Original article

Virtual debriefing: an analysis of nursing students' perception of its use*

Debriefing virtual: uma análise da percepção dos estudantes de enfermagem sobre sua utilização

Debriefing virtual: un análisis de la percepción de los estudiantes de enfermería sobre su utilización

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Abstract

Objective: to evaluate the virtual debriefing, performed with nursing students who participated as observers in a simulation scenario, recorded, on lowering the level of consciousness by hypoglycemia. **Method:** study with descriptive cross-sectional design in the quantitative phase, and exploratory-descriptive in the qualitative phase between 2020 and 2021, with 60 nursing graduate students who attended a recorded scenario and, after, experienced a virtual debriefing. Two instruments were applied to evaluate the debriefing, and the qualitative approach used analysis by Iramuteq. **Results:** on the Simulation-Associated Debriefing Evaluation Scale, the overall mean of evaluation was 4.25, showing that the participants had a positive perception. And in the Debriefing Experience Scale, the overall assessment was 4.38, suggesting that debriefing was a useful strategy. **Conclusion:** students pointed to virtual debriefing as a positive strategy for learning.
Descriptors: Simulation Exercise; Education, Nursing; Simulation Training; Students, Nursing; Nursing

Resumo

Objetivo: avaliar o *debriefing* virtual, realizado com estudantes de enfermagem que participaram como observadores em um cenário de simulação, gravado, sobre rebaixamento do nível de consciência por hipoglicemia. **Método:** estudo com delineamento transversal descritivo na fase quantitativa, e exploratório-descritivo na fase qualitativa entre 2020 e 2021, com 60 estudantes de graduação em enfermagem que assistiram a um cenário gravado e vivenciaram um *debriefing* virtual. Foram aplicados dois instrumentos de avaliação do *debriefing*, e na abordagem qualitativa utilizou-se análise pelo Iramuteq. **Resultados:** na Escala

de Avaliação do *Debriefing* Associada à Simulação, a média geral de avaliação foi 4,25, mostrando que os participantes tiveram uma percepção positiva. Na Escala de Experiência com o *Debriefing*, a avaliação geral foi 4,38 sugerindo que foi uma estratégia útil. **Conclusão:** os estudantes apontaram o *debriefing* virtual como uma estratégia positiva para o aprendizado.
Descritores: Exercício de Simulação; Educação em Enfermagem; Treinamento por Simulação; Estudantes de enfermagem; Enfermagem

Resumen

Objetivo: evaluar el *debriefing* virtual, realizado con estudiantes de enfermería que participaron como observadores en un escenario de simulación, grabado, sobre descenso del nivel de conciencia por hipoglucemia. **Método:** estudio con delineamiento transversal descriptivo en la fase cuantitativa, y exploratorio-descriptivo en la fase cualitativa entre 2020 y 2021, con 60 estudiantes de graduación en enfermería que asistieron a un escenario grabado y, después, experimentaron un *debriefing* virtual. Se aplicaron dos instrumentos de evaluación del *debriefing*, y en el enfoque cualitativo se utilizó el análisis del Iramuteq. **Resultados:** en la Escala de Evaluación del *Debriefing* Asociada a la Simulación, la media general de evaluación fue 4,25, mostrando que los participantes tuvieron una percepción positiva. En la Escala de Experiencia con *Debriefing*, la evaluación general fue 4,38 sugiriendo que fue una estrategia útil. **Conclusión:** los estudiantes señalaron el *debriefing* virtual como una estrategia positiva para el aprendizaje.
Descriptores: Ejercicio de Simulación; Educación en Enfermería; Entrenamiento Simulado; Estudiantes de Enfermería; Enfermería

Introduction

The COVID-19 pandemic, caused by the coronavirus SARS-CoV-2, brought changes in people's daily lives, and measures of sanitary isolation affected all sectors of society.[1] Educational institutions had to stop face-to-face activities and adapt to the remote model, in order to avoid the spread of the virus and with the prospect of continuing with the academic curriculum, and minimizing the effects on the students' learning.[2]

This impact would be even greater in health courses, which perform laboratory activities, such as skills practices and clinical simulation. In the Brazilian scenario, several educational institutions and organizations linked to clinical simulation promoted virtual meetings for the sharing of successful experiences. The objective was to foster the wide adoption of simulated face-to-face experiences in safe environments, as well as remote experiences.[3]

In this directive, in front of the pandemic scenario, the use of Information and Communication Technologies (ICTs) or Digital Educational Technologies (DETs) and the use of digital platforms were essential to offer content to students.[4]

Different pedagogical strategies were applied, among them, virtual activities available on

the platforms Moodle®, Microsoft teams®, Google Classroom® and Google Meet®. Podcast, lives and classes recorded and available indefinitely were also used, in addition to content feedback activities in the format of Quiz, availability of previous readings to virtual meetings, development of concept maps using digital platforms, use of open educational resource repositories and virtual simulations.[4]

Virtual activities guided by measurable and participant-focused objectives may include, at the end of the activity, real-time synchronous debriefing sessions with instructors.[2,5] Virtual debriefing is described as a method in which web-based video conferencing platforms are used, with the aim of facilitating reflection in post-event discussions.[2,6-8] Researchers have already investigated the impact of virtual and face-to-face debriefing methods and concluded that both are equally effective.[9]

In this sense, considering the unique moment that society experienced, and the results in the students' learning gain that the simulated activities can promote, it was observed the need to develop new possibilities of applying simulated scenarios. The literature points out that knowledge construction, satisfaction and self-confidence are similar between the roles played in a simulation, that is, active participants and observers.[10-11] In this sense, when watching a recorded scenario, the participant can be considered an observer.

Clinical simulation is an established teaching methodology, however, in constant evolution, since the possibilities of application are wide.[3] This study aimed to emphasize the vital significance of the participation of observers in data collection and contextualized interpretation of the simulated scenario. Thus, the research aimed to point out the importance of observers, consolidating the methodological structure underlying this investigation.

Thus, considering the pandemic moment experienced, and the need to seek new ways of teaching using simulation, this study aimed to evaluate the virtual debriefing, carried out with nursing students who participated as observers in a recorded scenario on the lowering of the level of consciousness (LLC) by hypoglycemia.

Method

This is research with descriptive cross-sectional design in the quantitative phase, and exploratory-descriptive in the qualitative phase. This approach allowed a comprehensive analysis, with quantitative and qualitative data complementing each other, which strengthens the validity

of the results.[12] The research was conducted remotely due to the COVID-19 pandemic, and occurred from December 2020 to August 2021.

The convenience sampling gathered nursing graduate students from a public university and two private universities in southern Brazil, who were active in remote/hybrid education during the data collection period. Participants were recruited through the publication of an invitation in a social network, dissemination in WhatsApp® groups of the population of interest, and emails from the course coordinators of the chosen educational institutions.

The inclusion criteria were: to be regularly enrolled, from the sixth period of the course, to be over 18 years, to have completed the disciplines of Fundamentals in Nursing and Health of the Elderly Adult, or equivalent disciplines, by signing the Informed Consent Form (ICF). Students who did not have access to the Internet, who had taken a leave of absence or had previously failed in the disciplines mentioned, as well as students with nursing assistant or technician training were excluded.

For data collection, a website that was created exclusively for the research was used. In this virtual environment, participants were able to access ICF, an explanatory tutorial on participation in the study, detailed information about the research and its team, as well as the instruments and scales used in the data collection process, as well as access to the recorded scenario.

The research was divided into four stages. Stage I: invitation and access to the website; Stage II: watch the recorded scenario; Stage III: participation in virtual debriefing; Stage IV: response to the instruments proposed in the research.

The instruments used were: a sociodemographic questionnaire, two debriefing assessment scales, translated and validated in Brazil, being the Simulation-Associated Debriefing Assessment Scale (SaDAS)[13] and the Debriefing Experience Scale (DES)[14] and the semi-structured questionnaire with two questions: What did you think of the participants' performance in the case in question? What have you learned from this experience?

The SaDAS consists of 34 items, allocated in three dimensions (psychosocial value, cognitive value and affective value). The answers of this scale are of the Likert type, ranging from strongly disagree (1) to strongly agree (5), and the score of the items related to the affective dimension should be reversed.[13]

The DES is composed of 20 items and divided into two subscales. The first concerns the

evaluation of the experience with debriefing, answered on a five-point Likert scale and not applicable when the statement does not concern the simulated activity.[14]

The second is called the importance of the item, also answered on a five-point Likert scale, divided into four domains: Analyzing thoughts and feelings; learning and making connections; Professor's ability to conduct debriefing; Proper guidance from the professor. While the experience scale qualifies the practice experienced by the student, the importance scale evaluates the relevance of the commands contained in the questionnaire.[14]

Considering the difficulty in performing face-to-face scenarios in the laboratory, during the pandemic period, the recording of a simulation scenario performed by the research team before the pandemic was used. In its preparation, the guidelines of the Brazilian Society of Diabetes[15] and the recommendations of the International Nursing Association for Clinical Simulation and Learning (INACLS) were followed.[16]

The scenario aimed to recognize signs and symptoms of hypoglycemia and other causes that lead to changes in the level of consciousness. It lasted six minutes and 31 seconds, and only the stages of briefing and the development of the scenario were presented.

It is understood that the early recognition of LLC due to hypoglycemia is relevant for nursing students, given its significant prevalence, especially among patients with Diabetes *Mellitus*.[17] Therefore, the ability to readily identify the signs and symptoms of hypoglycemia is critical for the prevention and effective treatment of this condition, ensuring the well-being and safety of patients.

After the acceptance to participate in the research, and the signing of the ICF, the the dates for the virtual debriefing were made available for the participants, being established that, at the previous 24 hours, they should watch the scenario that was available on the website. Through the website, the researchers were able to track the date and time each participant watched the video, allowing an accurate analysis of the viewing moments. For each date, there was a maximum limit of four students, not being necessary that they were from the same institution or class.

The virtual debriefing was carried out by the main researcher and conducted in a structured way, focusing on emotions and the perception of positive points, and aspects that could be improved related to the LLC scenario, and how the experience added in learning. This method aims to extract insights and lessons from experiences, contributing to the learning and development of skills for clinical practice.

After the debriefing, students were invited to answer the DES and SaDAS along with semi-structured questionnaires, using the Google Forms® platform. This comprehensive approach allowed the collection of quantitative and qualitative data through the responses to scales and discursive questions, providing an understanding of students' perceptions and attitudes regarding simulation and structured debriefing.

The quantitative variables were described by mean and standard deviation and the categorical variables were described by absolute and relative frequencies. The responses of SaDAS were given in five points and were gathered in the cognitive, psychosocial and affective dimensions, while the responses of DES were scored in the four subdimensions.

For the qualitative analysis, the content analysis[18] was performed together with the aid of the software Iramuteq®, *Interface de R pour Analyses Multidimensionnelles de Textes et de Questionnaires* (IRAMUTEQ).[19]

This software is free, used for processing qualitative data, and provides different types of textual data analysis. The textual corpus was constructed from the grouping of each student's answers to the two questions, and was encoded in letters and numbers. Word cloud analysis and similarity analysis were used. This combined approach allowed a comprehensive and structured understanding of participants' answers.

The research followed the ethical standards required by Resolution n. 466/2012 of the National Health Council, with Assent Form and approval by the Research Ethics Committee of the Federal University of Paraná, under Opinion n. 4,421,846. Thus meeting Resolution n. 510/2016, which ensures the confidentiality of all data collected, ensuring that the identity of participants will remain anonymous and protected. The anonymity of the participants was guaranteed with the use of alpha numeric code represented by the letter A followed by a number: A1, A2, A3, respectively.

The data collected in the online form were processed, stored and accessed by authorized research team members, following strict security measures. These precautions have been taken to ensure the privacy of participants and make sure that all information collected is used exclusively for academic and scientific purposes.

Results

The participants were 60 students, who completed all stages. Of these, 91.9% (n=57) were

female and from private educational institutions. Age ranged between 19 and 52 years, and 100% (n=60) reported no experience with clinical simulation. 17 virtual debriefings were performed.

In the evaluation of debriefing by SaDAS (Table 1), there was the highest mean in the cognitive dimension (4.37±0.077), which may mean that, even though the participants only watched a simulation scenario, debriefing contributed to the learning and development of clinical reasoning.

The affective dimension presented the lowest average, however, higher than 4 points, demonstrating the importance of debriefing in the emotional aspects that involve learning through simulation.

In the general evaluation, the average obtained was 4.25±0.244, which suggests that the participants had a high level of agreement regarding the items of the SaDAS and a more positive perception regarding the cognitive aspects during the debriefing.

Table 1 - Mean values for each dimension, according to the debriefing assessment scale associated with the SaDAS simulation (n=60). Curitiba/PR, Brazil, 2020-2021 (Notes 8 and 9)

Dimension	N	Min.	Max.	M	SD
Affective Value	60	3.50	4.50	4.07	0.260
Cognitive Value	60	4.23	4.48	4.37	0.077
Psychosocial Value	60	4.18	4.63	4.34	0.141
General	60	3.5	4.63	4.25	0.244

Caption: N – number of participants; Min. – minimum; Max. – Maximum; M – mean; SD – standard deviation.

Table 2 shows the distribution of participants according to the answers for each item and for the four DES factors. It was observed that the experience with debriefing was positive, since, in the general evaluation, the mean obtained was 4.38±0.074.

Two items, from factor 1- Analyzing thoughts and feelings, reached the highest and lowest mean among the 20 items of the scale, being "Debriefing helped me analyze my thoughts" (4.53±0.503) and "Incorrect feelings were resolved through debriefing" (4.18± 0.624).

When analyzed by factor, factor 4 – Proper guidance from the professor obtained the highest mean (4.41±0.025), followed by factor 1, factor 2 and, finally, factor 3 with the lowest mean (4.37±0.031).

Table 2 - Distribution of participants according to the Debriefing Experience Scale (n=60). Curitiba/PR, Brazil, 2020-2021

Debriefing Experience Scale	Min.	Max.	M	SD
1. Debriefing helped me analyze my thoughts.	4	5	4.53	0.503
2. The professor reinforced aspects of the health team's behavior.	3	5	4.47	0.566
3. The debriefing environment was physically comfortable.	3	5	4.42	0.530
4. Incorrect feelings were resolved through debriefing.	3	5	4.18	0.624
Factor 1 – Analyzing thoughts and feelings	3	5	4.40	0.152
5. Debriefing helped me make connections in my learning.	3	5	4.47	0.536
6. The debriefing was helpful in processing the simulation experience.	4	5	4.45	0.502
7. The debriefing provided me with learning opportunities.	3	5	4.38	0.524
8. The debriefing helped me find meaning in the simulation.	1	5	4.35	0.659
9. My questions from the simulation were answered by the debriefing.	3	5	4.33	0.510
10. I became more aware of myself during the debriefing session.	4	5	4.42	0.497
11. Debriefing helped me clarify problems.	3	5	4.32	0.567
12. Debriefing helped me make connections between theory and real-life situations.	3	5	4.32	0.537
Factor 2 – Learning and making connections	1	5	4.38	0.060
13. The professor allowed me enough time to verbalize my feelings before comments.	4	5	4.37	0.486
14. In the debriefing session, the professor made the correct clarifications.	4	5	4.38	0.490
15. The debriefing provided a way for me to reflect on my actions during the simulation.	4	5	4.40	0.494
16. I had enough time to clarify my questions.	3	5	4.37	0.551
17. In the debriefing session, the professor was an expert on the topic developed in the simulation.	2	5	4.32	0.624
Factor 3 – Professor's ability to conduct the debriefing	2	5	4.37	0.031
18. The professor taught the right amount during the debriefing session.	3	5	4.38	0.555
19. The professor performed a constructive evaluation of the simulation during the debriefing.	3	5	4.40	0.527
20. The professor provided adequate guidance during the debriefing	3	5	4.43	0.533
Factor 4 – Proper guidance from the professor	3	5	4.41	0.025
General	1	5	4.38	0.074

Caption: Min. – minimum; Max. – Maximum; M – mean; SD – standard deviation.

In the qualitative analysis stage, performed by Iramuteq, the 60 interviews originated 60 Initial Context Units (ICUs), which generated 2406 occurrences (words, forms or terms). Of these, 391 are distinct forms and 179 are hapax (words with only a single occurrence).

When generating the words cloud (Figure 1), it was observed that the word most evidenced was "patient"; in addition, when analyzing the textual corpus, the importance of the words "patient", "not", "learn" and "calm" was perceived. In the interpretation of the results, it was found that the use of these terms is justified by the dynamics used, corroborating the previous analysis.

Figure 1 - Words cloud. Curitiba/PR, Brazil, 2023
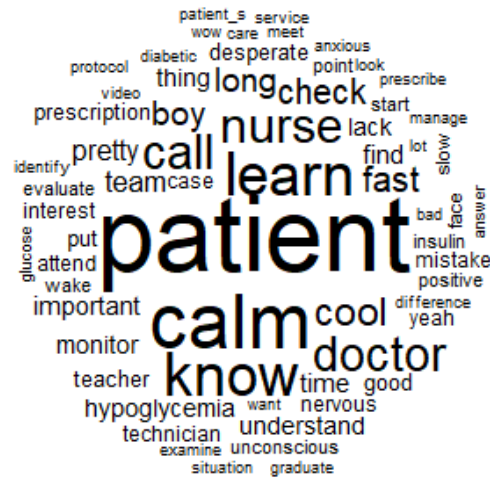
The similarity analysis was also performed in Figure 2, which allowed a thorough investigation of the connections between the words based on their frequency. By highlighting the most frequent words and their connections, there is a junction of valuable insights into the language patterns and structure of the analyzed text.

Figure 2 - Analysis of similarity with the connection and indications of connection between words (n=60). Curitiba/PR, Brazil, 2023
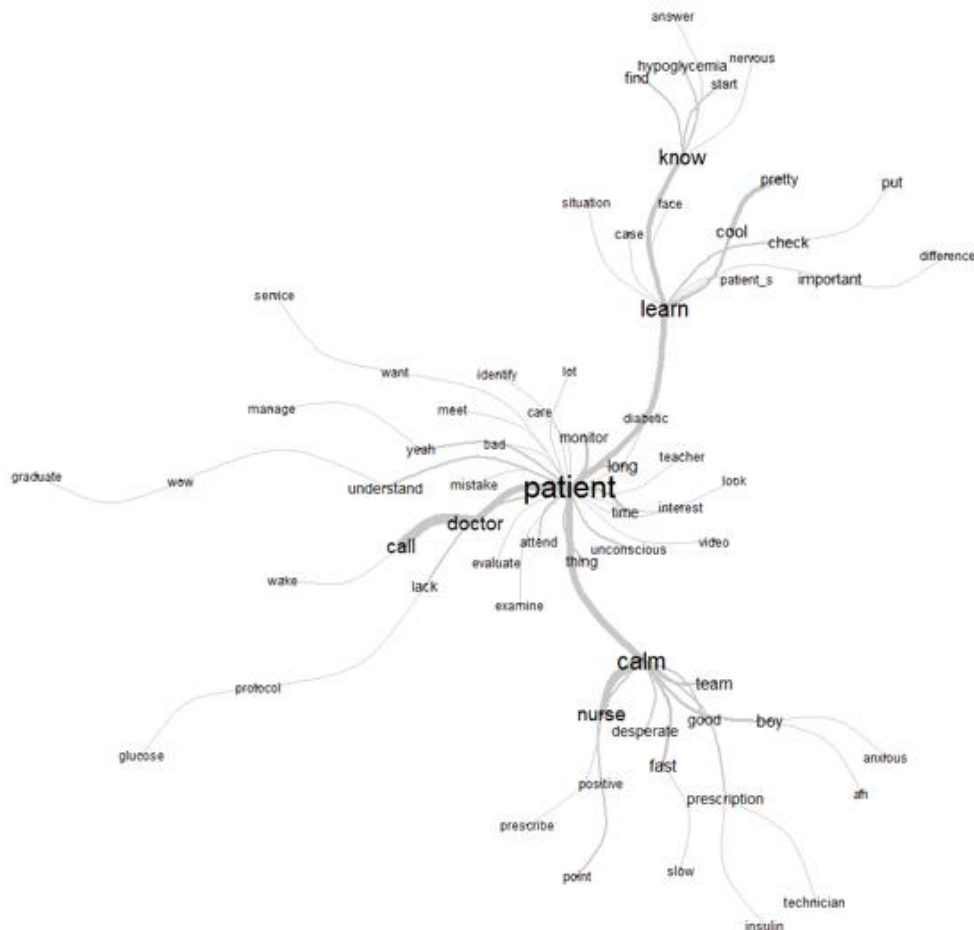
The word "patient" is the central point, with branches that connect to other terms. This centrality may indicate that "patient" is a key term that permeates several discussions or is a starting point for the construction of related ideas and concepts, as observed in the participants' responses.

> [...] *I thought I managed to learn, I hadn't thought that way, I think it was right they checked the vital signs, assessed the patient and called the doctor, I just think they were very calm and the patient was unconscious, I think they should have been more agile* [...]. A4
>
> [...] *I had never seen hypoglycemia. Now, if I have to treat a patient, I already have an idea of how to assist or at least what to do and what not to do. One was desperate and making a mess and the nurse was a little too calm, this could harm the patient. The technician dropped things and didn't check the prescription before aspirating the medication* [...]. A10
>
> *I think it can be a new way of learning. The nurse was too calm, if it were me, she would have been desperate seeing the patient like that without responding. It took them a while to call the doctor and also to reevaluate* [...]. A7
>
> *I think I really learned, I didn't know what it was, I would have thought he had fainted, but I hadn't thought about the cause. Knowing that the patient was diabetic, I would check the blood glucose level straight away. I think they took a long time to think about it, we have to learn to correlate the disease with the possible causes and symptoms presented by the patient* [...]. A47

In the context of this research, participants' responses demonstrate how much the use of a recorded simulation scenario and virtual debriefing can contribute to the learning and observation of clinical signs and responses presented by the patient to the conduct of professionals.

Discussion

Debriefing stands out as a moment that provides students with the opportunity to reflect on their learning during simulated practice, so that emotions, critical thinking, creativity, reasoning, clinical judgment and decision-making are stimulated.[20-22]

Thus, debriefing is a widely used technique in the health area to reflect on a clinical experience and allow professionals and students to analyze their practices, identify strengths and weaknesses and promote continuous improvement of service quality.[20-22]

When analyzing the results of SaDAS in the cognitive and affective dimensions, there was a small difference in the perception of participants regarding the cognitive and affective dimension, however, the general level of agreement was high.

Regarding the cognitive dimension, the results corroborate a study developed in the clinical simulation laboratory of a public university in southern Brazil, in which the average cognitive value was higher in relation to psychosocial and affective values, respectively.[23]

In the affective dimension, there was high agreement in improving the ability to manage emotions. Thus, the result is similar to that of a study in which 97.1% (n=35) of the students answered that debriefing can provide improvement in the emotional aspect.[23]

Regarding the psychosocial dimension, there was high agreement related to the interest of the facilitator in professional development. The experience of debriefing contributed to the acquisition of teamwork competence, with leadership development for decision making.

It is important to highlight the leadership in the professional practice of nurses, in generating better results, as well as for health organizations.[24] These results contribute to the understanding of the usefulness and effectiveness of virtual debriefing in nursing teaching, as well as areas to be worked on.

Moreover, the use of audiovisual resources and access to information on the Internet can enrich discussion and learning. In this sense, the results of this research showed that the virtual debriefing was effective and satisfactory for the participants, corroborating findings from other studies.[9,25]

The simulation-based experience requires a facilitator who has the training and ability to lead, support and seek ways to help participants achieve the expected results.[26]

The results presented indicate that most students recognized the professor's competence in conducting debriefing effectively. The ability of the professor is fundamental in the debriefing process, since the professor is responsible for facilitating discussion, stimulating reflection and promoting an in-depth analysis of the experience lived.

Considering the moment in which this research was carried out, there was no virtual debriefing model to be followed, and the existing concepts of INACLS were adopted.[26] It is emphasized that some aspects were essential to obtain the results of this research, including the planning of the time for debriefing, providing a specific link for this moment, adequate guidance to participants so that they could watch the scenario at most 24 hours before debriefing, the empathic embracement and the opportunity to evaluate the debriefing.

An experimental research highlighted the need to clearly establish pre-simulation information in order to ensure the effectiveness of virtual debriefing, in this sense, it is essential

that participants are in a comfortable and appropriate environment for this phase of the simulation.[9] In addition, another study presents new suggestions related to essential aspects for virtual debriefing,[7] which are believed to have been adopted in the methodology.

Concerning the Debriefing Experience Scale, item 1 – "Debriefing helped me analyze my thoughts" obtained the highest average. This finding indicates that the facilitator performed well, since most students did not report discomfort during the session. When analyzing the factors, factor 4 – "Proper guidance from the professor" obtained the highest average, followed by factor 1, factor 2 and factor 3, respectively.

Another research conducted with students of the seventh semester of the bachelor's degree in nursing at the University Center of the Federal District, when analyzing factor 4 and 3 – "Professor's ability to conduct debriefing", similar results were found, which corroborate the constructive evaluation by the professor during debriefing, with the provision of appropriate guidelines before, during and after the simulation.[27]

As for factor 1 – "Analyzing thoughts and feelings", it was observed that the students evaluated the debriefing as a possibility of learning, reflection on skills for making assertive decisions and identification of the main conducts of professional practice.[27]

The second factor analyzed – "Learning and making connections" - points out that debriefing contributed to the acquisition of knowledge, clarifications and reflections on practice. Simulation enables a better association between theory and practice, with meaningful learning of students.[27]

Regarding the qualitative results, the speeches showed that some participants would not know how to act against an LLC before debriefing and later reported that, in real practice, with the patient in the hospital, could identify the emergency situation as presented in the recorded simulation. The importance of preparing scenarios with the highest degree of realism becomes evident, so that the student approaches clinical practice.

From the above, and with the positive results found, it is inferred that performing virtual debriefing can contribute to nursing education. Among the main points evaluated, the ease of access and use of the virtual platform are highlighted as positive.

However, the lack of physical contact and the absence of face-to-face interaction can affect communication and connection between participants, in order to interfere with engagement and depth of discussion. Another point relates to technical problems, such as connection problems,

audio and video, which can affect the quality and effectiveness of the discussion and, for this reason, should be avoided.

It is also important to evaluate the pedagogical aspect of virtual debriefing, such as the ability to transmit information in a clear and concise way, and provide a critical reflection on the actions taken. In this regard, the evaluation of virtual debriefing with nursing students can contribute to identify possible problems and improve the quality of practice, ensuring a complete and efficient training for future health professionals.

Other aspects, such as the effectiveness of debriefing in promoting learning and participant satisfaction, can be explored in future studies, for a comprehensive understanding of the benefits and limitations of virtual debriefing.

In the development of this research, it was important to recognize and consider some limitations that may have impacted on the results obtained. There were difficulties in recruiting and selecting participants due to the pandemic period.

The time interval between viewing the simulation video and performing debriefing may have influenced the results, since participants had time to reflect on their actions, study best practices and discuss the recorded activity with their colleagues, which may have led to a planned and less reflective response during debriefing.

Furthermore, the competence of facilitators in conducting virtual debriefings may have influenced, given that the necessary skills may differ from those in person. However, the results of this research indicate that the use of technologies to bring students closer to simulation learning and virtual debriefing were satisfactory.

It is noteworthy that the COVID-19 pandemic has increased the need for virtual learning and discussion activities. Virtual debriefing has become a safe and viable option for maintaining learning and reflection during the pandemic, allowing students and healthcare professionals to continue to connect and share experiences.

Conclusion

The present study met the proposed objective of performing the evaluation of virtual debriefing, after students watch a scenario of simulation recorded on lowering of the level of consciousness by hypoglycemia. It is noteworthy that, despite the pandemic moment, the

application of this resource allowed the participants a first contact with the simulation methodology.

The results showed that, during the virtual debriefing, nursing students could improve knowledge and reflective thinking, identify priorities in action and develop decision-making skills, points evidenced in this research.

Nevertheless, it is important to consider that the implementation of virtual debriefing may present challenges, such as the need for adequate technology and adaptation of facilitators and participants to this new form of communication. It is necessary to investigate the evolution of virtual debriefing in promoting learning and reflection of participants and improving the quality of health care.

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