



Pharmacy Students' Perceptions towards Online Learning

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Authors' contributions

This work was carried out in collaboration among all authors. Author NJA designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors FZA, ASA and WA managed the analyses of the study. Author NJA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Aim: This study aimed to describe the perceptions of pharmacy students towards online learning in Saudi Arabia.

Methodology: This study included an online survey that was self-administered to be filled by pharmacy students. Results were downloaded and stored in Microsoft Excel spreadsheets and the results were analyzed descriptively and represented by numbers and percentages.

Results: Most of the students said that they prefer viewing lectures by traditional in-class learning (66%). Only 40% said that they would be able to keep pace with the course by viewing lectures weekly for fully online courses that include lectures available only on blackboard. Additionally, 50% of the students prefer to attend pharmacy curriculum courses by both traditional delivered lecture style and blended online learning.

Conclusion: Pharmacy students showed some interest in online learning methods within the pharmacy curriculum but the majority of them preferred traditional dedicated-instructor delivered lecture style. It is important to use both the traditional learning with online learning during the Covid-19 outbreak.

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1. INTRODUCTION

Pharmacy education has undergone drastic alterations reflecting the advancement in pharmacy practice and increasing new technologies adoption for improving teaching and learning [1,2]. For example, teaching curricula now interested more in clinically oriented practices and less interested in compounding based practices, reflecting changing the role of pharmacists in the workplace [3,4].

Online learning has become common in higher education [5]. Over the past years, universities and colleges around the world have shifted their education from traditional teaching using instructor-delivered dedicated lectures to more electronic learning. Healthcare disciplines education systems are among the key professions that add an online learning in their curricula [5]. E-learning incorporates different types of course design and teaching methods. Some courses are fully online courses that are usually don't include face to face meeting and all of the courses' contents are provided online [5]. On the other hand, some universities use the blended learning that is defined by Garrison and Kanuka [6] as the systematic integration of online and face to face engagement to enhance and support meaningful interaction between teachers, students and resources.

Pharmacists have used the Internet to access health information sources such as the Cochrane Database of Systematic Reviews, Medscape and PubMed. The Internet has been also used to deliver products and services [7]. As well, Yeh et al. (2014) found that e-learning was an efficient approach in providing support for pharmacy students during their study. It was predominantly useful in providing therapeutic drug monitoring, pharmacy calculations, pharmacokinetics and dose adjustments [8].

Gonzalvo et al. (2013) suggested that online learning benefits lecturers and students. They found that e-learning is beneficial in economies of scale, accessing materials regularly and reusing recorded sessions [9]. They also highlighted the convenience of utilizing e-learning for instructors and students, as well as the limited costs associated with it [9]. Similarly, Lewin et al. (2009) concluded that blended online learning offers high level of flexibility and responsiveness in the learning and teaching processes [10]. Gray

and Tobin [11] showed that blended learning supports instructional approaches, which are difficult to achieve using traditional teaching methods, and reaches a high number of students without increasing the need to other resources. They also stated that both blended learning and fully online approaches have been found to be effective techniques for students in healthcare disciplines such as pharmacy [11]. The pharmacy discipline provides an excellent example of the successful use and implementation of online learning modules [11].

Geueke and Stausberg [12] said that using the internet to facilitate learning allows unlimited access to the materials without any restrictions in time. Elliott et al. [13] found that e-learning allows students to study at their own pace, so they achieve better outcomes of learning process. Ernst and Colthorpe [14] stated that well-designed online learning modules can get students involved in the learning process by allowing them to take part in active learning activities.

In pharmacy education, several studies successfully implemented recorded online lectures along with active learning [15-17]. However, the most efficient teaching approach for the pharmacy professional is not yet certain [18]. Blouin et al. [19] stated that the current generation is less likely to be attracted to traditional teaching methods and that it has been suggested that today's students prefer to use technology in their education and show higher satisfaction rates with e-learning.

E-learning experience pose challenges and presents opportunities mainly during emergency situations. The need for training for students and academic staff was highly associated with the preparedness and barriers domains rather than the infrastructure or computer literacy, so each school can improve their experience by addressing these needs [20]. Previous studies reported that while rapid transition to distance online learning was a mandatory and necessary action to ensure the learning continuity mainly during the COVID-19 pandemic, it was not always a smooth process and posed many challenges for instructors, learners, and their families [21,22].

Studies involving virtual learning strategies in pharmaceutical education are scarce. So, this

study aimed to describe the perceptions of pharmacy students towards online learning.

2. METHODOLOGY

This study included an online survey that was self-administered to be filled by pharmacy students in Saudi Arabia. The questionnaire was adapted from a survey that was used by a previous study that was conducted by Almaghaslah et al. (2018) [23] and after that it was translated to Arabic, validated and converted to an online form. All of the pharmacy students in Saudi Arabia were included in the study, so the students in other colleges were excluded from the study. Filling in the questionnaire by the students means that they accept to participate in the study. The participation in the research is absolutely voluntary.

The data collection tool consists of three parts, the first part included respondents' demographic characteristics, the second part included the main questions about Student learning preference for the pharmacy curriculum and the third part included questions about student preference for online learning pharmacy curriculum courses.

Results were downloaded and stored in Microsoft Excel spreadsheets and the results were

analyzed descriptively and represented by numbers and percentages.

3. RESULTS

The survey was filled by 50 pharmacy students. Most of them were females (90%) and aged less than 20 (74%). Table 1 shows the respondents demographic characteristics.

Most of the students said that they prefer viewing lectures by traditional in-class (66.00%) and most of them prefer traditional style of learning. Only 18% of the students preferred online interactive lectures on blackboard and only 18% of them preferred online recorded lectures on blackboard. Only 40% said that they would be able to keep pace with the course by viewing lectures weekly for fully online courses that include lectures available only on blackboard. student learning preference for the pharmacy curriculum is shown in Table 2.

Most of the students said that if there was a course where the lectures were viewed using blackboard, they would like to meet the lecturer for some lectures Weekly (66.00%). Moreover, the students said that If they took a course where the lectures were viewed using blackboard, they would prefer to ask instructors questions by meeting the course instructor during

Table 1. Respondents demographic characteristics

Variable	Category	Number	Percentage
Gender	Male	5	10.00
	Female	45	90.00
Age groups	Less than 20	37	74.00
	20–29 years	11	22.00
	More than 39	2	4.00

Table 2. Student learning preference for the pharmacy curriculum

Variable	Category	Number	Percentage
Lecture viewing preference	Traditional in-class	33	66.00
	Online interactive on Blackboard	5	10.00
	Online recorded on Bb	7	14.00
	No preference	5	10.00
Preferred style of learning	Traditional in-class session	32	64.00
	Online interactive on Bb	9	18.00
	Online recorded on Bb	9	18.00
For fully online courses, lectures were only available on Blackboard. Do you feel that you would be able to keep pace with the course by viewing lectures weekly as scheduled?	Yes, It is easier to keep pace	20	40.00
	No, having a fixed time slot for each lecture makes attending lectures easier	30	60.00

office hours (42.00%) followed by asking questions through an online discussion board on blackboard (38.00%). Additionally, 50% of the students prefer to attend pharmacy curriculum courses by both traditional dedicated-instructor delivered lecture style and blended online learning. Table 3 shows the student preference for online learning pharmacy curriculum courses.

4. DISCUSSION

The present study showed that pharmacy students expressed some interest in online learning methods within the pharmacy curriculum but the majority of them preferred traditional dedicated-instructor delivered lecture style (face-to-face lectures). Several previous studies have supported the use of online learning in pharmacy education and reported that the low cost of utilizing online learning makes this an attractive option in delivering lectures in pharmacy education [9,17,18,24,25].

Similar to the results of the present study, Lean et al. [26] stated that the majority of students reported that they enjoyed online learning and found that online learning was a useful learning

tool and that online and face-to-face learning methods were found equally effective for student learning, yet pharmacy students denoted that they favored a blended learning approach. Additionally, Ward et al. [27] reported that about 77% of students believe that their performance is better when the material is delivered face-to-face.

Lean et al. [26] reported that about 47.4% of the students agreed that the online learning improved their confidence level in pharmacy subjects. Furthermore, Shawaqfeh et al. [20] indicated that 49.2% of the students showed positive attitude toward the provided online learning and that about 34% of the students identify some barriers toward the provided online learning. Additionally, Porter et al. [28] stated that students who experienced the classroom delivery of the course felt that method did not allow for flexibility with their schedules while students in the online group felt that method did. Koirala et al. [29] stated that almost half of the respondents had negative perception towards online learning. However, the majority of them felt that online classes should be continued during Covid-19 pandemic.

Table 3. Student preference for online learning pharmacy curriculum courses

Variable	Category	Number	Percentage
If you took a course where the lectures were viewed using blackboard, would you like to meet 'in person' for some lectures or an active learning component?	Yes	42	84.00
	No	8	16.00
If there was a course where the lectures were viewed using blackboard, how frequently throughout the semester would you like to meet 'in-person' for recitation sessions?	Twice monthly	5	10.00
	Weekly	33	66.00
	Once monthly	12	24.00
If you took a course where the lectures were viewed using blackboard, what would you prefer most as an available means of asking instructors questions?	Meeting the course instructor during office hours	21	42.00
	Passing questions with the group leader	2	4.00
	Emailing the course instructor	8	16.00
	Asking questions through an online discussion board on Blackboard	19	38.00
	Do you prefer to attend pharmacy curriculum courses by	Traditional dedicated-instructor delivered lecture style	20
	blended online learning	5	10.00
	Both	25	50.00

Moreover, the students said that if they took a course where the lectures were viewed using blackboard, they would prefer to ask instructors questions by meeting the course instructor during office hours or by asking questions through an online discussion board on blackboard. Similarly, Almaghaslah et al. [23] reported that communicating with the lecturer of a course with an online component was preferred to be through meeting in the faculty during on-campus office hours (45%), followed by online discussion board on blackboard (30%), passing a question to the group leader (21%) and email (4%).

5. CONCLUSION

Pharmacy students showed some interest in online learning methods within the pharmacy curriculum but the majority of them preferred traditional dedicated-instructor delivered lecture style. It is important to use both the traditional learning with online learning during the Covid-19 outbreak. Moreover, it is important to know the barriers perceived by the students toward distance online learning and to address these barriers to help in the continuous improvement in the quality of online learning.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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