

PHARMACEUTICAL MANAGEMENT TRAINING: MULTISTAGE RESEARCH IN POLAND AND UKRAINE

MARIIA GOVORUKHA¹, OLESYA HULCHYI¹, STELA ADAUJI^{2*}

¹*National Medical Academy of Post-Graduate Education Named After P.L. Shupik, Ministry of Health of Ukraine, Dorohozhytska Street, 9, 04112, Kiev, Ukraine*

²*“Vasile Procopișin” Department of Social Pharmacy, Faculty of Pharmacy, “Nicolae Testemitanu” State University of Medicine and Pharmacy, 165 Stefan cel Mare si Sfânt Street, MD 2004, Chisinau, Republic of Moldova*

*corresponding author: stela.adauji@usmf.md

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Abstract

The objectives of the paper were: the development of an optimal implementation strategy involving the postgraduate pharmaceutical education in the management area, the improvement and harmonization of the management *curriculum* for pharmaceutical students, that occurred for mutual (Poland - Ukraine) development and improvement of pharmaceutical management *curriculum* and postgraduate training programs implementation. Analytical, sociological (questionnaire), statistical methods and Nominal Group Technic (NGT) were used as tools of the research. Based on the results of the anonymous survey of students from the Faculty of Pharmacy of Medical University Lodz, recommendations for the creation and implementation of the mutual Ukraine - Polish training programs and continuing education programs for professionals in management pharmaceutical industry could be developed. The results of the Nominal Group Technique session can be feasible for supplementing the pharmaceutical management training, as well as for increasing the academic hour's number for students internships and practical skills. Using this research method, priority areas can be detected for students management training programs improvement and new teaching methods can be used when designing mutual Ukraine-Polish educational programs.

Rezumat

Obiectivele lucrării au fost: elaborarea strategiei optime în realizarea studiilor farmaceutice postuniversitare în domeniul managementului farmaceutic; optimizarea și armonizarea programelor de studii în domeniul managementului pentru studenții Facultății de Farmacie, dezvoltarea și perfecționarea curriculumului (Polonia - Ucraina) în domeniul managementului farmaceutic și implementarea programelor de studii postuniversitare. Ca instrumente de cercetare au fost utilizate metode analitice, sociologice (chestionarul), statistice și Tehnica Grupului Nominal (Nominal Group Technic – NGT). În baza sondajului anonim al studenților Facultății de Farmacie a Universității de Medicină și Farmacie din Lodz se dorește crearea și implementarea programelor comune de formare profesională universitară și educație continuă în domeniul managementului industriei farmaceutice din Ucraina și Polonia. Rezultatele sesiunilor NGT au demonstrat necesitatea perfecționării cadrelor cu funcții de conducere în domeniul managementului farmaceutic, precum și mărirea numărului de ore academice pentru perfecționarea și dobândirea deprinderilor practice. Utilizând această metodă de cercetare, pot fi determinate domeniile prioritare în vederea îmbunătățirii programului de studii pentru studenții Facultății de Farmacie a Universității de Medicină și Farmacie din Lodz și introducerea metodelor noi de studii, bazate pe programele educaționale comune din Ucraina și Polonia.

Keywords: pharmaceutical management, questionnaire, Nominal Group Technic (NGT), postgraduate training program, pharmaceutical curriculum

Introduction

The pharmaceutical industry in the European region [1, 5], especially in the East-European countries [14] faced the shortage qualified, managers and administrators, revealing the main reason of the pharmaceutical care, advocating the defence and the existence of pharmaceutical care [1, 5, 18].

Main hitches obstructing the development of the pharmaceutical industry in Ukraine belong to the management and organization at all levels. Likewise, the situation is ambiguated by integrating the global economic environment and occurred challenges. In

addition, the further absence of an effective management system will have negative consequences for the entire development and maintenance of the innovative products and pharmaceutical products in general access [22].

Therefore, not only economic prosperity achievement is particularly important for the managers of pharmaceutical companies, but also the contribution for the improving of the quality and accessibility of the pharmaceutical products for the patients [21, 22].

The goals of the research are as follows: the development of an optimal implementation strategy

involving the postgraduate pharmaceutical education in the management area; the improvement and harmonization of management *curriculum* for pharmaceutical students; the development of mutual (Poland-Ukraine) postgraduate training program in pharmaceutical management.

The fulfilment of this goal has caused one of these study objectives, namely, the need to clarify what knowledge and skills of medical and pharmaceutical management are necessary for development and improvement [20, 21]. This problem was solved in the framework of the international cooperation between National O. Bohomolets Medical University, Kyiv, Ukraine and Medical University of Lodz, Poland, whose representatives took part in the questionnaire and Nominal Group Technic (NGT).

Materials and Methods

For the study, analytical, sociological (questionnaire), Nominal Group Technic (NGT), statistical methods were used.

Questionnaire. Using the basic model of questionnaire of health managers' training evaluations, created by specialists of the University of Alabama in Birmingham (USA) [6] and Public Health Department of National Medical O. Bohomolets University (Ukraine), new questionnaires were developed [10, 11]. These consists of two sections (19 divided questions). The structure of the questionnaire was performed using opened, closed and partly opened questions [16].

During the formation of the closed questions, indicated factors were used for completing the sociological intention, performed as varieties of answers [7]. They were placed in the form of positions sequence, leading to a measure scale. Indicate factors used in the questionnaire were developed based on the literature data, publications and legislation documents.

First section contained general questions for determining the respondents cohort (e.g. age, gender, data about education, targeted positions and places of future work, place of current part time work if available) [9].

The second section of the questionnaire contained questions about the level of the pharmaceutical management acquaintance and skills, beginning with the evaluation of the experience in the managerial undergraduate and postgraduate training and MBA practice. Further questions were build up using measure scale (0-6) for the detection of the respondents knowledge level, namely theoretical base, organizational management, financial management, administration and evaluation of IT systems,

healthcare management, medical insurance issues [17].

The following questions are devoted to the structure of the training program of the pharmaceutical management and to the determination of the respondents motivation in order to maintain their level of managerial knowledge and skills.

Cohort. In terms of anonymity and confidentiality, 100 students of the Medical University of Lodz from the third, fourth and fifth study years participated in the survey. The survey was conducted under the agreement between the National Medical O. Bohomolets University and Medical University of Lodz.

The evaluation of 98 questionnaires was performed, 2 questionnaires were completed falsely and incompletely. All data were represented in percentages, based on the relative error according to the number of respondents.

Most respondents were female, respectively: 24.49% – males and 75.51% – female. The age ranged between 20 and 27 years.

Results of the survey. Below, some results of the survey in diagrams and graphs are presented.

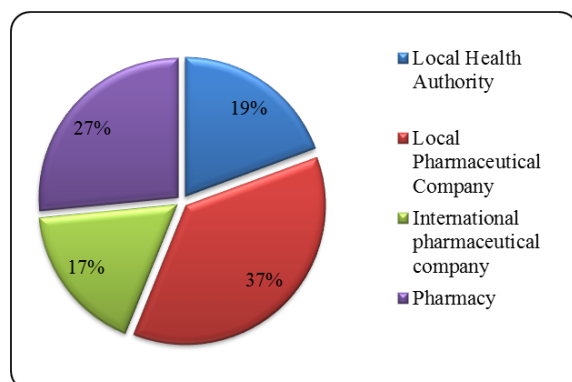


Figure 1.

Targeted future work place of the respondents ($p \leq 0.05$)

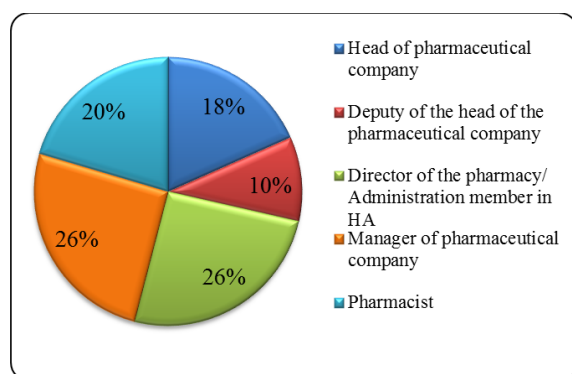


Figure 2.

Targeted positions of the respondents ($p \leq 0.05$)

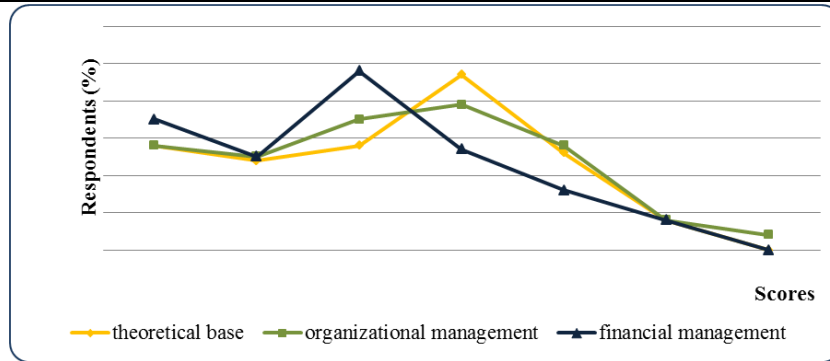


Figure 3.

Self-evaluation of 98 respondents: level of basic managerial knowledge ($p \leq 0.02$)

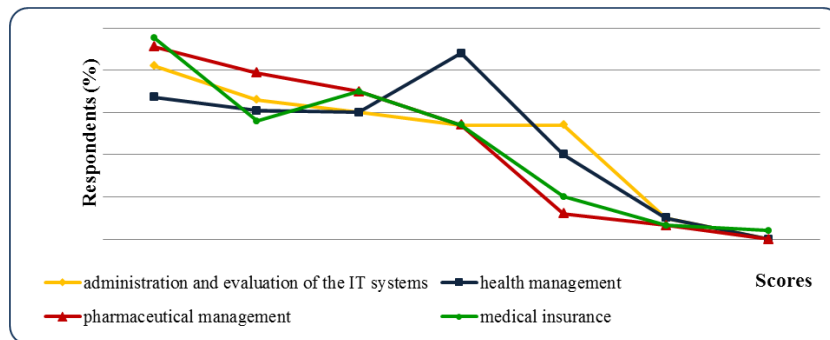


Figure 4.

Self-evaluation of 98 respondents: level of the special managerial knowledge ($p \leq 0.02$)

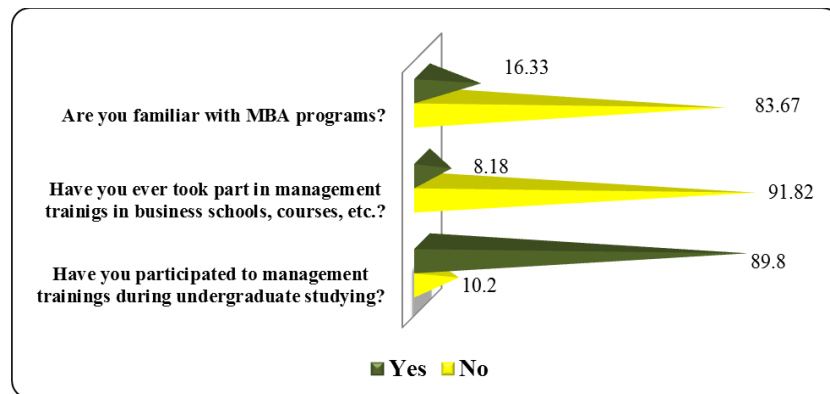


Figure 5.

Current management training experience among respondents ($p \leq 0.03$)

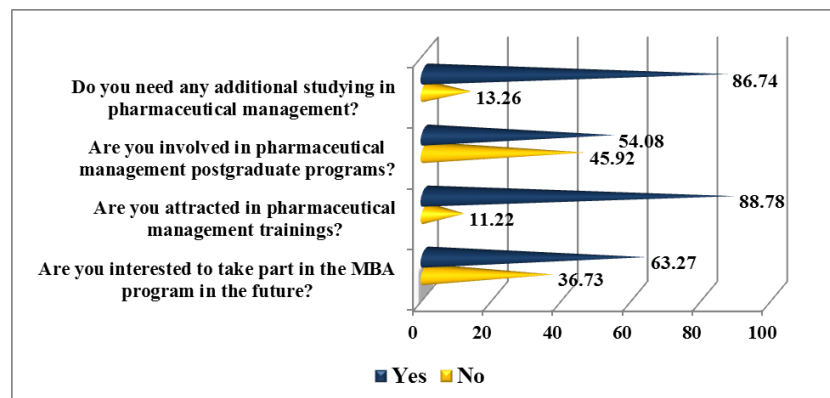


Figure 6.

Evaluation of continuous management studying motivation among respondents ($p \leq 0.03$)

Nominal Group Technique

The Nominal Group Technique (NGT) is a deep-rooted structured, multi-step, facilitated group meeting technique used to obtain and prioritize responses to a specific question [2, 3, 19].

The following steps should be included: silent, written generation of responses to a specific question; round-robin recording of ideas; serial discussion for clarification; voting on item importance [2, 8].

The NGT is a semi-quantitative method that lends itself to research in the problem identification, with reward over other structured group process

techniques such as general focus groups. The data generated by this process is quantitative, objective, and prioritized. The creation of the study questionnaire is a very important step, previous to conducting NGT group sessions [2, 4].

Nowadays, a large number of group decision making techniques are known. Most frequently used techniques are Delphi, Focus Groups and Brainstorming. However, none of the mentioned methods can ensure the availability of all the attributes for a successful and quick decision (Table I) [8, 15].

Table I

Comparison of Group Decision Making techniques

<i>Attribute</i>	<i>Delphi</i>	<i>Focus Groups</i>	<i>Brainstorming</i>	<i>NGT</i>
Face-to-face group meeting process	No	Yes	Yes	Yes
Generates a large number of ideas	Yes	Maybe	Maybe	Yes
Avoids focusing on a single train of thought	Yes	Yes	No	Yes
Encourages equal input from all participants	Yes	Maybe	No	Yes
Highly structured process	Yes	Maybe	No	Yes
Meeting time usually 1-2 hours duration	No	Yes	Yes	Yes
Avoids "quick" decision making	Yes	No	No	Yes
High degree of task completion	Yes	Maybe	No	Yes
Provision of immediate feedback	Yes	Maybe	Maybe	Yes
Measures the relative importance of ideas generated	Yes	No	No	Yes

Study Design and Participant Recruitment

One-hour session with the 4th study year students of the Faculty of Pharmacy, Medical University of Lodz was piloted. 5 experts were chosen among the students after consultations with tutors and administration staff.

According to literature data and survey, results following this question were developed: "What issues should be included in the management curriculum for the pharmaceutical students?"

Nominal Group Technique Sessions and Data Collection

Participants were informed that the purpose of the session was to know their opinion about health manager's skills and knowledge. They were given a brief description of the NGT process. Each participant was asked to work independently for approximately five minutes, to develop a list of brief responses to the above question. They recorded each of their responses on a work sheet. In order to achieve all the answers, the facilitator asked participants to think generally about all issues, which can be included to an intensive program of health managers training. Each group member, then, presented a single response to the group using a "round-robin" format to guarantee everyone had equal opportunity to suggest responses. To promote open revelation and to increase the response volume, the participants were

told that they should read a single response from their list and shouldn't give underlying principle for their response or recount it to other responses. Each response was recorded on a flipchart visible to the group. The round-robin nomination process continued until all members presented their full list to the group. The participants in each group could, in a few words, discuss the nominated responses in order to clarify, note valuations, ensure each response was understood from a common view. The final phase included a prioritizing exercise. During this part of session, each participant anonymously selected three factors from the generated list group, that were the most important in the participant's opinion. Then, they ranked their three factors in terms of comparative importance (1 = least important to 3 = most important). The ranks for each of the selected responses were summed across participants to receive a group level result. Each of the three sessions lasted approximately one hour.

Results and Discussion

All responses, obtained during the session from 5 experts (residents) are presented in Table II.

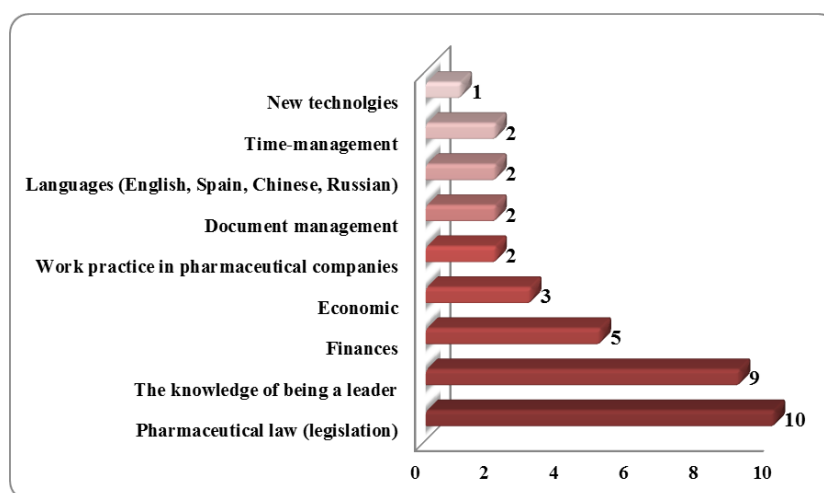
Top nine responses, formed after prioritizing exercise are implemented in Figure 7.

Table I

Responses obtained during the session from 5 experts

Reponses generated by residents *	Scores	Number of residents, selecting response	Sum of ranks **
1. The knowledge of being a leader	3, 3, 3	3	9
2. Capacity of dividing the work between group members	-	0	0
3. Economic	3	1	3
4. Practice of work in pharmaceutical companies	2	1	2
5. Documents preparation	2	1	2
6. New technologies	1	1	1
7. Course of special computer programs (data bases, statistic)	-	0	0
8. Ability to turn the ideas into the reality (effective projecting)	-	0	0
9. Money processing	-	0	0
10. Finances	2, 1, 1, 1	4	5
11. Languages (English, Spain, Chinese, Russian)	2	1	2
12. Information about job possibilities	-	0	0
13. Time-management	2	1	2
14. Specialization in the narrow part of the medicine	-	0	0
15. Pharmaceutical law (legislation)	3, 3, 2, 2	4	10

*Based on responses from 5 residents ** Calculated by summing the ranks (3 = most important, 2 = second and 1 = least important) assigned to the response.

**Figure 7.**

Top 9 responses calculated by summing the ranks from 5 residents

The significant majority of the respondents, involved into the survey, has targeted the further positions in the pharmacy field as leading and managerial. Local Health Authority is preferable for 19.38% of students. Meanwhile, more than half of the respondents has chosen to develop their carrier in pharmaceutical business: 36.74% - in local pharmaceutical companies and 17.35% - in international pharmaceutical companies representative offices; among them 18.37% - as head of the company, 10.20% - deputy of head company, 25.52% - manager. Relatively low percentage selected to work in pharmacies - 26.53%.

However, 25.49% of the respondents selected targeted positions as director of the pharmacy/administration person in Health Authority and 20.42 - as pharmacist.

Coherent results were obtained after the evaluation of the second part of the questionnaire. Thus, 89.9% of the respondents have taken part in the pharmaceutical management training during undergraduate studying in the universities. Nevertheless, weighty amounts of surveys participants have evaluated their knowledge in pharmaceutical management as poor (0, 1, 2) and little less amount as good (3, 4). Critical is the fact, that only a few respondents marked their knowledge as excellent (5, 6).

At the same time only 8.18% of students have the experience in pharmaceutical management training outside of universities or pharmaceutical schools and 16.83% - are familiar with MBA program (Magister of Business Administration).

Despite the existent practice in the pharmaceutical management, a significant part of the respondents have confirmed their drive in the further

management training (86.74%). As a result, approximately 90% of students are enthused in short term training of pharmaceutical management, and almost half of the students - in postgraduate pharmaceutical management programs. A lower number of the respondents (approximately 60%) established their demand of MBA involvement.

Consequently, results obtained after the survey evaluation developed a background for additional research stage - Nominal Group Technique, - involving pharmaceutical students from Medical University of Lodz.

Thus, NGT has the capacity to produce a large number of ideas, to evaluate the importance of each idea provided at the level of choice ideas, excludes too fast the ability to make a decision, ensures a high level task.

The completed results of the study can be reasonable for further introduction of the NGT among the healthcare professionals for effective and strategic decision making.

The method was helpful for given line resource areas, for improving management educational programs and tutorial methods for pharmaceutical students.

Similar results were obtained from the survey and NGT sessions, performed among pharmaceutical students of National O. Bohomolets Medical University in 2010 [10]. Although, the majority of the respondents are involved in managerial and leading positions for their future job, most of them confirmed having a lack of knowledge in the pharmaceutical management. Apparently significant high percentages of the respondents in Ukrainian survey are interested in continuous education in pharmaceutical management, postgraduate training programs, MBA programs, etc. [10, 11].

Comparing the NGT sessions, some corresponding responses can be identified (Pharmaceutical Practice, Record Management, Interlanguage studying) [12]. However, the prioritization of the responses was different. The key point for the Poland's students was the Pharmaceutical Law, meanwhile the Ukrainian students have chosen the Pharmaceutical Practice as the imperative idea [13].

Conclusions

One of the key problems in the pharmaceutical industry in the European region, including Poland and Ukraine, is the lack of qualified specialists in the field of pharmaceutical management. Educational programs of training in pharmaceutical management are limited in scope and form.

Based on results of anonymous survey of the Faculty of Pharmacy students from the Medical University of Lodz recommendations, for the

creation and implementation of mutual the Ukraine-Polish training programs and continuing education, programs for professionals in the pharmaceutical industry management could be developed.

Results of the Nominal Group Technique session can be feasible for supplementing the pharmaceutical management training, as well as for increasing the academic hour's number for internships and practical skills. Using this method of research, the priority areas can be detected in order to improve the management training of the students from the Faculty of Pharmacy from the Medical University of Lodz and to innovate throw the teaching method, when designing mutual Ukraine-Polish educational programs.

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