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**MV Zarichkova**  
Institute of Pharmacy  
Professionals Qualification  
Improvement of the National  
University of Pharmacy,  
Kharkiv, Ukraine

## Study of improvement of the system of social protection of pharmacy professionals in Ukraine and justification of the conception of social protection of pharmacy professionals

**MV Zarichkova**

### Abstract

Current state of social services in Ukraine has been studied in general and the system of social protection of pharmacy professionals (SPPhP) in the pharmaceutical sector of health industry has been studied in particular. It has been found out that up to date there is no effective mechanism of SPPhP provision and all phases of the development of social services are characterized by the only direction of social protection of the population, so the sector-specific issues and SPPhP are neglected. The following areas of improvement of SPPhP have been studied: category framework of social services in Ukraine has been analyzed, terminology definition of SPPhP, service and others has been offered, the components of these concepts have been outlined; the structure of the state social protection in Ukraine has been analyzed and on its basis a structure of SPPhP in Ukraine has been proposed.

The conception of SPPhP has been justified and formed. It emphasizes that all components of SPPhP are in the same information and legal field. Therefore they require an integrated approach to solving of the existing problems in the system of SPPhP. The current system of social and economic protection of PhP, its main components, including PhP's social assistance, PhP's social guarantees, PhP's social services, PhP's social insurance have been analyzed and outlined. We have divided them into state guarantees and guarantees by employer.

For reliability and validity of our study, we have developed and processed "Model of the definition of expert "competence index".

**Keywords:** pharmacy institution, employer's guarantees, conception of social protection of pharmacy professionals, social protection of pharmacy professionals, social guarantees, social assistance, social services

### Introduction

The study of the current legislative and regulatory framework and scientific references regarding the research of the directions of improvement of the system of SPPhP in Ukraine in modern conditions have shown polysystemic problematical character of its regulation and its implementation in current conditions. Problems of social security and social protection of pharmacy professionals were studied in the scientific works of the following scientists: Gromovyk B.P., Gudzenko O.P., Kabachna A.V., Kotvitska A.A., Mnushko Z.M., Nemchenko A.S., Parnovsky B.L., Ponomarenko M.S., Posylkina O.V., Slobodianiuk M.M., Tolochko V.M., Bratishko Yu.S., Kubarieva I.V. and others, but the issue of formation and implementation of the conception of SPPhP and particular directions of improvement of the system of social protection of pharmacy professionals in the current context have not been studied in their works<sup>[2]</sup>.

However, despite the growing interest of scientists and practitioners to this subject, the nature of SPPhP, its impact on the staff motivation and efficiency of their activities are still studied poorly. Existing approaches to determining of the components of improvement of the system of SPPhP in current conditions are of non-specific and contradictory character. It causes the need for further studies in this area.

Basing on the abovementioned information, the studied subject is relevant and it requires certain research, it will enable the system of SPPhP to be improved when implementing it to the practical activity of pharmacy institutions of Ukraine. The mucoadhesive properties of mucin have been extensively studied<sup>[9-11]</sup>. Its high potentials as a pharmaceutical excipients has not been fully explored.

**Correspondence**  
**MV Zarichkova**  
Institute of Pharmacy  
Professionals Qualification  
Improvement of the National  
University of Pharmacy,  
Kharkiv, Ukraine

**Materials and methods of research**

Methodical basis of this study is general scientific and applied scientific research methods, including: formal and logical one, method of expert assessments (“Model of the definition of expert “competence index”), system analysis, analogy and comparison methods, analysis of documents and results of sociological researches.

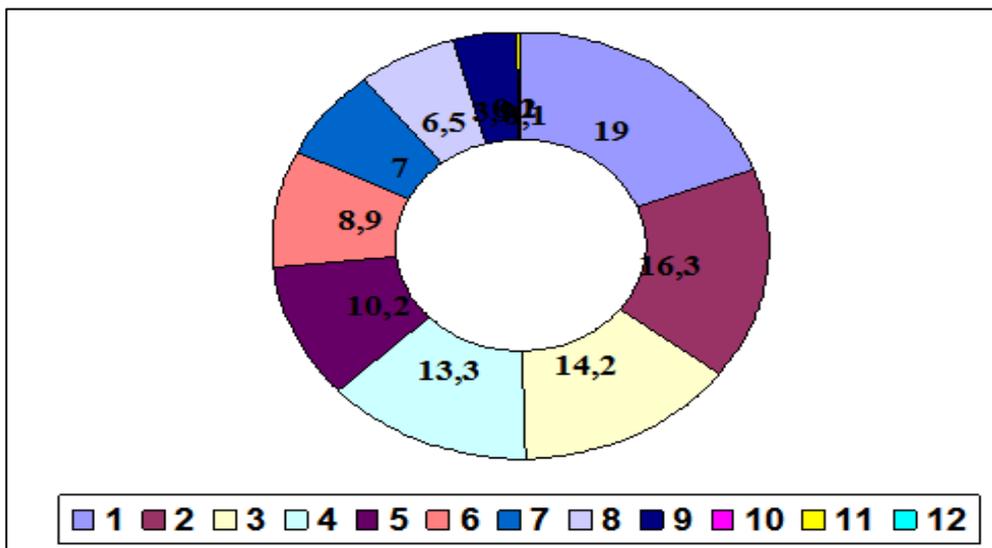
**Results and its Discussion**

We have conducted study of priorities of improvement of SPPhP in Ukraine. It has been found out that up to date all phases of the development of social services are characterized by the only direction of social protection of the population, so the sector-specific issues and SPPhP are neglected. This neglect of SPPhP has caused the imperfection of SPPhP in the pharmaceutical sector of health industry of Ukraine and, consequently, has reduced the confidence in the future of PhP and has reduced the profession attractiveness among young people.

An important condition for justification of the directions of improvement of SPPhP is a clear definition of its category framework. Having analyzed the category framework of the social sphere in Ukraine, we have found out that current absent terminological definition of SPPhP is not justified, and

therefore its components are not defined. Therefore, during our research we have modelled situation where respondents were asked to participate in certain components of the category “social protection of pharmacy professionals”. It has been established that the conception “social protection of pharmacy professionals” shall be allocated in the system of social protection of population. And the pharmaceutical sector of health industry of Ukraine shall include a system of social services provision and SPPhP by employers according to particular components. It is highly important to have a PhP’s confidence (attitude) level to each of the proposed components. The results are shown in Figure 1 [11].

In order to study this issue we have conducted a questionnaire survey among pharmacy professionals, who work in Ukrainian pharmacy institutions of different forms of ownership. It was conducted during the period of 2011-2016. According to its results it has been found out that most respondent PhP (19.0%) are willing to obtain social insurance to ensure their social protection. The second important place takes the concern for their own state when losing the job, and therefore 16.3% of respondent PhP are willing to be insured and secured with the income in case of disability or losing the job.



**Fig 1:** PhP’s needs for certain aspects of social protection

Symbols: 1 – social insurance; 2 – ensuring of income in case of disability or loss of work; 3 – treatment and preventive measures against occupational diseases; 4 – protection of social rights and minimum guarantees; 5 – assistance in education and professional development of pharmacy professionals; 6 – social support and assistance; 7 – protection against professional burnout; 8 – social security of disabled citizens; 9 – promotion of healthy lifestyle; 10 – proper payment for labour; 11 – improvement in health and spa facilities; 12 – behavioral instruction “don’t leave people in the lurch”

This PhP’s concern is due to economic instability in Ukraine and fear of loss of the job and material resources for a living. In the third place in order of importance among respondent PhP (14.2%) is the need for treatment and preventive measures against occupational diseases. Today there are almost no occupational safety (OS) measures at the workplace.

The importance of OS preventive measures is widely recognized in various fields of national economy. And in terms of the pharmaceutical sector of health industry this issue is focused mainly at production processes, but a lot of important issues in this area are still not solved in pharmacies and their structural subdivisions.

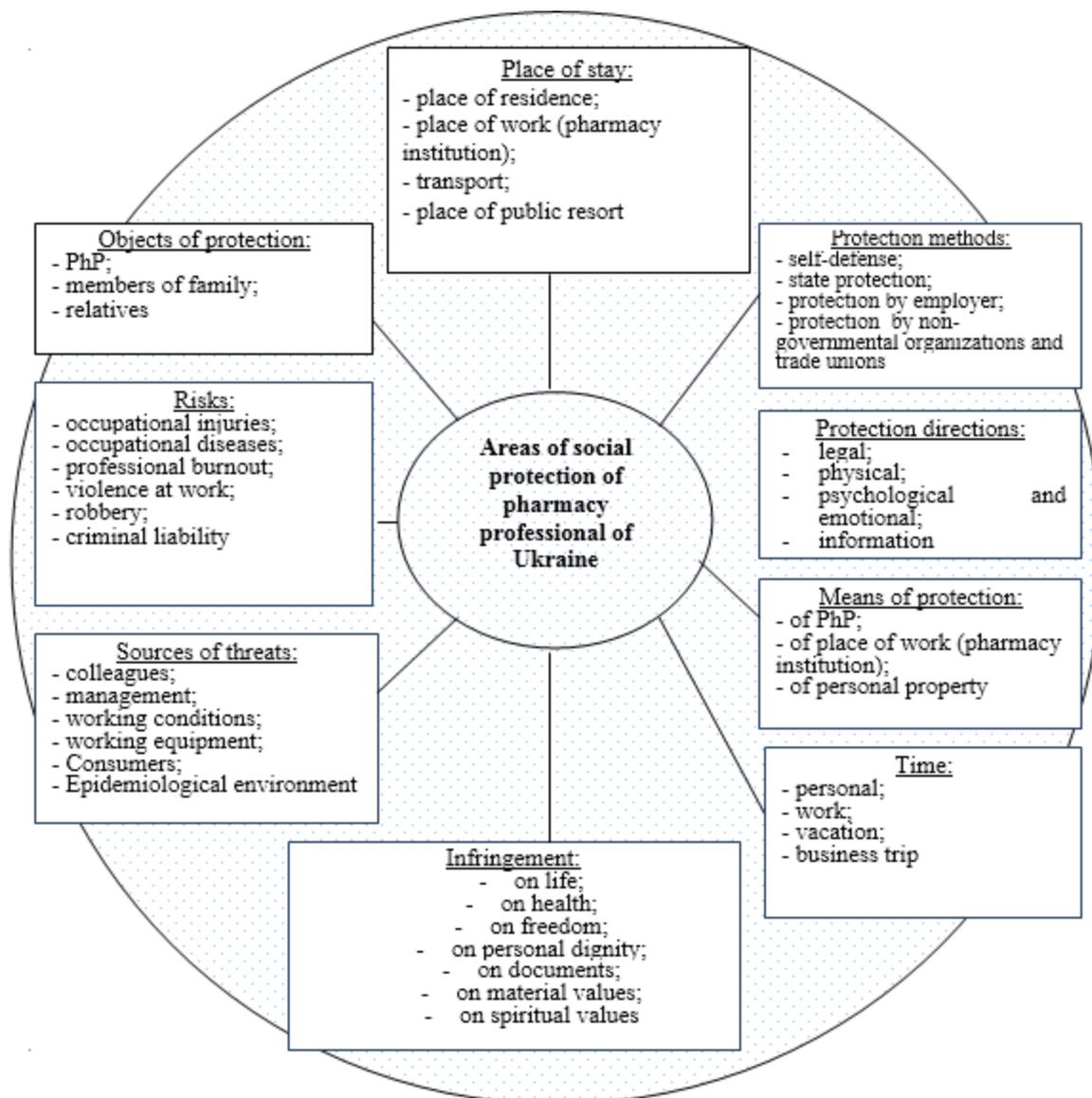
However, OS is one of the responsibilities of the state and society. A lot of participants, both standard and new, including OS professionals working at the enterprise level are involved to the implementation of OS. PhP’s health and capacity indexes are increasingly conditioned not only by production, but also by non-production factors. Therefore, a more integrated and comprehensive approach is required in order to solve this problem. It shall involve various parties having different experiences and skills. At the level of pharmacy institutions one of the main obstacles for the improvement of the OS is an opinion that the cost for OS preventive measures are unprofitable and they reduce the competitive ability of the pharmacy [2, 4, 5, 7, 9].

Protection of social rights and minimum guarantees in the opinion of 13.3% of respondent PhP, assistance in education and professional development of pharmacy professionals in the opinion of 10.2% of respondent PhP, social support and assistance in the opinion of 8.9% of respondent PhP, protection against professional burnout in the opinion of 7.0% of respondent PhP; social security of disabled citizens in the opinion of 6.5% of respondent PhP are also important components of SPPhP.

Taking into account the abovementioned, we have formed a conception of SPPhP (Figure 2). All components of SPPhP are within the single information and legal field. Therefore they require an integrated approach to solving of the existing problems in the system of SPPhP.

It should be mentioned that we have included not only PhP but also their families to the objects of social protection. This is due to the fact that PhP, who work with narcotic drugs, psychotropic substances and precursors, are subject to increased risk not only at work, but also at home (night calls to alarm worn, threats and harassment of drug dependent patients, criminal liability, etc.). In that respect we assigned PhP's place of work and place of residence to the place of PhP's stay [1-2, 5, 9, 11].

If an analysis of existing threats will be conducted, we can conclude that we have already discussed the existing threats in our previous publications. This figure shows the basic ones, which include mainly threats of PhP's work activity.



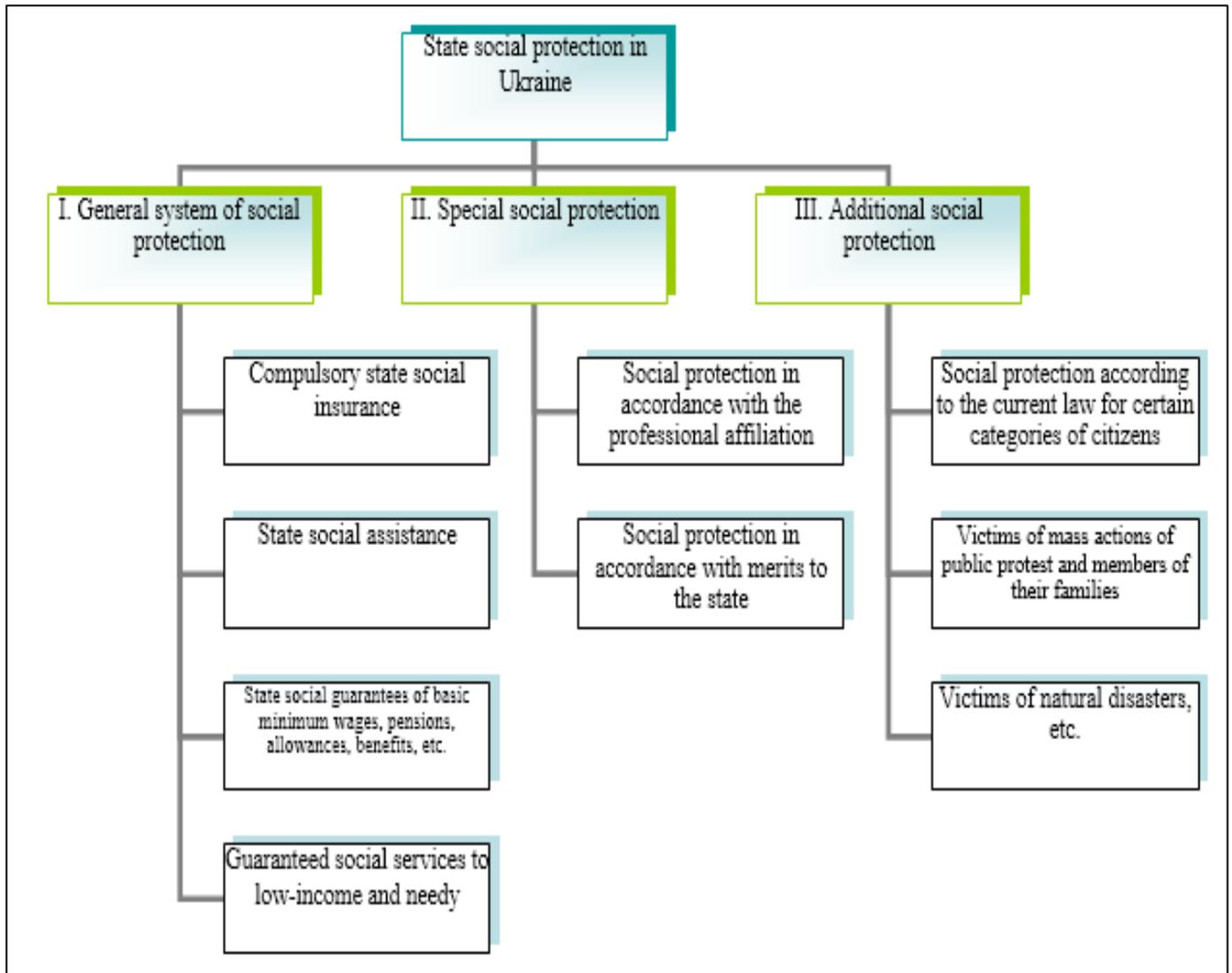
**Fig 2:** Proposed conception of SPPhP of Ukraine

Particular attention shall be paid to the sources of threats. They affect protection against infringement on the basis of the component "PhP's safety". For example, if the source of threat is a human factor (tension and discord in the labour collective, incorrect or meticulous attitude of the management, problematic or even dangerous consumers), in that case infringement on the life, personal dignity or material values occur.

As regards the methods of social protection, up to date we

consider protection by employer and protection by non-governmental organizations and trade unions as a promising area. All directions of PhP's protection can be used for this purpose: starting with legal direction to information one.

In order to build a structure of SPPhP we have studied social services of Ukraine and we have found out that structural state social protection in Ukraine consists of the following parts (also called types) (Figure 3) [3-5, 7-9].



**Fig 3:** Structure of state social protection in Ukraine

Taking into account the abovementioned information, we can conclude that massive reforming measures are required in the health sector in order to make a successful reform in the pharmaceutical sector of health industry and to form an effective system of SPPhP. Formation of a clear system of coordination between employers, organizations and bodies of executive government are also required for the abovementioned purposes. This will contribute to the modern system of SPPhP. Basing on the conducted study we have developed a structure of the system of SPPhP of Ukraine. It is shown in Figure 4.

At the next phase of our study we have analyzed modern system of social and economic protection of PhP development of SPPhP. We have also established its main components, including PhP's social assistance, PhP's social guarantees, PhP's social services, PhP's social insurance. We have divided them into state guarantees and guarantees by employer (Figure 5) [2, 5, 8, 12].

According to our study in terms of the existing guarantees by employers for their employees, the employers are not considered to be guarantors of long-term and permanent

provision of social services. But they are considered to be temporary members of the system of SPPhP due to high levers of influence, i.e. patronage, charity, programmes of business social responsibilities, etc.

The abovementioned information makes social and economic development of PhP potential. We suggest dividing it into two levels: level of PhP (individual) and level of pharmacy institution (general) (Figure 6).

Thus, the following objectives are at the individual level: employment (desire to have proper job in the field), labour safety (these issues we have discussed in the previous chapters), creative self-realization and professional and career development, etc.

At the level of pharmacy institution the common goals include the following ones: ensuring of the stability of social climate in a pharmacy institution, creation of the image of socially responsible entity, reducing of staff turnover, etc.

By the social and economic development we mean events and processes, which determine the possibility of increasing of the profitability indexes of the pharmacy institution [9-12].

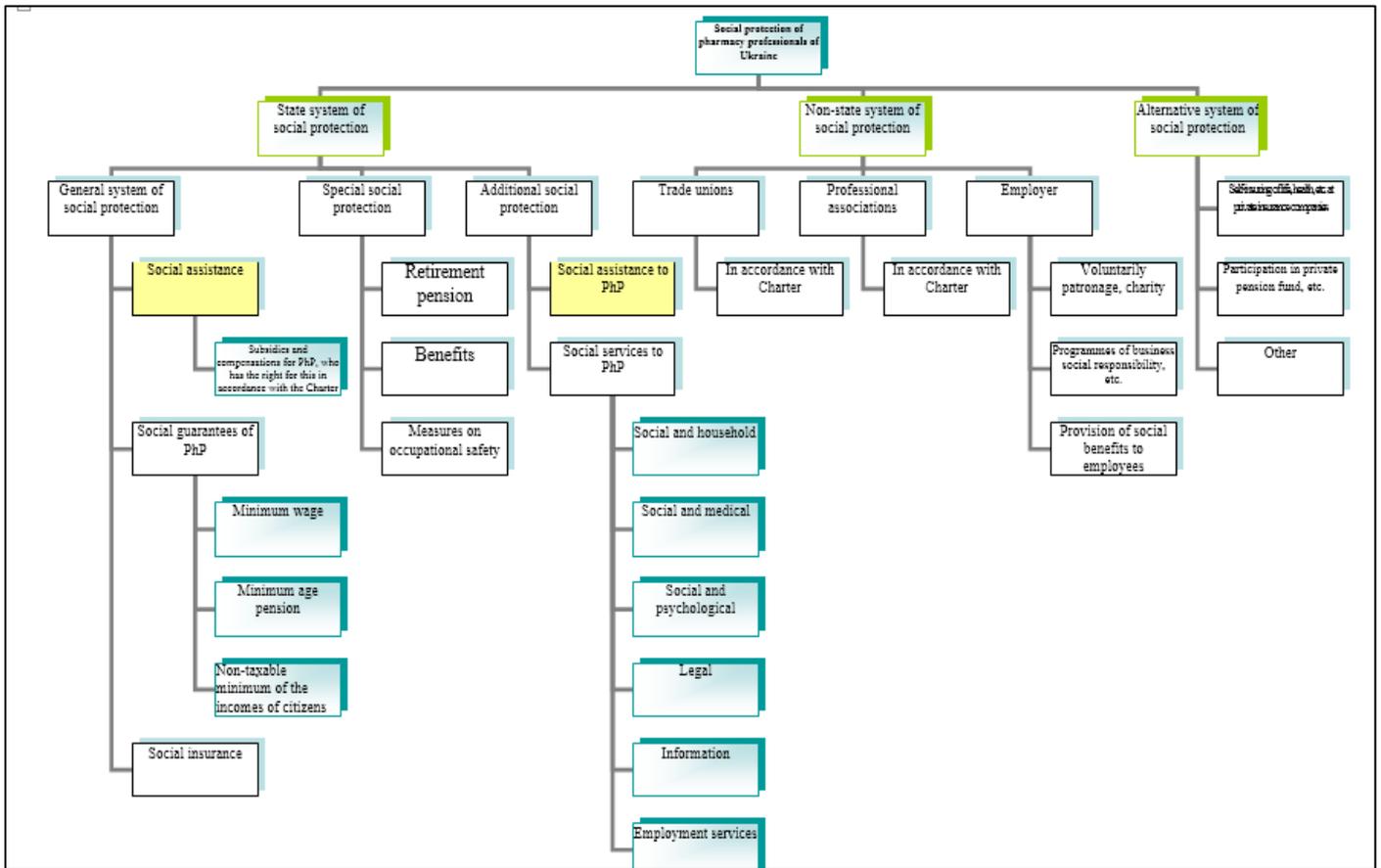


Fig 4: Proposed structure of the system of SPPhP of Ukraine

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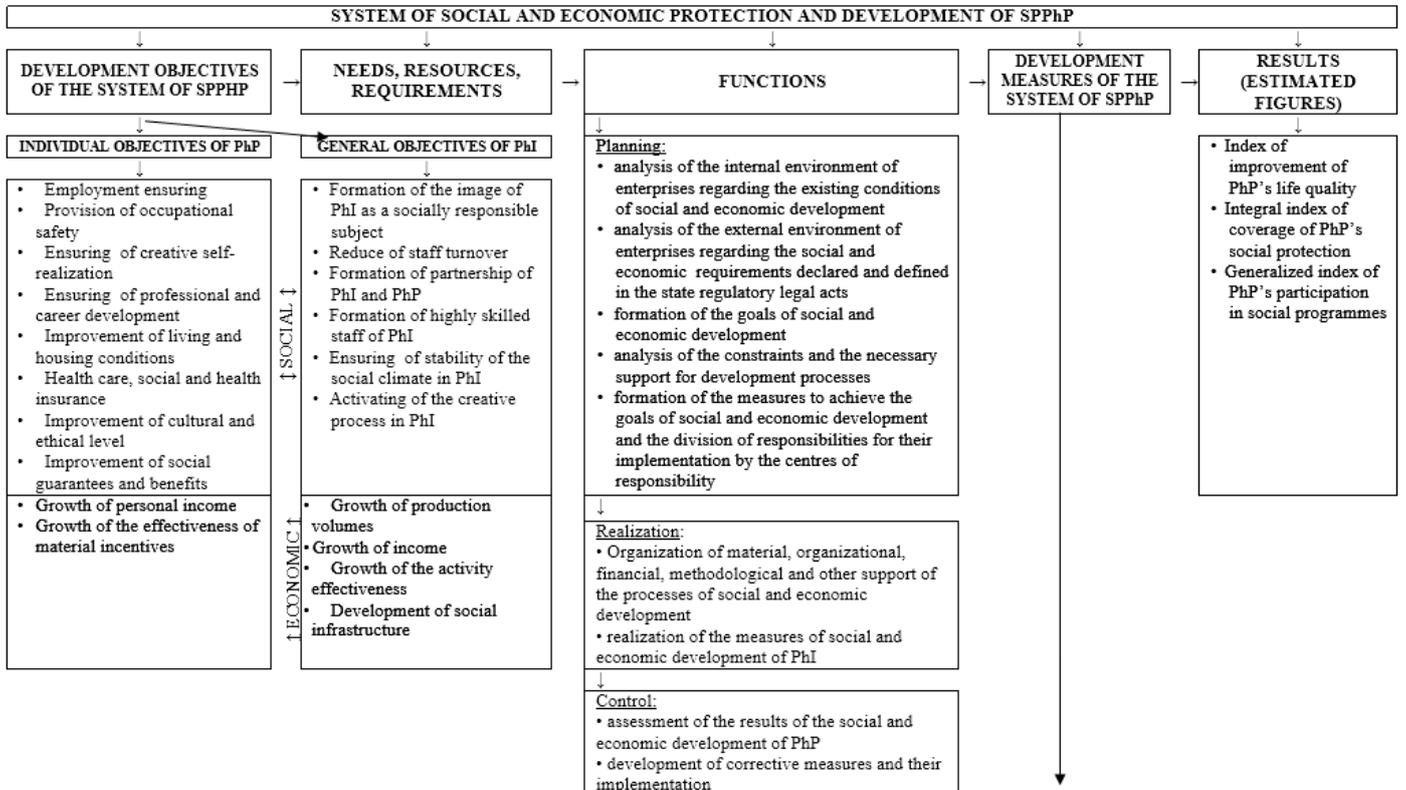
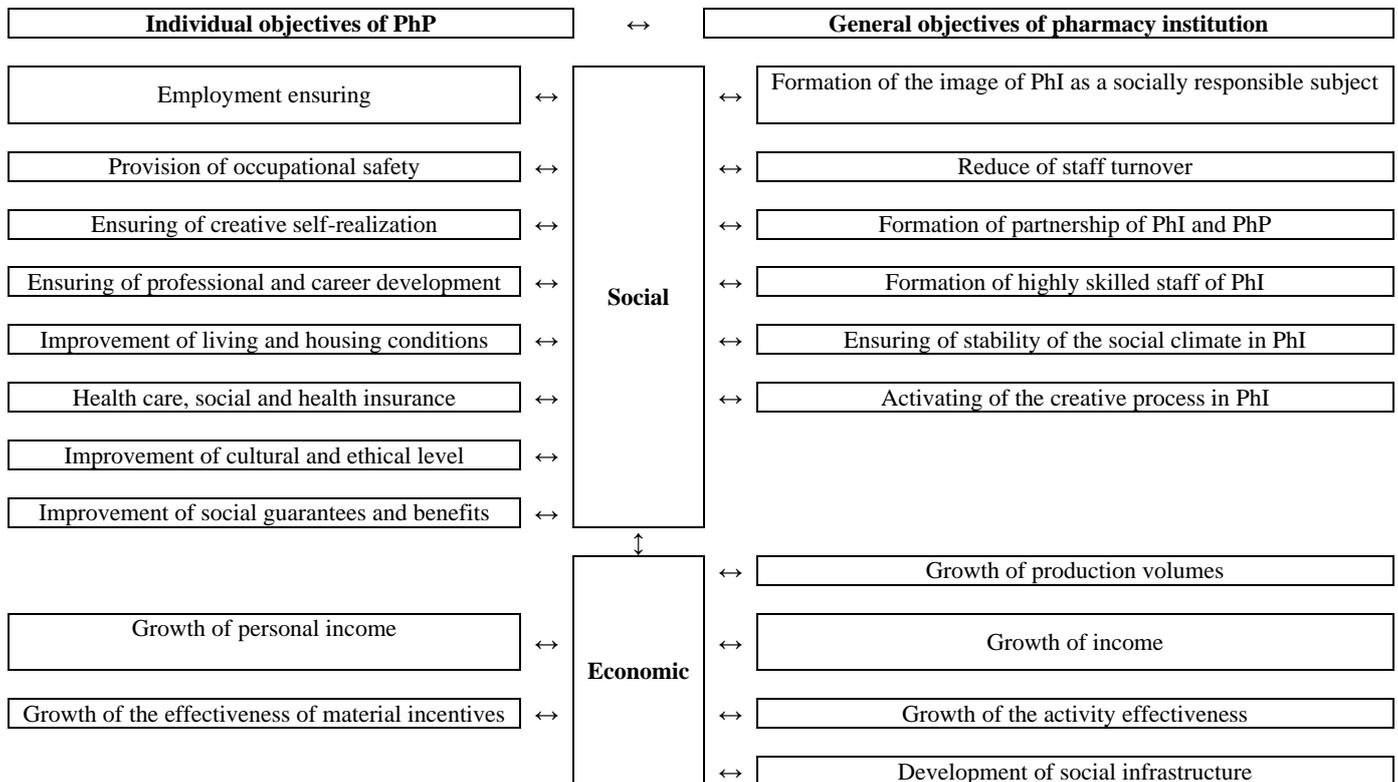


Fig 5: Scientific and practical justification of the improvement system of social protection of pharmacy professionals in the current context





**Fig 6:** Objectives of the social and economic development of PhP at individual level and level of the pharmacy institution

System of relations between PhP and organizations, which carry out social protection, shall be regulated by the relevant state and public control bodies. This is required to ensure the quality of social protection and to provide social services to PhP, for targeted use of the budget funds and the very development of these relations. The mechanism of such regulation is a variety of social programmes.

According to our experts, the social services are the priority for the construction of the system of SPPHP. Therefore, in order to resolve issues regarding the improvement of the system of social services provision to PhP, we have justified and developed organizational principles for provision of social services to PhP.

As a result of the conducted analysis it has been found out that reforming and creating of the effective system of social services are the basis for the creation of a modern system of SPPHP in Ukraine. In order to implement it, in our opinion, it is necessary to revise the Law of Ukraine "On Social Services", taking into account PhP's needs. Revised Law of Ukraine "On Social Services" shall take into account the problems of adaptation of the system of social protection to the conditions of decentralization, as well as ensuring of the targeting, mechanisms for combating corruption and conflict of interests, creating of a competitive market for social services [1, 3, 6-9].

An important task of social reforms is ensuring of the targeting of social assistance, both in the form of benefits and compensations and in the form of social services. Therefore, the definition of the real needs of PhP of administrative-territorial units in social services becomes an important tool for their implementation.

The results of our study have shown that the system of determining of PhP's needs in social services is not completed yet. For example, the priorities in provision of the social services that is the main task of the needs assessment have not been defined at all. But the definition of the priorities and

plans for the development of the system of social services is not possible without understanding of the entire situation of the existing infrastructure and the potential of social service providers. Unfortunately, the assessment of the current situation of governmental and non-governmental social service providers in the regions has not been conducted yet.

An important aspect in social services provision to PhP is the implementation of institutional analysis of the activities of social service providers of the respective administrative-territorial unit. Particular attention shall be paid to the study of the role of the state in formation and development of the social services sector; to the study of the volume and structure of the social services sector of the respective administrative-territorial unit, the mechanisms and forms of interaction of its elements, the potential and resources of potential organizations for providing the necessary social services. This requires a comprehensive study of the social services sector. We have found out that an analysis of the sphere of social services provision can be useful for identifying of the social groups of PhP, who today feel the need in social protection, and for identifying of the relevant social services [6].

In Ukraine non-governmental sector of social services is developing too slowly. This is due to the imperfection of the regulatory legal framework, which prevents the development of non-governmental social services, in particular, the services which take into account sector specifics. The development of the non-governmental sector in the system of SPPHP of Ukraine is a social problem that needs to be resolved immediately. The need in alternative social assistance for PhP occurred long time ago, but the appropriate conditions for its implementation have not been created yet.

Having analyzed the main measures, which contribute to market transformations in sphere of the social services provision and aim at increasing of the efficiency of SPPHP, we have identified the following most relevant measures: marketing of the needs in social services; standardization of

social services; development of pricing mechanism for social services funding; creation of the system of social services provision on a competitive basis; improvement of the mechanism of quality control of the provided social services; involvement of non-governmental organizations to the social services provision, etc. The implementation of these measures will promote creation of managed market for social services that, in turn, will increase the quality of SPPhP and will enable it to be implemented in pharmacy institutions, regardless of location, whether it will be in the city or in the countryside. It is necessary to harmonize the categorical apparatus of “social service” in order to resolve these issues [3-8]. Having analyzed the existing categorical apparatus, it has been established that the term “service” does not have the unanimous interpretation in the scientific literature and Ukrainian legislation, and it does not take into account the specificity of the needs of PhP. For example, the terminological definition of social services is provided in the Law of Ukraine “On Social Services” No. 966-IV dated 19 June 2003 in article 1, namely: “social service is a complex of measures to provide assistance for individuals, particular social groups that have difficult living circumstances and cannot overcome them independently, in order to solve their life problems”. The State Statistics Committee of Ukraine defines a “service” as a result of economic activity, which does not acquire a material and physical form and satisfies certain needs: personal and collective. Consequently, we can conclude that all of these terminological definitions do not reveal the economic, social and special component of social services. In the foreign literature the term “service” is used in the sense of non-financial activities. That is, the service is an action or benefit that an organization, which is the provider of

services, can offer to the recipient in order to earn money or other values [3].

We have interviewed a group of 170 experts for reliability and validity of our research. The group consisted of the heads of pharmacy institutions and pharmaceutical professionals experienced in the social sphere. For those purposes we have developed and studied “Model of the definition of expert “competence index”. “Evaluation of the awareness of SPPhP issues” was considered as a baseline (target) variable in the model. According to the survey it took two possible values: the need for information, which was met completely (1) and the need for information, which was met partially (0). Parameters affecting the degree of expert awareness of SPPhP issues include both quantitative variables: number of employees in a pharmaceutical institution, expert’s age and experience, number of subordinated employees, and qualitative features: membership in trade unions, non-governmental organizations, professional associations, work for the government, position and qualification category, availability of scientific degrees and titles, type and form of ownership of the pharmaceutical institution where the expert works. The model was developed in several phases (Figure 7). Ranking of baseline variables in terms of their importance for definition of expert’s awareness on social protection issues was carried out on the basis of calculating of information criteria  $\chi^2$  (chi-square). As a result five most informative indicators were identified: expert’s qualification category, expert’s position, membership in non-governmental organizations, professional associations, work for the government, type of pharmaceutical institution and form of its ownership (Table 1).

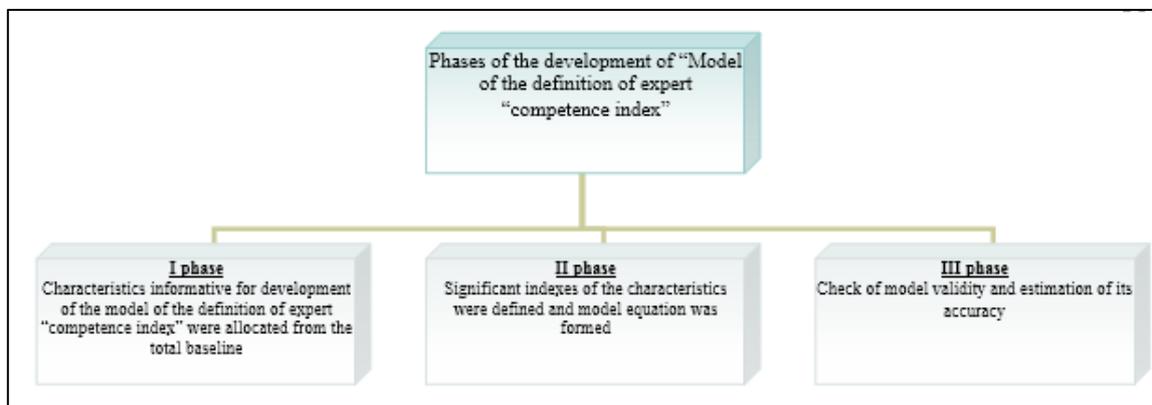


Fig 7: Phases of the development of “Model of the definition of expert “competence index”

Table 1: Key most informative indicators of expert competence

№ n/n	Allocated parameters	Values	
		Chi-square	p-value
	Expert’s qualification category	37,18681	0,000000
	Expert’s position	22,14860	0,004648
	Membership in non-governmental organizations, professional associations, work for the government	19,37084	0,000011
	Type of pharmaceutical institution	14,75002	0,002043
	Form of the ownership of pharmaceutical institution	12,71143	0,005304
	Expert’s work experience (years)	11,48222	0,175843
	Expert’s age (years)	11,26137	0,187325
	Membership in trade unions	10,47985	0,001207
	Number of employees in a pharmaceutical institution	9,13500	0,057812
	Number of subordinated employees	7,86196	0,164009
	Availability of scientific degrees and expert’s title	7,43169	0,006408
	Scientific skill	5,04387	0,168613

According to our study other seven available indicators were not included in the model because they had low values  $\chi^2$  or they were statistically insignificant ( $p > 0.05$ ). Logistic regression method was used to form the model. That allowed obtaining of binary response evaluation as a continuous function with values from the interval [0; 1], which were

interpreted as the probability that the target variable would take a value of 1. Different methods of parameters evaluation were used when developing the model. Top values were obtained using quasi-Newton method and the method of Hooke-Jeeves (Figure 8).

N=170	Model: Logistic regression (logit) N of 0's: 122 1's: 48(experts) Dep. var: Loss: Max likelihood Final loss: 54.688103497 Chi?(5)=92.979 p=,00000					
	Const.B0	Qualification category	Position	Membership in non-governmental organizations, professional associations, work for governmental structures	Type of pharmaceutical institution	Form of ownership
Estimate	-11.8945	3.3468	0.49695	3.45010	0.22508	0.346024
Odds ratio (unit ch)	0.0000	28.4113	1.64370	31.50366	1.252358	1.413437
Odds ratio (unit range)		807.2001	53.28264	31.50366	1.964199	2.823770

Fig 8: Parameters of the applied model

According to the conducted analysis obtained indexes are highly significant  $\chi^2(5) = 92.979$ ,  $p = 0.00000 \ll 0.05$ . Expert's qualification category, the position and membership in non-governmental organizations, professional associations, work for the government constitute the largest part of the model. Type and form of ownership of the pharmaceutical institution constitute smaller part of the model. Thus, the expert's knowledge regarding social protection ("competence index") in accordance with the developed model is proposed to assess using the following formula:

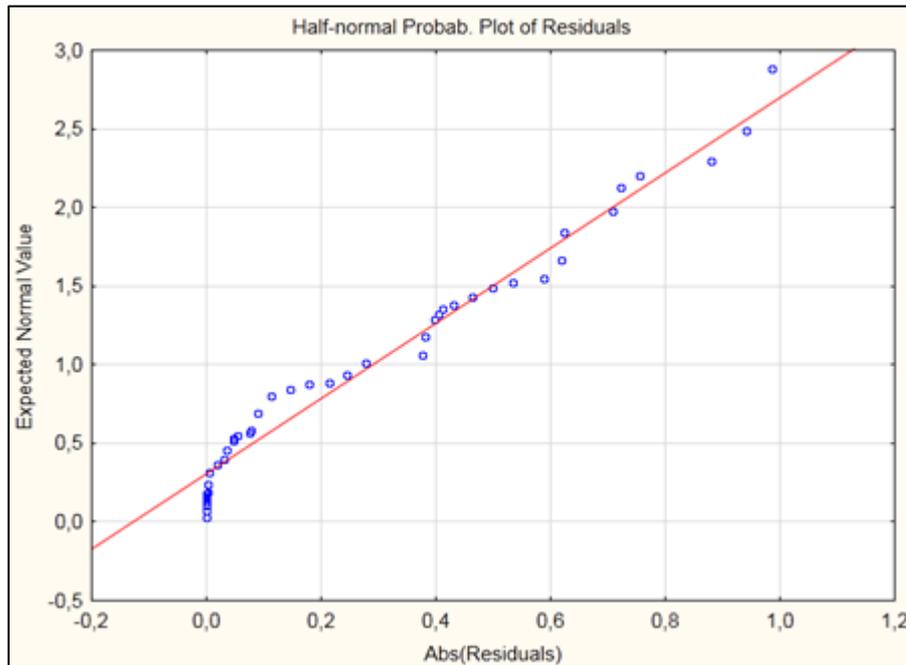
$$C = \frac{1}{1 + e^{-y}}$$

Where  
 $Y = 3, 35 * \text{qualification category} + 0, 50 * \text{position} + 3, 45 * \text{membership} + 0, 23 * \text{type of pharmaceutical institution} + 0, 35 * \text{form of ownership} - 11, 89$ , where predictable values shall be the following:

- *qualification category* =  $\begin{cases} 2 - \text{when "higher"} \\ 1 - \text{when "I or II"} \\ 0 - \text{other cases} \end{cases}$
- *position* =  $\begin{cases} 8 - \text{when "head of pharmacy"} \\ 7 - \text{when "deputy head of pharmacy"} \\ 6 - \text{when "director"} \\ 5 - \text{when "chairman of the board"} \\ 4 - \text{when "head of trade union"} \\ 3 - \text{when "social worker"} \\ 2 - \text{when "manager"} \\ 1 - \text{when "pharmacist"} \\ 0 - \text{other cases} \end{cases}$
- *membership* =  $\begin{cases} 1 - \text{When "expert is a member of non-governmental organization of professional association etc."} \\ 0 - \text{other cases} \end{cases}$
- *type of institution* =  $\begin{cases} 3 - \text{when "expert is an employee of a pharmacy"} \\ 2 - \text{when "expert is an employee of pharmaceutical warehouse"} \\ 1 - \text{when "expert is an employee of pharmaceutical company"} \\ 0 - \text{other cases} \end{cases}$
- *form of ownership* =  $\begin{cases} 1 - \text{when "state"} \\ 2 - \text{when "municipal"} \\ 3 - \text{when "private"} \\ 4 - \text{other cases} \end{cases}$

The main indicator of the authenticity of this model is its accuracy. General accuracy constitutes 87.06% for the developed equation of logistic regression. It is rather high index. Accuracy of the class of "skilled" experts constitutes

88.52%. Diagram of normal probability of model residuals shows no major deviations from the standard distribution law, which also confirms the authenticity of the developed model (Figure 9).



**Fig 9:** Diagram of normal probability of model residuals

Thus, a logistics model of determination of expert competence has been developed basing on the data analysis of interview of 170 experts. It allows determining accurately the extent of expert's skills on social protection. Indexes of the expert competence were calculated for each of the experts involved in the study, using the developed model. The indexes were included to the analysis of expert assessments of the options of offered employee benefits to be implemented in pharmacy institutions of different forms of ownership.

### Conclusion

1. It has been established that up to date there is no effective mechanism of SPPhP provision and all phases of the development of social services are characterized by the only direction of social protection of the population, so the sector-specific issues and SPPhP are neglected.
2. We have proposed the following in order to improve current system of SPPhP:
  - the structure of the governmental social protection in Ukraine has been analyzed; the structure of SPPhP of Ukraine has been offered on its basis;
  - the categorical apparatus of the social sphere in Ukraine has been studied, the terminological definition of SPPhP has been proposed, and its components have been outlined;
  - the conception of SPPhP has been justified and formed. It emphasizes that all components of SPPhP are in the same information and legal field. Therefore they require an integrated approach to solving of the existing problems in the system of SPPhP;
  - the current system of social and economic protection of PhP and development of SPPhP, its main components, including PhP's social assistance, PhP's social guarantees, PhP's social services, PhP's social insurance have been analyzed and outlined. We have divided them into state guarantees and guarantees by employer;
  - the categorical apparatus of the sphere of social services in Ukraine has been studied and it has been established that the term "service" does not have the unanimous interpretation in the scientific literature and Ukrainian

legislation, and it does not take into account the specificity of the needs of PhP;

3. We have interviewed a group of 170 experts for reliability and validity of our research. The group consisted of the heads of pharmacy institutions and pharmaceutical professionals experienced in the social sphere. For those purposes we have developed and studied "Model of the definition of expert "competence index.

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