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The effectiveness of the using scenario and video in distance nursing education during COVID-19 pandemic

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**Abstract**

To determine the effects of using case scenarios and skill videos in distance education as a practical teaching–learning strategy on student satisfaction, professional perception, and professional values among nursing students during the COVID-19 pandemic. This is a quasi-experimental study with a one-group, pretest–post-test design. The study was conducted with 166 baccalaureate nursing students who attended online classes for 13 weeks, which included 80-minute theoretical and 120-minute practical training each week. A Student Information Form, the Student Satisfaction Scale–Short Form, the Nursing Profession Perception of Scale (NPPS), and the Nurses’ Professional Values Scale–Revised (NPVS-R). We found significant differences between the students’ pre- and post-test scores for the scales NPPS and the NPVS-R (p < .05), who attended online classes during the pandemic. However, our findings demonstrated that distance education had no effect on the level of student satisfaction (p > .05). The using case scenarios and skill videos in distance education as a strategy to deliver nursing course during the pandemic showed positive effects on the adoption of professional values and the perception about nursing profession among nursing students.

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**Introduction**

The COVID-19 pandemic has created uncertainty about the continuity of education in departments that include both theoretical and practical training, such as nursing. During this period, traditional teaching methods failed to meet the emerging requirements for education (Nashwan et al., 2020). The pandemic has made it necessary to use new technologies such as online learning, blended learning, simulation training.

Online learning is a web-based method of education using technology to maintain teacher–student interaction considering technical factors and socio-psychological variables (Čepelová et al., 2011). Online learning offers opportunities to improve students’ learning skills, imagination, creativity, logical, and critical thinking skills through a combination of various mediums, video recordings, computer simulations, multimedia textbooks, simultaneous group discussions, and other education methods (Kuriplachová et al., 2019).

Satisfaction is an important determinant of the quality of learning experiences. Higher satisfaction level in students reduces fatigue, increases motivation in learning and provides permanent learning. There are conflicting results in the literature regarding student satisfaction with online and face-to-face education. Pourghaznein et al. (2015) found that satisfaction level was lower for students attending e-learning than for those attending face-to-face classes and role-play groups. Yangoz (2017) indicated that students’ satisfaction with e-learning was lower than that with traditional method (Yangoz, 2017). Jeffries (2001) reported that student satisfaction was high in both groups who attended online learning and face-to-face education; however, the face-to-face education group had higher satisfaction level than the online learning group. Stanton et al. (2005) found no significant difference in satisfaction levels between two groups of students, one of which took Web-based education and the other took traditional education.

Perception of nursing refers to the way nurses think about nursing, and how they perceive themselves and their environment. It is basically the understanding of professional qualifications that a nurse should have, and it also includes the term professional status (Cerit & Coskun, 2018). In this context, nursing students’ perceptions about their professions represent their view of themselves, their environment, status of the nursing profession, and their thoughts about nursing education. Considering that the perception of nursing as a profession begins during nursing education, it is necessary for nursing students to develop a good image of nursing profession during their education period, as this image will affect the quality of health services they provide (Dimitriadou et al., 2015). In addition to these facts, professional values provide a basis for judgment of aims and actions. Professional values are developed by members of a
profession who have a strong emotional commitment to their profession. These values are based on professional codes of ethics, and they are theoretical and generalized principles of behavior (Snellman & Gedda, 2012). Nursing professional values likewise guide nurses when making decisions, practicing, and analyzing ethical problems. The values also guide nurses while interacting with healthy individuals, patients, colleagues, other team members and society. Moreover, internalization of nursing professional values improves the safety and quality of patient care (Acaroğlu, 2014). Having said that, there is no study available which investigates the relationship between online learning, professional perception, professional values, and student satisfaction. Hence, this study aimed to determine the effects of using case scenarios and skill videos in distance education as a practical teaching—learning strategy on student satisfaction, professional perception, and professional values among nursing students during the COVID-19 pandemic.

Hypotheses

h₁. The use of case scenarios and skill videos in distance education has a positive effect on student satisfaction of nursing students during the COVID-19 pandemic.

h₂. The use of case scenarios and skill videos in distance education has a positive effect on perception about nursing profession among nursing students during the COVID-19 pandemic.

h₃. The use of case scenarios and skill videos in distance education has a positive effect on the adoption period of professional values among nursing students during the COVID-19 pandemic.

Methods

Study Design

This is a quasi-experimental study with a one-group, pretest–posttest design.

Setting

The study was carried out with students of nursing department in the Faculty of Health Sciences of a state university in Ankara, Turkey. All lectures were held face-to-face in nursing program before the pandemic. They continued online during the pandemic. The courses were moved via synchronous classes and online education supported by the center of distance education at the university where the study was carried out. Video recordings of the courses were uploaded to an e-learning platform by the center of distance education. Students who missed a synchronous class (due to testing positive for COVID-19, etc.) could participate in the online course anytime via asynchronous learning network.

Participants

The study universe was composed of nursing students at the Faculty of Health Sciences of a state university in Turkey (N: 1064). The study sample was calculated using G*Power 3.1, power analysis. The effect size was calculated using the results of a study by Çinar Yücel et al. (2011), which investigated effects of two different education methods on perception of nursing students about nursing profession. Accordingly, the minimum sample size was calculated as 163 students, with an effect size of .196 (Çinar Yücel et al., 2011), at 80% power and 5% Type I error. The study sample was composed of nursing students (n:243) who registered to the Obstetrics and Gynecology Nursing course, in the Fall Semester of the 2020–2021 academic year. Considering missing data, all students having registered to the course and agreeing to participate in the study were included in the sample. Finally, a total of 166 students completed the pre- and post-tests. Performing post-hoc analysis, statistical power of the study was determined as 87% (G*Power 3.1; the mean pre-test score for The Nursing Profession Perception Scale: 92.01 ± 13.82, the mean post-test score for The Nursing Profession Perception Scale: 94.71 ± 10.85, d: 0.217, 95% confidential intervals: 0.088–0.522, n: 166).

Instruments

The data were collected using online questionnaires; a Student Information Form, the Student Satisfaction Scale-Short Form, The Nursing Profession Perception Scale (NPPS) and The Nurses’ Professional Values Scale-Revised (NPVS-R).

The Student Information Form was created based on the literature (Al-Soofi, 2021; Lengetti et al., 2021; Şentürk Erenel et al., 2021) by the research team. It included two items, age and the grade point average (GPA) of the students.

The SSS-SF was developed by Baykal et al. (2011) based on the Student Satisfaction Scale consisting of 11 factors and 85 items that the same researchers developed in 2002. It is a five-point Likert type scale. A mean score of 5 or close to 5 on the SSS-SF indicates high level of satisfaction, while a mean score of 1 or close to 1 indicates low level. The scale is consisted of 5 factors and 53 items (Instructors-12 items, University administration-9 items, Participation in decisions-7 items, Scientific-social-technical opportunities-12 items, The quality of education-13 items). The Cronbach’s alpha was .97 for the SSS-SF, and it ranged from .83 to .91 for the factors of the scale. In this study, the Cronbach’s alpha was .98 on the pre- and post-test for the SSS-SF.

The NPPS was developed by Eşer et al. (2004). It is a 22-item, 5-point Likert type scale. It has two subscales, professional qualifications, and professional status. The scale scores range from 22 to 110 points. Higher scores indicate positive perceptions about nursing; lower scores indicate negative perceptions. The Cronbach’s alpha was .83 (Eşer et al., 2004). In our study, the Cronbach’s alpha for the scale was .92 at the pre-test, and .90 at the post-test.

The NPVS-R is a 26-item, 5-point Likert type scale developed by Wels and Schank (2009) to measure professional values of nurses and nursing students. It has three factors: caring, professionalism, and trust. A total score is calculated by summing item scores, which produces a 26–130 score range. Higher scores indicate greater adoption of professional values. The adaptation of the scale into Turkish was carried out by Acaroğlu in 2014 with a Cronbach’s alpha of .96 (Acaroğlu, 2014). In our study, the Cronbach’s alphas were .97 and .98, at the pre-test and post-test, respectively.

Data Collection

The data were collected between October 13, 2020 and January 18, 2021, during the full closure due to the pandemic in Turkey. During this period, education activities were carried out online, curfew was implemented on weekends, intercity travels were restricted, group activities were banned, and flexible/part-time working arrangements were a part of our lives.

Procedure

Distance education method was used to deliver the Obstetrics and Gynecology Nursing course. It was aimed to improve theoretical knowledge and practical skills of the nursing students. The students participated in online classes for 13 weeks, which included 80-minute theoretical and 120-minute practical training each week. The
course was carried out online through virtual classrooms via a distance education platform (Perculus+) supported by the university.

The theoretical course was conducted in synchronous virtual classrooms. The students could make verbal contributions by opening their camera and microphones or written by texting. The duration of each classroom was 40 minutes and there was a 10-minute break between classes. The video recordings of the course were uploaded to the Perculus+ platform and students could watch the videos repeatedly at any time. Attendance status of the students was tracked on the system by checking their live virtual attendance. In case of illness (test positive for COVID-19), the students watching course video recordings after the class was marked as present on the attendance report.

The practical course included 60 minutes of clinical skills course and 60 minutes of case scenario discussion each week. We developed 24 videos for clinical skills (Table 1). In the videos, the instructor performed each clinical skill according to the instructions. In this study, 12 case scenarios were used which developed by the study group for another evidence-based study (Sentürk Erenel et al., 2021). The case scenarios consisted of five parts: purpose, objectives, clinical case, evaluation questions, and evaluation form. Evaluative questions and forms were created for each video and scenario to evaluate students on a standard-based assessment. Each clinical case was developed to provide the basic information and skills typically targeted in obstetrics and gynecology nursing courses.

The students were divided into groups of 10 in the practical-based classes. They were asked to watch the video recordings and read cases which were sent to them a week earlier, before the synchronous class session. They were also asked to make models of vulva, breast, female/male internal genitalia, and develop materials for contraception methods (Fig. 1). Each student demonstrated the clinical skill related to the session on the material she/he had developed visually. They were monitored by the instructors whether they followed the instructions. And during the case discussion, the students were expected to answer the evaluation questions, choose appropriate nursing diagnoses, and create a nursing process and care plan. The instructors filled out the evaluation forms during the case discussions and demonstration of clinical skills. Evaluation forms were developed by the research team specifically for each scenario and case discussion. These evaluation forms were not used to grade students. Each skill was used regarding whether or not the student did it correctly.

The students filled out the online pretest data collection instruments before the start of distance education, and then the online post-test instruments after the last class session on the last day of the education. We shared a link with the students to the instruments on the distance education platform; the students accessed the link with a student account by entering student number and password.

### Data Analysis

The data were analyzed using SPSS 24.0 (Armonk, NY: IBM Corp.). The descriptive data were analyzed using the mean and standard deviation. We performed Kolmogorov-Smirnov test to test whether

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**Table 1**

The schedule of practical training on distance education

| Subject of Clinical Skill Practice | Subject of Clinical Case |
|-----------------------------------|--------------------------|
| Meeting with students             | Principles of collecting patient information |
| Explanation of the rules of distance education | Principles of preparing a nursing care plan |
| Expectations from students        | Principles of planning health education |
| Expectations of students from the course and the instructor | Principles of providing health education |
| Evaluation criteria of clinical skill practice | |
| Health education material development | |
| Breast self-exam                  | Reproductive health      |
| Vulva self-exam                   | Pregnancy follow-up     |
| Prenatal care management          | Heart disease in pregnancy |
| Prenatal exercise                 |                          |
| Preparation for the gynecological examination | Case Discussion -5 | Preeclampsia |
| Pap-smear test                    |                          |
| Leopold maneuvers                 | Case Discussion -6 | Gestational diabetes mellitus |
| Non-stress test                   |                          |
| Partograph follow-up             | Case Discussion -7 | Abortion |
| Induction follow-up (Contraction Stress Test) |                          |
| Early postpartum breastfeeding and skin-to-skin contact | Case Discussion -8 | Labor and childbirth |
| First care of the newborn in the delivery room |                          |
| Monitoring uterine involution     | Case Discussion -9 | Postpartum care |
| Perineum and episiotomy care      | Case Discussion -10 | Prolapse surgery |
| Manual expressing of breast milk  | Urinary/fecal incontinence |
| Baby massage - relief of baby gas |                          |
| Postpartum exercise               | Case Discussion -11 | Endometrial cancer |
| Postpartum nursing care           |                          |
| Contraceptive methods             | Case Discussion -12 | Cervical cancer |
| Nursing care before/after hysterectomy |                          |

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**Fig. 1.** Examples of organ models and materials developed by the students.
the pre-test and post-test scores were normally distributed; and Wilcoxon signed-rank test was used to compare the pre-test and post-test scores. A p value = .05 was considered statistically significant.

Ethical Approval

We obtained written permission from the Head of Nursing Department, and ethics committee approval from the XXX (09.10.2020-E.107867- 91610558-604.01.02-Research Code No: 2020-524). Informed consents of the students agreeing to participate in the study were obtained online. Participation in the study was on voluntary basis. During data collection, student’s identity information (name, surname, student number, etc.) was not requested.

Results

The mean age of the students was 20.66 ± 1.35 years; the mean GPA was 3.13 ± .039 points (Table 2). We found that there was no difference between the mean pre- and post-test scores for the SSS-SF and for the subdimensions; instructors, university administration, participation in decisions, scientific-social-technical opportunities and the quality of education (p > .05, Table 3). The mean NPPS score on the post-test (94 ±71 ± 10.85) was significantly higher than that on the pre-test (92.01 ± 13.82) (Z = -2.139, p = .032, Table 3). There was no difference between the mean pre- (17.80 ± 4.89) and post-test scores (18.04 ± 4.75) for the subscale professional status (p > .05); however, the mean score for the subscale professional qualifications on the post-test (76.67 ± 8.14) was significantly higher than that on the pre-test (74.21 ± 11.02) (Z = -3.334, p = .001). The mean NPVS-R score on the post-test (112.37 ± 16.08) was significantly higher than that on the pre-test (109.25 ±17.42) (Z = -2.811, p = .005). The mean scores for the subscales caring, professionalism, and trust on the post-tests were also significantly higher than those on the pre-test (p < .05, Table 3).

| Characteristics | X ± SD | Min. – Max. |
|-----------------|--------|-------------|
| Age             | 20.66 ± 1.35 | 19.0 – 28.0 |
| GPA             | 3.13 ± .039 | 2.07 – 3.97 |

Discussion

This study has examined the determine the effects of using case scenarios and skill videos in distance education during the COVID-19 pandemic on nursing students’ satisfaction, professional perception, and professional values. The results of our study revealed that distance education during the pandemic showed no effect on student satisfaction; however, it had positive effects on their perception towards nursing and in the adoption period of professional values. The results of our study did not support h₁ hypothesis, while they supported h₂ and h₃ hypotheses.

Student satisfaction has potential impact on academic achievement and student retention (Kim et al., 2022), and it is considered as an indicator of the quality of education and training program (Boliger & Erichsen, 2013; Palermo, 2013). In our study, we found that the using case scenarios and skill videos in distance education had no effect on the student satisfaction during the pandemic. Additionally, it had no effect on the subdimensions; instructors, university administration, participation in decisions, scientific-social-technical opportunities, and the quality of education. Many descriptive studies reported that students were satisfied with their online learning experiences during the pandemic (Al-Soﬁ, 2021; Lengetti et al., 2021; Tayyib et al., 2021). However, some others showed that students had negative attitudes towards online education (Diab & Elgash, 2020; Fawaz & Samaha, 2021; Koirala et al., 2020). Riley et al. (2021) compared two groups of nursing students taking obstetrics and gynecology nursing course during the pandemic; face-to-face group and online group, and demonstrated that there was no difference between the groups regarding student satisfaction. Nursing education is a two-stage face-to-face training with theoretical and practical training. Nursing students build both professional development and socialization during this period. They develop various skills such as patient-centered approach, good communication with others, cooperation with colleagues and patients, organizational skills. On the other hand, they have access to opportunities of a university, and communicate with their peers and socialize, during their education. The COVID-19 pandemic has disrupted all of these experiences; students could not interact with the faculty members face-to-face, could not communicate with their peers, and could not use the social-scientific-technical opportunities of their university. However, thanks to live classes involving lectures, case discussions and clinical skill practices in our study, students had the opportunity to benefit from technical opportunities of their university, to communicate with the faculty members and their peers, and they shared their thoughts on the same platform with their peers. In our study, online education

| Scale                  | Pretest Scores | Post-test Scores | Statistics  | d   | 95% CI      | p   |
|------------------------|----------------|-----------------|-------------|-----|-------------|-----|
| SSS-SF                 | 213.24 ± 33.18 | 210.45 ± 36.43 | Z = -.833   | .08 | .224 – .384 | .405|
| Instructors            | 50.06 ± 7.14   | 49.17 ± 8.51   | Z = -1.001  | .113| .191 – .418 | .317|
| University administration | 35.93 ± 6.62   | 35.27 ± 6.68   | Z = -1.160  | .099| .205 – .404 | .246|
| Participation in decisions | 27.59 ± 5.27  | 27.18 ± 5.68   | Z = -.363   | .075| .230 – .379 | .574|
| Scientific-social-technical opportunities | 46.12 ± 9.07 | 45.76 ± 9.38 | Z = -.877 | .353 | .251 – .357 | .381|
| The quality of education | 53.53 ± 9.53   | 53.05 ± 9.21   | Z = -.797   | .423| .251 – .357 | .812|
| NPPS                   | 92.01 ± 13.82  | 94.71 ± 10.85  | Z = -2.139  | .217| .088 – .522 | .032|
| Professional status     | 17.80 ± 4.89   | 18.04 ± 4.75   | Z = -.316   | .05 | .255 – .354 | .752|
| Professional qualifications | 74.21 ± 11.02 | 76.67 ± 8.14   | Z = -3.334  | .254| .052 – .559 | .001|
| NPVS-R                 | 109.25 ± 17.42 | 112.37 ± 16.08 | Z = -2.811  | .145| .159 – .450 | .223|
| Professionalism        | 32.89 ± 5.48   | 33.90 ± 5.21   | Z = -2.559  | .189| .166 – .494 | .010|
| Trust                  | 12.12 ± 2.23   | 12.80 ± 1.99   | Z = -2.692  | .322| .016 – .628 | .007|

* Wilcoxon signed-rank test was used.
  d: Effect size.
method showed no positive effect on student satisfaction; however, it also had no negative effect on it. So, we suggest that online education method helped students to maintain their satisfaction level they experienced during the face-to-face learning before the pandemic.

Perception about nursing profession refers to the view of nursing students towards themselves, their environment and nursing profession (Cerit & Coskun, 2018). Our results showed that the using case scenarios and skill videos in distance education during the pandemic positively affected the perception of nursing students about nursing profession and professional qualifications. In a study by Michel et al. (2021), most of nursing students reported that the pandemic reinforced their desire to become a nurse. There are many studies consistent with the previous study. Lوفيć et al. (2020) stated that nursing students expressed that they comprehended the importance and risks of nursing profession during the pandemic. Nie et al. (2021) demonstrated that one-third of the nursing students stated that the COVID-19 pandemic made them more passionate about clinical nursing skills. Nurses have played a significant role in providing healthcare services during the COVID-19 pandemic in the world. This situation may have led to a more positive image of nursing profession in the societies. And this may have also affected the students’ image of nursing, and accordingly, our results. Moreover, we discussed duties, roles and responsibilities of a nurse, and patients’ expectations from nurses within the theoretical courses, discussions of case scenarios, clinical skill practices and nursing care plan. These discussions may have helped the students become aware of additional professional roles and values, and improve their perception about professional qualifications.

Professional values are the guiding principles and beliefs influencing work behaviors when practicing a profession (Poorchangizhi et al., 2019). Nursing education is a crucial step for nursing students to adopt the values of the profession and develop their professional identity (Ertugrul et al., 2022). We found in our study that the using case scenarios and skill videos in distance education positively affected adoption of professional values during the pandemic. It also showed positive effects on the adoption of the values caring, professionalism, and trust. Feller (2014) indicated that face-to-face learning and distance education had no effect on professional values of students before the pandemic. It is aimed to ensure that nursing students develop a professional identity and embrace the professional values of nursing during their education. Obstetrics and gynecology nursing course is one of the major nursing courses contributing to professional growth and development of the students. The distance education provided to the students during the pandemic, which included both theoretical courses, case discussions, clinical skill practices and assignments, nursing care plan discussions may have positively affected students while adopting professional values by improving their knowledge and attitudes.

Strengths and Limitations

In our study, we shared a link to the online instruments from the distance education platform. The student signed in with the student account by entering student number and password. This ensured that only the nursing students registered in the course and in our university could access the link and submit their responses. This is a strength of our study. Another strength is that we ensured that all students had internet access; the students without internet access were granted access to the internet by the university administration and the researchers. This study, however, is subject to a limitation that is the lack of a control group and randomization. In addition, the high GPA of the students is another limitation of our study.

Conclusions

The COVID-19 pandemic has caused a rapid transition from face-to-face learning to online learning in nursing education. Distance education that is used to ensure the continuity of education has brought a new learning method and experience for nursing students. All in all, the theoretical lessons as well as the using case scenarios and skill videos in distance education is an effective method to maintain the level of student satisfaction, to improve perception about nursing and to help nursing students embrace professional values during the pandemic.

Declaration of Competing Interest

The authors declare that there is no conflict of interests.

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