تصورات طلبة الصيدلة حول الانتقال إلى التواصل عبر الانترنت في التعلم: الدروس المستفادة من جائحة كوفيد19-

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Perceptions of pharmacy students towards the transition to online communication in learning: lessons from the Covid-19 pandemic

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Abstract

This study aims to explore the experiences of pharmacy students at Middle East University (MEU) in the transition to online communication in pharmacy education during the COVID-19 pandemic in the academic year 2021/2022.The current study follows an inductive qualitative research design based on conducting semi-structured interviews with students. Thematic analysis of data was carried out, and the six phases of analysis described by Braun and Clarke were followed. Data analysis yielded the following themes: acceptance of the transition to online communication in pharmacy education, the perceived difficulty of online courses delivered during the pandemic, drawbacks of online communication in pharmacy education, advantages of online communication in pharmacy education, and students' self-empowerment and its impact on adapting with the transition to online learning and communication during the pandemic. While the transition to online communication in pharmacy education was associated with a number of challenges, the self-empowerment of students could significantly help them to overcome these challenges and maintain the

level of their academic performance. With the realization that the COVID-19 pandemic with its associated restrictions has come to an end, this research highlights important elements of the pharmacy education process. These elements relate to the personal traits and resilience of students, which can be as important as academic achievement to help students thrive through the different circumstances they encounter.

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الملخص

هدفت هذه الدراسة إلى استكشاف تجارب طلاب تخصص الصيدلة في جامعة الشرق الأوسط في التحول إلى التواصل عن بعد في التعليم الصيدلاني خلال جائحة كورونا في العام الأكاديمي 2021/2022. تتبع الدراسة الحالية أسلوب البحث النوعي الذي يعتمد على إجراء مقابلات فردية مع الطلاب. تم إجراء التحليل الموضوعي للبيانات وتم اتباع المراحل الست للتحليل التي وصفها براون وكلارك. أنتج تحليل البيانات الموضوعات التالية: تقبل الانتقال إلى التواصل عن بعد خلال التعليم الصيدلاني، الصعوبة الملموسة للمواد المعطاة عن بعد أثناء الوباء، سلبيات التواصل عن بعد خلال التعليم الصيدلاني، مميزات التواصل عن بعد خلال التعليم الصيدلاني، والتمكين الذاتي للطلاب وتأثيره على التأقلم مع الانتقال إلى التعلم والتواصل عن بعد أثناء الوباء. في حين أن التحول إلى التواصل عن بعد خلال التعليم الصيدلاني كان مرتبطًا بعدد من التحديات، إلا أنه تبين أن التمكين الذاتي للطلبة يمكن أن يساعدهم بشكل كبير في التغلب على هذه التحديات عند حدوثها والحفاظ على مستوى أدائهم الأكاديمي. على الرغم من أن جائحة كوفيد-19 والقيود المرتبطة بها قد تلاشت إلى حد كبير يسلط هذا البحث الضوء على عناصر مهمة في عملية التعليم الصيدلاني. تتمحور هذه العناصر حول السمات الشخصية للطلاب ومهارات التواصل لديهم ومرونتهم وقدرتهم على التأقلم والتي لا تقل أهمية عن التحصيل الأكاديمي لمساعدة الطلاب على التميز ومواجهة الظروف المختلفة التي قد يواجهونها.

الكلمات المفتاحية: التواصل، التعليم، تمكين، وباء، الطلبة، التحول.

Introduction

The commencement of the year 2020 witnessed the unprecedented global outbreak of COVID-19 cases and characterising the disease as a pandemic on the 11th of March by the World Health Organization (WHO). (WHO, 2020) A global response to the pandemic took place in various forms around the world to control the spread of the infection. Restrictions on air travel, declarations of public emergency, local lockdowns, social distancing, and banning all types of social gatherings were implemented all over the world. (Altwaijry et al., 2021; Bouali, Okereke, Adebisi, & III, 2020) In Jordan, a state of emergency was declared in March 2020, and a defense law imposing certain measures to limit the spread of the infection was activated. (Watch, 2020) As part of the precautionary measures and decisions taken by the Jordanian government to combat the disease, work in all educational institutions, including higher education, was suspended. (Health, 2020)

For higher education in particular, immediate implementation of practices and strategies was needed to ensure timely delivery of the different degrees. (Ashiq, Bajwa, & Ashiq, 2021) In Jordan, as in other countries around the world, universities' response to the pandemic was manifested in the transition to distance learning and communication with their students. Each university implemented certain policies and adopted certain measures to carry out the

transition process as efficiently as possible to avoid delays or interruptions in their teaching activities. (Alsoud & Harasis, 2021) Online learning, or e-learning, was the only available solution to transform higher education from onsite or on-campus to distance learning. (Altwaijry et al., 2021) While it is well known that the utilization of technology to deliver higher education remotely is not a newly introduced phenomenon, it has not been considered an active method of communication in higher education until the recent onset of the pandemic. (Altwaijry et al., 2021; Mirzaian & Franson, 2021) The worldwide unforeseen shutdown that took place as a result of the COVID-19 pandemic entailed a compulsory adaptation by using technology to deliver education. (Altwaijry et al., 2021; Ashiq et al., 2021; Mirzaian & Franson, 2021; Romanelli, Rhoney, Black, Conway, & Kennedy, 2020a, 2020b)

For pharmacy education in particular, practical elements of hands-on lab work and clinical onsite interactions are indispensable. (Ali et al., 2021; Ashiq et al., 2021; Romanelli et al., 2020a) Therefore, the transition to online communication in pharmacy education implied a bigger challenge than for other merely theoretical educational programs. (Ali et al., 2021; Ashiq et al., 2021) The pandemic and the transition to online learning implied that pharmacy students had to give up on the experiential part of their education, in addition to the burden of adapting to the new system of e-learning. (Ali et al., 2021; Bouali et al., 2020)

Middle East University (MEU) is a private Jordanian university founded in 2005. The university includes ten faculties, hosting a total of 29 bachelor programs and 11 master programs. The faculty of pharmacy in the university—established in the academic year 2013-2014—offers a five-year undergraduate degree representing the bachelor of pharmacy program.

As in other Jordanian universities, MEU adopted a number of practices and strategies to ensure high-quality educational delivery and institutional communication and governance during the COVID-19 pandemic. Teaching was switched to synchronous distance delivery of courses using electronic platforms like Zoom and MS Teams. This was promptly followed by fast-track training of all faculty members and students to use such platforms to communicate remotely and move on with the teaching and learning activities. A number of instructional videos and tutorials were created and circulated for the purpose of improving students' and staff's digital literacy, and technical support from the Information Technology (IT) department was provided continuously. To ensure students' accessibility to course content, synchronous lectures were also recorded and uploaded to the electronic platform in use for each course. Finally, the delivery of courses was audited and supervised by deans and department chairs in each faculty.

Research problem statement

Soon after the onset of the COVID-19 pandemic, the literature has been brimming with research findings attempting to address challenges faced by pharmacy students after the transition to distance communication and learning. (Mirzaian & Franson, 2021) However, most of the available evidence is based on quantitative research utilizing questionnaires and online surveys exploring students' experiences in a structured way. While the available body of literature provides a description of the challenges and opportunities faced by pharmacy students during online learning and communication, this study aims to contribute to this growing area of research by answering the following question: what is the actual experience and thoughts of pharmacy students in the transition to online communication during their learning amid the pandemic? This is expected to provide a deeper insight into the factors influencing students' adaptation to online communication in pharmacy education.

Significance of the study

This study provided an important opportunity to advance the understanding of factors affecting students' responses to the transition to online communication

during their learning at the time of the COVID-19 pandemic. Being qualitative research provided a deeper insight into the research problem by adopting an inductive approach, which allowed findings to emerge from the recurring themes in the data. The adopted method allowed avoiding the constraints of structured research methods and depicted the actual experience and perceptions of students in a more informative way.

Research aim

This study aims to capture real elements of pharmacy students' experience in the transition to online communication in pharmacy education during the COVID-19 pandemic.

Research question

What are the elements of pharmacy students' experience in the transition to online communication in pharmacy education during the COVID-19 pandemic?

Limits of the study

- Spatial boundaries: this study was carried out on a sample of pharmacy students at Middle East University (MEU).

- Time boundaries: interviews of the study were conducted throughout the academic year 2021-2022.

- Objective boundaries: the transition to online communication in pharmacy education during the COVID-19 pandemic.

Research methodology

The current study follows an exploratory qualitative research design to achieve a deeper perception of the factors influencing online pharmacy education from students' perspectives. (McCusker & Gunaydin, 2015)

Study population and sample

The study included pharmacy students from varying levels enrolled in a bachelor of pharmacy program at Middle East University (MEU) in Jordan. An invitation to take part in the research was posted on most of the teams used to deliver the courses online during the academic year 2020/2021. All pharmacy students from all levels were included in the invitation. Subsequently, interested students were interviewed in the following academic year, 2021-2022. The final sample size was determined by reaching the saturation of data when redundant themes started to emerge.

Research tool

Research data were collected using semi-structured individual audio interviews with students using MS Teams. Interviews were recorded after obtaining verbal consent from each interviewee and were subsequently transcribed verbatim in Arabic and translated to English. A topic guide based on a review of relevant literature was the research tool. The topic guide included a predefined set of open-ended questions to prompt a discussion with the interviewees in an attempt to answer the research question by capturing the experiences of study participants.

Data analysis

Thematic analysis of data was carried out, and the six phases of analysis described by Braun and Clarke were followed. (Braun & Clarke, 2006)

Results

 The five themes emerging from data analysis were able to address the research problem by exploring the actual experience and thoughts of pharmacy students in the transition to online communication during their learning amid the pandemic. The study included a total of 13 participants who were conveniently approached until data saturation was reached. Seven male and six female

students took part in the research. Thematic analysis of data yielded the following themes:

1. Acceptance of the transition to online communication in pharmacy education.

A recurrent theme in the interviews was a sense of dissatisfaction with the transition to online communication in pharmacy education amongst interviewees. The majority of students taking part in the study expressed their preference for face-to-face communication over online communication. In spite of that, participants' accounts indicated awareness of the rationale behind this transition, which helped them to accept the status quo during the pandemic. As one interviewee said:

"In the beginning, we did not understand the situation…then we started to feel the difficulty and the lack of enthusiasm…and there is no way to ask for face to face communication because this will be a threat to our health and to the health of our families…so everyone has to decide whether to adapt with the situation or not…. everyone choses their own way" P12

Another participant described the difficulty of the situation by stating that "*There is no solution…it is not our fault…we wish that we can come to the university and continue attending our lectures*" P9

According to research participants, the transition to online communication seemed to add to the psychological burdens experienced during the COVID-19 pandemic. Accordingly, going back to face-to-face communication was perceived as going back to the normal life before the pandemic.

2. The perceived difficulty of online courses delivered during the pandemic.

In their accounts of describing the difficulty of online courses, participants expressed varying perspectives. While some students argued that courses were at the same level of difficulty whether they were delivered online or face-to-face, others felt that some types of courses were more difficult to understand online. For example, a number of interviewees reported having difficulties in the courses based on calculations like pharmacokinetics or those based on understanding chemical structures like medicinal chemistry. Students felt that these courses are better delivered in the classroom, as they required flexibility in using the board to answer questions of the students in an interactive way.

"In my opinion, I don't know if other students agree with me, courses that need calculations are very difficult through e-learning…clinical biochemistry was also difficult…I also feel that I have weakness in organic chemistry…while courses that were based on memorising the content were easier like physiology and microbiology….I don't mean they were absolutely easy, but we felt that we gained some new information…unlike pharmacokinetics for example…the

doctors did all what they could to make it easy like using a virtual whiteboard, but it was never like being face to face and interacting through questions and answers" P4

Research participants also pointed out that classroom discussions were essential for the delivery of some courses, and the absence of this element affected the learning outcomes of such courses. As one interviewee put it:

"*There are some courses that are more active face to face…by answering questions from students and presenting videos and images in the classroom things can be easier in these courses*" P3

There was an evident agreement among research participants on the negative impact of missing the practical aspect of pharmacy education represented by laboratory-based courses. Students expressed their need for hands-on work in the laboratory, as this was perceived to be an essential part of their pharmacy education experience.

"*With regard to the theoretical part, it is very interesting and we have no problems with it…but honestly I wish to enter the lab and I am curious to hold the materials and equipment with my hands… this is the only thing I wished for…to perform the experiment by myself…because when you try it yourself you will remember it better and will never forget about it*" P2

Students also expressed concerns regarding missing some practical skills that might be requirements for applying to certain types of jobs in the future. Talking about this issue, an interviewee said:

"When a student who has been exposed to this experience applies for a job in the future this will be good for them…for me, the last lab I attended in the university was pharmaceutics lab…we used to prepare creams and other things…however, when the pandemic started, we took the rest of labs theoretically…so how to prepare a capsule or a tablet was only showed to us as a video and we do not have any practical experience about it" P5

Based on the perceived importance of the hands-on experience in pharmacy education, some students decided to postpone any practical courses hoping to attend them in class later. One interviewee stated that "I am one of those students who did not register in any practical courses during online education…I am totally convinced that I will not benefit" P10

3. Drawbacks of online communication in pharmacy education.

Research participants described a number of challenges they faced during the transition to online communication. These challenges were related to changes in the educational system during the transition, personal and social factors, and technical problems.

Certain changes were introduced to the previously known educational system in the faculty of pharmacy. The main change that was highlighted by many research participants was related to the assessment of students. They reported an increase in the frequency of assessment activities during online learning, whether these were assignments or quizzes, which created extra pressure for them. Students also described an increase in the level of difficulty of assessments, mainly quizzes and exams, which they believed was an attempt to maintain the robustness of the evaluation process. Moreover, students felt that exams utilizing question banks included some questions that were above average in their difficulty.

"In some courses the questions became unbelievably hard…even when we looked for the answers after the exam we could not find them…also when some doctors used question banks, some students had easier questions while others had harder questions in the exam….this also made a difference for us…I remember that the final exams in the last semester were extremely hard…we understand that doctors have the right to do this because we answer the exam at home having all the material and Google in front of us….we do not say that exams should be very easy so that all students get full marks….but still the exams were very hard" P3

Some interviewees argued that the arbitrary timing of the quizzes added to the difficulty of the situation during online learning. Assigning some quizzes outside the regular time schedule of the lecture was challenging for the students.

"In the past we did not come to the university on Thursdays, our official attendance was from Saturday to Wednesday and the exams were held during the lectures…now it is different…the lecture might be at 8 am and the quiz for the same course can be at 9 or 10 pm" P9

In their accounts of talking about personal factors affecting their learning during online education, students expressed some important views. A common challenge highlighted by most research participants was the loss of the usual communication with others, which was replaced by remote communication on many levels. Talking about this one interviewee said:

"*One of the difficulties was the absence of efficient communication with other people outside…it is very important to develop your personality through communication…whenever you go out and interact with others you gain certain skills that improve your personality*" P11

Loss of communication with the lecturers was also perceived to be a major challenge as it had an impact on the learning process. Students believed that in-class discussions were essential for the delivery of the content of some courses, which they could not compensate through remote communication.

Moreover, students felt that their social environment at home had an impact on their learning during the pandemic. Both home and expat students talked about holding some responsibilities while staying at home during the pandemic, which interrupted their learning activities. In some cases, participants described a lack of their household's awareness of their need for a quiet environment at home, which added to the difficulty of learning at home. As one participant said:

"*No matter how quiet it is, things that will distract you always happen…for example, the doorbell rings and there is no one to see it, so sometimes I have to leave the lecture*" P6

The last theme in the challenges faced by students during online learning was related to technical problems. Some participants, particularly those residing in Iraq, described difficulties in securing a reliable internet connection or sometimes an electricity supply. This had a significant impact on students' communication during the lectures and assessments, as it was reported that this loss of connection happened during the exams in some cases. Moreover, some interviewees described facing technical problems in the applications and platforms used for online delivery and communication. Accordingly, a sense of frustration towards online learning was common among research participants. Talking about this, an interviewee said:

"Especially here (in Iraq) the internet connection is weak…even in Jordan, there are some weak networks" P10

4. Advantages of online communication in pharmacy education.

A number of positive aspects of the transition to distance learning were described by research participants. There was a general agreement on the practicality of online education in terms of saving time. Whether this was time to travel to the university or waiting time between the lectures, students felt that distance learning provided them with more free time. Research participants described a variety of activities and ways of investing their spare time during the pandemic. In some cases, students benefited from this extra time to work and support themselves financially. Talking about saving time, an interviewee said:

"To be honest yes, there were things that worked better during online learning…for example, to attend my lecture at 8 am I had to wake up at 6:30 am…but now I can wake up at 7:30 am and have the good time to eat and prepare myself before the lecture" P1

Other advantages of distance learning mentioned by research participants included getting to communicate with other students through WhatsApp groups and other types of virtual networking, being able to register more credit hours, being more focused to catch up on daily studying, and saving the expenses of face-to-face attendance like transportation costs.

5. Students' self-empowerment and its impact on adapting with the transition to online learning and communication during the pandemic.

This theme relates to the state of self-awareness that some students were able to attain during distance learning. Accounts of some students reflected a positive attitude towards managing their psychological response to the pandemic and the accompanying transition to compulsory remote communication. While it was challenging for most students to stay motivated in the beginning of the transition to distance learning, some of them managed to adapt to the new system of education and communication. It was evident in the dataset that students who succeeded in engaging themselves in online educational activities and empowering themselves to sustain their academic level had a high sense of responsibility and were able to communicate effectively during the pandemic.

Students empowered themselves by implementing a number of coping methods. For example, allocating a particular space for attending online lectures was one way to help some students to stay focused and committed and to ease their communication with their lecturers and colleagues during online lectures. This also provided some privacy and encouraged households to take online education seriously. Others highlighted using coloured stationary as a form of self-aid while studying. Deactivating social media applications was also brought

up by some research participants as a method to minimize distractions during online learning. One participant said:

"I changed my study space…I changed the place of desk…I encouraged myself by changing the atmosphere…I also deactivated some social media applications so that I don't get distracted" P3

As mentioned earlier, most students who had the ability to overcome the psychological burden of distance learning had dedicated and self-motivated personalities before the commencement of the pandemic. They were engaged in extracurricular activities, voluntary work, student associations, and community pharmacy training. These activities equipped students with the resilience and other personal traits, like good communication skills, that they needed to overcome the challenges during the pandemic.

Discussion

Several attempts have been made to assess the impact of the compulsory transition to remote communication in pharmacy education with the commencement of the COVID-19 pandemic. This study sheds light on the experience of transitioning to online communication in pharmacy education among students in one Jordanian university in the era of the pandemic.

Challenges faced by pharmacy students during online communication that were reported in the current research compare to those observed in other studies from Jordan and elsewhere. (Lemay, Bazelais, & Doleck, 2021; Mohamed, Ghaleb, & Abokresha, 2021; Morling, Wang, & Spark, 2022; Salama & Altaif, 2022) Moreover, agreement on the usefulness of online education for some aspects of pharmacy curricula was reported in the current study as in previous research. (Hamilton et al., 2020; Lemay et al., 2021; Morling et al., 2022; Salama & Altaif, 2022) Much of the current literature on the transformation from on-campus to online communication in pharmacy education suggests a general sense of dissatisfaction with the experience among students. (Morling et al., 2022; Pires, 2022) Findings of the current study further support this idea and are consistent with findings from a similar qualitative investigation carried out in Australia by Morling et al. (Morling et al., 2022) The transition to distance communication in learning could not be perceived by students in isolation from other sources of stress during the pandemic. Consequently, feeling scared, uncertain, or anxious because of the change might have impacted students' acceptance of the status quo at the time of the pandemic. (Morling et al., 2022) Nonetheless, an interesting aspect of the dataset from this research was students' awareness of the rationale behind the change as part of the global response to the spread of the COVID-19 virus. In spite of the evident

dissatisfaction with the need for online communication in education, some students were able to perceive the risk of other options amid the pandemic.

Interestingly, a systematic review by Muhaimin et al. summarized the challenges and benefits of transitioning to online pharmacy education, and the reported findings corresponded in many aspects with findings from the current study (Muhaimin et al., 2023). For example, lost communication with the lecturers and colleagues was a common theme. Another common challenge reported in the literature and in the current study was the disruption of the usual teaching and learning processes, which was negatively reflected on the quality of the delivered courses and the assessment of students. (Muhaimin et al., 2023)

Moreover, a significant theme that emerged during data analysis related to students' self-empowerment and their ability to find their own ways of adapting to the transition to online communication. These personality qualities among students seemed to be important predictors of their preparedness to unforeseen circumstances, such as the COVID-19 pandemic and the compelling need for transitioning to distance learning. (Tuntirojanawong, 2013) Even before the commencement of the pandemic, researchers were interested in exploring students' preparedness to online education as an alternative to on-campus education. In 2013, Suttiwan from Thailand investigated factors affecting students' readiness for the e-learning experience. He concluded that several

aspects had a significant impact on students' preparedness, like access to technology, self-motivation, time management, technology skills, and studying skills. (Tuntirojanawong, 2013) After the COVID-19 pandemic, the need to understand and reinforce students' willingness to adopt e-learning methods became evident. Over the past three years, researchers have been trying to identify factors that have the greatest impact on students' readiness for the transition to distance learning. Reported factors included prior exposure to e-learning methods, technology literacy, perceptions of self-efficacy towards computers and software, and availability of technical support and infrastructure. (Allam, Hassan, Mohideen, Ramlan, & Kamal, 2020; Callo & Yazon, 2020; Kalkan, 2020; Naji et al., 2020; Rafique, Mahmood, Warraich, & Rehman, 2021; Shawaqfeh et al., 2020)

The current research was able to capture self-empowerment as an important dimension of students' preparedness for e-learning and remote communication. Being a qualitative study, this finding is considered a noteworthy contribution to the available literature as it stems from the actual experience of students. The current study demonstrated that some students who were self-motivated and dedicated before the pandemic were able to cope better with the psychological burdens of the pandemic. Engaging in extracurricular activities prior to the pandemic was linked to better communication skills and abilities to find out

coping strategies during the pandemic. These findings support results of previous research, which highlights personal traits as predictors of students' adaptability to exceptional circumstances during their journeys. (Gomez-Molinero, Zayas, Ruiz-González, & Guil, 2018) This view is supported by the results of the work done by Patel et al., who demonstrated that pharmacy students who chose to volunteer during the pandemic felt better empowered and had an enhanced learning experience in spite of the lockdown (Patel, Paudyal, & Hadi, 2022).

Study Limitations

This study was limited by the small sample size, which was drawn from one Jordanian university. Nonetheless, being a qualitative study, generalizability of the research findings was not the aim. (Carminati, 2018) Rather, the uniqueness of the context of research participants was expected to add to the depth of the investigation. (Korstjens & Moser, 2017)

Conclusion and recommendations

While the transition to online communication in pharmacy education was associated with a number of challenges, the self-empowerment of students could significantly help them to overcome these challenges and maintain the level of their academic performance. With the realization that the COVID-19

pandemic with its associated restrictions has come to an end, this research highlights important elements of the pharmacy education process. These elements relate to the personal traits, good communication skills, and resilience of students, which can be as important as academic achievement to help students thrive through the different circumstances they encounter.

Based on findings of the current research, it is recommended that pharmacy students need to be equipped with resilience-building methods that can help them in facing unforeseen circumstances similar to what happened during the COVID-19 pandemic. Enhancing real-life simulation experiences that can improve students' adaptability, integrating self-awareness and mindfulness activities into the curriculum, offering volunteering opportunities, and establishing peer-support networks could be some of the suggested interventions to achieve better motivation and empowerment of pharmacy students.

Acknowledgment

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