

Comparative analysis of the understanding the "ten-star pharmacist" concept by pharmaceutical specialists and pharmacy students of medical universities of Ukraine and Poland

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Abstract

Introduction

The aim of our study was to conduct a comparative analysis of the opinions of pharmaceutical professionals and senior students of pharmaceutical faculties of Ukraine and Poland on awareness of the "ten-star pharmacist" concept.

Methods

An anonymous survey was conducted among Ukrainian and Polish pharmaceutical workers ($n = 614$ and $n = 209$) and students ($n = 516$ and $n = 475$). The analyzed period in Ukraine was February-April 2020, in Poland - June-September 2020.

Results

This study revealed differences of opinion between the respondents and a lack of proper knowledge about the above concept. On the one hand, they have a high level of awareness of some professional roles, but on the other part, the rest of them cause hesitation and lack of affirmative opinion.

Conclusions

Inadequate awareness of professional roles indicates the need to create effective mechanisms for implementing the "ten-star pharmacist" concept in the practical and educational systems of both countries.

Introduction

The main task of pharmaceutical practice is to focus on helping the patient. Over the years, due to the development of the pharmaceutical industry, there has been a reorientation of professional roles (PRs) of the pharmaceutical specialist (PhS). They are now a full-fledged

participants in the health sector, and the current epidemiological situation caused by the Covid-19 has only confirmed this. 77% of Ukrainians would like to receive basic medical advice in a pharmacy, whereas, in Poland, it was proposed to expand their powers, at the legislative level, namely to allow vaccination within the pharmacy [1,2]. In addition, PhSs always provide pre-medical care, determine the mistakenly dose prescribed by a doctor, and in the course of pharmaceutical care can recognize life-threatening conditions, as a result, the patient will be accompanied until the ambulance arrives^[3].

The versatility of the PhS became a key aspect for the creation of the "seven-star pharmacist" concept by the World Health Organization advisory group, in 1997, which was adopted three years later by the International Pharmaceutical Federation [4,5]. Subsequently, the rapid development of the pharmaceutical sector led to the addition of scientists of three more PRs, so now this doctrine is interpreted as the "ten-star pharmacist" concept and includes ten PRs such as a caregiver, a decision-maker, a communicator, a manager, a life-long-learner, a teacher, a leader, a researcher, an entrepreneur and an agent of positive change.^[6-8]

Materials and methods

Questionnaires, mathematical statistics, generalization, and interpretation of results were the methods used in the research. The questionnaire, which consisted of two blocks of questions, was developed for the survey.^[9] The first block (passport part) collected data about age and sex, for the students their training course, for the PhSs their educational level, position, presence/absence of qualification category and scientific degree, as well as work experience. In the second block, respondents were offered a definition of ten pharmacist PRs and two unrelated to them (sample questionnaires are presented in [appendices 1 and 2](#)).

The term of the survey in Ukraine was February - April 2020, in Poland - June - September 2020. The questionnaire was anonymous and distributed through a paper (disseminate by teachers among students) and online google form (for PhSs), which in Ukraine was posted in four pharmaceutical groups of the social network "Facebook".^[10-13] and in Poland it was distributed via e-mail. Participation in the study was voluntary and anonymous. Respondents were:

- PhSs from different regions of Ukraine, except for the annexed Autonomous Republic of Crimea and the occupied territories of Donetsk and Luhansk oblasts, and Poland;

- senior students of the pharmaceutical faculties of Danylo Halytsky Lviv National Medical University, Odesa National Medical University, Zaporizhzhia State Medical University, and Lviv Polytechnic National University (Ukraine) and Poznan University of Medical Sciences (Poland).

We received 614 (528 qualitatively completed) questionnaires of PhSs and 516 (511 qualitatively completed) questionnaires of students from Ukraine, 209 and 475 respectively from Poland. Among the surveyed PhSs (95.5% in Ukraine and 81.8% in Poland) and students (89.0% and 73.3% respectively) women were the absolute majority. The age of Ukrainian PhSs ranged from 18 to 65 years, the average - 33.6 years, students - from 20 to 51 and the average 23.1 years, respectively. The age of Polish PhSs ranged from 25 to 67 years, the average - 39.9 years, students - from 19 to 24 and the average 23.5 years, respectively (Table 1). Since among the Ukrainian respondents, 35.6% were persons with secondary pharmaceutical education (pharmacy assistant), this affected the discrepancy in the minimum age with Polish specialists. We made a joint decision to include these specialists in the survey, since this is a significant number of people working in pharmacies. They directly interact with patients and influence the formation of trust in pharmaceutical activity. That is, the term PhS in the article refers to pharmacists and pharmacy assistant.

Among Ukrainian PhSs, only 4.8% had a scientific degree (0.4% - doctoral, 2.3% - candidate, 2.1% are applicants). In Ukraine, PhSs has the right to obtain a qualification category, according to which a certain tariff category is established for it. This mostly applies to state and communal pharmacies. At the same time, PhSs who possess theoretical and practical knowledge and have the appropriate work experience, namely at least 5 years for the second, 7 for the first, and 10 for the higher, have the right to assign or confirm the qualification category.^[14] The absolute majority (69.3%) did not have a qualification category (available only in 7.4% - the second, 13.1% - the first and 10.2% - the highest). As for Polish PhSs,

all (100%) had a master's degree in pharmacy, but only 1% of them had a doctorate and 9.1% had a specialization. 26.7% of Ukrainian and 12.0% of Polish PhSs were head of a pharmacy or its structural unit. Since 72.7% of Ukrainian PhSs and 89.0% of Polish PhSs had 5 years or more of work experience, among the surveyed students were students from the senior courses, this testifies to their competence and experience, and proved that the received information was qualitative and objective.

Statistical analysis was performed using a spreadsheet Microsoft Excel. The countries were compared in a chi-square test of independence.^[15]

Results

It was found that the opinions of PhSs and pharmacy students of both countries on the PRs of PhS had some differences (Table 2). In general, according to the coincidence of awareness about PRs, the views of the PhSs of these states were divided into four groups:

- high agreement in opinion (difference from 0 to 10%):
 - 96.0% of Ukrainian PhSs and 95.2% of Polish PhSs believed that the PhS should be a decision-maker;
 - 89.0% and 92.8% (hereinafter the first number refers to the PhSs from Ukraine, the second - to Poland) agreed that the PhS should be an agent of positive change;
 - 90.9% and 99.5% thought that PhS should be a life-long-learner;
 - 87.3% and 96.2% believed that PhS should be a teacher.
- the presence of a moderate difference of opinion (difference from 10 to 20%):
 - 80.3% and 69.9% agreed that PhS should be a manager;
 - 86.7% and 100.0% thought that PhS should be a specialist who provides care.

Table 1. Social profile of respondents.

Indexes		PhSs		Students	
		Ukraine	Poland	Ukraine	Poland
The number of questionnaires received, units		614	209	516	475
Qualitatively completed questionnaires, units		528	209	511	475
Women	persons	504	171	455	348
	%	95.5	81.8	89.0	73.3
Man	persons	24	38	56	127
	%	4.5	18.2	11.0	26.7
Age, years	Minimum	18	25	20	19
	Maximum	65	67	51	24
	Average	33.6	39.9	23.1	23.5

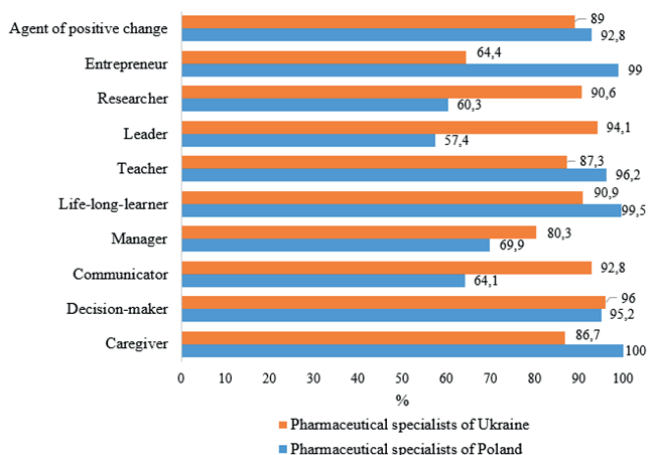
Table 2. Opinions of PhSs and students of Ukraine and Poland on PRs of pharmacist.

PRs of PhS	Answer	PhSs		p	Students		p
		Ukraine	Poland		Ukraine	Poland	
1	2	3	4	5	6	7	8
Caregiver	Agree with PR	86.7 % (n=458)	100.0 % (n=209)	p<0.001	84.0 % (n=429)	90.5 % (n=430)	p=0.003
	Disagree / Hesitate with PR	7.8 % (n=70)	0.0 % (n=0)		16.0 % (n=82)	9.5 % (n=45)	
Decision-maker	Agree with PR	96.0 % (n=507)	95.2 % (n=199)	p=0.623	93.7 % (n=479)	100.0 % (n=475)	p<0.001
	Disagree / Hesitate with PR	4.0 % (n=21)	4.8 % (n=10)		6.3 % (n=32)	0.0 % (n=0)	
Communicator	Agree with PR	92.8 % (n=490)	64.1 % (n=134)	p<0.001	88.1 % (n=450)	75.2 % (n=357)	p<0.001
	Disagree / Hesitate with PR	7.2 % (n=38)	35.9 % (n=75)		11.9 % (n=61)	24.8 % (n=118)	
Manager	Agree with PR	80.3 % (n=424)	69.9 % (n=146)	p=0.003	82.2 % (n=420)	77.9 % (n=370)	p=0.092
	Disagree / Hesitate with PR	19.7 % (n=104)	30.1 % (n=63)		17.8 % (n=91)	22.1 % (n=105)	
Life-long-learner	Agree with PR	90.9 % (n=480)	99.5 % (n=208)	p<0.001	86.3 % (n=441)	100.0 % (n=475)	p<0.001
	Disagree / Hesitate with PR	9.1 % (n=48)	0.5 % (n=1)		13.7 % (n=70)	0.0 % (n=0)	
Teacher	Agree with PR	87.3 % (n=461)	96.2 % (n=201)	p<0.001	76.3 % (n=390)	96.9 % (n=460)	p<0.001
	Disagree / Hesitate with PR	17.3 % (n=67)	3.8 % (n=8)		23.7 % (n=121)	3.1 % (n=15)	
Leader	Agree with PR	94.1 % (n=497)	57.4 % (n=120)	p<0.001	90.6 % (n=463)	36.8 % (n=175)	p<0.001
	Disagree / Hesitate with PR	5.9 % (n=31)	42.6 % (n=89)		9.4 % (n=48)	63.2 % (n=300)	
Researcher	Agree with PR	90.6 % (n=478)	60.3 % (n=126)	p<0.001	83.2 % (n=425)	42.7 % (n=203)	p<0.001
	Disagree / Hesitate with PR	9.4 % (n=50)	39.7 % (n=83)		16.8 % (n=86)	57.3 % (n=272)	
Entrepreneur	Agree with PR	64.4 % (n=340)	99.0 % (n=207)	p<0.001	75.3 % (n=385)	98.3 % (n=467)	p<0.001
	Disagree / Hesitate with PR	35.6 % (n=188)	1.0 % (n=2)		24.7 % (n=126)	1.7 % (n=8)	
Agent of positive change	Agree with PR	89.0 % (n=470)	92.8 % (n=194)	p=0.119	80.4 % (n=411)	94.7 % (n=450)	p<0.001
	Disagree / Hesitate with PR	11.0 % (n=58)	7.2 % (n=15)		19.6 % (n=100)	5.3 % (n=25)	

3. low level of agreement (difference from 20 to 30%):
 - 92.8% and 64.1% believed that PhS should be a communicator.
4. the presence of complete disagreement (over 30%):
 - 90.6% and 60.3% agreed that PhS should be a researcher;
 - 64.4% and 99.0% thought that PhS should be an entrepreneur;
 - 94.1% and 57.4% believed that PhS should be a leader.

According to Ukrainian PhSs, first of all, he/she should be a person who is able to be a decision-maker (96.0 %), a leader (94.1 %), a communicator (92.8 %), a life-long-learner (90.9 %), and a researcher (90.6 %), further – an agent of positive change (89.0 %), a teacher (87.3 %), a caregiver (86.7 %) and a manager (80.3 %), and at the end – an entrepreneur (64.4 %). In turn, Polish colleagues believed that the PhS should be in the first place a caregiver (100.0 %), a life-long-learner (99.5 %) and an entrepreneur (99.0 %), then a teacher (96.2 %), a decision-maker (95.2 %) and an agent of positive change (92.8 %), next – a manager (69.9 %), a communicator (64.1 %), a researcher (60.3 %), and at the end – a leader (57.4 %). It is worth noting that the Ukrainian PhSs did not respond (100%) to any PR, while all respondents in Poland agree with the PR as a caregiver. According to Ukrainians, the lowest percentage was occupied by component an entrepreneur (64.4%), while the Poles - a leader (57.4%) (Graph 1).

It was also found that a significant part of the Polish PhSs was more in favor of the answer “hesitate” than to the position of “agree” or “disagree” with respect to several PRs. In fact, a third of them hesitated in the need for a specialist to perform functions a researcher (36.4 %), a leader (35.4 %), a manager (26.3 %), and about one-fifth choose option “hesitate” (17.7 %) and “disagree” (18.2 %) regard-



Graph 1. Comparative analysis of the opinions of the PhSs of Ukraine and Poland regarding PRs of a pharmacist.

ing PR a communicator. The opposite tendency has been revealed among Ukrainian specialists because as more than a quarter of them (26,1 %) did not agree with PR an entrepreneur, 13.1 % – a manager, and less than one-tenth (9.5 %) hesitated about PR an entrepreneur. For other PRs, the level of disagreement and hesitation in both groups was below 10%.

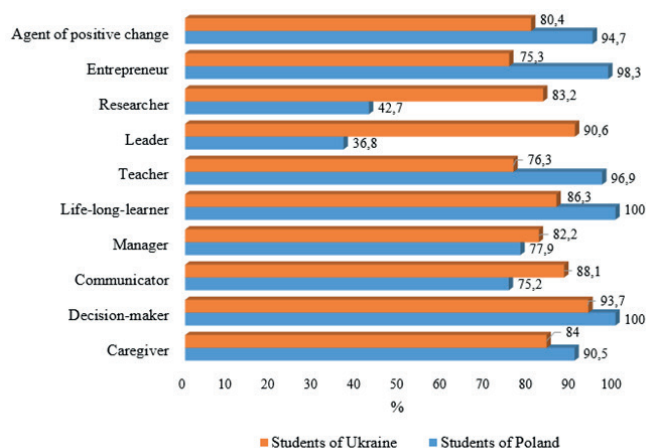
The views of students were also divided into four groups:

1. high agreement in opinion (difference from 0 to 10%):
 - – 82.2 % of students from Ukraine and 77.9 % students from Poland agreed that PhS should be a manager;
 - – 93.7 % and 100.0 % (here and further the first number belongs to Ukrainian students, the second - to Polish) thought that PhS should be a decision-maker;
 - – 84.0 % and 90.5 % believed that PhS should be a caregiver.
2. the presence of a moderate difference of opinion (difference from 10 to 20%):
 - 88.1 % and 75.2 % agreed that PhS should be a communicator;
 - 86.3 % and 100.0 % thought that PhS should be a life-long-learner;
 - 80.4 % and 94.7 % believed that PhS should be an agent of positive change.
3. low level of agreement (difference from 20 to 30%):
 - 76.3 % and 96.9 % agreed that PhS should be a teacher;
 - 75.3 % and 98.3 % thought that PhS should be an entrepreneur.
4. the presence of complete disagreement (over 30%):
 - 83.2 % and 42.7 % believed that PhS should be a researcher;
 - 90.6 % and 36.8 % agreed that PhS should be a leader.

Thus, Ukrainian students believed that the PhS should primarily be a decision-maker (93.7 %) and a leader (90.6 %), further – a communicator (88.1 %), a life-long-learner (86.3 %), a caregiver (84.0 %), a researcher (83.2 %), a manager (82.2 %) and an agent of positive change, and at the end - a teacher (76.3 %) and an entrepreneur (75.3 %). According to Polish colleagues, the PhS should be primarily a decision-maker and a life-long-learner (on 100 %), then - an entrepreneur (98.3 %), a teacher (96.9 %), an agent of positive change (94.7 %), and a caregiver (90.5 %), then - a manager (77.9 %), a communicator (75.2 %), and finally - a researcher (42.7 %) and a leader (36.8 %). It should be

noted that all Polish students answered in the affirmative regarding the two categories (a life-long-learner and a decision-maker), and among the Ukrainian students there was no such thoughts, but the lowest percentage of Poles was as much 36,8 % (a leader), which was twice less than the Ukrainian figure (75,3 % - an entrepreneur) (Graph 2).

If we talk about commitment to answers "hesitate", so the students from Poland had a prerogative, too. More than half of them were hesitant about PR a researcher (55.0 %), about one-fifth - a communicator (20.4 %), and a manager (18.3 %). It was also worth paying attention to the PR a leader, after all, more than a third of respondents did not agree (36.0 %) with this role, and about a third hesitated (27.2 %). Among the answers of Ukrainian students, the opposite situation was typical. Actually, one-sixth (16.3 %) did not agree with the PR of a teacher, one-seventh (14.3 %) – an entrepreneur, about one-ninth – a manager (10.8 %), and a caregiver (10.3 %) and only one-ninth (11.6 %) hesitated about the role an agent of positive change and an entrepreneur (10.4 %). For three PRs, Ukrainian students had the same opinion (the difference reached 1.0%), regarding disagree and hesitation such as a leader (4.5 % and 4.9 %), a researcher (8.0 % and 8.8 %), and a decision-maker (3.7 % and 2.6 %), while, among Polish students, this was not observed.



Graph 2. A comparative analysis of the opinions students of Ukraine and Poland regarding PRs of a pharmacist.

As for PR that does not belong to the “ten-star pharmacist” concept, we have chosen similar basic competencies such as a psychologist (provides psychological assistance to patients, and helps to solve their problems and build relationships with others) and an IT specialist (develops and tests computer programs to optimize pharmaceutical activity).

Among students of both countries, similarities were found in terms of PRs data (Table 3), while in the PhSs there was a difference. We would also like to note that PhSs Poland was more committed to PR, which does not belong to the “ten-star pharmacist” concept – an IT specialist (78.0%), than to the existing ones, such as a leader (57.4%), a researcher (60.3%), a communicator (64.1%) and a manager (69.9%).

Discussion

The implementation the “ten-star pharmacist” concept, is an important topic in the field of public health. It is often discussed, but mostly limited to interpretations of terms that form this concept.^[4-8] However, a number of studies have highlighted the importance of the individual components of the ten-star pharmacist. Thus, a survey of caregivers of the elderly showed that they were not aware of the role of the pharmacist as a caregiver, although they showed a positive perception of pharmacists.^[16] Another study demonstrated pharmacists avoiding decisions making related to professional responsibility for results.^[17] The significant barrier to communication between pharmacists and patients caused by the COVID-19 pandemic has identified an urgent need for alternative approaches to the pharmacist’s work in providing pharmaceutical care as a communicator.^[18] It has been found that insufficient development of leadership and management skills in pharmacists will be an obstacle to further advancing their roles in patient care.^[19] The importance of developing pharmacist students’ ability to practice and develop self-assessment and self-management skills that are desirable for Life-long-learning and to prepare them for continuing professional development is demonstrated.^[20] Back in 2008, the importance of the role of the pharmacist as a teacher in the therapeutic education of patients was approved by the Pharmaceutical Group of the European Union in a statement.^[21] The lived experiences of participants in a national mentor-

Table 3. Opinions of PhSs and students of Ukraine and Poland on PRs, which did not belong to the “ten-star pharmacist” concept.

PRs of PhS	Answer	PhSs		p	Students		p
		Ukraine	Poland		Ukraine	Poland	
Psychologist	Agree with PR	32.4 % (n=171)	26.8 % (n=56)	p=0.139	33.3 % (n=170)	31.6 % (n=150)	p=0.572
	Disagree / Hesitate with PR	67.6 % (n=357)	73.2 % (n=153)		66.7 % (n=341)	68.4 % (n=325)	
IT specialist	Agree with PR	38.8 % (n=205)	78.0 % (n=163)	p<0.001	44.2 % (n=226)	48.6 % (n=231)	p=0.043
	Disagree / Hesitate with PR	61.2 % (n=323)	22.0 % (n=46)		55.8 % (n=285)	51.4 % (n=224)	

ing program in Great Britain regarding motivations and barriers to engaging in mentoring are explored, as well as what systemic and organizational culture changes can further facilitate mentoring for pharmacists.^[22] A basic competency structure for pharmacists has been developed, covering the minimum competencies required for a researcher-pharmacist.^[23] The results of another study highlight the important role of education and training in the development of pharmacists with entrepreneurial skills.^[24] A pilot study demonstrates the importance of community pharmacy pharmacists as positive change agents in a comprehensive intervention for smoking cessation services.^[25] The study of educational and professional training programs for masters specialty 226 "Pharmacy, Industrial Pharmacy" 22 universities of Ukraine showed a lack of unified consistency of their content in terms of professional competencies, which will not contribute to the formation of masters of pharmacy, adequate to pharmaceutical practice, and the acquisition of the necessary PRs in accordance with the "ten-star pharmacist" concept.^[26]

In the research proposed by us, which was related to the understanding of PhSs and pharmacy students of the "ten-star pharmacist" concept, on the one side, it was established that there are no radically different opinions among PhSs and students from the same country. Thus, among Ukrainian respondents, the largest slight difference in percentage was for such roles as a teacher (87.3 % – PhS and 76.0 % – students) and an entrepreneur (64.4 % and 75.0 % in accordance). At the same time, the rank characteristic PR of an entrepreneur in both samples is the same and reaches the tenth position. Regarding Polish respondents, there was a difference in the three PRs, namely: a leader (64.1 % – PhS and 75.2 – students), a researcher (60.3 % and 42.7 % in accordance), and a communicator (57.4 % and 36.8 %). It should be noted that all these roles in both samples sat down the same rank categories, namely the eighth, ninth and tenth.

On the other side, certain differences in the understanding of the "ten-star pharmacist" concept by respondents of the two countries were clarified. In particular, a high level of agreement of PhSs concerns a decision-maker, an agent of positive change, a life-long-learner and a teacher, a moderate level – a manager and a caregiver, a low level – a communicator, a complete disagreement – a researcher, an entrepreneur and a leader. For pharmacy students, high level of agreement in opinions is characteristic of a manager, a decision-maker and a caregiver, a moderate level – a communicator, a life-long-learner and an agent of positive change, low – a teacher and an entrepreneur, a complete disagreement – a researcher and a leader.

The results obtained in our research indicate insufficient understanding by respondents of the meaning of true PR. Due to the widespread introduction of information technology in the pharmaceutical sector of Ukraine and Poland, PhS must master computer competence, and given the rapid changes

in the technology sector, he/she must always improve them as a life-long-learner person, mastering self-learning skills. In addition, PhS, as a member of the medical team, should evoke trust, respect and create a positive and associative image when communicating with visitors to the pharmacy, which is not only providing pharmaceutical care, but also the ability to support the patient morally and spiritually. These characteristics are related to the competencies that are part of such PRs as a communicator and a caregiver.

Conclusions

1. Based on a questionnaire survey of 528 PhSs and 511 pharmacy students from Ukraine and 209 and 475 from Poland, respectively, it was found that their views on the "ten-star pharmacist" concept have some differences, which were divided into four groups. Regarding PhSs, a high level of agreement (difference from 0 to 10%) applies to a decision-maker, an agent of positive change, a life-long-learner and a teacher, a moderate (difference from 10 to 20%) – for a manager and a caregiver, low level (difference from 20 to 30%) – a communicator, complete discrepancy (over 30%) – a researcher, an entrepreneur and a leader. For students, a high level of agreement (difference from 0 to 10%) is characteristic of a manager, a decision-maker and a caregiver, a moderate (difference of 10 to 20%) - a communicator, a life-long-learner and an agent of positive change, low (difference from 20 to 30%) - a teacher and an entrepreneur, complete difference (over 30%) - a researcher and a leader.

Regarding PRs that do not belong to the "ten-star pharmacist" concept (a psychologist and an IT specialist), students from both countries found similarities in these PRs, while PhSs had differences. Almost a third of students voted for a psychologist and more than two quarters - for an IT specialist. In turn, almost a third of Polish and a quarter of Ukrainian PhSs were identified by a psychologist and about one and four-fifths of the relevant groups surveyed as an IT specialist.

2. The existence of certain differences and insufficient level of awareness of the respondents from both countries about the "ten-star pharmacist" concept necessitates the creation of effective mechanisms for the implementation of the above concept in the educational process of undergraduate and postgraduate education. In addition, the involvement of public authorities is also important, pharmaceutical public organizations and owners of pharmacies to create incentives for the wider introduction of PRs in the practice of PhSs as representatives of the public trust profession.

Authors disclose no conflict of interest.

Addition 1. Questionnaire survey for PhSs

QUESTIONNAIRE

We ask you to take part in the survey «Professional role of a pharmaceutical specialist»

Please read the questions and check the appropriate boxes

!!! Note that questions 9-20 contain TWO components that do not currently belong to the professional role of a pharmaceutical specialist!!!

1. Specify the city in which you live: _____
2. Specify your age: _____
3. Specify your gender:
 - Man
 - Women
4. By education you:
 - Master of Pharmacy
 - Pharmacy assistant
5. Specify your position:
 - Head of a pharmacy or structural unit
 - An employee of a pharmacy or structural unit
6. Enter your qualification category (* for Ukrainian respondents):
 - second qualification category
 - first qualification category
 - higher qualification category
 - there is no qualification category
- Do you have a specialization? (* for Polish respondents)
 - Yes
 - No
7. Specify your scientific degree (* for Ukrainian respondents):
 - Doctor of science
 - Candidate of science
 - Applicant for a scientific degree
 - There is not scientific degree
- Specify your scientific degree (* for Polish respondents):
 - Doctor
 - Master's degree
8. Specify the experience of your work in pharmacy:
 - less than 5 years
 - 5-10 years
 - 10-15 years
 - more than 15 years
11. To serve as a bridge between the patient and the doctor treating him, as well as to provide the society with information about health and medicines:
 - Yes
 - No
 - I do not know
12. Provide psychological assistance to patients, namely to help solve their problems and establish relationships with others:
 - Yes
 - No
 - I do not know
13. Be able to effectively manage material, financial, information and personnel flows:
 - Yes
 - No
 - I do not know
14. In addition to basic pharmaceutical education, continue to study throughout your professional career:
 - Yes
 - No
 - I do not know
15. To help in education and training of future generations of colleagues and to inform society:
 - Yes
 - No
 - I do not know
16. To inspire colleagues so that they maximally demonstrate their abilities in ensuring the well-being of the patient and society:
 - Yes
 - No
 - I do not know
17. Be able to effectively use the evidence base in order to provide recommendations for the rational use of drugs, as well as to make their own contribution to the evidence base in order to improve the treatment of patients:
 - Yes
 - No
 - I do not know
18. Be able to develop and test computer programs to optimize pharmaceutical activity:
 - Yes
 - No
 - I do not know
19. Have entrepreneurship skills:
 - Yes
 - No
 - I do not know
20. Facilitate the process of change in pharmaceutical practice aimed at improving patient care, the quality of pharmaceutical services granting and teamwork:
 - Yes
 - No
 - I do not know

Thank you for participating in the survey!

Do you agree that a pharmaceutical professional should:

9. Provide patients with pharmaceutical services of the highest quality and priority should always be patient-focused, not customer-oriented:

- Yes
- No
- I do not know

10. Be able to choose a specific variant of action from a number of alternative courses of action, monitor implementation, make adjustments if necessary, evaluate the results obtained as a result of decision-making:

- Yes
- No
- I do not know

Addition 2. Questionnaire survey for students

QUESTIONNAIRE

We ask you to take part in the survey «Professional role of a pharmaceutical specialist»

Please read the questions and check the appropriate boxes

!!! Note that questions 5-16 contain TWO components that do not currently belong to the professional role of a pharmaceutical specialist!!!

1. Specify the university where you study:

 2. Specify your age: _____
 3. Specify your gender:
 Man
 Woman
 4. Specify your course of study: _____
- Do you agree that a pharmaceutical professional should:**
5. Provide patients with pharmaceutical services of the highest quality and priority should always be patient-focused, not customer-oriented:
 Yes
 No
 I do not know
 6. Be able to choose a specific variant of action from a number of alternative courses of action, monitor implementation, make adjustments if necessary, evaluate the results obtained as a result of decision-making:
 Yes
 No
 I do not know
 7. To serve as a bridge between the patient and the doctor treating him, as well as to provide the society with information about health and medicines:
 Yes
 No
 I do not know
 8. Provide psychological assistance to patients, namely to help solve their problems and establish relationships with others:
 Yes
 No
 I do not know
 9. Be able to effectively manage material, financial, information and personnel flows:
 Yes
 No
 I do not know
 10. In addition to basic pharmaceutical education, continue to study throughout your professional career:
 Yes
 No
 I do not know
 11. To help in education and training of future generations of colleagues and to inform society:
 Yes
 No
 I do not know
 12. To inspire colleagues so that they maximally demonstrate their abilities in ensuring the well-being of the patient and society:
 Yes
 No
 I do not know
 13. Be able to effectively use the evidence base in order to provide recommendations for the rational use of drugs, as well as to make their own contribution to the evidence base in order to improve the treatment of patients:
 Yes
 No
 I do not know
 14. Be able to develop and test computer programs to optimize pharmaceutical activity:
 Yes
 No
 I do not know
 15. Have entrepreneurship skills:
 Yes
 No
 I do not know
 16. Facilitate the process of change in pharmaceutical practice aimed at improving patient care, the quality of pharmaceutical services granting and teamwork:
 Yes
 No
 I do not know

Thank you for participating in the survey!

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