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ORIGINAL ARTICLE

PERCEPTIONS AND SATISFACTION OF MEDICAL STUDENTS ON CLINICAL ONLINE VERSUS CLASSROOM TEACHING IN AN ASIAN CONTEXT

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ABSTRACT

Background: During the fourth wave of the COVID-19 pandemic in Vietnam, business, and school closures were implemented globally. Therefore, traditional clinical teaching methods including tutoring, face-to-face contact, and supervision were replaced by online learning. The aim of this study was to measure the perceptions of medical students towards clinical online teaching, as well as medical students' satisfaction regarding online versus conventional classrooms.

Materials & Methods: A cross-sectional study was conducted among 1028 medical students at 4th and 6th years at one university of medicine and pharmacy in Thai Binh University of Medicine and Pharmacy. Data was exported via Google Forms to Microsoft Excel. Statistical analyses were carried out using Stata version 16.0 [http://www.stata.com]. Qualitative variables were presented by numbers and percentages.

Results: A total,1028 students were included. They did not find online teaching more effective or better to prepare them for their profession compared to face-to-face methods with mean scores of 2.66/5 and 3.10/5, respectively. Satisfaction level was high in two of five parameters, including availability of assistance and class materials with (60.8% and 54.7% students satisfied or strongly satisfied, respectively. About 38.5% students worry about not grasping the knowledge they have learned; 78.8% worry about not being able to apply the knowledge in practice during patients' examining; 78.4% fear that they lack communication skills.

Conclusion: Online learning can supplement the process of education, but it cannot be a substitute for the established system of education.

KEY WORDS: Education; Effectiveness; Learning; Perceptions; Satisfaction; Undergraduate.

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INTRODUCTION

During the fourth wave of the COVID-19 pandemic in Vietnam, business, and school closures were implemented globally.[1,2] Therefore, traditional clinical teaching methods including tutoring, face-to-face contact, and supervision were replaced by online learning. These classes aimed not only to deliver knowledge and complete courses but also to maintain contact and support students during the pandemic. Unlike traditional learning, online education required new communication and teaching approaches, prompting schools to adopt digital media to make teaching more accessible.[3] The development of these trends in the contemporary educational environment raises questions about the effectiveness of online courses, especially compared with traditional classroom learning.[4] The impact of environment and learning methods on outcomes has always been explored by educational researchers.[5] Proponents of e-learning have found that it can be effective by providing convenience, flexibility, ease of use, customized learning, and feedback over traditional face-to-face learning.[5,6]

However, medical education, especially clinical teaching, has specific demands, requiring real-time interaction to ensure practical relevance. In re-

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source-limited Vietnam, this posed major challenges during the pandemic. Medical faculties adopted tools like Microsoft Teams and Zoom. As hospital access was restricted, teaching used mock patients or pre-recorded examination videos. This was new for both teachers and students. Many studies have assessed online theoretical teaching,[3,7–9] but few have evaluated online clinical training. Therefore, we conducted this study to explore medical students' perceptions and satisfaction with clinical online versus conventional teaching.

MATERIALS AND METHODS

This online survey was conducted among all the 4th and 6th-year students at one university of medicine and pharmacy in Thai Binh University of Medicine and Pharmacy for the academic year 2021/2022 via Google Form. The studied sample was selected according to the convenient sampling method. Since all target participants were invited, sample size estimation was not estimated.

There were 28 items of the questionnaire evaluating the students' perceptions and their satisfaction on online learning. The questionnaire was developed from previously published studies.[3,8,10] Based on a 5-point Likert-scale ranging from strongly disagree/strongly dissatisfied to strongly agree/strongly satisfied, ten parameters were measured for the students' perceptions on the online learning[8] and eighteen parameters for their satisfaction among all included students.[10] Moreover, ten parameters for effectiveness and five for satisfaction level3 with regard to online learning, compared to traditional teaching in-person hospital-based teaching for 6th-year students. The questionnaire was translated into Vietnamese and pre-tested on 30 students for standardization.

Data was exported via Google Forms to Microsoft Excel. Statistical analyses were carried out using Stata version 16.0 [http://www.stata.com]. Qualitative variables were presented by numbers and percentages. The score of different parameters was calculated and presented as mean and standard deviation (SD).

RESULTS

A total of 1028/1107 (92.9%) medical students responded to the questionnaire, including 498 students of the 4th year and 530 of the 6th year. Of whom, 369 (35.9%) were male and the mean age of participants was 22.5 ± 1.5. Table 1 shows the students' perceptions of online teaching. Overall, students did not find online teaching more effective or better to prepare them for their profession compared to face-to-face methods with mean score of 2.66/5 and 3.10/5, respectively.

In general, students were satisfied with the online learning (mean score = 3.66/5) (Fig. 1). The score of satisfaction was highest in five parameters in the strengths of online learning, with the mean score was 3.84/5, 3.85/5, 3.88/5, 3.95/5 and 4.10/5. Regarding the weakness of online learning, students expressed the lack of interaction among students (mean score = 3.47/5) and between professors and students (mean score = 3.37/5).

Table 1. Perceptions of students on their experiences in online learning (ranked on a Likert scale from 1 to 5, where 1=strongly disagree and 5=strongly agree) from 1028 respondents

Items	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	SD
The teaching is often stimulating	1.6	6.3	58.5	29.4	4.2	3.28	0.71
I find it easy to engage in the lesson	0.7	2.1	34.0	53.1	10.1	3.70	0.71
I feel able to ask the questions I want	0.5	0.5	21.5	60.7	16.8	3.93	0.66
I enjoy the online teaching	2.9	9.1	50.7	29.0	8.3	3.30	0.86
I would like the online teaching to be more interactive	0.1	1.4	34.3	55.0	9.2	3.72	0.65
I feel that online teaching is as effective as face-to-face teaching	9.0	37.0	35.3	16.0	2.7	2.66	0.94
I prefer online teaching to face-to-face teaching	8.4	34.3	37.8	15.9	3.6	2.72	0.95
The teachers are well prepared for the teaching sessions	0.6	2.0	24.2	60.3	12.9	3.83	0.69
I feel I am being well prepared for my profession	3.2	15.1	54.2	24.6	2.9	3.10	0.80
My Internet connection is well	0.4	4.1	63.8	29.8	1.9	3.29	0.59

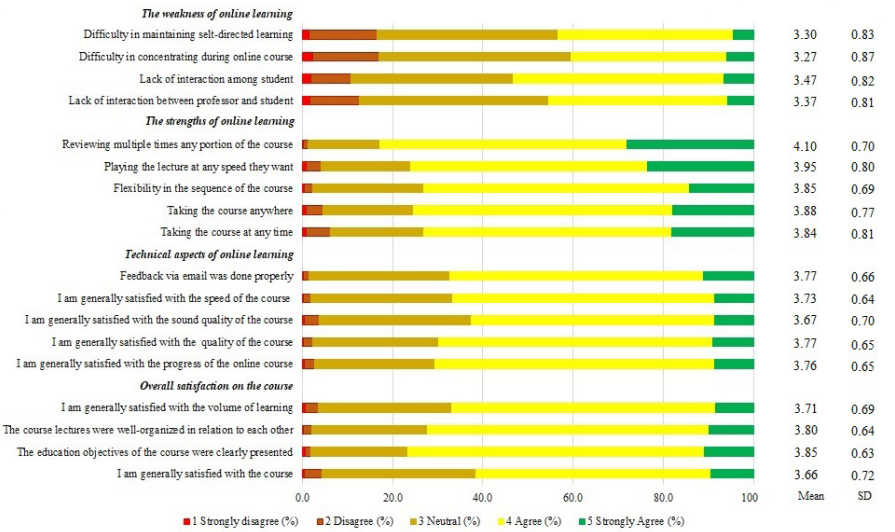

Fig. 1. Satisfaction of students with clinical online course (ranked on a Likert scale from 1 to 5, 1=strongly disagree and 5=strongly agree) from 1028 respondents.

Table 2. Effectiveness of clinical online teaching and satisfaction of medical student with online versus face-to-face method (ranked on a Likert scale from 1 to 5, 1=strongly disagree/strongly dissatisfied and 5=strongly agree/strongly satisfied) (530 respondents)

Parameters	Strongly disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	SD
Effectiveness of clinical online teaching							
Offering convenience	2.6	12.6	47.8	30.9	6.1	3.25	0.85
Meeting individual learning needs	2.5	15.5	49.2	28.1	4.7	3.17	0.83
Contributing to effective communication	3.0	16.4	51.9	24.5	4.2	3.10	0.83
Building skills and knowledge	3.4	23.0	50.8	19.4	3.4	2.96	0.84
Offering better understanding through recorded class	1.5	14.0	52.4	27.9	4.2	3.19	0.78
Interaction level	2.6	18.3	50.8	24.3	4.0	3.09	0.82
Doubt sessions	1.1	7.6	48.9	35.8	6.6	3.39	0.77
Balancing practical and theoretical experience	4.3	29.6	46.4	17.4	2.3	2.80	0.84
Grooming in Professional career	1.7	9.3	45.0	37.2	6.8	3.38	0.81
Assignment submission	0.9	7.9	45.5	39.1	6.6	3.42	0.77
Parameters	Strongly dissatisfied (%)	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Strongly Satisfied (%)	Mean	SD
The satisfaction level of students with regard to online classes on five parameters							
How helpful was the class material provided to you?	0.6	2.6	42.1	45.1	9.6	3.61	0.72
How satisfied are you with the balance of practical and theoretical knowledge provided by these classes?	0.9	6.8	59.8	28.7	3.8	3.28	0.68
There is a professional development strategy towards online training?	1.7	13.6	60.2	20.8	3.7	3.11	0.74
Availability of e-resources	0.2	4.7	58.1	31.9	5.1	3.37	0.66
Availability of assistance	0.4	0.7	38.1	49.1	11.7	3.71	0.69

Effectiveness and satisfaction of medical students with online versus classroom teaching is shown in figure =2.

The satisfaction level was high in two of five parameters, including availability of assistance (60.8% students satisfied or strongly satisfied, mean score = 3.71/5) and class materials (54.7% students satisfied or strongly satisfied, mean score = 3.61/5) (Table 2).

Of the students, 396 (38.5%) of 1028 of students worry about not grasping the knowledge they have learned; 810/1028 (78.8%) worry about not being able to apply the knowledge in practice during patients' examination; 806 (78.4%) fear that they lack communication skills, while 601 (58.5%) are afraid of getting bad scores during the academic examination.

DISCUSSION

The present study aimed to measure the perceptions of medical students towards clinical online teaching, as well as medical students' satisfaction regarding online versus conventional classrooms. With special characteristics requiring practical skills, we cannot deny that online clinical teaching might not be as effective as bedside clinical teaching. Traditional teaching methods play an important role in the acquisition and development of higher-order cognitive skills.[11] On the other hand, there are skills that cannot be done utilizing online clinical teaching, for example, palpation of vocal vibrations, pulmonary percussion, and auscultation.

Technical difficulties are also obstacles to online learning.[12] However, the inevitable transformation of medical education from traditional to online methods is still ongoing due to this epidemic. A previous study showed that there are many significant obstacles to the adoption and implementation of online learning by medical schools such as skill deficit, lack of infrastructure and technology, poor communication, and negative attitude among educators.[12] Therefore, research to evaluate the effectiveness of clinical online learning and satisfaction of students is very necessary to have solutions improving the teaching quality. To our knowledge, this study is the first conducted in Vietnam in this field.

Students scored their experiences of online teaching to be lower in two parameters. . Our work also showed similar results to previous studies.[3,8,10] In a study by Dost et al, the mean score of the student's perception of online teaching was 1.69/5 (towards strongly disagree), and enjoying online teaching was 2.62/5 (somewhat in the middle).[8] Although teachers were well prepared for the session, the quality of the clinical online learning may have been impacted by several factors such as the interaction between students and teachers and the quality of the internet connection, as demonstrated by our results. It reflects the concerns that remote or online teaching may compromise the clinical competence and confidence of students. With many of the students in our study due to graduate as practitioners in the next few years, this concern highlights the need for medical schools to improve their medical education delivery in terms of online teaching that persists. In the future, medical schools must carefully build infrastructure including internet access, video recording facilities, and teaching staff on how to use these technologies. In addition, it is necessary to increase interaction with the students, so that they are really the center of the lesson.[13] The lack of interaction with friends and colleagues leads to an increase in anxiety and mental health among students, which have recently been impacted by the pandemic.[14,15]

Compared with the traditional method, the mean score and percentage of all the parameters assessed show that online learning was less effective than traditional teaching. It implies that online learning is not a superior method for every student, especially in medical schools. Our results are consistent with the study of other authors.[3] For example, in a study by Kaur et al, only 6.0% of students explained that online learning was somewhat more effective or more effective, compared to traditional classroom method.[3]

Our study has some limitations. Although the first study in Vietnam, this study was conducted at only one medical university. In addition, we could not evaluate the types of online teaching provided. Moreover, our survey did not assess the different ways that various content could have been taught, for example, online training in traumatology would be different from online pediatric courses.

CONCLUSION

Although this was a single-center study, the results may be able to be generalized to all Vietnamese medical students if they participate in distance learning. Online learning can supplement the process of education, but it cannot be a substitute for the established system of education. To avoid the potential limitation of online learning in clinical education, it should be worthwhile to combine the advantages of online and traditional methods named "blended learning" in the future.[7] The trend of converting from traditional teaching to online teaching is increasingly being applied in medical universities. Further research is needed to maximize the benefits and improve the weakness of online education and try different educational endeavors.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	DLP, TLD, VTH
Acquisition, Analysis or Interpretation of Data:	DLP, TLD, TBN, TKN, MTB, VTH
Manuscript Writing & Approval:	DLP, TLD, TBN, DCN, KLD, DMB, KLD, VTH

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.