Original Article

In-depth Assessment after 18 Months of Distance E-learning of Pharmacists in Bulgaria

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Abstract

Continuous Professional Development (CPD) is an essential part of the professional development process of each pharmacist. As CPD helps pharmacists to improve their work quality and to become more useful for their patients the Bulgarian Pharmaceutical Union (BPhU) has implemented an e-learning platform for distance education for pharmacists in Bulgaria. The present research aims to sum up and investigate the quantitative and qualitative use of the e-learning platform.

Data from the initial 18 months - from the July 1st to the December 31st 2019 were summarized and analyzed using descriptive statistics. For the first 18 months the e-learning platform consists of 5 active modules and was visited by 24.3% of the active members of the BPhU. The percentage of the participants in the different modules varies from 22% to 63% from the visitors of the platform. Each module finishes with a test. The average success rates in percentage, the average time to fulfill the test, and the percentage of users that try the test more than once to pass it was also measured. The e-learning platform of the BPhU has proved to be a valuable tool for providing CPD education for pharmacists in Bulgaria.

Keywords: Pharmacists, Continuous professional development, Distance e-learning, Bulgaria

Introduction

What is Continuous Professional Development (CPD)? The Academy of Medical Royal Colleges in the United Kingdom specifies it as “a continuing process, outside formal undergraduate and postgraduate training, that allows individual doctors to maintain and improve standards of medical practice through the development of knowledge, skills, attitudes, and behaviour” [1]. CPD can be also described as an independent, current, organized, and findings-focused technique to a person's long-lasting education which is utilized to function, that is deemed to better meet the educational demands of health experts [2, 3].

In Europe, and worldwide, the CPD of healthcare professionals is an essential part of their professional life and career development [4, 5]. As healthcare professionals, pharmacists also are subject to CPD [6, 7]. It helps them ensure their high professionalism, contributes to improving patient care, increases public confidence in the profession, and is currently regarded an moral necessity in health care [8-10]. At the same time, this process is a moral and professional obligation for every pharmacist to make sure that he or she has advanced professional skills and competencies and can contribute to achieving the desired therapeutic results for patients [11].

Various studies highlight that CPD helps pharmacists to improve their work quality and to become more useful for their patients [12, 13]. Pharmacists themselves realize the importance of participation in continuous professional development for maintaining their professional competence and implementing new knowledge in their practice [14]. CPD can be also important in the process of implementation of various socially significant campaigns through pharmacy care in the pharmacy [15]. On the other side, the constant execution of novations and technologies in the field of pharmacy demand pharmacists to always update their knowledge, during their expertise occupation [16].

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How to cite this article: Balkanski S V, Lebanova H V, Grigorov E E, Getov I N. In-depth Assessment after 18 Months of Distance E-learning of Pharmacists in Bulgaria. Arch. Pharm. Pract. 2021;12(2):12-6. https://doi.org/10.51847/ybi8kcFKfC

Growingly, health professional education includes the application of training techniques via what is generally called "Technology-Enhanced Learning" [17-20]. A study from Scott *et al.* published in 2017 proposes 10 principles for "Technology-Enhanced Learning": explain aim and carry out a demands evaluation; assign sufficient time and technology; combine confirmed techniques to progress education; assume the necessity for a proficiency element; activate interplay among learners and others; develop various resources for diverse groups; test before enforcement; combine actions to maintain learners; offer chances for modification to assist retention; and assess education results, not merely consent [21].

Pharmacists with a master's degree in Bulgaria must regularly bring up to date their occupational science and proficiency, to offer proper consultation and advice to patients and drugs knowledge to other health care experts. This is adjusted by occupational code and internal acts. Each pharmacist should gather a defined number of credit points per year. Each CPD event is accredited by the Quality Commission of the Bulgarian Pharmaceutical Union /BPhU/ with a certain amount of credit points.

Thus, the pharmacists will supply the increasing demands of the community [7]. Traditionally, most of the educational events accredited as CPD for the pharmacists in Bulgaria are related to face-to-face events like congresses, seminars, courses, and workshops. The main problem in face-to-face events is that pharmacists should travel, take a leave of absence from work, and participate at a certain time in-person. This causes problems for the pharmacists from small or distant towns to participate in CDP, especially if only one pharmacist is acting in the pharmacy [22]. To satisfy the demands of CPD of the pharmacists in Bulgaria, the Bulgarian Pharmaceutical Union has carried out an distance education platform for e-learning. It is a Moodle-based platform, accessible for every BPhU member at any time, from anyplace, whit a digital device – laptop, tablet, or mobile phone. At present, the platform consists of five active modules that cover current professional topics.

The present research aims to sum up and examine the quantitative and qualitative use of the distance education program for the first 18 months - from July 1st to December 31st 2019.

Materials and Methods

Since the beginning of July 2017, the BPhU performed a modern Moodle-based distance education program for continuous professional development. It is important to analyze how and how often the program is used, and what are the educational results on how the modules perform. We use descriptive statistics and pre-set functionalities of the platform – accessibility, number of visits, achievement extents, and evaluation of the feedbacks.

Results and Discussion

The main goal of the distance e-learning platform is to give the possibility to everyone, at any time to have access to continuous professional development, regardless of its location or working schedule and availability. The visualization of the platform is available on the Intranet of www.bphu.bg.

For the first 18 months, the e-learning platform consists of 5 active modules and was visited by 24.3% of the active members of the BPhU. The modules are as follows:

- Providing medicinal care for diseased persons using inhalators for the therapy of COPD and asthma – uploaded in June 2017
- Diagnosis, inhibition, and preservation against household and sexual violence - uploaded in June 2017
- Falsified Medicines Directive and Directive 2011/62/EU – February 2018
- The role of the pharmacists in supporting patients treated with biotechnology and biosimilar products – April 2018
- Academy Biotechnology – May 2018

The first two uploaded modules "Providing medicinal care for patients using inhalers for the therapy of COPD and asthma" and "Diagnosis, inhibition, and preservation against household and sexual violence" have the highest visitor rates –63.16% and 60.20% accordingly. More than half of the users of the platform (57.57%) passed successfully the Module: "The role of the pharmacists in supporting patients treated with biotechnology and biosimilar products". The percentage of the participants in the different modules can be found in **Figure 1**.

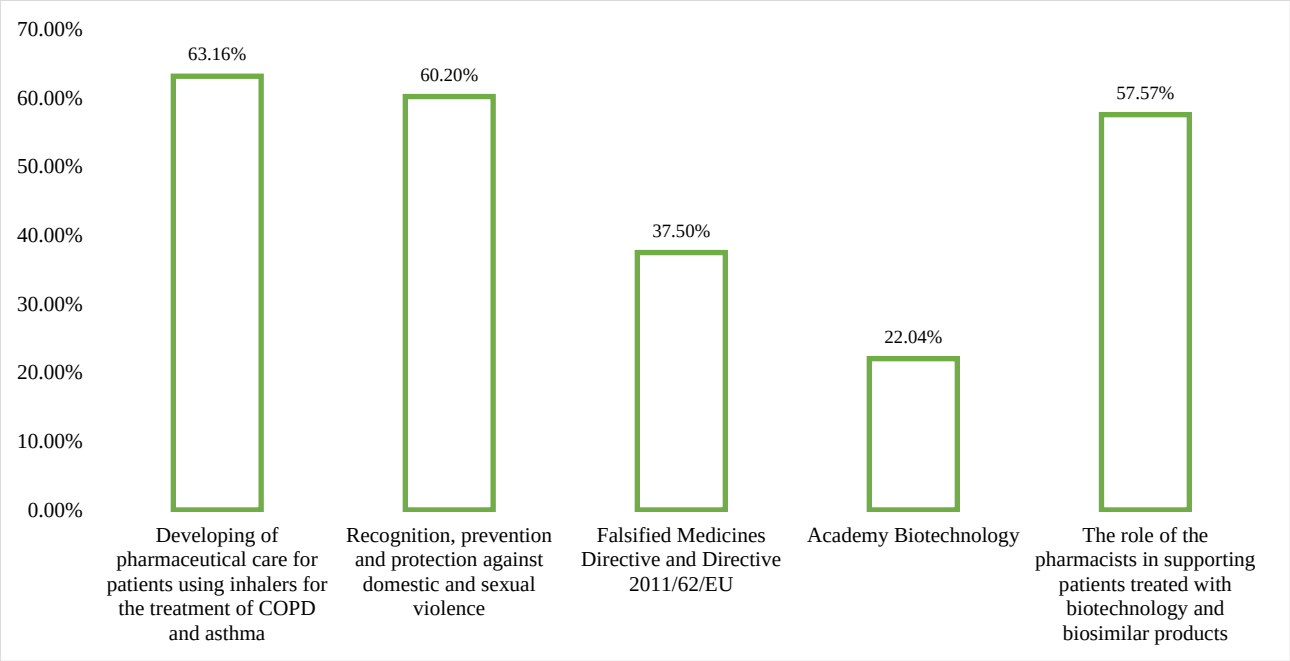

Figure 1. Percentage of the Participants in the Different Modules

Each module finishes with a test – time-limited and in the number of attempts. The pass-level for each test is 50%, so if a pharmacist wants this educational module to be accredited as CPD he/she must pass the test successfully. We measured the average success rates in percentage, the average time to fulfill the test, and the percentage of users that try the test more than once to pass it **(Table 1)**.

Table 1. Analysis of Test Success Rate

Educational module	Average test rates in percentage	Average time to finish the test	Taking the test more than once
Developing a medicinal treatment plan for patients using inhalers for the therapy of COPD and asthma	74,90%	0:09:43	31,77%
Diagnosis, inhibition, and preservation against household and sexual violence	92,00%	0:24:09	10,93%
Falsified Medicines Directive and Directive 2011/62/EU	82,05%	0:08:43	12,28%
Academy Biotechnology	66,10%	0:19:40	17,91%
The role of the pharmacists in supporting patients treated with biotechnology and biosimilar products	86,90%	0:12:11	0,00%

In the beginning, when the platform was launched, less than 70% of the pharmacists managed to pass the test of the first module from the first attempt. With the introduction of new modules in the platform, the pharmacists got used to its functionalities and the progress could be tracked. On one of the latest modules - "The role of the pharmacists in supporting patients treated with biotechnology and biosimilar products" each participant has passed their test from the first attempt. This shows the evolution of the understanding of the platform, its functionalities, and its benefits for pharmacists. The average test rates vary from 66,10% to 92,00% of correct answers.

Rapid transformation and increasing costs paired with technological advancements affect the health care environment. Because of this, it was necessary to provide value-based health care services and create new delivery models [23]. At the same time, the task of the pharmacist is withstanding digitalization and evolution. Pharmacy graduates are currently anticipated to be capable of being involved in straight patient treatment tasks through cooperative action, carry out extensive medication management, and offer preventative treatment utilities [24]. Furthermore, the principles of pharmacy training extend to all-encompassing pharmaceutical care responsibilities while including preparing and dispensing of medicines [25]. Through the mentioned evolutions, expectancies for assuring competency have increased [26].

Social expectancies call for a secure, patient-centred, proof-based, and effective health care system [27, 28]. The profession must adapt to satisfy the demands of a value-based

health care system, thus must be reflected in our existing continuing education system too [29, 30]. Special progresses for taking into regard must involve:

1. A transition beyond an attendance-based credit system;
2. Enhanced concentration on interprofessional education and function;
3. Linkage of needs-analysis function gaps with quality improvement.

Incorporation of CPD to boost the professional progress demands of professionals may assist in achieving most of these developments while ensuring continuing proficiency in practice [31]. Colleges and schools of pharmacy are poised to guide the transition toward self-directed education [26]. As practice change has increased, the individual's necessity to learn has also changed. Arranged, powerful, and purposeful CPD are required to be successful in the developing healthcare system [32]. Moreover, for maximizing learning effect, it should simplify, stimulate, and result in alterations in learner behaviour [33, 34]. By developing CPD supportive atmospheres that promote learner achievement and community, employers, educators, and pharmacy organizations must aid lifetime education. The adaptation of a CPD technique by pharmacy professionals can assist the progress of pharmacy function [3]. It is a commitment towards the patients, and pharmacy practitioner bodies and regulators are thus growingly mandating CPD among their professionals. Nevertheless, until CPD becomes a professional culture and part of the pharmacists' plan, cumulating credit points for satisfying the legal demands will go on [10].

Organizers of CPD involvement must diagnose their audience priorities to choose the proper framework for their selected intermediation [35].

Conclusion

Our assessment shows that for the first 18 months after its launch the distance e-learning platform has attracted the attention of the pharmacists in Bulgaria. Still, their interest in the platform is unsatisfying the initial goal and additional promotion, notifications, and info should be considered.

According to the National e-register of Bulgarian Pharmaceutical Union, 26% of all pharmacists work outside the capital city and regional city centers of the country. The historical evaluation of the participants' profile of the face-to-face education modules shows that these pharmacists permanently have troubles to attend due to traveling issues and impossibility to close pharmacies. This supports the need to promote the idea of distance continuous professional development as an important part of the pharmacist's life especially in these areas where the possibilities of visiting CPD events such as congresses, seminars, and courses are strongly limited.

Our study is relevant in the context of the COVID-19 crisis and the spreading focus on distance e-learning during the crisis. These data can be used for further comparison with the development of distance e-learning CPD platforms around the World.

ACKNOWLEDGMENTS: The authors would like to thank the Bulgarian Pharmaceutical Union for providing the data.
CONFLICT OF INTEREST: None
FINANCIAL SUPPORT: None
ETHICS STATEMENT: None

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