















ORIGINAL
VERSION 2: PEER REVIEW - APPROVED

Bachelor of Science in Nursing faculty perceptions of distance education during the COVID-19 pandemic

Percepción de los docentes de la Licenciatura en Enfermería sobre la educación a distancia durante la pandemia COVID-19

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ABSTRACT

Introduction: the COVID-19 pandemic generated a disruption in the modality of face-to-face education, forcing an abrupt migration to virtuality with little or no prior preparation, which makes it necessary to analyze the perception and satisfaction of teachers with the development of activities in this format.

Objective: to identify the perception and satisfaction with education in virtual modality during the COVID-19 pandemic of the teachers of the Bachelor Degree in Nursing of the University Institute of the Argentine Federal Police of the Autonomous City of Buenos Aires, Argentina.

Method: a descriptive, cross-sectional, and quantitative study was designed. The sample consisted of 23 teachers (71,87 % of the target population) who responded to an instrument consisting of 21 closed-ended questions.

Results: the mean age was 52 years (SD=10), 87 % were women and 79,9 % have children, 56,5 % are teachers of third-year subjects of the curriculum and 56,5 % have a degree level of training. 65,2 % mentioned that in virtuality their main difficulty was the resistance of students to turn on their cameras and 43.5% perceive the qualifications obtained in virtuality as equivalent to face-to-face. Those who possessed a postgraduate degree (p:0,005) and those who wished to continue virtual activities after isolation (p:0,041) were found to have higher levels of satisfaction.

Conclusions: a medium level of satisfaction with virtual education was found and, in general, teachers have positive perceptions of it and the majority report a desire to continue using this modality once the COVID-19 pandemic has been overcome.

Keywords: Perception; Distance Education; Nursing Education; Nursing Faculty; Coronavirus Infections.

RESUMEN

Introducción: la pandemia por COVID-19 generó una interrupción en la modalidad de educación presencial, obligando a migrar abruptamente a la virtualidad con escasa o nula preparación previa, lo que hace necesario analizar la percepción y satisfacción de los docentes con el desarrollo de actividades en este formato.

Objetivo: identificar la percepción y la satisfacción con la educación en modalidad virtual durante la pandemia por COVID-19 de los docentes de la carrera de Licenciatura en Enfermería del Instituto Universitario de la Policía Federal Argentina de la Ciudad Autónoma de Buenos Aires, Argentina.

Métodos: Se diseñó un estudio descriptivo, transversal y cuantitativo. La muestra estuvo comprendida por 23 docentes (71,87 % de la población objetivo) quienes respondieron a un instrumento conformado por 21 preguntas con opciones de respuesta cerrada.

Resultados: La media de edad fue 52 años (DE= 10), el 87 % fueron mujeres y el 79,9 % tienen hijos, el 56,5 % son docentes de materias de tercer año del plan de estudios y tienen nivel de formación de grado. El 65,2 % mencionó que en la virtualidad su principal dificultad fue la resistencia de los alumnos a encender sus cámaras y el 43,5 % percibe equivalentes a la presencialidad las calificaciones obtenidas en virtualidad. Se halló que aquellos que poseían un título de posgrado ($p=0,005$) y quienes deseaban continuar con actividades virtuales después del aislamiento ($p=0,041$) tenían niveles más altos de satisfacción.

Conclusiones: Se halló un nivel medio de satisfacción con la educación virtual, y por lo general, los docentes tienen percepciones positivas al respecto, reportando en su mayoría el deseo de continuar con esta modalidad una vez superada la pandemia COVID-19.

Palabras clave: Percepción; Educación a distancia; Educación en Enfermería; Docentes de Enfermería; Infecciones por Coronavirus.

INTRODUCTION

The irruption of the COVID-19 pandemic (Coronavirus 2019 Infection as per its abbreviation in English) motivated the learning activities to migrate from in-person to virtual to reduce the number of COVID-19 cases in the population. However, this process took place with scarce or null training of the teaching staff and though the diversity of articles has sought to analyze the perception held by students as users of this modality,^(1,2) only a few have been conducted to identify the perception held by the teaching staff.

The coexistence of labor and family spaces, together with the difficulties of a system unknown to many (ignorance of platforms) and other difficulties (power failure, lack of or problems with equipment, among other things) are some factors negatively affecting the perception of the virtual format held by professors and their satisfaction with it.^(3,4) Furthermore, having an affinity to technology, being a minor and having experience dictating virtual lessons or having taken courses on this modality relate to a better perception of and satisfaction with distance learning.⁽⁵⁾ Training through Information and Communication Technologies (ICTs) challenges professors and students. The former are demanded to design and implement activities that motivate and foster learning, and the latter is expected to develop a growing level of autonomy.⁽⁶⁾

Regarding the subject, one of the first antecedents that were identified as the study by Spector et al.⁽⁷⁾ conducted in Buenos Aires City, Argentina, who found out in a sample of health science professors that, despite the scarce anticipation for the change of modality to implement their activities, 34,7 % were satisfied and 53,3 % very satisfied with their performance, and 36 % of them said that their main difficulty was to keep the interaction with their students. Several studies have been published to report on the satisfaction and perceptions of staff teaching health science degrees about distance learning with varied results.

A study conducted in Mexico⁽⁸⁾ in a sample of 78 university professors found that most (64 %) had basic or intermediate mastery of digital technologies and tools. Likewise, the development of labor-related distance activities during the COVID-19 pandemic was also related to higher rates of Emotional Exhaustion in professors, as reported in the study by Pillaca in Peru,⁽⁹⁾ to a heavier workload according to a study conducted in Ecuador, Spain and Italy⁽¹⁰⁾ and to the thought of quitting or leaving for some time the education-related activities according to Argentinean research.⁽¹¹⁾

Despite the diversity of identified antecedents, only a few have included Nursing Degree professors, and they have the least of all been conducted in the Argentinean Republic. Because of the above, the goal of this study was to analyze the perception of virtual learning during the COVID-19 pandemic held by Nursing Degree professors at the University Institute of the Argentinean Federal Police (a public higher education institution) of Buenos Aires Autonomous City, Argentina, as well as their satisfaction with virtual learning.

METHODS

An observational, descriptive, cross-sectional, quantitative study was designed.

The population was made up of 32 Nursing Degree professors at the University Institute of the Argentinean Federal Police (IUPFA) and, the inclusion and exclusion criteria having been applied, the sample was composed of 23 professors (71,87 %) who were performing their duties in the first fourth-month period of 2022. Nursing Degree professors developing their activities virtually during the 2020-2021 period were included. Those working in educational-management-related activities, those being part of the research team and those refusing to participate in the study were excluded.

A self-administered questionnaire comprising 21 closed questions with choices of single- or multiple-choice

answers according to the item was implemented. Spector et al.⁽⁷⁾ designed the questionnaire with two sections. The first seeks to characterize the surveyed professor socio-demographically (8 questions). The second one aims to describe the perception of virtual learning and evaluation held by professors and their satisfaction with it (13 questions) out of the central themes of Connection and Performance of teaching during the pandemic. A last item on the general Evaluation of virtual learning during the COVID-19 pandemic requests the surveyed person to answer, on a scale from 1 - 10 -- 1 being the lowest level of satisfaction and 10 being the highest one --, how much satisfied the professor is with both his/her performance and the implementation of virtual learning during the pandemic.

The information was gathered using the platform *Google Forms*, on which the instrument and informed consent were loaded, and it was sent, via email and *WhatsApp*, to the teaching staff. The instrument was sent as stated previously, and one month later, a reminder was sent again, seeking to integrate as many professors as possible.

The information gathered was exported into a Microsoft Excel database and analyzed using the program *Infostat Free Version* (v/L). A descriptive and inferential analysis was conducted. For the descriptive analysis, averages and standard deviation of numeric variables and relative and absolute frequencies for categorical variables were calculated. For the inferential analysis, given the abnormal distribution of data, non-parametric U-Mann Whitney tests to compare averages of two independent groups, Kruskal Wallis Variance to compare averages of three or more independent groups and Spearman correlation test to identify the association between numeric variables were applied. A statistical significance level of $p < 0,05$ was established.

Regarding the ethical aspects, the survey had an anonymous nature, and it was applied after signing the Informed Consent, in which the commitment of the researchers not to disclose personal data on the surveyed persons and the fact that the purpose of the study was merely academic were clearly stated. The Biomedical Ethics Committee of Churruca-Visca Hospital approved the research protocol dated May 2022.

RESULTS

On average, we surveyed 23 Nursing Degree professors 52,00 years old (DE: 10), their ages ranging from 28 - 66 years. Regarding sex, 87 % were women, 79,9 % had children, 30,4 % were single, 39,1 % were married, and 34,8 % had dependents. The surveyed professors reported they carry out activities in several years of the degree course, the third year being the one to which they have more subjects assigned (56,5 %) (Table 1).

As regards their training, 56,5 % were graduates (university degrees and equivalents), with a degree in the specific discipline (Nursing) amounting to 69,9 % of the cases. Regarding postgraduate training, 21,7 % have a specialization, 13,0 % have a master's degree, and 8,7 % have a PhD degree (Table 1).

Connection

When consulting about the platforms used during virtual learning, it was found out that *Zoom* was the platform more implemented for synchronic lessons (95,7 %); however, given the shortage of time, in some cases, they declared they used alternative platforms when more time was required, such as *Google Meet* (56,5 %) and *Jitsi* (21,7 %). In comparison, the practical tasks and other assignments were handled via *Moodle* (17,4 %), *Classroom* (13,0 %) and various other platforms.

The professors mentioned the device they connected to develop their lessons during the COVID-19 pandemic was their computer in 100 % of the cases; however, when any difficulty arose, they used cell phones (26,1 %) and Tablets (8,7 %). Concerning the source of the Internet used during this period, 95,7 % used their Wifi and, and when any difficulty arose, they used the shared data in their cell phone in 21,7 % of the cases.

Practicing teaching during the pandemic

When consulting if, during the period of isolation, they could, from the subject, promote teaching-learning strategies different from the expository classes, 95,7 % of professors said yes. Likewise, it was found that 91,3 % of them reported they had received some training to develop virtual learning activities.

Regarding the difficulties they had in developing their educational activities during the period of distancing/ isolation, they reported resistance by the students to turn on their cameras in 65,2 % of the cases, difficulties with the equipment in 34,8 %, the students being ignorant of the use of virtual platforms in 30,4 % and problems to keep professor-student interaction or to promote participation in classes in 26,1 %. These difficulties are the most frequently found.

When inquiring about the evaluation processes (partial and final exams), 47,8 % of professors expressed their dissatisfaction by stating it seemed to them it was worse than in person, 39,1 % declared it seemed to them it was equal to in person, and 13,1 % mentioned they perceived it as better than in person.

As regards grades, most professors (43,5 %) considered their students got the same grades as they usually get in in-person learning, followed by the perception of better grades than those students generally get in in-person learning (34,8 %), and 13,0 % mentioned their students got worse grades than expected. The others

selected the choice *Do not know/Do not answer*.

Variable	Categories	No.	%
Sex	Men	3	13,04
	Woman	20	86,96
Child custody	Yes	17	73,91
	No	6	26,09
Having dependents	Yes	8	34,78
	No	14	60,87
Marital status	NR	1	4,35
	Single	7	30,43
	Married	9	39,13
	Unmarried	2	8,70
	Divorced	3	13,04
	Widowed	2	8,70
Maximum level of education	Bachelor's degree	13	56,52
	Major	5	21,74
	Master's Degree	3	13,04
	Doctorate	2	8,70
Specific undergraduate training in nursing	Yes	16	69,57
	No	7	30,43
Year of the study plan in which you are working**	First	11	47,83
	Second	11	47,83
	Third	13	56,52
	Fourth	9	39,13
	Fifth	5	21,74
Total		23	100

*NR: no response.
**Many options were allowed to be selected.

According to the resources implemented during virtual learning for the development of lessons, the professors reported a wide range of activities, the use of chat and forums (82,6 %), analysis of practical cases (78,3 %), practical tasks at home (69,6 %) and live synchronic lessons (65,2 %) and group activities (60,9 %) being the most frequent. To a lesser extent, they used pre-recorded lessons (43,5 %) and analysis of written texts (56,5 %).

General evaluation of virtual learning during the COVID-19 pandemic

When consulting how they evaluated virtual learning from the viewpoint of interaction with the students, 39,1 % of professors mentioned that interaction with the students was poor. Still, they could develop their lessons well. 21,7 % stated that interaction was the same as in-person learning. Still, there were difficulties with the lesson development, and 17,4 % said that participation was the same as in in-person learning and they could develop their lesson well; 13,0 % perceived that participation was poor and negatively impacted the development of the planned activities. The others perceived more participation, but they had difficulties developing the lesson.

Of the surveyed professors, 65,2 % want to continue with their subjects virtually and, concerning the percentage of virtuality, they would like. It was found that 21,7 % of professors want to have less than 25 % of virtual activities, 39,1 % want to continue having from 25 % - 49 % of virtual activities, 26,1 % from 50 % to 74 % of virtuality, and 4,3 % want to develop all of their subjects in this format; 8,7 % do not want to carry out any virtual activities or lessons.

As regards the general satisfaction of surveyed professors with their performance in implementing virtual learning during the pandemic, it was found that the sample averaged 6,8/10, and most of the answers (34,80 %) corresponded to choice 7 - somewhat satisfied - (Figure 1).

The inferential analysis of the socio-demographic variables and the perception of the process of distance learning and its relation to the general satisfaction perceived by the Nursing Degree professors showed that the variables sex ($p:0,776$), age ($p:0,438$), having children ($p:0,689$), having dependents ($p:0,569$), and professional degree ($p:0,315$) bore no relation to the perceived satisfaction. A higher level of satisfaction in those professors perceiving the evaluation processes and the grades to be equivalent to those obtained in the in-person learning modality was identified; nevertheless, these findings were not statistically significant ($p>0,05$).

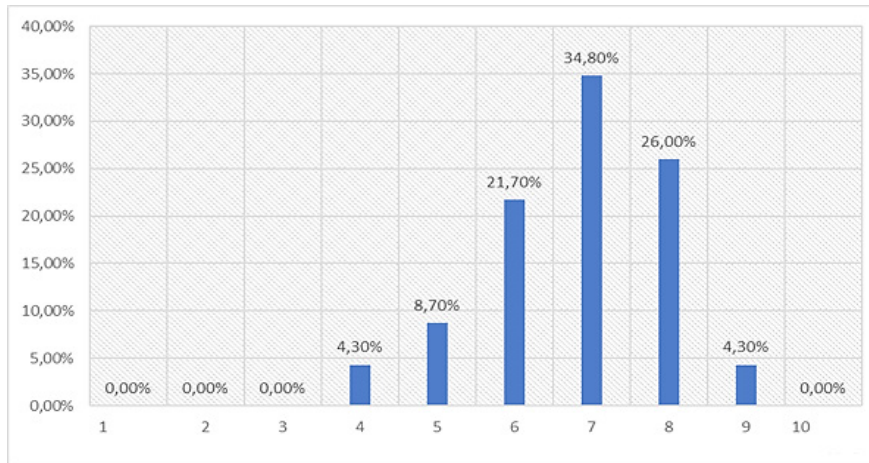


Figure 1. General satisfaction with virtual learning perceived by the teaching staff

Statistically significant differences were found in the level of training, the wish to continue with virtual activities and the level of teaching satisfaction, the last one being higher in those professors having postgraduate training (7,60 vs 6,23, $p:0,005$) and those wanting to continue with virtual activities (7,20 vs 6,13, $p:0,041$).

DISCUSSION

Several studies have reflected whether the higher education and non-university education system was ready for distance learning while keeping the quality and achievements attained in in-person learning.^(7,12,13) The abrupt change of modality posed a challenge to executives, students and professors. The latter had a more significant challenge implying to adapt, in a bit of time, their contents to a modality that, to a great extent, was unknown to them and seeking to develop competencies that were typically set in in-person spaces such as classrooms, simulation spaces and sanitary centers.

This study identified an average level of satisfaction of the teaching staff with their performance in developing virtual learning activities during the COVID-19 pandemic, and this finding is corroborated by studies such as that by Spector et al.⁽⁷⁾ that was conducted in a Health Science Faculty of a private Argentinean institution.

On the other hand, the professors reported the use of a diversity of strategies, such as synchronic lessons via *Zoom*, *Meet* or *Jitsi* and the implementation of practical activities at home that complemented what had been seen in classes, such as individual and group written practical tasks, case analyses and reading of widening texts. This is similar to what was stated by Vergara de la Rosa et al.⁽¹⁴⁾ and Vaillant et al.⁽¹⁵⁾, who mentions the use of ICT-mediated resources to maintain education during the pandemic and the need for professors to design new evaluation and education strategies appropriate to the needs of students.

The implementation of distance activities also posed challenges to professors, who are not alien to problems relating to connection to the internet, breakdown of equipment, lack of auxiliary devices such as cameras and microphones, lack of spaces to develop the virtual lessons, coexistence of responsibilities at home (having children and/or dependents) and at work, as well as others proper to the activities such as poor attendance of students, resistance by students to turn on their cameras and/or microphones to interact, ignorance of the platforms used, problems relating to compatibility of devices and applications, which the professors reported. These difficulties impinge on the perception of virtual education held by professors and on their satisfaction with the activities developed as reported in several studies^(3,8,10) which, together with high levels of occupational stress and more demands at the cognitive, physical and emotional level proper to this modality, impinge on the wish to continue to carry out educational ICT-mediated activities.

On the other hand, the confluence of welfare (hospital-related) labor and educational activities, common in the teaching staff of sanitary disciplines, is a factor scarcely represented in the bibliography and may influence the way virtuality is perceived. It can be inferred that the overburdened welfare work within the framework of the COVID-19 pandemic generated exhaustion in professionals and that, together with the new virtual modality, with their subsequent ignorance and need for training, represented a scarcely favoring scenario for professors. Despite the above, this study did not identify any association between the professional degree of the surveyed person and his/her level of satisfaction with virtual learning, possibly related to the reduced sample.

Though some studies have identified a relationship between the socio-demographic variables, the perception of educational virtuality held by the teaching staff and their satisfaction with it,^(3,5) our study did not identify said findings except for those with postgraduate training who evaluated their performance better. According to Grajales Taborda et al.⁽⁵⁾, this relates to a better predisposition to virtual teaching because they have experience as they have attended postgraduate workshops and subjects in said modality.

This study identified that nearly half the professors were unsatisfied with technology-mediated technology and said that grades were better or worse than the in-person modality, considering it inadequate. These findings are supported by several studies mentioning that virtual learning did not meet the expectations of professors and students, and inequalities in the training process were detected.⁽¹⁶⁾ The context of training during the pandemic imposed diverse challenges on professors and students that go beyond the academic aspect, which influences the degree of appropriation of knowledge by students and may not show the achievement of the goals planned by the professor and make the educator perceive a failure in the implementation of this modality.⁽¹⁷⁾

The wish to continue with virtual activities was related to more satisfaction, which coincides with the findings by Spector et al.⁽⁷⁾ and Canova-Barrios et al.⁽¹⁸⁾, in which both professors and students with a high level of satisfaction wanted to continue with virtual lessons after the pandemic because they perceive them as beneficial and effective.

As perception and satisfaction of the teaching staff are indispensable axes for adequate performance in pedagogical activities and for retaining this human resource, it is essential to conduct studies such as this one that identify the aspects perceived as harmful to eradicate them.

Poor satisfaction felt by professors with virtual education can have several negative implications, such as resignations from the teaching staff, low interest in participating in subjects in this modality in the future, little motivation to provide high-quality teaching and to implement ICTs in the training processes, lack of commitment with the educational process, decrease in the dedication to prepare and hand in educational materials online, and students feeling demotivated with the subsequent diminution in their academic performance.

This research is an antecedent of interest in our context because of the few studies that have included nurses practicing teaching in the context of public higher education.

CONCLUSIONS

As regards the perception of virtual learning in the context of the COVID-19 pandemic held by Nursing Degree professors at the University Institute of the Argentinean Federal Police and their satisfaction, it was found that they are fairly satisfied, difficulties in developing the lessons using technological resources, interaction with the students, previous experience with virtual learning, and perception of equivalence between this modality and the in-person one being the most relevant and influential aspects at the said level of satisfaction.

On the other hand, more than half the professors want to continue with virtual lessons once the period of social isolation is over; this relates to previous experience in distance learning and positive perception of this modality.

Implementing activities that involve training in teaching technology (platforms and tools for cooperative work), working with teams specialized in education applied technology that assists, allowing professors to adapt teaching to the needs of their students, providing support and acknowledgement redounding to an increase in their perception of self-efficiency, and providing feedback regularly to identify strengths and weaknesses is required. Since these measures can positively influence the perception of virtual learning held by professors, redounding to more satisfaction of professors and students and achieving the intended pedagogical goals.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

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