# Potentialities and difficulties in nursing education during the COVID-19 pandemic

*Potencialidades e dificuldades na educação em enfermagem durante a pandemia de COVID-19*

*Potencialidades y dificultades en la educación de enfermería durante la pandemia de COVID-19*

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Claudia Capellari[a,b] ⓘ
Letícia Gross Herrmann[a] ⓘ
Dagmar Elaine Kaiser[b,c] ⓘ
Joel Rolim Mancia[b,d] ⓘ

## ABSTRACT

**Objective:** To know the potentialities and difficulties in Nursing teaching during the COVID-19 pandemic, in Rio Grande do Sul (RS).
**Method:** Cross-sectional study carried out with coordinators of 48 undergraduate Nursing courses in the state of RS, Brazil, between October 2020 and January 2021, using an electronic questionnaire sent to participants by email. Data analysis was performed using descriptive and inferential statistics.
**Results:** It was highlighted, as potentialities, the expansion in handling information and communication technologies (87.5%), increased creativity (79.2%) and diversification of methodologies (77.1%). As difficulties, the reduction of skills training (75.0%), less student/professor/colleagues interaction (70.8%) and reduction of interpersonal relationships (64.6%).
**Conclusion:** If, on the one hand, difficulties were identified, such as the reduction of skills training and interpersonal relationships, on the other hand, potentialities related to new technologies and teaching methods signal disruptive and irreversible changes in Nursing education.
**Keywords:** Education, nursing. COVID-19. Education, higher. Pandemics.

## RESUMO

**Objetivo:** Conhecer as potencialidades e dificuldades no ensino de Enfermagem durante a pandemia de COVID-19, no Rio Grande do Sul (RS).
**Método:** Estudo transversal, realizado junto a coordenadores de 48 cursos de graduação em Enfermagem do estado do RS, Brasil, entre outubro de 2020 e janeiro de 2021, por meio de questionário eletrônico, enviado aos participantes via e-mail. A análise dos dados ocorreu por meio de estatística descritiva e inferencial.
**Resultados:** Destacaram-se, como potencialidades, a ampliação no manejo das tecnologias de informação e comunicação (87,5%), aumento da criatividade (79,2%) e diversificação de metodologias (77,1%). Como dificuldades, a redução do treino de habilidades (75,0%), menor interação aluno/professor/colegas (70,8%) e redução das relações interpessoais (64,6%).
**Conclusão:** Se, por um lado, foram identificadas dificuldades, como a redução do treino de habilidades e das relações interpessoais, por outro, potencialidades relacionadas a novas tecnologias e métodos de ensino sinalizam alterações disruptivas e irreversíveis para o ensino de Enfermagem.
**Palavras-chave:** Educação em enfermagem. COVID-19. Educação superior. Pandemias.

## RESUMEN

**Objetivo:** Conocer el potencial y las dificultades en la enseñanza de Enfermería durante la pandemia de COVID-19 en Rio Grande do Sul (RS).
**Método:** Estudio transversal realizado con coordinadores de 48 cursos de pregrado en enfermería en el estado de RS, Brasil, entre octubre de 2020 y enero de 2021, a través de un cuestionario electrónico enviado a los participantes vía correo electrónico. El análisis de los datos se realizó mediante estadística descriptiva e inferencial.
**Resultados:** Se destacó, como potencial, la expansión en la gestión de las tecnologías de la información y la comunicación (87,5%), el aumento de la creatividad (79,2%) y la diversificación de metodologías (77,1%). Como dificultades, la reducción de la formación de habilidades (75,0%), menor interacción alumno/profesor/compañeros (70,8%) y reducción de las relaciones interpersonales (64,6%).
**Conclusión:** Si por un lado se identificaron dificultades, como la reducción de la formación de habilidades y las relaciones interpersonales, por otro lado, las potencialidades relacionadas con las nuevas tecnologías y métodos de enseñanza señalan cambios disruptivos e irreversibles en la formación en enfermería.
**Palabras clave:** Educación en enfermería. COVID-19. Educación superior. Pandemias.

[a] Faculdades Integradas de Taquara (FACCAT). Taquara, Rio Grande do Sul, Brasil.

[b] Associação Brasileira de Enfermagem (ABEn), Seção Rio Grande do Sul. Porto Alegre, Rio Grande do Sul, Brasil.

[c] Universidade Federal do Rio Grande do Sul (UFRGS). Escola de Enfermagem. Porto Alegre, Rio Grande do Sul, Brasil.

[d] Universidade do Vale do Rio dos Sinos (Unisinos). Porto Alegre, Rio Grande do Sul, Brasil.

## ■ INTRODUCTION

The new Coronavirus, SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), detected in China in December 2019 and identified as causing the Coronavirus Disease (COVID-19) pandemic in March 2020 by the Organization of Health (WHO)[1], has spread quickly. This has collapsed health systems and impacted nursing training, affecting learning and characterizing itself as an opportunity for transformations in education.

Added to this critical context, Brazil complies with social distancing determinations, and the society and the political and economic sectors are adjusting to the measures to be taken at a time that is still little predictable for public health. It is also worth mentioning to reflect on the impact that this pandemic scenario has on the educational system, especially on Nursing education.

Although the future is uncertain, it is possible to state that there are many challenges that are moving the world, people, Nursing, educational institutions, and health services. Social distancing, an effective measure against the spread of COVID-19, has directly reverberated in education worldwide, affecting more than 90% of students[2]; many of them started to access pedagogical guidelines and content through Information and Communication Technologies (ICTs). At the same time, it was up to schools reinventing teaching strategies, with remote models being widely used in this context. The adoption of such models, while promoting the continuity of teaching, including facilities, such as the opportunity of developing new methods, exchange between students and increase online research skills, can run into difficulties, such as changes in the forms of evaluation, from face-to-face to online, difficulties in carrying out practical classes, unstable online teaching environments, anxiety and lack of social interaction[3].

Emergency remote teaching (ERT), instituted by higher education institutions (HEI), on a contingency basis during the pandemic scenario, is a teaching modality that presupposes the geographical distancing between professors and students. Therefore, classes take place in a synchronous time and follow the principles of face-to-face teaching, but with classes broadcasted by web conferencing system[4].

In the scenario triggered by the COVID-19 pandemic, Nursing education, in turn, required adaptations both in theoretical classes and in laboratory practices, and in those involving direct patient care, such as care practices and curricular internships. Thus, in the midst of adversity, mapping the initiatives undertaken by Nursing schools, in the face of the ongoing pandemic and government determinations, is important, since, far beyond the record of this historic moment, it can identify promising initiatives with potential to positively contribute to professional education. On the other hand, recording the difficulties of professors and students, both related to access and handling technologies, as well as physical and mental health conditions, can justify possible shortcomings, training gaps, and identify some impacts on Nursing teaching, including pointing out disruptive movements in the ways of teaching and learning. The identification of such aspects is configured as the differential of the present work.

In view of the above, the question that guided the present study was: what were the potentialities and difficulties inherent in undergraduate nursing education during the COVID-19 pandemic? That said, the objective was to know the potentialities and difficulties in Nursing teaching during the COVID-19 pandemic, in Rio Grande do Sul.

## ■ METHOD

This is a cross-sectional study guided by the STROBE tool.

The place of study was the undergraduate nursing schools in the state of Rio Grande do Sul, Brazil. The data collection period took place between October 2020 and January 2021.

The study participants were the coordinators of the state's undergraduate Nursing course. For the sample calculation, it was considered the number of Nursing schools, in the face-to-face modality, on the understanding that, for each school, there is a coordinator. In the state, there are 56 higher education institutions (HEIs) that offer degrees in Nursing[5]. When contacting them, it was identified that 3 of them do not have a unit in RS. Thus, the population consisted of 53 coordinators of Nursing courses. Considering a confidence level of 95%, a margin of error of 5% and sample heterogeneity, it was calculated that the minimum sample would be 47 coordinators.

Regarding the eligibility criteria, all coordinators of these courses were included. As exclusion criteria, it was considered impossibility to answer the questionnaire due to lack of access to internet, vacancy, absences from any origin and coordinator, whose course has been discontinued or not started.

Participants were contacted via email, from the contact database of the Brazilian Nursing Association, Rio Grande do Sul Section (*Associação Brasileira de Enfermagem* – ABEn-RS). In addition, a public invitation was made at a monthly meeting of the Advisory Board of Nursing Schools in RS, organized by the education board of ABEn-RS. For courses that were not registered with ABEn-RS, an invitation was sent by email, available on the portal of their respective institution, on the

internet, or by telephone to present the research and send the electronic form for data collection.

The email sent contained a brief explanation about the research, and the invitation to access the link, which directed to a Google form, with the Free and Informed Consent Form (FICF), followed by a data collection instrument. This contained closed questions, which included the following variables: adherence to Emergency Remote Teaching (ERT), perception about how positive or negative the initiatives adopted for the ERT would be, characterization of positive and negative impacts (closed alternatives and field "others" for describe possible positive and negative impacts), difficulties and facilities in adopting the ERT.

The question that involved the participants' perception about how positive the initiatives adopted for the ERT would be for Nursing teaching asked them to respond to a 10-point Likert scale, in which one (1) would be the least positive result and 10 the most positive. The questions were formulated especially for this study.

After data collection, they were extracted directly from the spreadsheet generated by the Google form, in Excel format. After its organization, statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) software, version 25.0. Results were presented using descriptive statistics – absolute and relative frequency distribution (n – %), as well as measures of central tendency (mean) and variability (standard deviation), with a study of the continuous symmetric distributions analyzed by the Kolmogorov-Smirnov test.

The ethical precepts of Resolution No. 510/2016 of the National Health Council were followed, since the research uses data directly obtained from the participants, and the project was approved by the Research Ethics Committee, CAAE: 38810220,8,0000,8135.

## ■ RESULTS

A total of 48 coordinators of undergraduate Nursing courses in RS participated in the study. All schools represented by the participants joined the Emergency Remote Teaching (ERT) in the context of the pandemic.

Considering a score scale from 0 to 10, the participants were asked about their perception of how **positive** the initiatives used in the ERT were for Nursing teaching, in which 1 represents the worst result and 10 the best, obtaining the mean of 6.5 (sd = 1.8) points.

Regarding the characterization of the positive impacts mentioned by the sample, the following variables

predominated: "expansion of ICTs handling skills", mentioned by 87.5% (n=42) of the participants; "increased creativity", 79.2% (n=38); "diversification of methodologies", 77.1% (n=37) and "increased speed of information", 60.4% (n=29). As for the negative aspects, the following variables stood out: "reduction of skills training", 75.0% (n=36); "less interaction student/professor/colleagues", 70.8% (n=34); and "reduction of interpersonal relationships", 64.6% (n=31).

The overall scores of positive and negative impacts pointed out by the sample can be observed in Table 1.

Participants were also asked to describe, additionally, when checking the field "others", other positive and negative impacts, according to their perception, which were **positive**: reduction of student/professor expenses, with transport, to the institution (4.8%); offer of remote intercampi disciplines for other courses, providing opportunities for interprofessional teaching/work (4.8%); working on theoretical content in a more interactive way (4.8%); increase in student protagonism (4.8%); greater participation of the academic community in training (4.8%); approximation and bond professional/professor/authorities and expertise unreachable were achieved (4.8%); strengthening of partnerships (4.8%). Regarding the **negative** impacts, the following were pointed out: difficulties for students and professors to reconcile the new home routine with remote teaching (4.8%); keeping the cameras off by the students, making it difficult to make eye contact and interpret body language (4.8%); students connect, but do not follow the class (4.8%); overload of activities for students and professors (4.8%); lack of concentration (4.8%); impairment in interpersonal relationships; very emotive students, sensitive to the pandemic situation and family losses (4.8%).

All participants pointed out **difficulties and facilities** for carrying out the ERT, whose list is detailed in Table 2.

## ■ DISCUSSION

The COVID-19 pandemic brought several challenges to the teaching and learning process in Nursing, providing many adaptations and overcoming, especially in the adoption of Emergency Remote Teaching (ERT) as a way to provide the continuity of academic training. Among the participants in this study, all of them reported the adoption of the ERT in their HEI. This also obtained a positive perception among the participants, since it made it possible to continue teaching, even through digital means, allowing the training of new professionals, without interrupting the academic year, which would worsen the situation of the students.

**Table 1** – Overall scores of positive and negative impacts related to Emergency Remote Teaching. Rio Grande do Sul, Brazil, 2021

| Variables | Sample (n = 48) | |
|---|---|---|
| **POSITIVE Impacts**[B] | n | % |
| Expansion of ICT handling skills | 42 | 87.5 |
| Increased creativity | 38 | 79.2 |
| Increased speed of information | 29 | 60.4 |
| Diversification of methodologies | 37 | 77.1 |
| Meaning of learning | 11 | 22.9 |
| Expansion of collaborative work | 22 | 45.8 |
| Improved critical-reflective thinking | 11 | 22.9 |
| More interaction student/professor/colleagues | 1 | 2.1 |
| Other positive impacts | 7 | 12.5 |
| **NEGATIVE Impacts**[B] | | |
| Reduction of skills training | 36 | 75.0 |
| Less interaction student/professor/colleagues | 34 | 70.8 |
| Reduction of interpersonal relationships | 31 | 64.6 |
| Lower knowledge retention | 10 | 20.8 |
| Fragmented view | 16 | 33.3 |
| Worsed critical-reflective thinking | 13 | 27.1 |
| Reduced the meaning of learning | 11 | 22.9 |
| Other negative impacts | 6 | 12.5 |

A: Percentages obtained based on the total sample; B: Percentages obtained based on the analysis of the number of occurrences of cases (multiple response question).
Source: research data, 2021.

**Table 2** – Overall scores of difficulties and facilities related to Emergency Remote Teaching. Rio Grande do Sul, Brazil, 2021

| Variables | Sample (n = 48) | |
|---|---|---|
| **Difficulties in carrying out the ERT**[B] | **n** | **%** |
| Difficulty for students to access the internet | 39 | 81.3 |
| Students' lack of access to electronic devices (notebook, smartphone, computer) | 27 | 56.3 |
| Students' difficulties in handling digital technologies | 20 | 41.7 |
| Professors' difficulties in handling digital technologies | 19 | 39.6 |
| Difficulty of the faculty in changing from methodologies of face-to-face classes to the ERT | 20 | 41.7 |
| Difficulties in evaluating students in the ERT | 27 | 56.3 |
| Lack of prepare of the faculty to conduct classes in ERT | 12 | 25.0 |
| Students' difficulties in following the methodologies used in the ERT | 21 | 43.8 |
| Students' difficulties in organizing study time | 33 | 68.8 |
| Conducting synchronous classes | 2 | 4.2 |
| Little student involvement | 24 | 50.0 |
| Inadequate environment for students to follow classes (at home, for example) | 17 | 35.4 |
| Students' difficulty concentrating | 24 | 50.0 |
| Difficulty for professors to read students' body language | 25 | 52.1 |
| **Facilities for carrying out the ERT**[B] | | |
| Facility for students to access the internet | 4 | 11.4 |
| Facility for student access to electronic devices (notebook, smartphone, computer) | 8 | 22.9 |
| Students' facilities in handling digital technologies | 19 | 54.3 |
| Professors' facilities in handling digital technologies | 12 | 34.3 |
| Facilities of the faculty in changing from methodologies of face-to-face classes to the ERT | 10 | 28.6 |
| Facilities in evaluating students in the ERT | 4 | 11.4 |
| Prepare of the faculty to conduct classes in ERT | 17 | 48.6 |
| Students' facilities in following the methodologies used in the ERT | 2 | 4.2 |
| Students' facilities in organizing study time | 1 | 2.9 |

**Table 2** – Cont.

| Variables | Sample (n = 48) | |
|---|---|---|
| Conducting synchronous classes | 22 | 62.9 |
| Good student involvement | 9 | 25.7 |
| Appropriate environment for students to follow classes (at home, for example) | 2 | 4.2 |
| Facility of students concentration | 1 | 2.9 |

B: Percentages obtained based on the analysis of the number of cases (multiple response question).
Source: research data, 2021.

With the adherence to the ERT and the massive use of ICTs for the continuity of classes in a non-face-to-face way, new paradigms were imposed on the teaching and learning process, such as the **expansion of creativity** and **improvement in handling technologies**, which corroborates with studies already carried out, emphasizing that remote activities, when well planned, can stimulate students more than traditional classes, as they can keep them connected and positively strengthen their **ICTs skills**[3,6–7]. However, it is necessary for the faculty to be clear about the offer of ERT in circumstances of crisis and online teaching, which requires adequate planning so that become guaranteed robustness of the teaching-learning process[6].

Even before the COVID-19 pandemic, there was already an increase in the adoption of educational technologies, with global investments in edtech, which reached US$18.66 billion in 2019 and projected to reach US$350 billion in 2025. Whether in language applications, virtual classes, video conferencing tools or online learning software, a significant increase in the use of such items has been observed with the advent of COVID-19[8].

Although Brazil presents great social disparity, the participants of this study indicated access to the internet and electronic devices as a facility for the development of the ERT, although these elements also figured in the difficulties, evidencing a contradiction in the study's findings. Such contradiction may also be related to the fragility resulting from this study, as it analyzed data from the point of view of the coordinators and not from other actors that are also important in the teaching-learning process, such as professors and students. In this sense, a research conducted with medical students from three countries in South America, during the COVID-19 pandemic, identified that part of the students stated that the equipment and the internet available would not allow them to effectively monitor the activities in ERT, although that, in the context of medical students, low-income students were a minority[9]. Social disparities are also identified on a global scale. While 95% of students in Switzerland, Norway and Austria have a computer to use for their schoolwork, only 34% of Indonesian students have such equipment[8].

Online education has made problems of disparity very visible, which can impact students' ability to learn and have success. For example, students confined to their homes may not have access to the internet; those residing in rural areas may not have access to the bandwidth needed to access more sophisticated learning resources such as videos or voice presentations; regardless of geographic location, students may not have access to laptops and computers at home[7]. Such limitations require greater sensitivity and flexibility from the faculty in conducting online education.

Difficulties regarding internet access are also the main **negative points** identified in this study. Despite the popularization of cell phones and computers, access to a good quality connection is still not uniform and, thus, many students may not have adequate equipment and stable internet to monitor academic activities[10]. Data from different experiences in the literature corroborate these adversities, also citing the lack of digital skills on the part of older students, when compared to younger students, technical difficulties in relation to the digital platform, interruptions during classes due to connectivity issues, and audio and video delays, making it difficult to follow the synchronous classes[3–4,6–7,11].

Other important findings, pointed out by the participants as **negative impacts**, were the **reduction of skills training** and **interpersonal relationships** related to the ERT, regarding Nursing teaching, considered a primarily dialogic-relational profession, whose work object, the care, depends on fundamentally from interpersonal relationships, both in their training and in their professional practice[6]. According to this, it was identified a publication that highlights the importance of clinical practice, referring that, in fact, the

current circumstance can promote some educational loss, as there is no substitute for practical laboratory classes and clinical internships; in addition, the nursing professional is the tool of their own performance and, therefore, it is impossible to train them fully in distance learning modality[4].

Thus, the **negative impacts** recognized by the participants are in line with what is recommended as essential to reduce dichotomies in training, such as the development of clinical judgment, critical thinking, the ability to adapt to changes, recognition and action in the professional reality and the student's role in their training process[7,12].

In this context, it is important to highlight the government action *O Brasil Conta Comigo* (Brazil counts on me), which aimed to recruit more professionals to help in places where there was greater need. In this action, health students could register and be called to act in the fight against the pandemic, having the opportunity to acquire more practical and interpersonal skills[13]. This measure has provided more experience for students who helped fight the pandemic, and the hours dedicated to the action could be computed to complement the supervised curricular internship[14].

In addition, the Ministry of Education (MEC), in an exceptional measure, authorized the reduction of school days and determined that there was the possibility of early completion of the course for students from the Medicine, Nursing, Pharmacy and Physical Therapy courses, which already were in supervised curricular internship[15]. Equally, in the USA, the California Board of Registered Nursing has reduced the clinical hours requirement for nursing students[7]. Such measure made it possible to reinforce the supply of qualified labor to cope with the COVID-19 pandemic; however, it leads to questioning whether this anticipation could harm academic training, since it significantly reduced the time reserved for clinical practice.

The participants of this study also recognized the **potentialities** arising from the ERT, such as the **expansion of skills in handling ICTs**, the **speed of information sharing** and the **increase of creativity** of those involved in this process, evidencing a good evaluation regarding the inclusion of tools technologies in teaching, as highlighted by previous studies, which associate ICTs with good results in undergraduate training, in addition to emphasizing the incentive to curiosity and resolution of challenges associated with increased creativity and manipulation of tools. Furthermore, recent studies indicate the need to rethink, adapt what is currently known, easing the difficulties to ensure quality learning for academics[16–18].

A **positive impact** highlighted by the coordinators was the **reduction in expenses of students and professors** with transport to educational institutions, a benefit

that emerged due to the application of the ERT. In this way, students who lived far from the campus, or those who had setbacks in relation to the face-to-face workload, benefited due to the ease of access to classes through the internet. In this same context, new possibilities were envisaged for multidisciplinary teaching, interprofessional work and the strengthening of partnerships between institutions, especially by video conferencing. In this sense, a **potentiality** arises, enabling to share more updated information and richer discussions, a contributing factor to the disruption in health education, essentially in a period of health crisis[4,11,16].

On the other hand, the home and family routine was one of the **negative points**, signaled regarding the ERT, especially in the pandemic scenario, in which social stress stands out, which hinders student performance: concerns about family income, economic and emotional vulnerability, routine changes, social distancing and family members at risk. Added to this is the recess from schools and work; in this way, families take care of their children full-time and possibly share equipment and environments with other family members, making it difficult to concentrate in class and organize study time[4,14]. Although there is evidence of greater retention of learning in the online environment, there needs to be a structured and distraction-free environment for the benefits to materialize[8].

Participants also cited difficulties of professors in adapting the methodologies of face-to-face classes to remote classes, difficulties in handling technologies, as well as the difficulty of reading students' body language for leaving the cameras off. Such items were directly related to the greater number of synchronous classes, naturally related to the fact that, when performing online and live activities, difficulties related to technology dependence and interaction with participants are experienced, which is not identified when classes occur by asynchronous mode. The challenge for professors, therefore, is to prepare the next generation of nurses, thinking and going beyond the traditional limits of the classroom, to co-create new ways of performing the teaching and learning process[19].

Finally, it is worth point out that the use of ICTs for Nursing teaching has been beneficial, contributing to the development of important skills for professional practice. On the other hand, distance learning has generated concerns and debate among Brazilian professional bodies (Federal Nursing Council and Brazilian Nursing Association), in the understanding that the educational structure, lacking pedagogical, human and material resources, does not guarantee comprehensive practices for people, compromising the training of nurses capable of intervening in reality in an appropriate manner[20].

## ◼ FINAL CONSIDERATIONS

The pandemic scenario has caused a great impact on the teaching and learning process in nursing. In view of the adherence to remote teaching, higher education institutions, professors and students have undergone adaptations, facing challenges and difficulties. On the other hand, potentialities were experienced, causing important changes in the way of teaching and learning in Nursing, especially regarding the adoption of digital technologies.

Adaptations and incorporations of new technologies and teaching methods into the routine of institutions, as a complementary form, even if still in development, lead to irreversible changes, being disruptive to Nursing teaching.

It is essential to value the potentialities arising from Emergency Remote Teaching, without forgetting to highlight the losses also related to it, such as the reduction of interpersonal relationships, essential for the nursing profession. Likewise, it is necessary to overcome difficulties, ensuring that students benefit from a better learning environment, regardless of the class format. Schools that train nurses must ensure an education that prepares them for excellence in care, despite the difficulties arising from adverse scenarios, such as the one faced in the COVID-19 pandemic.

As limitations, the study was developed in a dynamic scenario, in which the pandemic has developed, which brought changes in the production of knowledge, in learning during the process of searching for new explanations, which certainly had an impact on the research outcomes. Another limitation refers to the fact that the data are from a state of the federation, which restricts the ability to generalize the results. Furthermore, the use of non-validated questionnaires and the collection of data from the coordinators' point of view are recognized, to the detriment of other equally important actors, such as professors and students.

The results of the study bring an important contribution to the profession, notably with regard to remote teaching, understanding what is set as something that came quickly to modify, producing rapid changes in the ways of teaching. Thus, the study exposes the current state of nursing education, which may signal the construction of more updated guidelines for the profession.

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■ Capellari C, Herrmann LG, Kaiser DE, Mancia JR

■ **Authorship contribution:**

Project administration: Claudia Capellari, Joel Rolim Mancia.
Formal analysis: Claudia Capellari, Letícia Gross Herrmann, Dagmar Elaine Kaiser, Joel Rolim Mancia.
Conceptualization: Claudia Capellari, Joel Rolim Mancia.
Data curation: Claudia Capellari, Joel Rolim Mancia.
Writing-original draft: Claudia Capellari, Letícia Gross Herrmann, Dagmar Elaine Kaiser, Joel Rolim Mancia.
Writing-review & editing: Claudia Capellari, Letícia Gross Herrmann, Dagmar Elaine Kaiser, Joel Rolim Mancia.
Investigation: Claudia Capellari, Letícia Gross Herrmann, Dagmar Elaine Kaiser, Joel Rolim Mancia.
Methodology: Claudia Capellari, Joel Rolim Mancia.
Supervisão: Claudia Capellari, Joel Rolim Mancia.

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■ **Corresponding author:**

Claudia Capellari
E-mail: capellaric@gmail.com