

SHORT REPORT

Students' perceptions and impact of the COVID-19 pandemic on the pharmaceutical education in Bulgaria: A pilot project

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Abstract

Background: The COVID-19 pandemic is a crisis that impacted different aspects of daily life. Under such circumstances, digital learning emerged and was adopted by all institutions worldwide to ensure continued education. The aim of this study is to assess the impact of the pandemic on pharmacy education in Bulgaria and present the perceptions and experiences of the students. **Methods:** This survey was conducted between April and June 2021. For the purpose of the study, a questionnaire with 13 open and closed-ended questions was developed and 115 pharmacy students completed the survey. Descriptive statistics were used to analyse the data. **Results:** The challenges of the distance learning process mentioned by the students were: lack of teacher-student interaction, lack of laboratory practical classes and lower motivation to study. About 51 students (44%) reported they had good concentration during the online courses and 32% answered they had depressive thoughts. **Conclusion:** The lack of interpersonal communication, lower motivation and concentration are the most significant issues faced by pharmacy students during the pandemic.

Introduction

Pharmacy is a regulated higher education program that prepares students to become future healthcare workers - Masters of pharmacy and Pharmacy assistants. The pharmacy profession is included in the List of regulated professions of the Republic of Bulgaria. Therefore it is a profession of high importance for the well-being of society. Pharmacy education states the foundational knowledge and skills needed to practice this ever-evolving profession comes with a commitment to the needs of patients (Staynova *et al.*, 2021). Pharmacy education in Bulgaria began more than 70 years ago with the establishment of two departments at the Medical University of Sofia – “Pharmacognosy with Galenic Pharmacy” and “Pharmaceutical Chemistry”. Currently, there are five universities in Bulgaria that provide pharmacy education. They include the

Medical University of Sofia, Medical University of Plovdiv, Sofia university “St. Kliment Ohridski”, Medical University of Varna “Prof. Dr Paraskev Stoyanov” and the Medical University of Pleven. Pharmacy education in Bulgaria requires a total of five years for one to obtain a master's degree, and three years for pharmacy assistantship.

Since 1989, there have been many changes in the pharmacy curriculum to harmonise the courses and diplomas with those of the other pharmacy schools in Europe (Petkova *et al.*, 2013). The European Union (EU) directives give the basic concept of pharmacy education to ensure that all the educational programs comply with the European standards (Petkova and Atkinson, 2017). Efficient pharmacy education demands multidisciplinary teaching comprising both theoretical and practical parts that ensure students acquire suitable skills and knowledge. Traditionally

education is provided through lectures and practical classes. Pharmacy students are all expected to partake in laboratory experiments and on-field practices.

The COVID-19 pandemic was a crisis that impacted different aspects of daily life. In Bulgaria, the first case of COVID-19 was announced on 7 March 2020 (Rangachev *et al.*, 2022). To prevent the spread of the SARS-CoV-2 virus, the Bulgarian government declared a state of emergency. All public gatherings were prohibited, and the educational system faced many challenges. It was mandatory following the government announcement that education continued without interruption. Due to the unprecedented crisis, digital learning was adopted by all institutions across the country to ensure continued education (Ashiq *et al.*, 2021). The Minister of education had to issue directives in order to reorganise the studying process in Bulgarian elementary, middle, and higher educational institutions. Students switched from face-to-face education to remote studying using distance learning technologies such as electronic media and educational platforms. In addition to this, pre-scheduled scientific meetings, workshops, and conferences were postponed or cancelled. Remote learning poses a challenge to the students, especially those trained in medical universities. At the peak of the pandemic, all of these universities implemented variable approaches to continue the educational process in a safe way without compromising the quality of the acquired knowledge and competencies. Although vaccinations against SARS-CoV-2 were introduced at the beginning of 2021, the pandemic still posed major challenges for the healthcare systems, economics, and education.

The essence of this study was to assess the impact of the pandemic on pharmacy education in Bulgaria and present the perceptions and experiences of the pharmacy students.

Methods

For the purpose of the study, a survey with 13 open and closed-ended questions was developed to answer the question on the impact of the pandemic on pharmaceutical education. The questionnaire was distributed among 150 students from five Bulgarian faculties of Pharmacy between April 2021 and June 2021. Personal data were not included in the questionnaire to ensure the anonymity of the respondents and encourage their participation in the study. The questionnaire contained clear instructions for completion and a brief explanation of the purpose of the study. It was explained that the collection of data

respected the requirement of confidentiality. The survey started with questions about the characteristics of the participants. The second part of the survey consisted of questions that focused on the perceptions and needs of pharmacy students. Descriptive statistics were used to analyse the data.

Results

A total of 115 pharmacy students completed the survey (response rate of 76%). The characteristics of the participants are shown in Table I. A significant percentage of the participants were females (76%), and the remaining (24%) were male. Five universities were represented in the study. More than half of the participants (52%) studied at the Medical University of Plovdiv, 20% were students of the Medical University of Varna, and 17% studied at the Medical University of Sofia. The Faculty of Chemistry and Pharmacy at the Sofia University "St. Kliment Ohridski" was represented by 12 students (10%), and the remaining one per cent were students in the Medical College-Plovdiv. The majority of the survey participants (56%) were in their third year of study, 17% were first-year students, and second and fourth years of study were respectively 14 and 13 per cent, and the remaining one per cent were students in their last (fifth) year of study.

Table I: Characteristics of the participants

Characteristics	Frequency (Percentage)
Speciality	112 (98%)
Master of pharmacy	3 (2%)
Pharmacy assistant	
University	
Medical university of Plovdiv	60 (52%)
Medical University of Sofia	17 (17%)
Sofia university 'Kliment Ohridski'	12 (10%)
Medical University of Varna	23 (20%)
Medical College - Plovdiv	3 (1%)
Sex	
Male	28 (24%)
Female	87 (76%)
Year of study	
First	20 (17%)
Second	13 (13%)
Third	64 (56%)
Fourth	14 (14%)
Fifth	4 (1%)

The participants were asked to point out the disadvantages of the remote learning process, as seen

in Figure 1. The disadvantages of the distant learning process defined by the students were:

- lack of teacher-student interaction
- lack of practical laboratory classes
- lower motivation to study

A predominant percentage of the students (85%) were satisfied with the educational materials provided by their university teachers during the remote learning. A total of 51 students (44%) reported that they had good concentration during the online courses, 33% had small concentration issues, and 23% assessed their ability to concentrate as bad. The majority of the participants (85%) who assessed their ability to concentrate as bad were females. It is known that the pandemic affected the emotional condition of all age groups. When asked to assess their mood during periods of isolation and distant learning, 56% of the pharmacy students reported not having any emotional changes, 32% had

depressive thoughts, and 12% experienced fear and a high-stress level.

Almost half of the students (49%) preferred the hybrid learning format. Distant learning was preferred by 18% of students, and 33% chose the traditional in-person education. Since the study was conducted before the summer exam session, which was already announced to be organised in person, the participants were asked to assess their readiness for the exam session. Forty-three students (37%) responded that they perceived themselves as ready, and 63% answered they were not ready. We included a question regarding students' expectations of students at the beginning of the pandemic. Almost one-half of the students (44%) were expecting a whole year of study to be held online, while 35% expected between two and three months of online classes. Twenty-four students had an expectation for a shorter period of online studying - less than a month.

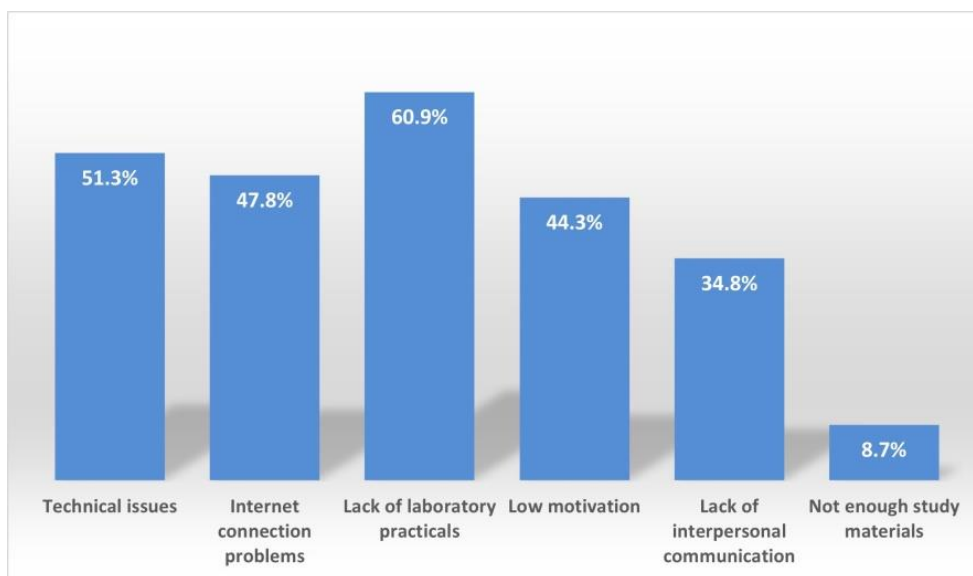


Figure 1: Distribution of respondents' answers to the question "What disadvantages of distance learning have you experienced?"

Discussion

The Universities needed to adjust their entire education process to best complement their new digital environment. The medical universities provided both synchronous and asynchronous collaboration among employees, lecturers, and students, using Microsoft 365 tools—including Teams, SharePoint, and Forms (Customers Microsoft, 2020). Before the pandemic, leaders of educational institutions have considered the best manner in which to take advantage of the technological tools for the realisation of digital learning. At the beginning of the pandemic,

both lectures and practical classes were conducted remotely. The winter semester of 2020/2021 started in a hybrid model (online lectures and in-person practicals) as the second wave of the pandemic began, Bulgaria went into a lockdown again in the middle of October. Students went through two online exam sessions. Numerous benefits and barriers of E-Learning have been debated in the literature (Bączek *et al.*, 2021). E-learning is confirmed to be a powerful tool for teaching students in medical universities. An efficient strategy and a proactive approach are required for the implementation of e-learning into the curriculum (Brazeau, 2020). Although the students had

experienced a handful of courses in the flipped classroom, team-based learning (TBL), and asynchronous/synchronous formats, there was a steep learning curve in adapting to all courses being delivered in an asynchronous/synchronous format while living with all other pandemic-related life changes. This pandemic has also disrupted the fundamental elements of community, time, and place that we used as foundations for the success of institutions. The results of our study confirm other surveys that show the need for quick adaptation to specific situations (Sandars, 2021). In “Pharmacy education crosses the Rubicon”, the authors stated that “the pre-COVID-19 global response of the Academy to changes has provoked out-of-the-box thinking and creative problem-solving” (Brazeau et al., 2020). In summary, the transition to digital learning, and managing the learners and educators is one of the most challenging and critical aspects. An important consideration which may be overlooked is how it will be possible to sustain the use of online learning after the pandemic instead of simply falling back into the traditional face-to-face teaching routine (Sandars, 2021). The pandemic most seriously impacted the emotional condition of future pharmacists, the rich relationships with educators and other students, the sense of membership and accountability to the learning community as well as substantive feedback from that community are valued by students and need to be preserved (Mirzaian and Franson, 2021).

Conclusion

In anticipation of future pandemic waves or other mass-scale disruptions, it is important to assess and discuss the needs of the students. To conclude, the lack of interpersonal communication and lower motivation and concentration are the most significant issues faced by pharmacy students during the pandemic.

Conflict of interest

The authors declare no conflict of interest.

Source of funding

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