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The Impact of Online Learning Methods on Nursing Students' Motivation During the Covid-19 Pandemic: A Mixed Method Study

Nihal Yıldız Emre[1(ID)], İnci Mercan Annak[2(ID)], Keziban Öztürk[2(ID)], Nevra Kalkan[2(ID)], Burcu Opak Yücel[2(ID)], Burçin Irmak[3(ID)], Hülya Bulut[2(ID)], Sevil Güler[2(ID)]

[1]Kırıkkale University, Faculty of Health Sciences, Department of Nursing, Kırıkkale, Turkey
[2]Gazi University, Faculty of Nursing, Ankara, Turkey, Turkey
[3]Ordu University, Faculty of Health Sciences, Department of Nursing, Ordu,

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Abstract

Objective: Online learning methods and digital tools have become more popular since the COVID-19 pandemic. This study investigated the effect of online learning methods on nursing students' motivation during the COVID-19 pandemic.

Methods: This study adopted an explanatory sequential mixed research design involving a quasi-experimental single-group posttest and a qualitative design. The research was conducted in the spring semester of the 2020-2021 academic year at the department of nursing of a state university in Ankara, Turkey. The sample consisted of 237 students taking the "Surgical Diseases Nursing" course and the sample of the qualitative stage consisted of 20 students. The research had three stages. In the first stage, participants engaged in online interactive activities (Kahoot, Mentimeter, etc.), discussed case videos, and prepared cases based on group counseling throughout the semester. In the second stage, they discussed the group cases and then filled out the Instructional Materials Motivation Survey (IMMS) and the Achievement-Oriented Motivation Scale (AOMS). In the third stage, the researchers conducted three focus-group interviews to identify participants' experiences with online learning methods. The quantitative data were analyzed using descriptive statistics and Spearman's correlation coefficient, while the qualitative data were analyzed using content analysis.

Results: Participants had a total mean IMMS and AOMS score of 94.83±15.79 and 142.39±18.80, respectively. The results showed that participants were highly motivated by online learning methods. The focus-group interviews revealed three themes: "learning process," "learning method," and "personal development/experience.

Conclusion: Nursing students are highly motivated by online learning methods. Most nursing students believe online learning methods make them more motivated and interested, classes more fun, and new knowledge more permanent. They also think that online learning methods facilitate learning. Therefore, universities should offer nursing students more online learning methods.

Keyword: COVID-19; Nursing education; Surgical nursing; Online learning methods; Motivation; Distance education

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Address for correspondence/reprints:

Nihal Yıldız Emre

Telephone number: +90 (539) 930 35 73

E-mail: nihalyildiz93@gmail.com

INTRODUCTION

Nursing education consists of two components which are the theory and clinical practice. Its objective is to ensure that students develop both cognitive, affective, and psychomotor skills. Therefore, nursing students are expected to put theory into practice (1, 2). However, all universities, including those in Turkey, shifted to distance learning due to the COVID-19 pandemic (3, 4). Students had to take all theoretical courses online and postpone clinical clerkships, which is an integral part of nursing education that allows students to practice providing care to patients in real-life settings (5).

Nursing students who receive online education cannot attain all learning outcomes because nursing education is an applied discipline that requires students to put their knowledge into practice in real-life clinical settings (3). Therefore, researchers raise concerns over possible adverse situations where nursing students and nurses cannot find the chance to deliver optimum care to their patients due to the lack of the knowledge and skills they are supposed to acquire during undergraduate education (6-9). Langegård et al. (7) conducted a qualitative study to investigate nursing students' experiences of a pedagogical transition from campus learning to distance learning based on digital tools. They reported that although most nursing students preferred face-to-face education to online learning, one-third preferred online learning based on digital tools. Yılmaz (9) focused on nurse educators' experiences concerning sustaining nursing skill teaching during the COVID-19 pandemic and found that most nurse educators had difficulty adapting to online teaching methods, evaluating their students, and making Internet connection stable and fast. Kızıltepe and Kurtgöz (6) also documented that nursing students who received distance education experienced learning difficulties and felt incompetent regarding clinical practice. Nursing academics are responsible for planning digital education to bridge the gap between theory and practice to turn students into qualified nurses. Therefore, the challenges brought on nursing education by the COVID-19 pandemic have forced authorities to find new solutions (5, 8), some of

which are online learning methods introduced to meet students' new needs that have emerged with the COVID-19 pandemic. Most nursing students are Generation Z members who live intertwined with technology and prefer to use technology-based applications and methods to meet almost all their needs (10). Academics should consider students' characteristics, adopt student-centered educational approaches, and integrate online learning methods into their lectures to meet their needs. Online learning methods facilitate interactive learning and improve student performance and satisfaction (11). For these reasons, it can be concluded that the use of online learning methods in nursing education would be beneficial.

Interactive learning settings enable students to improve themselves. Interactive methods play a crucial role in nursing education because they help students develop theoretical and clinical nursing skills (12, 13). Online interactive activities (games, videos, quizzes, small group meetings, case discussions, virtual museum visits, etc.) facilitate learning and strengthen student-teacher interaction (3). Mucuk, Ceyhan, and Kartın (14) focused on online interactive activities (Kahoot!, Quizizz, Padlet, etc.) to promote student engagement in distance learning and found that students were interested in online learning methods that they could access anywhere, anytime. In other words, online learning methods promote student engagement and motivation.

We need to better understand student motivation to increase the retention of nursing education and create an efficient learning approach. Motivation is a complex construct with multiple components. It results from a series of activation and orientation processes that lead to behaviors and actions toward realizing specific goals. It affects learning retention and academic performance. It also helps students develop positive attitudes toward their future professions. Therefore, we must use valid and reliable tools to assess their motivation (15). Online educational settings also affect student motivation (16), suggesting that we need to integrate technology into distance education to make nursing students more motivated during the COVID-19 pandemic (17). In a possible distance education scenario, students may encounter various problems related to focusing on the course and providing motivation. Learning practical training remotely and lack of experience may harm their professional lives. It is thought that the research results will guide us in minimizing the problems that may develop in nursing education in such a case.

This study had two objectives: (1) determining the effect of online learning methods on nursing students' motivation and (2) focusing on their experiences with those methods.

Research Questions

1. How do online learning methods affect nursing students' motivation during the COVID-19 pandemic?

2. What are nursing students' experiences with online learning methods during the COVID-19 pandemic?

METHODS

Study design

This study adopted an explanatory sequential mixed method design involving quantitative (quasi-experimental single-group posttest) and qualitative stages.

Research setting and characteristics

The research was conducted in the nursing department of the faculty of health sciences of a state university in Ankara, Turkey. The university used Perculus (an online learning management system) to offer distance education during the COVID-19 pandemic. Nursing students took the "Surgical Nursing" course for 200 minutes per week (100 minutes of theory and 100 minutes of practice) in the spring semester of the second year. The course aims to ensure that nursing students acquire knowledge and develop the right skills and attitudes toward surgical nursing.

Two hundred and forty-seven students took the "Surgical Nursing" course in the spring semester of the 2020-2021 academic year. The course was offered two days a week. It focused on theory in the first seven weeks and then covered clinical practice in the following three weeks for two days a week. On week 11 (once a week), all students watched some case videos (prepared by academics) and discussed them. At the end of week 11, the lecturer gave them a test about the cases. In the following three weeks, all students prepared cases in groups and then presented and discussed them.

Participants

The study population consisted of 247 second-year nursing students who took the "Surgical Nursing" course in the spring semester of the 2020-2021 academic year. No sampling was performed because the research was designed to reach the entire study population. The sample of the quantitative stage consisted of 237 students who took the "Surgical Nursing" course for the first time. The sample of the qualitative stage consisted of 24 students recruited using simple randomization (table of random numbers). The sample of the qualitative stage was divided into three focus groups of eight students. However, four students could not attend the focus-group interviews because they had Internet connection issues (n=3) or family issues (n=1). Therefore, the final sample of the qualitative stage consisted of 20 students. Each of the two focus-group interviews was conducted with six students, while one focus-group interview was conducted with eight students.

Data collection tools

The quantitative data were collected using a Personal Information Form, the Instructional Materials Motivation Survey (IMMS), and the Achievement-Oriented Motivation Scale (AOMS). The qualitative data were collected using a semi-structured interview guide developed by the researchers.

Personal information form

The personal information form was based on a literature review conducted by the researchers (3, 13, 14, 15). The form consisted of eight items on (age, gender, education, etc.).

Instructional Materials Motivation Survey

The Instructional Materials Motivation Survey (IMMS) was developed by Keller (18) to measure the effect of instructional materials on students' motivation based on the ARCS (Attention, Relevance, Confidence, and Satisfaction) Motivation Model. The survey consists of 36 items rated on a five-point Likert-type scale. It has four subscales: attention, relevance, confidence, and satisfaction (18). The survey was adapted to Turkish by Kutu and Sözbilir (19). The Turkish version consists of 24 items loaded on two subscales: (1) attention-relevance and (2) confidence-satisfaction. The survey has a Cronbach's alpha (α) of 0.83, which was 0.95 in the present study (Table 2). Five items (3, 12, 14, 16, and 18) are negative statements. The total score ranges from 24 to 120, with higher scores indicating higher motivation.

Achievement-Oriented Motivation Scale

The Achievement-Oriented Motivation Scale (AOMS) was developed by Semerci (20). The instrument consists of 35 items rated on a five-point Likert-type scale. The scale has four subscales: external effects, internal effects, growth of aim, and self-conscious. The scale has a Cronbach's alpha of 0.89, which was 0.94 in the present study (Table 2). The total score ranges from 35 to 175, with higher scores indicating higher achievement-oriented motivation.

Semi-structured interview guide

The semi-structured interview guide had one question:

-What are your experiences with online learning methods (online interactive activities, video discussions, and case presentations) during the COVID-19 pandemic?

Procedure

In the first week, the lecturer explained to all participants the syllabus of the "Surgical Nursing" course, including activities, homework assignments, and evaluation exams. She used different online learning methods (online interactive activities, video discussions, and case presentations) to deliver theoretical and practical classes. In the first seven weeks, she used online activities (Kahoot, Mentimeter,

Wordwall, Learningapps, Crosswordlabs, etc.) and interactive activities (true or false? puzzle, concept map, brainstorming, creating slogans, cases, etc.) at the beginning and end of classes.

In the following four weeks (8-9-10-11 week), the lecturer got all participants to discuss case videos prepared by academics. The videos consisted of seven cases, including preoperative and postoperative nursing care and discharge training. The cases were about coronary artery bypass graft, surgical intervention for intracranial hemorrhage, lumbar disc hernia repair, mastectomy, hip replacement, total laryngectomy, and general preoperative and postoperative care. The researchers wrote the scripts, shot the videos, and enacted the cases (role-play). Each class lasted 50 minutes (15 minutes of video and 35 minutes of discussion). All participants took the "Case Evaluation Test" in the eleventh week.

For the group activities, the researchers divided the participants into 24 groups of 10 to 11 in the first week of the semester. Each group had an academic as a mentor. Each group and its mentor (Zoom) had six recorded online meetings. Each mentor provided her group with a case. Each group formulated care plans based on concept maps, developed an educational material, and prepared a case discussion presentation. The groups presented their cases for three weeks (12-13-14 week). The lecturer administered the "Case Presentation Evaluation Form" to assess the case presentations.

The participants filled out the IMMS and AOMS at the end of the semester. The researchers created online (WhatsApp) groups for focus groups. The researchers and the participants set the appropriate time for the focus group interviews, which were then conducted via Zoom. The focus group interviews were conducted between July 09 and 12, 2021. Each interview lasted 45-55 minutes. The researchers (NYE, IMA, KO) transcribed the interviews and sent them to all participants for their consent.

Statistical analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, v 22) at a significance level of 0.05. Numbers, means, and percentages were used for descriptive statistics. Median, minimum-maximum values, means, and standard deviations were used to determine scale scores. Spearman's correlation coefficient was used to determine the relationship between scale scores. The Pearson correlation coefficient values are specified as follows: 0.00-0.25 = very weak correlation; 0.26-0.49 = weak correlation; 0.50-0.69 = moderate correlation; 0.70-0.89 = strong correlation; and 0.90-1.00 = very strong correlation (21). Cronbach's alpha (Crα) values were calculated for reliability.

The qualitative data (interviews) were analyzed using content analysis based on the Miles-Huberman Model (22). In order to calculate the consistency rates of the codes created in the

research, the data of interviews were coded separately by researchers and the consistency rates were calculated by comparing the codes which made without notice. Three different researchers (IMA, KO, NYE) conducted first-order descriptive coding on the qualitative data. Then, three different researchers (BI, BOY, NK) conducted second-order interpretive coding on the qualitative data. In this research, the formula: Reliability= Number of Consensus/ Total Agreement + Number of Disagreement was used to calculate the inter-code consistency (code agreement rate) rate. If the consistency rate between codes (the percentage of agreement between codes) is above 80%, the coding is considered to have high reliability. The code agreement rate for the codes determined in the research was found to be 87.6%. Therefore, it is thought that the coding made in the research has high reliability (22). Afterward, the researchers developed themes and subthemes. They discussed the themes and subthemes and reached a consensus. The Consolidated Criteria for Reporting Qualitative Research (COREQ) was used as the qualitative research guide to analyze and report the data (23).

Ethical considerations

The study was approved by the ethics committee of the university (Date: 21.05.2021, No: E.88234). Permission was obtained from the head of the nursing department of the faculty of health sciences of the university (Date: 31.05.2021, No: E.96508). All students were briefed about the research purpose and procedure. Written informed consent was obtained from those who agreed to participate. The study was conducted according to the ethical principles of the World Medical Association's Declaration of Helsinki. All focus-group interviews were held and video-recorded online (Zoom). All participants were informed that the data would in no way be shared with third parties. Verbal consent was obtained from all participants.

RESULTS

This section presented the findings based on the quantitative and qualitative data.

Quantitative results

Participants had a mean age of 20.57±1.73 years. Most participants were women (89.5%). More than half of the participants had Anatolian high school degrees (74.7%) (Table 1).

The effect of online learning methods on motivation was assessed on a scale of 0 to 10. Participants had mean "theoretical lecturing," "online interactive activities," “video discussions,” and “case presentations" scores of 7.86±1.732, 8.28±1.882, 8.84±1.480, and 8.11±1.958, respectively (Figure 1).

Participants had a mean IMMS score of 94.83±15.79, while they had mean IMMS “attention-relevance” and “confidence-satisfaction” subscale scores of 45.07±7.72 and 49.75±8.93, respectively. Participants had a

mean AOMS score of 142.39±18.80, while they had mean “external effects,” “internal effects,” “growth of aim,” and “self-conscious” subscale scores of 52.29±6.92, 36.36±6.06, 26.32±3.79, and 27.40±5.37, respectively (Table 2).

Participants’ IMMS “attention-relevance” subscale scores were positively correlated with their AOMS “external effects” (r:0.625), “internal effects” (r:0.600), “self-conscious” (r:0.526), and “growth of aim” subscale scores (r:0.259) ($p<0.01$). Their IMMS “confidence-satisfaction” subscale scores were positively correlated with their AOMS “external effects” (r:0.513), “internal effects (r:0.559),” “self-conscious” (0.475), and “growth of aim” subscale scores (r:0.258) ($p<0.01$). Their IMMS total score was positively correlated with their AOMS total (r: 0.622) and “internal effects” (r: 0.615), “external effects” (r:0.595), “self-conscious” (r: 0.527), and “growth of aim” (r:0.277) subscale scores (Table 3).

Qualitative results

The interviews revealed three themes regarding participants' experiences with online learning methods during the COVID-19 pandemic. These themes were "learning process," "learning method," and "personal development/experience." Figure 2 shows the themes, subthemes, and codes.

Theme 1: Learning process

The theme “learning process” consisted of three subthemes: time management, online learning environment, and counseling.

Subtheme 1: time management

Participants stated that they had to study for their theoretical classes and exams all the time. They noted that the classes were too intense because they moved on too fast. The following are some quotes:

“…I kept studying because I thought it was an important course…” (P1)

“…So, it was a risky course also because it was a high-credit course. I kind of got tired of it because the classes were moving on too fast (P20)

“It was an intense course actually. I tried so hard not to miss anything important.” (P17)

Subtheme 2: Online learning environment

Participants remarked that they could watch and listen to the classes repeatedly. They noted that the course provided them with an environment for active discussion. However,

they added that they could not achieve learning retention. The following are some quotes.

We got the chance to watch the videos repeatedly anywhere, anytime on our phones or laptops and whatnot." (P9)

"Like, we could raise our hands and talk on Zoom, or the teacher asked us questions." (P8)

"…I watched all the videos, but I don't think they did much help. I mean, I don't think they were as effective as face-to-face learning because I couldn't manage learning retention. It's like; I was a bit worried about how to do them because I kept forgetting things as it was online." (P10)

Subtheme 3: counseling

Participants stated that their mentors helped them a lot with case presentations. They noted that their mentors were very enthusiastic and accessible. The following are some quotes:

"We could access our mentor easily. We could call her or email her. She helped us a lot, like, she would explain things we asked them about." (P9)

"…our mentor was very enthusiastic about teaching us new things." (P8)

"…we're in the middle of a pandemic. So, it's not easy for us to get a hold of our lecturer, I mean all our lecturers. But we had our mentor, and we could work in groups, which helped us a lot." (P2)

Theme 2: Learning method

The theme "learning method" consisted of three subscales: theoretical classes," "case videos," and "Web 2.0 tools."

Subtheme 1: theoretical classes

Participants stated that they had difficulty understanding the theoretical classes. They also noted that the theoretical classes had too little visuality. The following are some quotes:

"The classes were moving on too fast, so I had a hard time understanding what was going on." (P20)

"I think that the classes should have been more visual." (P19)

Subtheme 2: case videos

Participants regarded the case videos as useful tools that facilitated learning. The following are some quotes:

"The videos made me feel like I was with patients. The following discussions were also very helpful because we couldn't do any clinical clerkships." (P16)

"I got to see my mistakes or hear some classmates ask me questions that had never occurred to me. I took notes, which was good because the teacher asked some questions about them in the exam. So, they were tattooed in my

mind. They were great, I mean, the videos." (P17).

Subtheme 3: web 2.0 tools

Participants remarked that the Web 2.0 tools helped them enjoy learning and remember and summarize the things they learned. The following are some quotes:

"Puzzles and other interactive methods helped me keep what I learned in mind. For example, I realized that I learned better when I flicked through the book." (P9)

“The interactive methods made the theoretical classes more fun. I know that I keep the things I learn in mind when I enjoy learning them and put them into practice.” (P6)

“The interactive methods helped me see the things I missed out on during class. I noticed them and took notes of them. It was like a summary of the classes, which was great.” (P3)

Theme 3: personal development/experience

The theme “personal development/experience” consisted of two subthemes: emotions and contribution to development.

Subtheme 1: emotions

Participants remarked that the online learning method made them more motivated and confident. However, they noted that they were concerned that something was missing in terms of clinical practice. The following are some quotes:

"Puzzles and other interactive methods helped us keep the things we learn in mind. We were in a competition, like, who is better or who will finish the assignments faster and whatnot…I mean, it would've been all theoretical if it wasn't for the interactive methods. They, in a sense, motivated us." (P9).

"…We'll have to deal with a lot of problems during clinical practice." (P13)

"I watched the videos, but they were actually not as effective as face-to-face education. So, I'm a bit worried about clinical practice because distance education doesn't let me learn as much as I would with face-to-face education." (P10).

Subtheme 2: contribution to development

Participants noted that the online learning method helped them get experience and improve themselves academically. The following are some quotes:

"…We got some more experience. Also, our teachers prepared the interactive methods, but we got to do presentations, so we were like teachers, and so we ended up asking ourselves what to do, what to tell, and how to contribute to our classmates." (P2)

“This was like a preview for us; I mean, for the groups or individual presentations we’re gonna do in the future. I mean, I’m sure I’m gonna be like ‘Oh! I’d done that before, so I should add

this to my presentations because my students might like it.' In this way, I'll improve myself" (P4).

Table 1 Sociodemographic characteristics (N= 237)

Sociodemographic Characteristics		**X̄±SD**	
Age (year)		20.57±1.73	
Grade point average (GPA)* **		3.11±0.36	
		N	**%**
Gender	Man	25	10.5
	Woman	212	89.5
Education (degree)	Anatolian High School	177	74.7
	Science High School	35	14.8
	Health Vocational High School	8	3.3
	Others**	17	7.2
Total		237	100.0

***** X̄: Mean; SD: Standard deviation
** Imam Hatip High School, Trade Vocational High School, Anatolian Imam Hatip High School
*** Out of 4

Table 2 IMMS and AOMS scores (N=237)

Scales and Subscales	**X̄±SD**	**Min- Max**	**Crα**
IMMS Subscales			
Attention-relevance	45.07±7.72	15.00-55.00	0.94
Confidence-satisfaction	49.75±8.93	17.00-65.00	0.89
Total	94.83±15.79	44.00- 120.00	0.95
AOMS Subscales			
External effects	52.29±6.92	12.00-60.00	0.93
Internal effects	36.36±6.06	9.00-45.00	0.89
Growth of aim	26.32±3.79	11.00-32.00	0.89
Self-conscious	27.40±5.37	7.00-35.00	0.92
Total	142.39±18.80	39.00-171.00	0.94

X̄: Mean; SD: Standard deviation; Min: minimum; Max: maximum

Table 3 The correlation between IMMS and AOMS subscale scores

	Scales	**AOMS Subscales**				
		External effects	Internal effects	Growth of aim	Self-conscious	**Total**
IMMS Subscales	Attention-relevance	r_s: 0.625 p= 0.000*	r_s: 0.600 p= 0.000*	r_s: 0.259 p= 0.000*	r_s: 0.526 p= 0.000*	r_s: 0.624 p= 0.000*
	Confidence-satisfaction	r_s: 0.513 p= 0.000*	r_s: 0.559 p= 0.000*	r_s: 0.258 p= 0.000*	r_s: 0.475 p= 0.000*	r_s: 0.557 p= 0.000*
	Total	r_s: 0.595 p= 0.000*	r_s: 0.615 p= 0.000*	r_s: 0.277 p= 0.000*	r_s: 0.527 p= 0.000*	r_s: 0.622 p= 0.000*

*p<0.01. r_s: Spearman's correlation coefficient

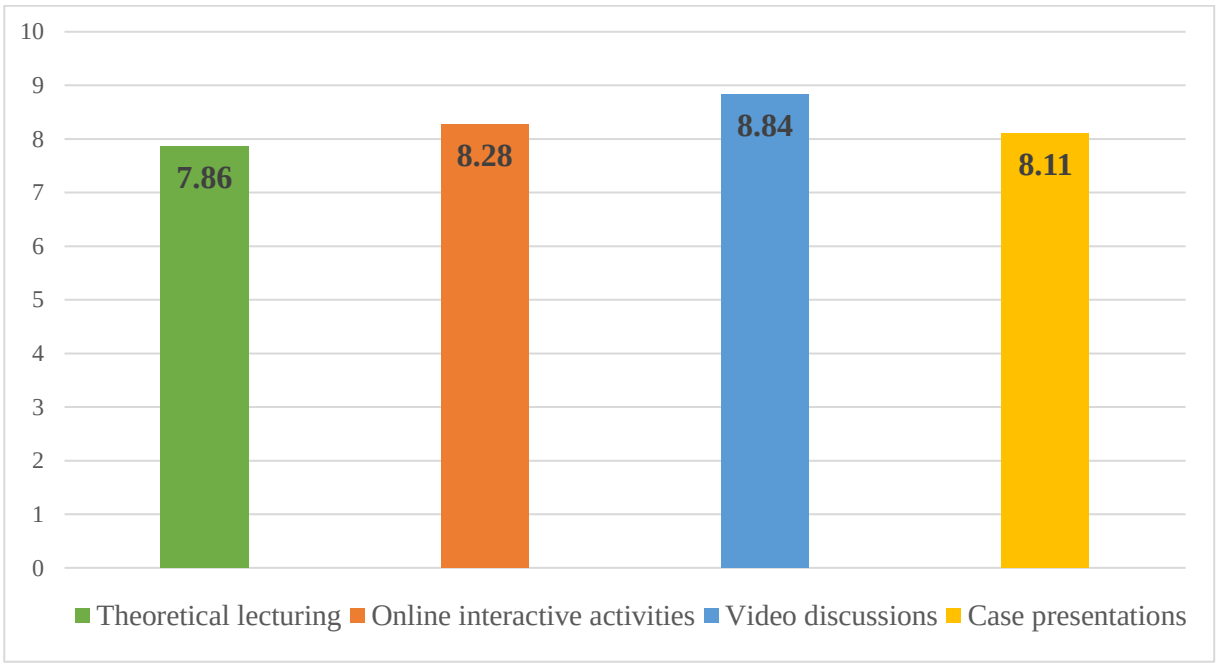

Figure 1. The effect of online learning methods on motivation (N:237)

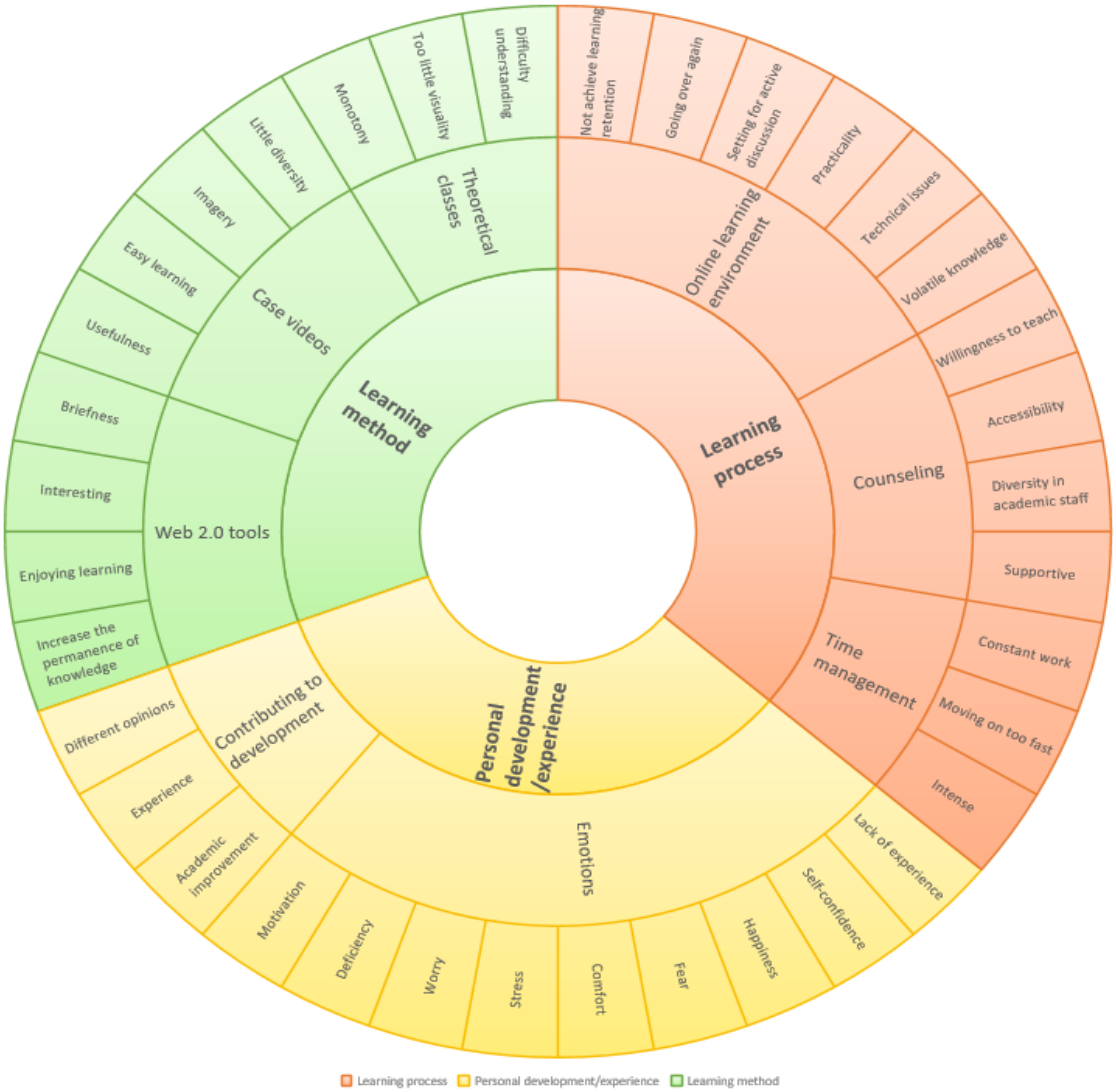

Figure 2. Participants' experiences with online learning methods during the COVID-19 pandemic

DISCUSSION

The COVID-19 pandemic caused almost all universities to shifted to online education (3, 4). The nursing departments in Türkiye adopted online learning methods to help students have clinical experiences that they could not have in real-life settings due to the pandemic (3).

This study identified the effect of online learning methods on nursing students' motivation levels and addressed their experiences with those methods. Our participants noted that online learning methods (online interactive activities, video discussions, and case presentations) motivated them and helped them go over the topics covered in the lessons. Video discussions and online interactive activities motivated our participants more than case presentations. Although they stated that online learning methods made them more motivated, they added that they were stressed and worried about being unable to do clinical clerkships because they faced some problems during online learning, such as time limitations and technical issues. They also noted that they had difficulty managing their time.

Nursing departments worldwide have adopted online learning methods since the onset of the pandemic. In line with our results, research shows that video discussions, online interactive activities, online games, and case presentations make nursing students academically more competent (24). Haslam (25) maintains that integrating online learning methods into nursing education has been a necessity for the whole world since the pandemic. However, Singh et al. (26) argue that universities should improve and diversify their existing systems and methods to integrate online learning methods into nursing education. Muslim et al. (27) found that almost all students participated in online lab activities developed for the SPSS course during the pandemic. Chang, Chung, and Yang (28) reported that online game-based learning was more effective than video-based learning for aspiration education provided to nursing students during the pandemic. Zhou, Huang, Cheng, and Xiao (29) reported that although traditional and online video-based learning methods were not superior to each other in terms of knowledge, skills, and learning outcomes, the latter satisfied nursing students more than the former.

Integrating online learning methods into nursing education before and during the pandemic is helpful because they increase students' motivation, academic performance, and self-confidence (16, 30). Saeedi et al. (30) found that simulations, cases, and videos motivated nursing students. Chang et al. (17) determined that interactive e-book training motivated nursing students to learn new things. Männistö et al. (31) also reported that collaborative learning in digital learning environments improved nursing students' interaction, cooperation, and problem-solving

skills and made them satisfied and motivated to learn new things. Bilik et al. (32) detected that the interactive web-based concept map method within the scope of the "Surgical Nursing" course motivated students to develop critical thinking skills.

Case-based learning methods motivate students to develop critical thinking skills (33). Yoo et al. (34) also found that case videos increased nursing students' motivation. Case-based learning helps nursing students develop communication and problem-solving skills and motivates them to learn new things (33).

Interactive methods during online courses increase student motivation (35-38). Öz and Ordu (35) found that Kahoot! motivated nursing students to learn more about intramuscular injections. Yu (36) determined that Kahoot! made nursing students academically more competent. Coveney et al. (37) reported that students found Kahoot! very useful because it motivated them and helped them prepare for the practical part of the nursing course. Aras and Çiftçi (38) also documented those Q&A sessions and Kahoot! motivated nursing students to learn new things.

Although our participants were motivated by online learning methods, they were concerned about clinical practice because they did not have much experience. They stated that online learning methods helped them enjoy learning and prepare for exams. They also added that those methods made them more willing to study. However, they noted that being away from clinics was a great loss of experience. Research has also shown that nursing students were greatly concerned about being unable to do clinical clerkships during the COVID-19 pandemic (24). Most Turkish students had difficulty adapting to distance education. Özkan, Taylan, and İlaslan (39) reported that Turkish nursing students were concerned about the lack of clinical practice. Therefore, the researchers recommended that nursing departments update their educational strategies to reduce students' anxiety. Kalanlar (40) also recommended that online nursing education integrate interactive learning methods and innovative learning strategies to increase student satisfaction and reduce stress.

The results of our literature review and research show that; online learning methods help us update nursing education in line with distance education. Many advantages of these methods can be listed. First, they can be remarkable for students who have difficulty following intensive topics in front of a computer for a long time. Second, they provide summary information about the topics that students have covered in class and help them review quickly. Third, they support the expectations of Generation Z students to create a learning environment intertwined with technology.

Fourth, they are activities that can be applied to all students simultaneously.

Limitations

Since the study was conducted in a single higher education institution, its generalizability was limited. This research is limited because it was conducted on a single group and only with a post-test. It is recommended that randomized controlled studies be conducted to measure the effects of online learning methods on students' motivation levels.

CONCLUSION

Our research results show that online learning methods motivate nursing students because they have positive experiences. However, despite the advantages of online learning methods, nursing students reported that they experience stress and anxiety due to the lack of clinical practice. Therefore, we think that universities should integrate different online learning methods into nursing education. Moreover, academics should find ways to enable nursing students to do clinical internships in a possible distance education situation.

Ethics Committee Approval: The study was approved by the ethics committee of the Gazi University (Date: 21.05.2021, No: E.88234). Permission was obtained from the head of the nursing department of the faculty of health sciences of the university (Date: 31.05.2021, No: E.96508).

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