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Students' perspectives on the virtual teaching challenges in the COVID-19 pandemic: A qualitative study

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Abstract:

BACKGROUND: The COVID-19 pandemic led to the closure of crowded places such as universities and replaced face-to-face learning with virtual education. The purpose of this qualitative study was to investigate the challenges of virtual learning from the students' perspectives.

MATERIALS AND METHODS: This qualitative descriptive study was conducted on students of Sabzevar University of Medical Sciences. Purposeful sampling was performed by semi-structured group interviews on the Internet in the WhatsApp social network. Fifty-two nursing, midwifery, hygiene, and paramedical students were interviewed. Every interview was started by asking the question "what is your experience about virtual teaching?" The data were analyzed using MAXQDA software version 2020. According to the steps of qualitative content analysis, content analysis was performed and the themes were extracted.

RESULTS: Fifty-two students were interviewed in eight group sessions. Qualitative data analysis leads to the extraction of 23 codes, 7 categories, and the 2 main themes; dissatisfaction with virtual education with 4 categories (lack of feedback, communication channel problems, the unpreparedness of the message receiver, and weakness in educational content) and solutions to the modification of virtual teaching with three categories (possibility of receiving feedback, channel improvement, and strengthening educational content) were extracted. The highest frequency of code was related to the dissatisfaction with the uploaded contents.

CONCLUSIONS: Virtual education has created a negative experience among students for various reasons, including the lack of distance learning infrastructure and the lack of a standard for preparing quality content. Therefore, it is necessary for the officials of the Education Development Center to supervise the prepared contents and improve distance learning infrastructure.

Keywords:

COVID-19, higher education, medical, qualitative research

Introduction

On February 19, 2020, the Iranian Ministry of Health confirmed the first cases of COVID-19. During the weeks later, the number of cases of infection and death increased so that the disease has critically engaged Iran. The prevalence of the disease with its unknown dimensions, concerning the ways and severity of spread, and the acute consequences has created critical and stressful situations for most Iranians.^[1] This

epidemic may be followed by further waves or iterations. Based on the mathematical models, some researches have considered the likelihood of the continuation of the infection in the endemic form.^[2] Accordingly, it seems that all groups must adapt themselves with the work and life under such conditions.

Medical science students are present in crowded environments such as classrooms, dormitories, lavatory, and hospitals. Considering the escalation of the prevalence in the crowded areas,^[3] the closing of such

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spaces at the universities was among the first measures taken by the states for the mitigation of the disease. As such, virtual teaching replaced the normal face-to-face education. Many have considered the virtual teaching a turning point in the educational programs, especially in universities,^[4] and some predict that the education in post-COVID-19 era would be different and focus will continue over the virtual teaching.

Virtual teaching has many advantages such as availability at any time or place and discussion possibility.^[5] Internet network constitutes one of the main virtual teaching infrastructures. Iran country with 40 million Internet users (53% penetration coefficient) accounts for more than 2% of the global users and ranks 1 in the Middle East region countries.^[6] A number of studies have been undertaken in respect of the application of virtual networks for educational purposes, and the relevant opinions, advantages, and the restrictions present in the way of such application have been considered.^[7] The replacement of regular in-person education with virtual education is a more complex issue.

Taking care of the medical sciences students in any country is necessary because they will join the health system crew of the country in the near future. To ensure complete delivery of the acceptable education in a pandemic era, considering the students' perspectives on the provided virtual teaching as a whole seems necessary. Results of such consideration would help the educational managers of the university – should the conditions prevail – remove the problems found with the virtual education, so that through the optimal use of the educational technology, the curriculum contents are properly conveyed and the students' learning is brought closer to the acceptable level. What is certain, the pandemic experience demonstrates that virtual teaching deserves more attention and optimum use of its facilities is necessary.

Qualitative research is a research method appropriate for exploring the individuals' experiences and what lies behind those experiences. In addition, compared with the quantitative methods, such studies provide a deeper opinion on the cause and effect of a phenomenon.^[8] For this reason, the present qualitative descriptive study was performed aiming at analyzing the students' perspective about the virtual teaching in COVID-19 pandemic era.

Materials and Methods

This was a qualitative descriptive study. After obtaining the ethics code (IR.MEDSAB.REC.1399.049), the required permission for making interviews in the virtual space with students was acquired from the

Vice-Chancellor of Education of Sabzevar University of Medical Sciences. The study population included all Sabzevar University of Medical Sciences students; sampling was made according to the purposive sampling and based on semi-structured group interview by the researchers. The group interview with Sabzevar University of Medical Sciences students was made through WhatsApp social network, the channel address of which was previously given to the participants. The interview facilitator contacted the students' different groups' representatives and asked them to invite the interested students to the group interview session. The students were notified that they could change their profile name if they wanted to participate in the study anonymously and they were allowed to respond to the questions through texting or voice recording. A number of 3–4 students took part in every session that lasted for 60–120 min. Two facilitators participated in every session, with one of them being from the same disciplines' instructors. The students from different terms and sexes were invited, and it was attempted to have participants from most of the disciplines. The interview was made with the participation of nursing students (22 people), midwifery (12), hygiene (6), and paramedical students (12). Overall, 52 students were interviewed. We conducted virtual interviews to observe hygiene protocols. The inclusion criteria for the study were being a student of Sabzevar University of Medical Sciences and the inclination for taking part in the study.

Every interview was started by asking the question: "what is your experience with virtual teaching?" It was then continued by asking other questions about the problems students had in the virtual training sessions. Data analysis results of each interview were used as a guide for the next interview.

Sampling was performed continually until data saturation and to the point where no new code was extracted and the codes became iterative. Validity, accuracy, and soundness of the study were provided based on the four criteria of credibility, dependability, confirmability, and transferability. The first criterion was obtained by the allocation of enough time for the data collection and prolonged engagement of the researcher with the data. To ensure the reliability criterion, we asked an external experienced expert as a supervisor in qualitative studies to confirm the data collection and analysis and research results. To ensure confirmability, we sought the opinion of other members of the faculty in our medical school on the codes and categories we had extracted from our conversations with students. The transferability criterion was obtained through maximum variation sampling, that is, selection of participants

with age and gender differences coming from various disciplines and terms.^[9]

The data were analyzed using MAXQDA V. 2020 software (VERBI GmbH, Berlin, Germany). Data analysis was performed using the content analysis approach in accordance with Graneheim and Lundman seven-step method.^[10-12] The interviews which consisted of text messages in WhatsApp were extracted and compiled in text files and were coded as the unit of analysis; words, sentences, or paragraphs of the interview texts were taken as semantic units; then, similar meaning units were coded with a similar label. We reviewed the whole text after coding, compared the codes in terms of similarity and difference, and classified them under subcategories or categories. In the next step, primary codes were studied rigorously and in detail. Then, the researchers compared the categories of codes and subcategories which each had developed and reached agreement on the final categorization of codes and subcategories. Finally, inspection of the codes and categories enabled us to identify the two main themes. Ethical considerations of the study included observing the confidentiality of data and obtaining the conscious consent of the participants for the interviews and recording of the interview maintaining anonymity and confidentiality and the right to anytime withdraw from the research.

Results

Group interviews were carried out with a total of 52 students during 8 sessions. Table 1 contains the demographic characteristics of the research population. Twenty-six initial codes were extracted, and considering the similarities and differences, the codes were summarized and categorized into seven conceptual categories and two main themes. Table 2 shows a summary of the coding process of the data. Most of the students expressed their dissatisfaction with some aspect of the virtual teaching.

Table 1: The demographic characteristics of the research population

Variable	Mean (SD)
Age, (year)	20.85 (1.2)
Gender	n (%)
Female	40 (76.9)
Male	12 (23.1)
Major	n (%)
Hygiene	9 (17.3)
Nursing	21 (40.4)
Paramedics	6 (11.5)
Midwifery	16 (30.8)
Semester	n (%)
1- 4	23 (44.2)
5- 8	29 (55.8)

SD=Standard deviation

Theme 1: Dissatisfaction with the virtual teaching

The weakness of the uploaded educational contents

In this category, the following codes were included: uploading an audio file without a PowerPoint file, soundless slides, weakness of the sound, non-Persian slides, lack of attention regarding the quality of file, high volume of the content, uploading the files without time span, and insufficient descriptions by the professor.

“Some of the slides were in English; the explanations were incomprehensible because the sound was not clear.”

“Some of the instructors did not put audio on the slides and the quality of some sounds was very poor.”

“We have three specialized lessons this semester: One of the professors took picture of the book page and upload it. The photos quality was poor and the slides of the other two lessons were just heavy and very conceptual.”

“The volume of virtual content is by far more than what is taught in physical classrooms.”

Lack of feedback

One of the obtained categories was the lack of feedback over the presented virtual teaching in the current semester due to the offline virtual teaching and impossibility of discussion with the instructors.

“Virtual teaching was not so good. We are on the first semester, and I was confused in some of the subjects. Perhaps, if the classrooms were open I could get more help from the professors or the students from higher semesters.”

“Most professors just describe the slides (and do not give further descriptions); they usually give more details only when the student asks questions and mounts a challenge to the subject.”

Communication channel problems

This category comprised the codes relating to the site issues, Internet costs, and download impossibility.

“The site generally has problems at certain hours.”

I mean, the files were undownloadable; so I took notes.”

Lack of preparedness of the receiver of the message

This category was consisted of the codes relevant to the lack of an in-house computer system and being not accustomed to the study by a cell phone.

“My eyes ache terribly. I am unable to read from the cell phone screen. Tears stream down my face after 2 min gazing at the mobile phone screen.”

Theme 2: Solutions to the modification of virtual teaching

This category was comprised of the codes relating to the students' views about the modification of the virtual teaching. "Regarding online sessions, I suggest that the professors instead of sending many PowerPoint files produce and send us a film from their computer desktop together with their teaching and descriptions."

Improving the produced contents

This category comprised the standardization of virtual teaching, uploading useful and necessary material, accessibility to a film pertaining to the subject, and reducing the volume of the produced content. "If it is supposed to continue virtual education, all the professors must obey a defined standard in producing educational content."

"Reform the virtual teaching and tech using files, like most universities around the world."

Feedback possibility

"Holding the online session using suitable applications like Adobe Connect will produce better effects."

"We need several complementary sessions." and "such sessions must be held online not in person."

Improvement of the communication channel

In this field, the emphasis was focused on the free Internet for the students and improvement of the university website.

The results of the study include themes, categories, and codes, as shown in Figure 1.

Discussion

The closure of schools and universities paved the way for the activation of virtual teaching in universities. This qualitative study was conducted to analyze students' perspectives on the challenges of virtual teaching in the COVID-19 pandemic. Two main themes of "dissatisfaction with virtual teaching" and "virtual teaching reform solutions" were extracted. The results of the present study indicate the negative experience of the students from the virtual teaching presented in this course. In this theme, the highest level of dissatisfaction is related to the category of "weakness in the educational content." In our study, students complained about

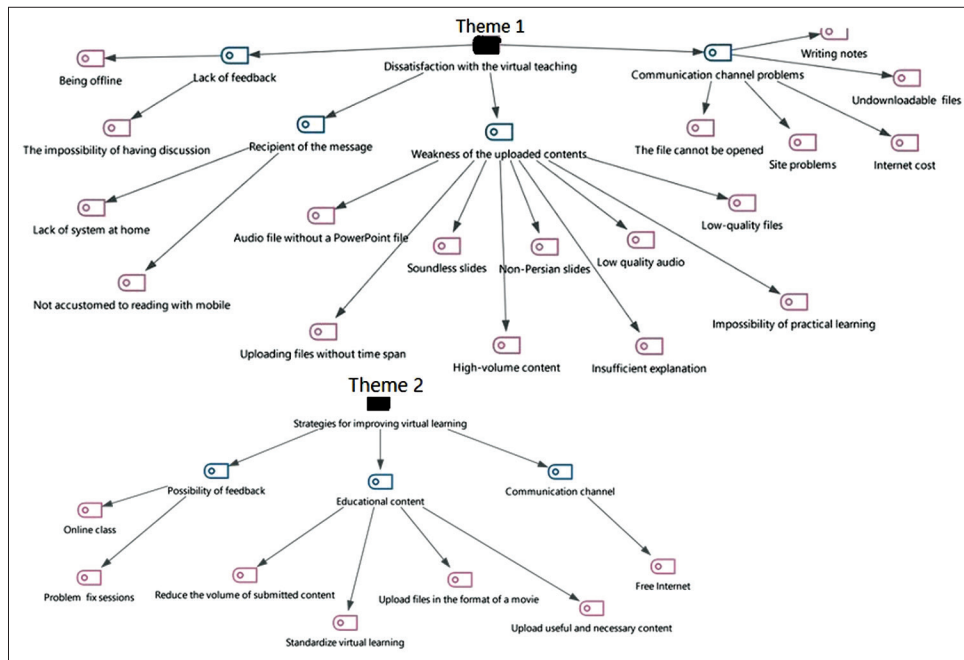


Figure 1: Themes, categories, and study codes

Table 2: The summary of the coding process of the data

Theme	Category	Code	Example
Dissatisfaction with the virtual teaching	Weakness of the uploaded contents	Soundless slides	"Some of the instructors did not put audio on the slides and the quality of some audio files were very poor"
Strategies for improving virtual learning	Educational content	Standardize virtual learning	"All the instructors follow the same virtual instruction plan. Our instructors don't have the same instruction plan, some use PowerPoints with sound, some without sound, some use PowerPoints in English and expect us to translate them ourselves."

the high-volume contents of uploaded files. Results of Peking University's online education experiences in the COVID-19 pandemic indicate that faculty must divide the teaching content into several small modules with each lasting approximately 20–25 min to improve students' learning concentration.^[13]

With the onset of the epidemic, the usual face-to-face classes were transferred into online classes or online content production in the world. This new method surprised both the student and the instructor. Although online teaching, content production, and virtual presentation is not a new method for many universities around the world, and many professors have been trained and used it to some extent, it is always possible that some instructors who were not active in these fields could not adapt themselves to this method.^[14,15] The transition from face-to-face to virtual teaching has raised the question to many professors about their ability to adapt to this technology.^[16] In addition, declining motivation, psychological problems caused by the epidemic, job burnout, and some policies may have led the professors not paying enough attention to educating students using modern methods. The results of a qualitative study by Mohammaditabar in Tehran indicate that professors have mentioned the weaknesses in policy-making as one of the main factors in reducing the motivation of professors for practicing research activities.^[17]

The other category in dissatisfaction theme is the lack of feedback and interaction with the teacher. In a qualitative study undertaken by Rezaei *et al.* (2018) in Zanjan, Iran, entitled "the analysis of the use of virtual social networks in learning and teaching from the professors and students perspective" also the reduction of face-to-face interaction and the reduction of verbal communication were mentioned as the key obstacles to the use of virtual networks in education.^[7]

The third category was the communication channel. Problems with the university website and the Internet were among the most frequently mentioned issues mentioned by the students. Students were also dissatisfied with the cost of learning, especially working with files that were not downloadable. In the COVID-19 pandemic, many universities lacked the immediate infrastructure and resources to facilitate online education.^[18]

The fourth category included the receiver of the message. Some students mentioned the lack of system at home and not being accustomed to reading on a cell phone. In a review study by Sahu, it was noted that many students did not have access to laptops and the Internet at home for virtual education in pandemic COVID-19. The quality of online education is also an important issue which is in need of attention.^[19]

In the theme of virtual education reform solutions, students noted the need to determine the requirements for the provision of desirable and standard content and considered provisioning educational programs for less experienced teachers in the field of educational content preparation as necessary. Students considered the downloadability of educational files necessary. It should be noted that the Shareable Content Object Reference Model files are nondownloadable despite being standard. The cost of the Internet also caused dissatisfaction among the student. Some students even made slide-out notes to save money on the Internet, describing it as very difficult and tedious. Providing online education and online sessions to answer the students' questions for getting feedback and improving the communication channels and allocating free monthly Internet to the students were other recommended solutions. The results of a telephone interviews study in Zambia conducted with mathematics and science teachers indicate that the chance of dropping in examinations will be increased in Grade 12 students which is mostly caused by reduced contact hours with teachers for learners.^[20]

In Iran, the virtual university had already been established and content production was encouraged by the Education Development Center (EDC), but there was a long way to go before it could be used as a proper alternative to face-to-face education.^[21] Therefore, in a situation where the infrastructure of virtual education was not yet fully provided, virtual education in the COVID-19 epidemic era was started suddenly and led to the students' dissatisfaction with virtual education for various reasons.

Medical sciences fields are dynamic and include professions whose education includes a set of theoretical sciences, practical activities, skill, creativity, and experience and the need for motivation and critical thinking in students.^[22,23] Currently, one of the educational problems in the world is the weakness in the virtual teaching of practical skills and practical subject units, and no specific method has been introduced so far for the learning of all the skills. The continuation of this situation will seriously question the students' skill learning.^[4,19] Therefore, one of the challenges is addressing the skills training situation in the form of virtual teaching.

Strengths and limitations

Student diversity and a high sample size are among the strengths of this study. The virtual interview showed advantages such as eliminating the cost of travel, eliminating time lost during the trip to attend the meeting, and increasing the participants' courage to recount their experiences. The main limitation of this study is that we did not investigate instructors' perspective. The impossibility of face-to-face interviews and consequently

the impossibility of receiving nonverbal messages from students at the time of the interview were among the limitations of the study.

Conclusions

Data analysis led to the extraction of two main themes including dissatisfaction with the virtual teaching and the solutions to creating reform in virtual teaching. Virtual education has caused a negative experience in medical sciences students for various reasons, including the lack of distance education infrastructure and lack of proper quality. Most of the students' dissatisfaction is with the weakness in the presented educational content. Therefore, it is necessary for the officials of the University EDC to consider the requirements for preparing the desirable and standard content and provide guidance for the professors in preparing good educational content. It is also necessary to provide online education and online sessions for removing the students' questions, getting feedback, and allowing free monthly Internet for the students. Faculty members must master the necessary technology and pay sufficient attention to the students' experiences in the field of virtual education to provide a rich and effective education. It is recommended that in future studies, according to the results of the present study, students' satisfaction with virtual education be assessed.

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Conflicts of interest

There are no conflicts of interest.

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