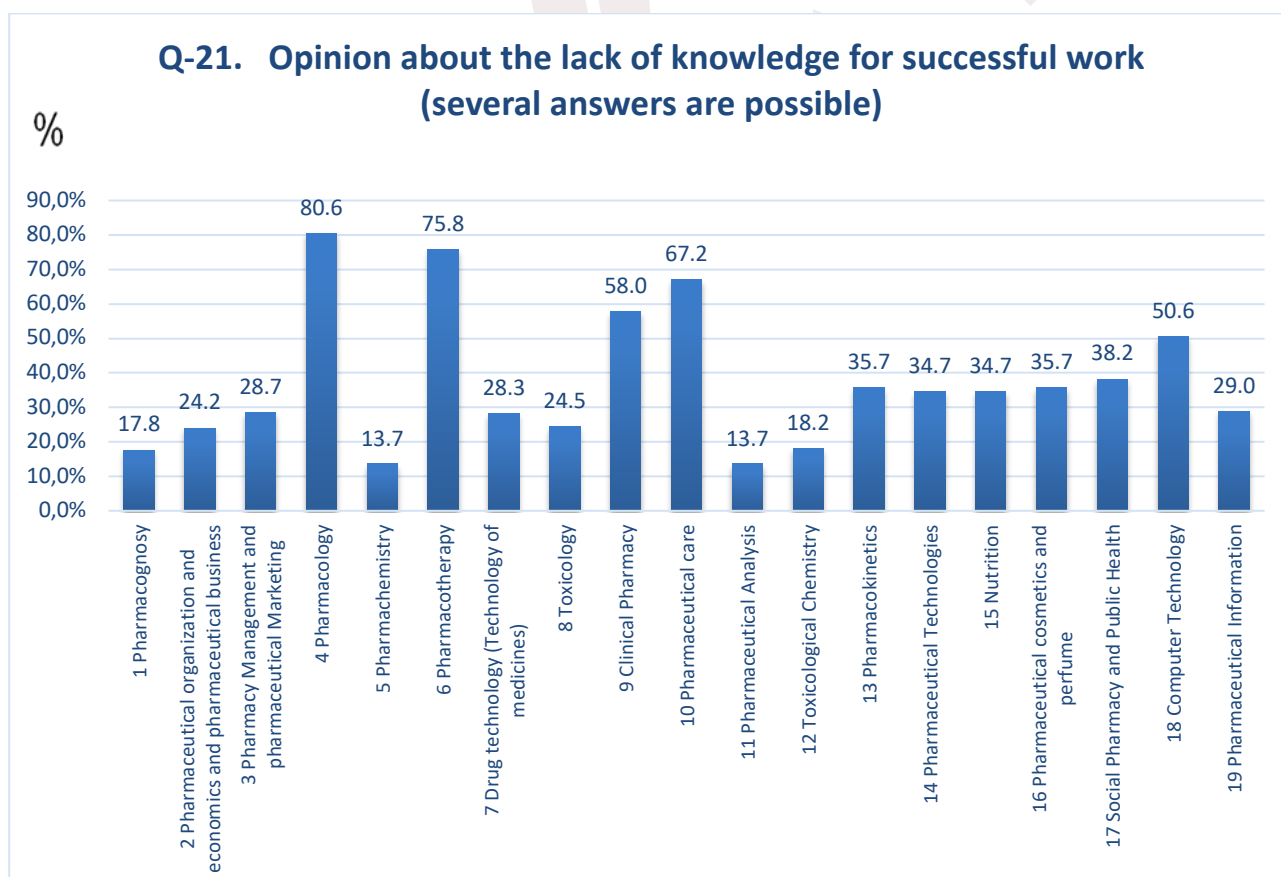


employees within the colleagues' team and on special training programs. About one third each of them considered necessary to work with a mentor, internship and qualification upgrading courses (table 2).

**Table 2.** The respondents' opinion about the most effective forms of professional assistance while adaptation of the specialist

The most effective forms of professional assistance while adaptation of the specialist (several answers were possible)	Count	Percent (%)
1. Independent practical activity	262	63.9
2. Working with a mentor	142	34.6
3. Internship	137	33.4
4. Discussion of work of young employees within the colleague's team	196	47.8
5. Personal conversation	293	71.5
6. Qualification improvement upgrading courses	120	29.3
7. Special training programs	169	41.2

The respondents' vast majority considered that for successful work their knowledge was not enough in the subjects of pharmacology, pharmacotherapy, clinical pharmacy and pharmaceutical care (fig.3). Therefore, in our opinion, at university pharmaceutical programs and syllabuses need upgrade, adaptation and fit on new demands reality. In pharmacy faculty programs there should increase credits in the following subjects: pharmacology, pharmacotherapy, clinical pharmacy and pharmaceutical care. Above mentioned complex would help formation of the highly qualified pharmacist specialist with deep and systematic knowledge. It is obvious that the academic hours in the pharmacology, pharmacotherapy, clinical pharmacy and the pharmaceutical care subjects within the pharmaceutical education programs should be increased to ensure deep and systemic knowledge for the successful work.



**Figure 3.** The respondents' opinion about the lack of knowledge for their successful work

We have conducted surveys with the questionnaires and analyzed the respondents' answers, which are presented in the third chapter of the dissertation thesis. Afterwards, a coupling of the results by the cross analysis was conducted, and the following was established:

Chi-square test of independence have revealed that pharmacists who have completed postgraduate education were more likely to hold higher position (Chi-square=4.9,  $p < 0.03$ ).

Statistically, a significant association was revealed between pharmacists' position and their satisfaction with a professional career and job. Holding high positions were associated with increased career and job satisfaction (Chi-square=9.4,  $p=0.002$  and Chi-square=5.5,  $p<0.02$ , respectively), but not with professional choice satisfaction. The analysis indicated also those lasting years in the current position was associated with lower career and job satisfaction (Chi-square=6.4 and 13.2,  $p=0.001$ ). A consideration that the professional capabilities and skills of respondents have been realized to the full extent in the current job was associated with higher career and job satisfaction (Chi-square=15.9,  $p=0.001$  and Chi-square=5.7,  $p<0.02$ , respectively). Having a positive opinion about the importance of continuing professional development was also associated with the increased job and career satisfaction (Chi-square=5.0  $p<0.001$  and Chi-square= 24.8,  $p<0.03$ , respectively).

Use of the knowledge obtained from professional literature by a pharmacist in practice was significantly related to higher job satisfaction (Chi-square=13.6,  $p<0.001$ ), but not to career satisfaction. Pharmacists' engagement in planning of professional career wasn't associated with increased job and career satisfaction. One of the main predictors of pharmacists' career and job satisfaction was also their income (Chi-square=23.9,  $p<0.001$  and Chi-square=50.4,  $p<0.001$ ). Pharmacists who were satisfied with their income were more often also satisfied with their job and career. There wasn't statistically significant association between the main motive of professional choice and job satisfaction in all three observed groups (pharmacists, young specialist and students).

**Conclusion.** It is necessary to provide a deep cooperation between pharmacists and physicians on the issues of pharmacotherapy and healthcare to ensure the patients' health state effective improvement, and also to provide the best feedback regulation and revision in the healthcare specialists' team work. Pharmacists also should be responsible for registration of the drugs' side effect, as well as be attentive in case of improperness and professional defects of drugs they provide. To achieve that it is necessary to raise awareness of specialists on the essence of pharmacists' profession and functions among the medical personnel and general public.

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#### **НАУЧНОЕ ОБСУЖДЕНИЕ ОСОБЕННОСТЕЙ ПРОФЕССИОНАЛЬНЫХ И ВЫСШИХ МЕДИКО-ФАРМАЦЕВТИЧЕСКИХ ОБРАЗОВАТЕЛЬНЫХ ПЕРСПЕКТИВОВ ФАРМАЦЕВТОВ В ГРУЗИИ**

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#### **РЕЗЮМЕ**

Основная цель исследования состояла в том, чтобы проанализировать проблемы специфики профессии фармацевта и перспективы высшего медико-фармацевтического образования в Грузии. Исследование представляло собой количественное исследование и анализ проблем специфики профессии фармацевта и перспективы высшего медико-фармацевтического образования в Грузии с использованием анкет. Были проведены обзорные исследования. В исследовании использовался метод глубинного интервью респондентов. Использовались 7 типов утвержденных анкет (респонденты отбирались случайным образом): Анкета для главных провизоров: в исследовании приняли участие 410 главных провизоров. Анкета для пациентов: в исследовании приняли участие 1506 пациентов (клиентов аптек). Анкета работающего студента фармацевтического факультета: в исследовании приняли участие

222 работающих студента фармацевтического факультета. Анкета для специалистов здравоохранения: в исследовании приняли участие 307 специалистов общественного здравоохранения. Анкета для провизора-специалиста, в исследовании приняли участие 810 провизоров-специалистов. Использовались методы систематического, социологического (опрос, анкетирование), сравнительного, математико-статистического, графического анализа. Данные обрабатывали и анализировали с помощью программы SPSS. Мы провели описательную статистику и регрессионный анализ, чтобы обнаружить связь между переменными. Статистический анализ проводился в SPSS версии 11.0. Для оценки статистической значимости и различий применяли критерий хи-квадрат. Мы определили  $p < 0,05$  как значимое для всех анализов. По результатам исследования уровень базовой подготовки фармацевтов должен соответствовать современным требованиям. Необходимо обеспечить глубокое взаимодействие фармацевтов и врачей по вопросам фармакотерапии и здравоохранения для обеспечения эффективного улучшения состояния здоровья пациентов, а также обеспечить наилучшую обратную связь, регулирование и контроль в работе коллектива специалистов здравоохранения. Фармацевты также должны нести ответственность за регистрацию побочного действия лекарств. Фармацевт должен иметь глубокие знания в фармакологии, в фармакотерапии, в токсикологии, в фармацевтической помощи, в клинической фармации, в фармакокинетике, в фармакодинамике, в основах медицины и в других доклинических и клинических направлениях.

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**THE SCIENTIFIC DISCUSSION OF SPECIFICITIES OF PHARMACIST OCCUPATIONAL AND HIGHER MEDICAL-PHARMACEUTICAL EDUCATIONAL MANIFESTATION OUTLOOKS IN GEORGIA**

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**SUMMARY**

The main objective of the study was to analyze the challenges of specificities of pharmacist occupation and higher medical-pharmaceutical educational manifestation outlooks in Georgia. The study was a quantitative investigation and analysis of the challenges of specificities of pharmacist occupation and higher medical-pharmaceutical educational outlook in Georgia, by using questionnaires. Were conducted a survey study. The in-depth interview method of the respondents was used in the study. The 7 types of approved questionnaires were used (Respondents were randomly selected): Questionnaire for manager pharmacists: 410 chief pharmacists participated in the study. Questionnaire for patients: 1506 patients (customers of drug-stores) participated in the study. Questionnaire for the employed pharmacy faculty-student: 222 employed pharmacy faculty students participated in the study. Questionnaire for health-care specialists: 307 public health specialists participated in the study. Questionnaire for pharmacist specialist, 810 pharmacist specialists participated in the study. Were used methods of systematic, sociological (surveying, questioning), comparative, mathematical-statistical, graphical analysis. The data were processed and analyzed with the SPSS program. We conducted descriptive statistics and regression analyses to detect an association between variables. Statistical analysis was done in SPSS version 11.0. A Chi-square test was applied to estimate the statistical significance and differences. We defined  $p < 0.05$  as significant for all analyses. According to the study results, the level of basic training of pharmacists should be in compliance with the contemporary requirements. It is necessary to provide a deep cooperation between pharmacists and physicians on the issues of pharmacotherapy and healthcare to ensure the patients' health state effective improvement, and also to provide the best feedback regulation and revision in the healthcare specialists' team work. Pharmacists also should be responsible for registration of the drugs' side effect, as well as be attentive in case of improperness and professional defects of drugs they provide. The pharmacist should have deep knowledge in pharmacology, in pharmacotherapy, in toxicology, in pharmaceutical care, in clinical pharmacy, in pharmacokinetics, in pharmacodynamics, in basic of medicine and in other pre-clinical and clinical directions. Such knowledge can be obtained only in the higher pharmaceutical education institutions. Therefore, pharmacist working in pharmacy must have only higher pharmaceutical education.

**Keywords:** Pharmacist, occupation, pharmaceutical, educational, outlook, Georgia.