



Short Communication

The Effect of Online Education in Pandemic Process on the Professional Self-efficacy of Senior Nursing Students: A Cross-Sectional Study

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Abstract

Objective: Unexpected extraordinary situations, which has affected the whole world, can negatively affect education as in all areas of life, and nursing education and clinical practices have also been affected. This study aimed to determine the opinions of the newly graduated nursing senior students about the online nursing education applied during the pandemic and their professional self-efficacy.

Methods: This descriptive study was conducted in May - June 2021 with 188 senior nursing students from 2 State and 2 Private Universities. Data were collected online and with Descriptive Information Form and Nursing Profession Self-Efficacy Scale (NPSES).

Results: 85.1% of the students were not satisfied with their theoretical and practical education during the pandemic process, 81.4% of them thought that online education had a negative effect on vocational education. Only 29.3% of the students considered themselves professionally competent. The students' mean scores on NPSES, which includes items regarding the ethical values of the nursing profession, were at a good level (68.47 ± 8.32). The students' access to technological equipment for online education was significantly related to their scores in theoretical and applied training, their level of preparedness for their future profession, and their perception of professional competence. Additionally, there was a strong correlation between students' readiness for their profession and their perception of professional competence ($P < 0.01$).

Conclusion: Students are dissatisfied with online education. They believe that it has a negative impact on their vocational education, theoretical and practical training, professional competence, and readiness for the profession. However, their self-efficacy in terms of upholding the ethical values of the nursing profession is at a good level.

Keywords: nursing, education, online education, professional competence, self-efficacy

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1 INTRODUCTION

Nursing education is a process that integrates theory and practice, and students are expected to develop cognitive, affective and psychomotor skills in this process^[1]. In the nursing profession, which consists of science and art and is an applied discipline, there is a need for nurses with strong self-efficacy in both theory and practice^[2]. The concept of self-efficacy is defined as the level of competence, self-confidence and belief in oneself in the face of an event, situation or phenomenon that an individual will encounter^[3]. The concept of self-efficacy in the nursing profession is a concept used in teamwork, information sharing and quality care practices of nurses^[4-6]. Studies in this field report that nurses with high professional self-efficacy are more controlled and highly self-confident while providing care within the health care system, while those with low self-efficacy avoid risk and seek assistance or source^[5,7]. Therefore, it is one of the main objectives to provide an education that will strengthen professional self-efficacy in nursing education^[8-10].

However, unexpected extraordinary situations such as the COVID-19 pandemic, which has affected the whole world, can negatively affect education as in all areas of life, and nursing education and clinical practices in higher education institutions have also been affected. The measures taken due to the pandemic have posed great challenges for nursing education^[11-13]. In the United States, 80% of nursing schools transitioned entirely to distance and online education during the period of the global pandemic caused by the novel coronavirus, SARS-CoV-2. The American Association of Colleges of Nursing COVID-19 response webinar series addressed the integration of teaching methods and technologies with online education, as well as strategies to encourage student engagement^[14]. In Canada, both undergraduate nursing students and newly graduated nurses have encountered unprecedented educational challenges during the pandemic. In response, the Canadian government has granted full authority to educational institutions for the delivery of quality nursing education. This has led to the rapid implementation of simulation applications^[15]. In the United Kingdom, the Nursing and Midwifery Council has indicated that education will continue to be delivered through online approaches. Alternative options will be made available to students within the scope of the programmes. It is not feasible for a large number of students to be in clinical practice, but clinical practice opportunities will be provided with appropriate arrangements^[16].

Based on the decision taken by the Council of Higher

Education in our country^[17], the distance education process was launched as of the spring semester of 2019-2020, and students were able to receive theoretical and practical training online but could not go to clinical practice. Nursing students studying at the university were vaccinated in the spring semester of 2021 and were able to practice with limited opportunities^[18]. This situation had an impact on the professional competencies of students who graduated in 2 semesters.

In the study, it was aimed to determine the opinions of senior nursing regarding online nursing education and professional self-efficacy during the pandemic process. It was thought that the results obtained will contribute to the measures to be taken to increase the level of education and professional self-efficacy in professions with theoretical and practical foundations in unexpected extraordinary situations such as pandemic.

The research sought answers to the following two questions: (1) What are the opinions of the students regarding the theoretical and practical online education provided during the pandemic process? (2) Did the online education provided during the pandemic process have an effect on the professional self-efficacy of senior nursing students?

2 MATERIALS AND METHODS

2.1 Study Design and Participants

This study was a cross-sectional web-based study in which all with final year undergraduate faculty of nursing, from two public and two private universities were invited to participate through message. Data collection took place in May through June 2021.

In determining the students to be sampled in this study, the criteria of being suitable for the purpose and being heterogeneous were taken into consideration rather than the criteria of representing the universe. The data collection forms prepared online were first shared through the representative students of the 4th grade classes on WhatsApp groups and the students who agreed to participate in the study were asked to fill out the form. The study was completed with 188 senior nursing students who agreed to participate and completed the online form.

2.2 Instruments

The data of the study were collected with "Descriptive Information Form" and "Nursing Profession Self-Efficacy Scale (NPSES)".

2.2.1 Descriptive Information Form

It is a form of 15 questions prepared by the researchers according to the relevant literature^[7,9,10,12,13], asking participants to rate demographic information such as age, education, place of residence, the online training (theoretical and practical) received during the COVID-19 pandemic and the impact of this training on their professional competencies on a horizontal numerical rating scale from 0 to 10 (0: not at all, -10: very good).

2.2.2 NPSES

It was developed by Caruso et al.^[19] to assess the professional self-efficacy of nurses. The scale is 5-point Likert-type and consists of 19 items and two sub-dimensions. All of the items in the scale are positive and 5 means “strongly agree” and 1 means “strongly disagree”. The first sub-dimension of the scale is “Quality of Care” (Items 1, 3, 4, 5, 6, 7, 8, 9, 12, 15, 18 and 19) and the second sub-dimension is “Professional Situations” (Items 2, 10, 11, 13, 14, 16 and 17). The maximum score that can be obtained from the scale (according to 16 items) is 80. The higher the score on the scale, the higher the professional self-efficacy. The Turkish validity and reliability study of the scale was conducted by Vicdan AK, Taştekin A and Cronbach’s Alpha coefficient was found to be 0.87^[6]. In our study, Cronbach’s Alpha coefficient was 0.92.

2.3 Data Collection

The forms to be used in the research were prepared on “Google Form” and students were asked to fill them in online via the link. Firstly, 4th grade representative students were contacted, and the representatives were asked to share the data collection forms prepared online via their respective class WhatsApp groups with the students. An informed consent form was added to the first page of the data collection form, and students who agreed to participate in the study were able to skip to the questions after giving consent to the study.

2.4 Data Analyze

Statistical Package for the Social Sciences version 22.0 was used to analyze the data. Kolmogorov Smirnov test was used to analyze the normal distribution of variables. Frequency and mean values were taken in descriptive data, and chi-square test was used to analyze categorical variables. Independent Sample t-test was used in the analysis of continuous variables with normal distribution, and Mann Whitney U test was used in those without normal distribution. Spearman Correlation Analysis was used to evaluate the relationships between parameters. Significance was evaluated at $P < 0.05$ level.

3 RESULTS

The mean age of the undergraduate nursing students who participated in the study was 22.56 ± 1.88 years and 87.2% were studying at a state university.

The rate of students who could follow online courses without any problems was 43.1%. During their education, 40.4% reported experiencing online problems/difficulties and the most common problem was internet connection (45.7%). 56.9% of the students followed their courses on their own mobile phones. The majority (85.2%) were not satisfied with their theoretical and practical training during the pandemic and only 29.3% considered themselves professionally competent. 76.6% of the students thought that the practices should be in the clinic (as face-to-face) in order to consider themselves professionally competent (Table 1).

In the evaluation of the online training received by the students during the COVID-19 pandemic process and their professional competencies on a scale of 0 to 10, the students scored equipment competencies for following online courses smoothly as 6.70 ± 2.13 , their online theoretical training as 6.34 ± 2.20 , their practical training as 5.64 ± 2.57 , and the level of impact of the COVID-19 pandemic on professional education as 6.17 ± 2.45 points on average. Students reported their professional readiness as 6.29 ± 1.94 points on average and their perceived professional competence as 6.47 ± 1.87 points (Table 2).

The mean score of the students on the NPSES was found to be 68.47 ± 8.32 and their professional self-efficacy was at a good level according to this scale, which evaluates providing service in accordance with the ethical values of the nursing profession (Table 3).

There was a positive, medium-level, significant relationship between the students’ having sufficient equipment to following online education and the points awarded for they gave to theoretical and practical training, their level of their level of readiness for the profession and seeing themselves as professional competence ($P < 0.01$). There was also a highly positive significant relationship between students’ readiness for the profession and their perception of professional competence ($P < 0.01$). A weakly positive and significant relationship was found between the Professional Situation Sub-dimension of the NPSES scale and the student’s level of feeling prepared for the profession and seeing themselves as professionally competent ($P < 0.05$). It was observed that the scale did not exhibit a significant relationship with other parameters ($P > 0.05$); however, a highly significant relationship was found between the scale and its sub-dimensions (Table 4).

4 DISCUSSION

According to data from the United Nations Educational, Scientific and Cultural Organization, approximately 1.6 billion students in more than 190 countries worldwide, representing 94% of the world’s student population, have been affected by the process.

As in many countries around the world, the COVID-19

Table 1. Students' Views on Online Education

Specifications	N=188	
	<i>n</i>	%
Ability to follow online courses without any problems		
Yes	81	43.1
No	19	10.1
Partially	88	46.8
Tool to follow online courses		
Using your cell phone	107	56.9
Through the computer (own)	73	38.8
Through a computer (owned by someone else)	8	4.3
Experiencing difficulties in online education		
Yes	76	40.4
No	112	59.6
Problems experienced during the online education process*		
Internet connection problem	86	45.7
Power outage	58	30.9
Lack of devices	10	5.3
Lack of a suitable teaching environment	26	13.8
Satisfaction with online education		
Satisfied	28	14.9
Dissatisfied	160	85.2
Seeing oneself as professionally competent		
Yes	55	29.3
No	26	13.8
Partially	107	56.9
Reasons for not feeling professionally competent/partially competent (n=133)		
Failure to implement	65	48.8
Lack of information	22	16.5
Both	46	34.5
Students' views on the effective factors in being professionally competent*		
Actively conducting the course practice in the clinic	144	76.6
Adequate infrastructure-equipment for theoretical training	5	2.7
Comprehensive theoretical courses	44	23.4

Notes: *Since more than one answer was given to the question, "n" was folded.

Table 2. Students' Scores for Online Education, Professional Readiness and Competence Levels

Variables	N=188		
	Score Averages		
	(Minimum-Maximum)	Mean±SD	Median
Having sufficient equipment to follow online education	1-10	6.70±2.13	7
Points awarded for online theoretical training	1-10	6.34±2.20	7
Points awarded for online practical training	1-10	5.64±2.57	6
The level of impact of the pandemic on vocational education	1-10	6.17±2.45	6
Level of readiness for the profession	1-10	6.29±1.94	6
Level of professional competence	1-10	6.47±1.87	7

pandemic process has affected nursing education and clinical practice processes in our country^[20]. In this process, it was thought that senior nursing students who continue their education online may experience more anxiety about their professional self-efficacy than students studying in other departments.

In many countries, the abrupt interruption of all in-person educational activities had significant consequences for nursing students, as it essentially removed practical training,

which, forced nursing educators and clinical preceptors to reorganise their internship activities^[21,22]. Starting from October 2020 during the second wave of COVID-19, different approaches to educational activities were applied worldwide that balanced the risks and benefits of resuming practice activities. For example, some Spanish universities recruited nursing students attending the last year of bachelor's degree course to employ them in clinical realities as a workforce^[23]. Such as Australia and the UK recruited nursing students to take care of COVID-19 patients with the

Table 3. Students' Mean Scores of the Sub-dimensions and Total Scores of the NPSES

NPSES	N=188	
	Minimum-Maximum	Mean±SD
Scale quality of care sub-dimension	13-45	39.51±5.29
Scale professional situation sub-dimension	15-35	28.96±3.97
Scale NPSES total	28-80	68.47±8.32

Table 4. Correlation Results

Variables	Variables							
	1	2	3	4	5	6	7	8
	r	r	r	r	r	r	r	r
1. Having sufficient equipment to follow online education	1	.380**	.287**	.434**	.399**	.066	.066	.073
2. Points awarded for online theoretical training		1	.394**	.523**	.427**	-.018	.096	.035
3. Points awarded for online practical training			1	.568**	.372**	.043	.103	.077
4. Level of readiness for the profession				1	.801**	.007	.145*	.074
5. Level of professional competence					1	.022	.203**	.111
6. NPSES' quality of care sub-dimension						1	.603**	.925**
7. NPSES' professional situation sub-dimension							1	.861**
8. NPSES total								1

Notes: *: $P < 0.05$; **: $P < 0.01$.

support of qualified nurses. So, Intinarelli G, Wagner LM and Burgel B demonstrated that nurse practitioner students are an essential emergency workforce in the face of a pandemic, as engaged as part of the COVID-19 response^[24]. In Italy, some universities allowed internship units with COVID-19 patients, as they recognized the strategic role of internships in the development of nursing skills and competencies^[25]. Therefore, this study was conducted to determine the views of students in the final year of the nursing education on online nursing education and their professional self-efficacy during the pandemic process.

This study examined the effects of online education on the professional education and self-efficacy of senior nursing students during the COVID-19 pandemic. The results indicated that the majority of students (85.1%) were dissatisfied with the theoretical and practical education provided through online learning. Furthermore, the study found that online education negatively affected their professional competencies, and they considered themselves to be only partially professionally competent (56.9%). These findings underscore the necessity for nursing education to integrate theory and practical applications, given its nature (Table 1). In the study, a positive, moderately significant relationship was identified between the students' level of engagement with online education and their perceptions of professional competence ($P < 0.01$) (Table 4). It was observed that technological hardware deficiencies and difficulties in accessing online education negatively affected students' perceptions of professional self-efficacy. Similarly, the literature indicates that difficulties in accessing online education can negatively affect students' expectations and

satisfaction with their education^[26-29].

The assertion that theoretical courses can be effectively applied through online education, while clinical practical courses should be conducted in a face-to-face setting, underscores the pivotal role of nursing education in developing practical skills (Table 3). It was determined that students who were unable to engage in clinical practice during the pandemic period perceived their professional competence to be low due to the inability to develop the expected professional skills. This situation, in line with other studies, indicates that nursing students expressed negative opinions about online education during the pandemic process and that practical training was inadequate in the online environment^[26,27,30-32].

In the evaluations conducted using the NPSES scale, it was observed that students demonstrated high self-efficacy in adhering to the ethical values of the profession. Nevertheless, this high perception of ethical values did not fully overlap with the general perception of professional competence, reflecting the negative impact of deficiencies in practical applications on self-efficacy (Table 4). The high level of professional competence scores (68.47±8.32) indicates that students have a high level of commitment to professional ethical values, but practical deficiencies do not fully meet this general perception (Table 3).

5 CONCLUSION

This study revealed the negative effects of online education implemented during the pandemic on senior nursing students' professional education and self-efficacy.

Most students reported that online education had a negative effect on the quality of both theoretical and practical teaching, leading them to feel less competent in terms of their professional qualifications. The high self-efficacy of the students in adhering to the ethical values of the profession and acting according to these values stands out as a positive finding.

Since the study was a cross-sectional study, the results cannot be generalized, but it is valuable in terms of presenting a situation and providing contributions to guide the necessary improvement efforts. These findings underscore the significance of face-to-face education in nursing education. The results of the study can be a guide in training planning in cases where online education will be given. If online education is to be provided, training programs should be designed to integrate theoretical knowledge and practical skills, contributing to enhancing students' professional competencies. Integration of teaching methods and technologies with online education should be ensured very well (artificial intelligence integration and active use of realistic simulation methods in online education. Providing infrastructure-equipment efficiency, increasing the online education competence and equipment of instructors, etc.). However, students' needs for technological equipment that can adapt to and participate in all this technology must be met. In epidemic situations such as a pandemic, it may be more beneficial to implement hybrid education by taking safety precautions and also for conducting clinical practice in accordance with the conditions to enhance the effectiveness of education. Nursing educators and researchers should collaborate with their students and stakeholders in the clinical environment, providing support and evaluation of this transformation.

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Conflicts of Interest

The authors declared that there is no conflict of interest.

Author Contribution

Bakan Demirel Ö, Öz T and Yıldız H were in charge of study conception and design, analysis and interpretation of results and drafting manuscript preparation. Bakan Demirel Ö and Öz T were in charge of data collection. Yıldız H was in charge of revising it critically for important intellectual content. All authors approved the final version of the manuscript.

Abbreviation List

NPSES, Nursing Profession Self-Efficacy Scale

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