

Improvement of pharmaceutical consultation process in drugstores

Soboleva Mariia Sergeevna^{1*}, Loskutova Ekaterina Efimovna², Amelina Irina Vladimirovna³

¹ Candidate of biology, associate professor of the department pharmacy and pharmacology, The Far Eastern State Medical University, Khabarovsk, Russian Federation. ² Doctor of pharmaceutical sciences, head of department of organization and economics of pharmacy of medical faculty of Peoples' Friendship University of Russia, Moscow, Russian Federation. ³ Candidate of pharmaceutical sciences, head of department of the organization and economy of pharmacy, The Far Eastern State Medical University, Khabarovsk, Russian Federation.

Correspondence: Soboleva Mariia Sergeevna, Candidate of biology, associate professor of the department pharmacy and pharmacology, The Far Eastern State Medical University, Khabarovsk, Russian Federation. Email: martimser@mail.ru.

ABSTRACT

Background: Professional pharmaceutical consultation requires training of specialists, both at the stage of obtaining higher/secondary pharmaceutical education and at the stage of post degree advanced training. **Objective:** The study is aimed at identifying the main directions for improving the process of pharmaceutical consultation in pharmacy organizations. **Methods:** This study included sociological poll of students of the graduate studies in the specialty "Pharmacy" at the Far East State Medical University (n = 125), receiving higher or secondary education in full-time education or correspondence/individual courses. Statistical analysis was done using Kruskal-Wallis and Spearman criteria. **Results:** More than half of respondents were in favor of creating a typical consultation algorithm. More than 90% of the students surveyed constantly reminded patients to visit the doctor. At the same time, less than 60% of respondents planned to regularly improve their skills in the field of pharmaceutical consultation. The most convenient forms of training, in this case, are called direct in the workplace, as well as on university cycles and within the firm. **Conclusion:** Creation of a standard algorithm of pharmaceutical consultation taking into account the need to mention a visit to a doctor, as well as regular training of specialists are among the most expedient ways to improve the process of providing information to a visitor of a drugstores.

Keywords: pharmaceutical education; consultation in drugstore; professional development; process optimization; standard algorithm

Introduction

Pharmaceutical consultation is an integral part of the retail sale of drugs to the public. Professional provision of this service requires training of specialists, both at the stage of their higher/secondary pharmaceutical education and at the stage of post degree advanced training. An important component of training and replenishment of knowledge of specialists is application of practical-oriented training in consultation, i.e.

direct connection of theoretical training with the modern situation and problems in the pharmaceutical market.

For example, Japan uses the experience of four and six years of problem-oriented training for pharmacy workers, the results of which are demonstrated during the national examination for pharmacists with established reference standards [1]. At USA universities, basic pharmacy education includes courses in informatics and pharmacy software [2, 3]. In Portuguese educational institutions, nanotechnologies are studied in comprehensive master's programs [4]. Some of the international pharmaceutical associations including Center for Advancement of Pharmacy Education (CAPE), National Association of Chain Drug Stores (NACDS), National Community Pharmacists Association (NCPA), and Accreditation Council for Pharmacy Education (ACPE) defined necessary management skills in the field of pharmaceutical education in 2013 [5]. The mechanisms of assessment of knowledge and skills of specialists, for example, of entrustable professional activities (EPAs) [6] are actively developed, didactic and empirical programs of the doctor of

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pharmacology (PharmD) ^[7] are improved, and digital gamification of the provided information are extended ^[8]. The functions of pharmacy workers are expanded, for example, point-of-care testing ^[9], the system of payments for professional transformation is reformed ^[10], and comprehensive training of pharmacy workers is used for effective operation of medical therapy management services ^[11].

International research data are often quite contradictory. For example, the main problems of pharmaceutical education and skills development was identified as the following: political and socio-economic instability; limitations of evaluated parameters at accreditation; insufficient involvement of practical organizations; the gap between science, practice and regulatory organizations; and curriculum mismatch ^[12]. At the same time, according to the results of other studies, it is noted that 22 pharmacy competences and 10 interprofessional competences of the National Center for Integrative Primary Healthcare are agreed with the current educational standards ^[13]. Communication skills in training of pharmacy workers are formed on autonomous courses, lectures-laboratory courses, and video recordings ^[14]. The e-learning programs adaptation pharmacist's skills and approaches to maximize patients' drug therapy effectiveness are widely used, which require weekly participation of specialists in modular events and discussions to improve acquired skills ^[15].

In the Russian Federation, pharmaceutical consultation is also a popular service. The main reasons for the frequent application of patients to pharmacy organizations are the lack of availability and quality of medical care, low level of trust in the doctor, etc. ^[16]. The need for information may arise not only for non-prescription drugs, but also for prescription drugs ^[17]. Therefore, one of the conditions for professional consultation is the need to optimize the interaction between the pharmaceutical and medical communities ^[18], as well as further integration of the employees of pharmacy organizations into the health care system of the Russian Federation ^[19].

The main difficulties of pharmaceutical consultation are insufficient information from the visitor, lack of understanding on the part of the patient, the need to regularly increase the knowledge of pharmacy workers, literacy of the population on the use of drugs, dissatisfaction of visitors with the results of self-treatment, and low compliance of patients ^[20]. A common problem in carrying out professional pharmaceutical consultation is the prevalence of commercial skills among specialists over communicative abilities and medical knowledge ^[21]. Accordingly, to provide this service, the pharmacy employee has to have conflict stability, the ability to be open and accessible to the client, and the ability to model own activities ^[22].

Continuous pharmaceutical consultation implies systematic improvement of its process. One possible way to optimize is to use standard algorithms, including using software ^[23], as well as a personalized approach, for example, for young ^[24] or elderly patients ^[25]. Therefore, in order to assess the feasibility of the

above-mentioned approaches, we conducted a poll of students of graduate courses in the specialty "Pharmacy" of the Far East State Medical University. This group of respondents was chosen by us for research due to the availability of sufficient theoretical knowledge obtained relatively recently during the training process. At the same time, students actively applied the acquired knowledge and trained their skills in the process of numerous practices in pharmacy organizations. The purpose of the study is to define the main directions of improvement of the pharmaceutical consultation process in drugstores.

Materials and Methods

Sociological poll of students of Far East State Medical University with specialty "Pharmacy" ($n = 125$) of various forms and duration of study includes higher education, full-time education ($n = 38$; 30,4%), higher education, correspondence course ($n = 47$; 37,6%), secondary education, full-time education ($n = 23$; 18,4%), secondary education; and individual form of education ($n = 17$; 13,6%). The primary material was processed using the response coding of respondents and program Microsoft Office Excel 2015. The software packages "Subtotals," was used for data analysis (descriptive statistics). The averages are represented as mean \pm standard error. Statistical data processing was also carried out with response coding and IBM SPSS 25. To assess the membership of the results to the normal distribution, Kolmogorov-Smirnov single-selection criterion was used. The null hypothesis on the normal distribution of respondents was rejected at asymptotic significance $p < 0.05$. There was no normal distribution; so, non-parametric criteria were used for further processing. Spearman rank correlation coefficient was used to assess the relationship with the training form. The null hypothesis on the absence of correlation of answers of respondents with the form of training was rejected at 2-sided significance < 0.05 . The null hypothesis on the equality of the median of several samples deviated at asymptotic significance < 0.05 .

Results and Discussion

According to the questionnaire, the average age of respondents was 28.984 ± 0.82 years. On the basis of the literature analysis given in the introduction section, one of the main difficulties in conducting pharmaceutical counselling is the lack or insufficiency of communication skills with visitors in pharmacy workers. In addition to training in psychology/sociology and consulting, one of the possible and most available methods to improve the process is to create a standard consultation algorithm. We have determined the attitude of respondents to the expediency of this innovation in pharmacy organizations. The results of the questionnaire are shown in Figure 1. The statistical processing of the results is shown in Table 1.

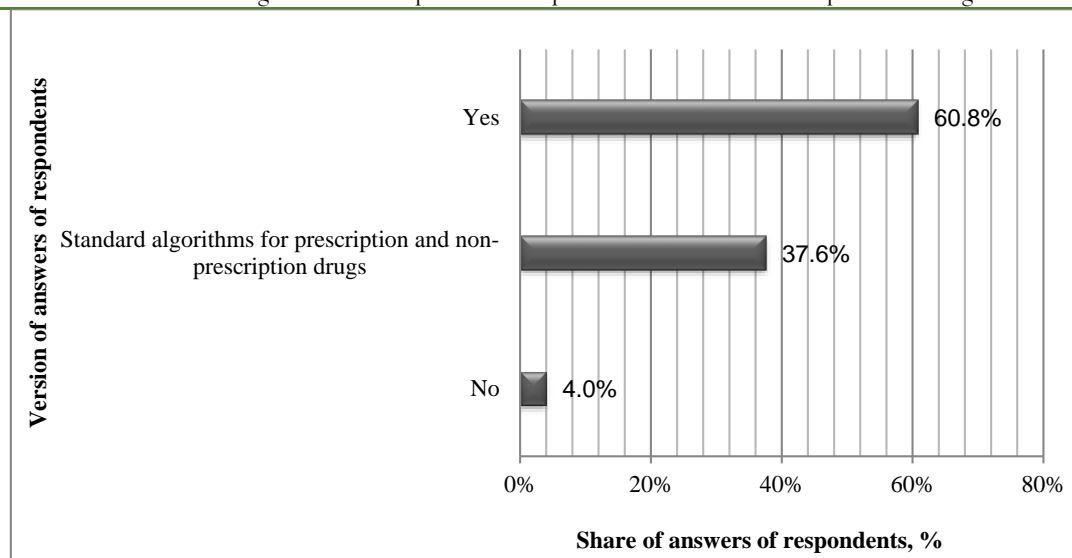


Figure 1. The distribution of answers of respondents about the rationality of creation of standard algorithms of pharmaceutical consultation

Table 1. The statistical processing of opinion of respondents about the rationality of creation of standard algorithms of pharmaceutical consultation

Version of answers of respondents	Criteria	Parameter	Result	Significance
Yes	Kruskal — Wallis	Chi-squared	8,731	0,033*
	Spirman	Correlation coefficient	0,107	0,234
No	Kruskal — Wallis	Chi-squared	7,188	0,066
	Spirman	Correlation coefficient	0,114	0,207
Standard algorithms for prescription and non-prescription drugs	Kruskal — Wallis	Chi-squared	10,773	0,013*
	Spirman	Correlation coefficient	-0,176	0,049*

Note: * - $p < 0.05$ - statistically significant value

On the basis of the obtained data, it can be concluded that less than 5% of respondents consider it irrational to unify the service provided in the drugstores, regardless of the form of training and its duration. More than 50% of student of a final year were in favor of creating a standard algorithm. The positive correlation coefficient shows the greatest interest in students of the face-to-face form of training, completing higher education. Consultation about drugs released without a doctor's prescription is often characterized by the importance of self-evaluation of a patient's condition by a pharmaceutical worker based on complaints/symptoms/needs raised, as well as the need to offer drugs shown for use in this case in all price categories with further provision of drug information. Consultations on prescription drugs are carried out on the basis of a doctor's appointment and instructions for medical application. The difference in the basis, for consultation of the patient allows the possibility to separate model algorithms for prescription and non-prescription drugs, which is rational from

the point of view of almost 40% of respondents. Thus, students receiving secondary education were more likely to choose this answer, which is probably due to their work directly with visitors, i.e. at the "first table."

Patient compliance to drug therapy is one of the most important components of the effectiveness of treatment. The pharmaceutical worker should become a full-fledged link in maintaining high patient compliance. One way to increase patient compliance is to mention the need for a visit to a medical specialist. In the case of non-prescription drugs, while maintaining symptoms or deteriorating the condition, and when implementing the prescription agent - to control the target parameters of the state of health and emergence of side effects, and, if necessary, to correct the prescribed scheme, so at the next stage of the study respondents was asked to specify the frequency of frequency of mention of the need to visit a doctor. The results of the questionnaire are shown in the Figure 2. The statistical processing of the obtained data is shown in Table 2.

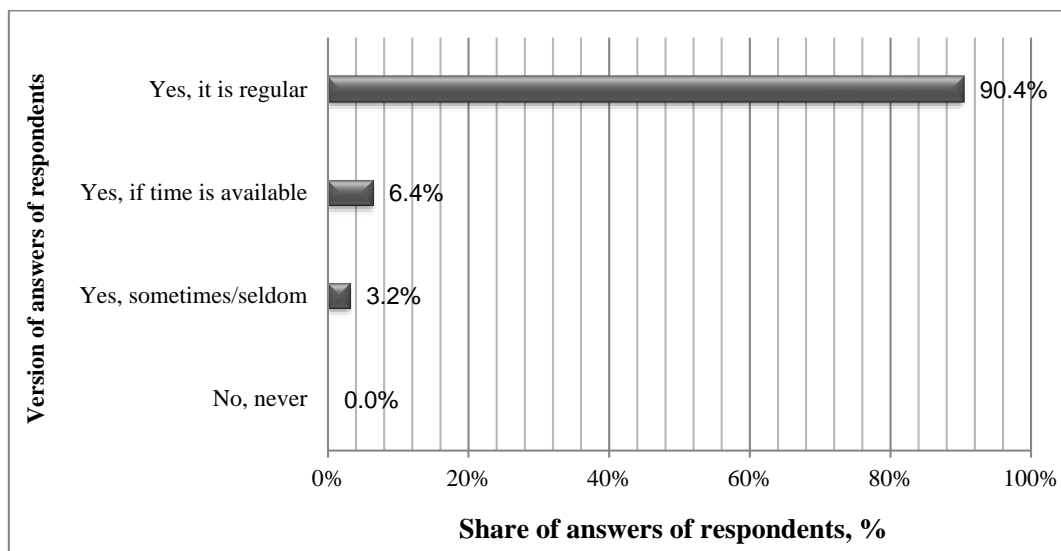


Figure 2. Distribution of answers of respondents about the frequency of mention of the need to visit a doctor in a pharmacy organization

Version of answers of respondents	Criteria	Parameter	Result	Significance
No, never	Kruskal — Wallis	Chi-squared	0,000	1,000
	Spirman	Correlation coefficient	-	-
Yes, sometimes/seldom	Kruskal — Wallis	Chi-squared	3,009	0,390
	Spirman	Correlation coefficient	-0,063	0,483
Yes, if time is available	Kruskal — Wallis	Chi-squared	3,704	0,295
	Spirman	Correlation coefficient	0,098	0,276
Yes, it is regular	Kruskal — Wallis	Chi-squared	1,964	0,580
	Spirman	Correlation coefficient	-0,044	0,628

More than 90% of respondents said that they regularly remind patients of the need to visit a doctor, which should have a favorable effect on compliance. There were no significant differences and correlations with the form of students' education and its duration. Thus, all students of final year realize the importance of consultation and interaction with a medical specialist in the conduct of drug therapy.

Professional pharmaceutical consultation implies constant improvement of the skills of pharmacy workers. Changing the range of drugs, redistribution of preferences of specialists and patients, registration and introduction to the market of new

products of pharmacy assortment, promotion from pharmaceutical companies and distributors lead to the need for regular revision and addition of the information component of consultation. The introduction of a system of continuous medical and pharmaceutical education obliges pharmacy workers to obtain the necessary credits for admission to work. Therefore, at the next stage of the study, we clarified from respondents their further plans for advanced training in pharmaceutical consultation. The results of the research are shown in Figure 3. The statistical processing of the obtained data is shown in Table 3.

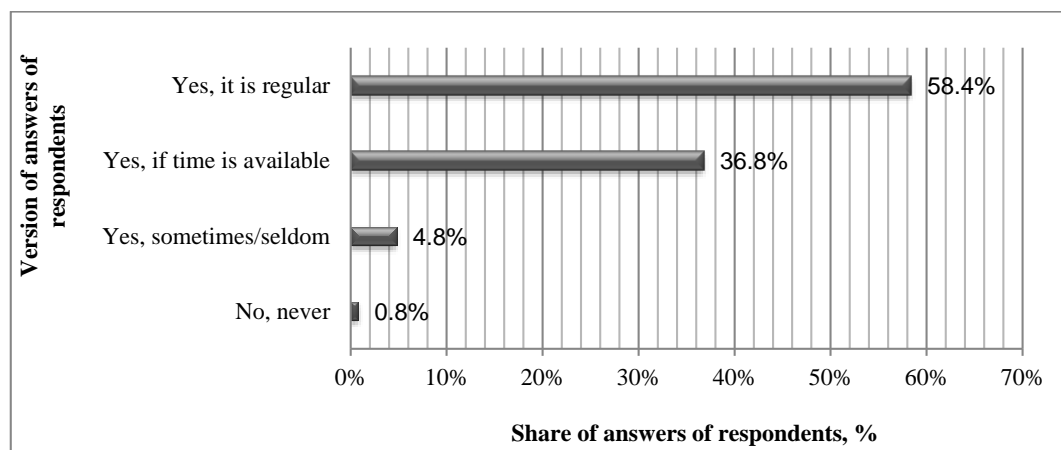


Figure 3. Distribution of the answers of respondents about the plans for advanced training in pharmaceutical consultation

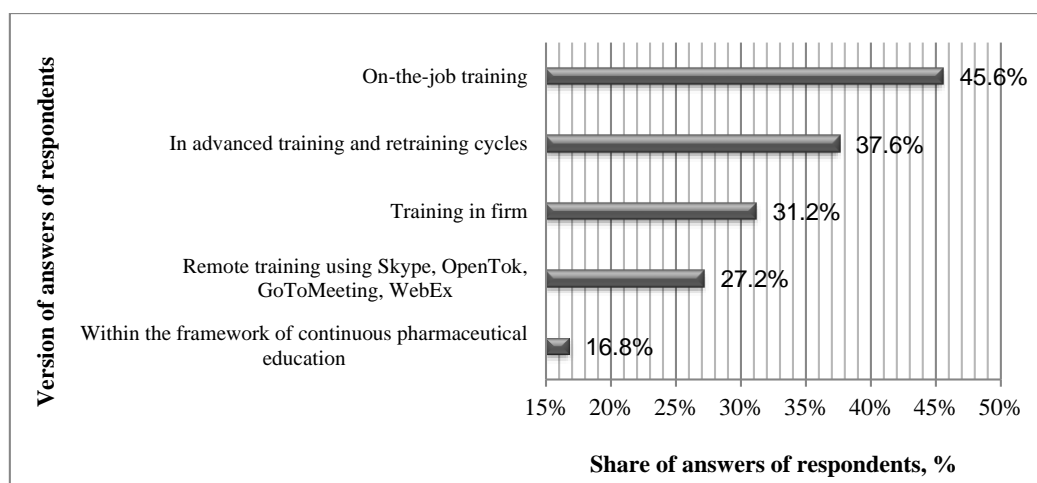
Table 3. The statistical processing of opinion of respondents about the plans for advanced training in pharmaceutical consultation

Version of answers of respondents	Criteria	Parameter	Result	Significance
No, never	Kruskal — Wallis	Chi-squared	2,110	0,563
	Spirman	Correlation coefficient	0,023	0,802
Yes, sometimes/seldom	Kruskal — Wallis	Chi-squared	2,044	0,550
	Spirman	Correlation coefficient	-0,095	0,292
Yes, if time is available	Kruskal — Wallis	Chi-squared	2,977	0,395
	Spirman	Correlation coefficient	0,125	0,165
Yes, it is regular	Kruskal — Wallis	Chi-squared	4,435	0,218
	Spirman	Correlation coefficient	0,086	0,341

The results were very contradictory. On the one hand, regardless of the form and timing of the training, the majority of respondents expressed their intention to improve their qualifications. On the other hand, they planned to improve their knowledge and skills regularly, that is, at least 1 every 5 years, less than 60% surveyed students. This situation raises serious concerns for the reason of the need to passing repeated, including specialized accreditation, to obtain the right to work for a pharmacy organization, directly with visitors/patients. More than 35% of respondents noted intentions to replenish knowledge and improve skills only if there is time, which is rather problematic in conditions of shortage of personnel and constant workload of pharmaceutical workers. The obtained data prove the need to educate and sensitize the pharmaceutical

community about the system of continuous education, and the obligation to provide professional consultation services to patients, and the responsibility of the employee for the quality of drugs care to the patients.

In the context of the modern development of the communication system and the use of digital technologies, it is rational to use not only academic methods of teaching of pharmaceutical consultation, but also the use of remote courses, webinars, teleconferences, etc. Therefore, at the next stage of the study respondents specified the most convenient forms of training for them. The distribution of responses is shown in Figure 4. The statistical processing of the results is shown in Table 4.

**Figure 4.** Distribution of the answers of respondents about the forms of training in pharmaceutical consultation**Table 4. The statistical processing of opinion of respondents about the forms of training in pharmaceutical consultation**

Version of answers of respondents	Criteria	Parameter	Result	Significance
Within the framework of continuous pharmaceutical education	Kruskal — Wallis	Chi-squared	5,150	0,012*
	Spirman	Correlation coefficient	-0,174	0,050*
Remote training using Skype, OpenTok, GoToMeeting, WebEx	Kruskal — Wallis	Chi-squared	3,220	0,383
	Spirman	Correlation coefficient	0,028	0,755
Training in firm	Kruskal — Wallis	Chi-squared	6,462	0,091
	Spirman	Correlation coefficient	-0,166	0,065
In advanced training and retraining cycles	Kruskal — Wallis	Chi-squared	3,057	0,359
	Spirman	Correlation coefficient	-0,152	0,091
On-the-job training	Kruskal — Wallis	Chi-squared	10,941	0,161
	Spirman	Correlation coefficient	0,142	0,113

Note: * - $p < 0.05$ - statistically significant value

Based on the data obtained, it can be concluded that the most convenient way to improve the skills of pharmaceutical consultation is to train directly in the workplace regardless of the duration and form of the respondents' training. Almost half of the students surveyed chose this option. Other popular ways is to increase knowledge and advanced training in university's cycles and training within the firm. These forms are convenient, first of all, because of their organization, isolation and limited terms. The use of remote technologies and telecommunications was preferred by less than a third of respondents, which may be due to the need to spend personal time of employees, as well as the inconvenience of timing events due to the geographical distance of the regions of the Far East and the time difference between its regions. Less than 17% of respondents chose training under the continuous pharmaceutical education program, which once again demonstrates the need to educate and explain the obligation of specialists to participate in it. There was a significant difference in results and correlation with the form of training. This answer was more often preferred by students receiving higher education in full-time form, which can be explained by their active preparation for primary accreditation of specialists.

Conclusion

One of the most useful ways to improve the process of consultation in drugstores, according to pharmaceutical specialists, is to create a standard algorithm. It is rational to separate algorithms for prescription and non-prescription drugs. The mandatory component of the algorithm should be mentioning of the need to visit a doctor. Most respondents plan to upgrade their pharmaceutical consultation skills but are not aware of the need for systematic training. The most convenient form of advanced training in pharmaceutical consultation is training in the workplace, on cycles at universities, and directly within the firm. The low demand for activities within the framework of the continuous pharmaceutical education program proves the need for educational work among pharmacy specialists. Nevertheless, the enhancement of theoretical knowledge and the improvement of practical skills should be important components of the improvement of the pharmaceutical consultation process.

Ethics:

This article does not contain a research involving humans or animals.

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Author's contribution:

All authors contributed equally to the research work.

Conflict of interests:

The authors claim that there is no conflict of interest.

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