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Students' perceptions of telesimulation in teaching care for children with intestinal ostomy

Percepções de estudantes sobre a telessimulação no ensino do cuidado à criança com estomia intestinal

Percepciones de los estudiantes sobre la telesimulación en la enseñanza de la atención a niños con ostomía intestinal

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ABSTRACT
Objective: to examine nursing students' perceptions of telesimulation in the teaching of care for children with intestinal ostomy. **Method:** this prospective, qualitative study was conducted, with research ethics committee approval, in August 2021, in a virtual environment. Thirty-one regularly enrolled nursing students with Internet access took part in scripted interviews addressing variables of the scene displayed, the contributions of telesimulation to learning, and difficulties identified. The data were subjected to thematic analysis assisted by MAXQDA software. **Results:** students considered that the software simulation was realistic and facilitated the understanding of child care with intestinal ostomy. Three thematic categories emerged: perceptions of the scene displayed in the telesimulation, adverse aspects of telesimulation, and perceived gains after telesimulation. **Conclusion:** the telesimulation was realistic, useful the students' interaction with the theme of intestinal ostomy in children, and prompted thinking on the nurse's role.
Descriptors: Education, Distance; Simulation Training; Pediatric Nursing; Surgical Stomas.

RESUMO
Objetivo: averiguar a percepção de estudantes de enfermagem sobre a telessimulação no ensino do cuidado à criança com estomia intestinal. **Método:** estudo prospectivo e qualitativo, aprovado pelo Comitê de Ética em Pesquisa, realizado em agosto de 2021, em ambiente virtual. Participaram da pesquisa 31 estudantes de enfermagem regularmente matriculados, com acesso à internet, submetidos a entrevistas guiadas, contendo variáveis sobre a cena assistida, contribuições da telessimulação para a aprendizagem e dificuldades identificadas. A análise dos dados ocorreu conforme analise temática com auxílio do software MAXQDA. **Resultados:** os estudantes consideraram a telessimulação realística e facilitadora da compreensão do cuidado à criança com estomia intestinal. Surgiram três categorias temáticas: percepções sobre a cena transmitida na telessimulação, pontos negativos da telessimulação e ganhos percebidos após a telessimulação. **Conclusão:** a telessimulação foi realística, útil para a interação dos estudantes com a temática estomia intestinal em criança e promoveu reflexões quanto ao papel do enfermeiro.
Descritores: Educação à Distância; Treinamento por Simulação; Enfermagem Pediátrica; Estomas Cirúrgicos.

RESUMEN
Objetivo: verificar la percepción de los estudiantes de enfermería sobre la telesimulación en la enseñanza de la atención a niños con ostomía intestinal. **Método:** estudio prospectivo y cualitativo, aprobado por el Comité de Ética en Investigación, realizado en agosto de 2021, en entorno virtual. Participaron en el estudio treinta y un estudiantes de enfermería matriculados regularmente, con acceso a internet, por medio de entrevistas guiadas que contienen variables sobre la escena asistida, contribuciones de la telesimulación al aprendizaje y dificultades identificadas. El análisis de datos se realizó de acuerdo con el análisis temático con la ayuda del software MAXQDA. **Resultados:** los estudiantes consideraron la telesimulación realística y facilitadora de la comprensión del cuidado del niño con ostomía intestinal. Han surgido tres categorías temáticas: percepciones sobre la escena transmitida en la telesimulación, puntos negativos de la telesimulación y ganancias percibidas después de la telesimulación. **Conclusión:** el telesimulación fue realística, útil para la interacción de los estudiantes con el tema ostomía intestinal en niños y promovió reflexiones sobre el papel del enfermero.
Descriptores: Educación a Distancia; Entrenamiento Simulado; Enfermería Pediátrica; Estomas Quirúrgicos.

INTRODUCTION

A confecção de uma estomia intestinal consiste em uma estratégia terapêutica de manutenção das eliminações e, portanto, da continuidade da vida, sendo realizada a exteriorização da alça intestinal para o meio externo[1]. Na criança as estomias intestinais constituem-se em recurso no tratamento de diversas enfermidades, muitas delas de origem congênita[2,3].

O paciente pediátrico apresenta singularidades na realização de seu cuidado relacionados ao processo de adaptação da estrutura à função, havendo necessidade de critério rigoroso na confecção e cuidado de um estoma[4,5], sendo importante preparar enfermeiros, desde a graduação, para o exercício desse cuidado[6].

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A clinical simulation is a resource that can be used in this context because it is a teaching method that mimics real-life situations and prioritizes the development of technical skills and clinical competencies, also working on crisis management[7,8].

However, the health education context underwent an important transformation on March 11th, 2020, when the Director-General of the World Health Organization (WHO) characterized COVID-19 as a pandemic[9]. Since then, many countries have suspended brick-and-mortar classes in higher education institutions, and teaching and learning methods had to be readapted and reinvented. Thus, investment was made in distance learning and electronic platforms to promote the interaction between students and professors[10,11].

This new teaching context raised discussions about using remote simulation or telesimulation training in practical courses[12]. This strategy emerged as an alternative and involved adapting standard clinical simulation with the distance learning format[13,14].

Considering the range of factors involving a child with an ostomy, the nuances concerning nursing education, and the need for alternatives to promote learning during the COVID-19 pandemic, the following question emerged: What are the perceptions of nursing students regarding telesimulation on the learning of care provided to children with intestinal ostomies?

This study aimed to identify nursing students' perception regarding telesimulation in teaching care provided to children with intestinal ostomies.

THEORETICAL FRAMEWORK

Many studies have shown the training potential of simulations to develop clinical competencies and technical skills in the various healthcare settings among students and health workers (*in situ* simulation)[15,16]. However, some circumstances prevent in-person simulations in clinical simulation centers[17], as was the case of the COVID-19 pandemic.

Performing synchronous simulations using virtual platforms (telesimulation) emerges as a feasible alternative in these circumstances. Telesimulation is an active teaching concept through which standard simulation resources are used remotely to provide knowledge and train students located outside the simulation center[18].

This method has the potential to overcome challenges related to the impossibility of face-to-face access, enabling connectivity through Distance Education, favoring the development of non-technical skills by incorporating stages and the benefits of clinical simulation[17,18] together with telecommunication resources[12].

Telesimulation can be conducted using different formats as long as some stages are complied with, such as pre-briefing, briefing, scene monitoring, and debriefing. Actors and/or simulators must be used, with the prior organization of structured scenarios, ensuring the scene is adequately transmitted (audio and video). The students can watch the simulation performed by actors using materials, dummies, and simulators or train the intervention using a training manikin or anatomical piece. In both cases, they are guided by a facilitator in the simulation center[12,13,18,19].

Telesimulation is an evolving teaching field that combines distance learning with standard simulation. It requires clear learning objectives, qualified operational resources, and a robust methodology to achieve teaching and learning goals[13,14].

METHOD

Prospective, descriptive, interpretative, and qualitative study[20]. The survey was performed in a virtual environment, and the stages were performed in a nursing practice laboratory from a public university in the Midwest region of Brazil. The laboratory includes a unit to train nursing technical skills and is located in the university's nursing teaching department.

Thirty-one nursing students enrolled in the previously mentioned university participated. The inclusion criteria were nursing students regularly enrolled in the fourth to tenth semesters, having access to the Internet, and a media resource to watch the telesimulation. Students who had suspended their studies or were on sick leave were excluded.

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A non-random, convenient sample was adopted and included all those who met the inclusion criteria and consented to participate. The students were invited by email and WhatsApp® and received a link to access the free and informed consent form and a form addressing sociodemographic characterization.

The students were divided into five groups with at least four and seven students at most. Each group participated in a previously scheduled telesimulation in August 2021. The simulation was transmitted via Zoom® from the nursing practice laboratory, which was adapted with an omnidirectional microphone and six cameras to capture different angles of the scene, that is, three notebooks and three smartphones connected to the Zoom platform.

The participants watched the simulation of a nursing outpatient consultation of a three-year-old child with a colostomy, accompanied by her mother. A child-training manikin was used, and two nurses played the role of the child's mother and the nurse who provided care to the child. The scenario presented in the telesimulation was previously validated, and the script contained the following items: actors' identification, communication between the nurse, patient, and companion, identification of clinical case, physical exam directed to the patient's condition, identification of complaints, assessment of ostomy and peristomal skin, cleaning and application of adjuvant, exchange of collecting equipment, provision of guidelines and recording.

After the telesimulation, the students remained in the virtual room with their cameras on and participated in a group interview guided by a semi-structured script addressing the following variables: describe what drew your attention in the scene presented in the telesimulation; describe the nursing care provided during the consultation, list the obstacles impeding learning this topic during telesimulation, describe your experience with the telesimulation, and how telesimulation contributed to learning about the care provided to children with intestinal ostomies.

Thematic analysis was implemented using the MAXQDA software to assess data. The thematic analysis involves a constant movement through data, coded excerpts, and the researcher's analysis. From this perspective, the stages involved getting familiar with data, establishing the codes, searching for themes, reviewing and naming themes, and producing the final report[21].

The letter "S" followed by an Arabic number was used to name the students and preserve their identities. The Institutional Review Board approved the study protocol.

RESULTS

Thirty-one students participated in the study: 28 (90.32%) were women, and 3 (9.68%) were men, aged between 19 and 42. They were enrolled between the fourth and eighth semesters of the undergraduate nursing program and were born in Mato Grosso, Goiás, Tocantins, Minas Gerais, or Federal District, Brazil.

Twenty-nine (93.55%) participants had had previous contact with the intestinal ostomy topic, and 30 (96.77%) had no knowledge about intestinal ostomies in children.

When asked if they had had prior contact with a clinical simulation, 10 (20.83%) participants reported a previous contact with it in an extracurricular course in the undergraduate program. None of the participants had had contact with telesimulation before this study.

Three thematic categories emerged when reassessing the axes, codes, and the final report was developed[21].

Perceptions of the scene presented during the telesimulation

Understanding the perception of the students who attended the simulation is essential for the students' qualification and maturing process[22]. From this perspective, the students were encouraged to describe their perceptions of telesimulation. The students noted the scene's realism and the possibility of encountering some of the situations addressed in the telesimulation in real-life situations, also emphasizing the nurse's conduct when providing care.

> *The way the case was conducted was very natural, and it was really cool, not only the technique; it wasn't a mechanical action, and it drew my attention (S5).*
>
> *I guess that everything we saw in the telesimulation may happen in real life, the mother's doubts regarding the collecting bag, when to remove and replace it, skin complications, when empty the bag, everything can happen in real life (S13).*
>
> *We will find many of these problems in a real-life consultation, just like in the telesimulation (S15).*
>
> *I watched how the nurse dealt with the mother and child, the way she talked, got the information, and at the same time, made the assessment and provided care, all at the same time[...] (S17).*

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> *It was so authentic and peaceful that it felt like I was there. The nurse's orientation was good for me because I didn't know what to do (S21).*

Telesimulation weaknesses

The students also listed the negative aspects of telesimulation in the teaching and learning process. For example, oscillations on the Internet were mentioned as one aspect that harms the activity's sequence, limiting understanding of the audio and visualization of some details.

> *The biggest problem was the Internet; it oscillated and crashed a few times (S12).*
>
> *The greatest difficulty was the audio; when we spoke, the audio overlapped, and we got a little lost [...] (S15)*
>
> *The negative part is the sound and our dependence on the Internet [...] (E22).*
>
> *The bad part for me was the Internet connection; it crashed twice, and I missed the transmission for a few seconds (S27).*

Some students noted that the fact that the activity was entirely online was a negative aspect due to the impossibility of handling the material and equipment, making the activity incomplete for learning.

> *Because we don't handle the material, we don't learn it completely [...] (S14).*
>
> *So, I missed handling the equipment and adjuvants, handling, attaching the equipment to the dummy myself [...] (S15).*
>
> *We learn more in a face-to-face simulation because we see more details, even if nervous. Here, in the telesimulation we know we don't need to do anything and we get it easy, but I missed handling the material, doing the procedure myself [...] (S 20).*

Gains perceived after the telesimulation

The participants also emphasized some gains they obtained from the telesimulation. Initially, the students listed improved understanding of the relevance of the communication between nurse, patient, and companion, qualified listening, and the importance of assessing the patient.

> *I've learned the importance of care itself because communication was linked to listening and assessment, and then the nurse performed the technique, and it all culminated in care delivery (S5).*
>
> *I've understood how to assess a patient with colonoscopy and realized what details I need to look at and how to make the assessment [...] (S6).*
>
> *I'll take the importance of natural communication and how to approach a child and mother [...] (S14).*
>
> *The importance of listening, try to learn about the patient's context, the companion, and the family to provide care according to the needs I identify during the conversation (S15).*

Another aspect the students highlighted was the importance of understanding the role of nurses by watching the care provided during the telesimulation.

> *It made me think about what I would do if I were there with the child and mother; I guess I really understand now that my role as a nurse can make a lot of difference (S5).*
>
> *It makes us realize that we need knowledge, put ourselves in the mother and child's shoes and be able to provide sound guidance, to be a real nurse (S8).*
>
> *I could imagine and put myself in the nurse's role, something I wasn't much aware of, [...] so, watching it before training it myself helps me see how I must behave (E10).*

DISCUSSION

One of the objectives of telesimulation is to train students by transmitting a simulated scene[12], emphasizing facts or situations that mimic real-life clinical practice. Hence, organizing the setting as close as possible to the real-life environment is crucial to ensure the students have the correct perception of the scenario[23].

The students participating in a study that adopted telesimulation and clinical cases interpreted by actors and focused on the nurses' communication when providing family care, considered the actors' authenticity and the scene realism to be positive aspects that favored a better understanding of the role of nurses in the delivery of care[24].

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Another study conducted during the pandemic used telesimulation to train medical students. The scenario was validated and simulated by an actor using a child-training manikin. The students reported that they recognized the clinical case and gained knowledge, in addition to having identified the roles[25].

Therefore, as reported by the students, we verified that the realism of the scene benefits learning because it enables students to visualize a real-life situation likely to encounter in clinical settings[14,26], make correlations between what they observe and their professional role, and interact with the topic[25].

The students also reported the negative aspects of telesimulation, such as oscillations on the Internet. Similar problems are reported by other studies using this simulation format, significantly interfering with the transmission quality, affecting understanding of the audio and video, and difficulties accessing the virtual meeting platform[13,26].

Another important negative aspect was the impossibility of students gaining tactile technical skills and practical conditioning by actually performing the procedure. One study that implemented telesimulation in medical residents' learning process verified that this tool's main limitation is the impossibility of students to practice psychomotor and technical skills[27].

The studies addressing telesimulation also report that the opportunity to observe care delivery is a valuable experience, especially to improve the students' cognitive aspects; however, it does not replace the face-to-face contact with the scenario and technical training[13,25,26,27].

Regarding gains, the students reported that the possibility of visualizing the communication and listening process between the nurse and companion was a significant aspect, corroborating other studies[26,27]. One of the most important factors for the quality of care in clinical practice, regardless of the care setting, is the competence of nurses to communicate with patients, families, and other workers[28.] Therefore, making a priority the contact of students with communication and attentive listening positively influences the development of these elements, which are considered facilitators of the care process[29].

One study conducted in Pakistan with 141 nursing trainees in the oncology and palliative care field used telesimulation during the Covid-19 pandemic to train a model for communicating bad news using a simulated patient. The conclusion is that the methodology helped teach communication skills and improve the students' confidence when communicating bad news[30]. Another study conducted in India with 104 medical residents used telesimulation in clinical practice with a pre-established scenario transmitted online and verified that the activity was good for providing guidance and promoting the residents' procedural communication skills[31].

Therefore, telesimulations enable presenting the communication process and training this competence, with gains in learning communication skills and orientation, in addition to improved theoretical knowledge[24].

Another gain the students reported included being able to visualize the role of nurses when providing care to a child in an outpatient clinic. Nurses are indispensable professionals in the context of care provided in all ostomy phases[32,33]. Therefore, prioritizing the contact of nursing students with professional practice contributes significantly to developing a professional identity, especially when related to the care provided in a specific field[34], such as the care provided to children with ostomies.

Introducing the topic of intestinal ostomy among children in the students' learning and teaching process was opportune because most participants had not had previous contact with this theme before the telesimulation. In addition, watching care through telesimulation favors clinical reasoning, behavioral understanding, recognition of clinical cases, familiarization with new content, and identifying the role of workers when providing care[14], aspects considered when the study was developed.

The telesimulation consisted of an active teaching method to shorten distances, enabling the continuity of education during the pandemic, introducing students to the outpatient care provided to children with ostomies, and enabling them to reflect important aspects such as the analysis of roles.

The students' perceptions revealed promising prospects for the incorporation of this methodology in the teaching and learning process in the institution's nursing program. Note that this study's results highlight that the telesimulation format is not a method to replace the conventional simulation, but it can be helpful as a complementary method, a notion reported by other studies addressing telesimulations[26,27,30].

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Study limitations

This study's limitations concern the oscillations on the Internet, which sometimes hindered audio communication and visualization of the scene and the fact that we could not provide an Internet package to the students. Note that the method used in this study did not test the efficacy of telesimulation in learning. Therefore, further studies adopting other methodological formats of telesimulation in nursing teaching are needed.

CONCLUSION

The results indicate that the students' perceptions focused on the realism of the telesimulation scenario and visualization of the nurse's conduct. In addition, the interviews revealed that the participants' gains included recognizing the importance of communication in care delivery, the need for clinical assessment, and an understanding of the nurse's role when providing care to a child with an intestinal ostomy.

The students' negative perceptions concerned the oscillations on the Internet, the impossibility of personally training the procedure, or handling the training manikin, collector, and adjuvant equipment.

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