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Simulated scenario of nursing consultation for long COVID in primary health care

Cenário simulado sobre consulta de enfermagem em COVID longa na atenção primária à saúde

Escenario simulado de consulta de enfermería para COVID prolongado en la atención primaria de salud

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ABSTRACT

Objective: To develop a simulated scenario for undergraduate education on nursing consultation in long COVID situations in Primary Health Care.

Method: This is an applied methodological study divided into two stages: first, the clinical case was constructed and validated with nurses with experience in Primary Health Care and/or clinical simulation (n=9). Then, the scenario was constructed and validated with a group of judges composed of professors and postgraduate students (n=11). The Content Validity Index was used to analyze the data, with an agreement level of 80%.

Results: The clinical case and the scenario obtained an average Content Validity Index of 0.98 and 0.90, respectively. Only two items presented values below the minimum acceptable, being reformulated and sent for a second round of validation.

Conclusion: The simulated scenario on long COVID was developed and validated, demonstrating its potential for use in undergraduate nursing education and for contributing to professional training in Primary Health Care.

Descriptors: Post-acute COVID-19 syndrome; simulation training; Primary health care; Nursing care; Nursing education.

RESUMO

Objetivo: Desenvolver um cenário simulado para o ensino de graduação sobre consulta de enfermagem em situações de COVID longa na Atenção Primária à Saúde.

Método: Trata-se de estudo metodológico aplicado dividido em duas etapas: primeiramente, ocorreu a construção do caso clínico e validação junto a enfermeiros com experiência em Atenção Primária à Saúde e/ou simulação clínica (n=9). Em seguida, foi construído e validado o cenário junto a um grupo de juízes composto por docentes e pós-graduandos (n=11). Para a análise dos dados foi utilizado o Índice de Validade de Conteúdo, com nível de concordância de 80%.

Resultados: O caso clínico e o cenário obtiveram Índice de Validade de Conteúdo médio de 0,98 e 0,90, respectivamente. Apenas dois itens apresentaram valores inferiores ao mínimo aceitável, sendo reformulados e enviados para uma segunda rodada de validação.

Conclusão: O cenário simulado sobre COVID longa foi construído e validado, demonstrando potencial para ser utilizado no ensino de graduandos em enfermagem e contribuir para a qualificação profissional na Atenção Primária em Saúde.

Descritores: Síndrome de COVID-19 pós-aguda; Treinamento por simulação; Atenção primária à saúde; Cuidados de enfermagem; Educação em enfermagem.

RESUMEN

Objetivo: Desarrollar un escenario simulado para la educación de pregrado en consulta de enfermería en situaciones de COVID prolongado en Atención Primaria de Salud.

Método: Este es un estudio metodológico aplicado dividido en dos etapas: en primer lugar, la construcción del caso clínico y su validación por enfermeras con experiencia en Atención Primaria de Salud y/o simulación clínica (n=9). Posteriormente, se construyó y validó el escenario con un grupo de jueces compuesto por profesores y estudiantes de posgrado (n=11). Para el análisis de los datos se utilizó el Índice de Validez de Contenido, con un nivel de acuerdo del 80%.

Resultados: El caso clínico y el escenario obtuvieron un Índice de Validez de Contenido promedio de 0,98 y 0,90, respectivamente. Sólo dos ítems presentaron valores inferiores al mínimo aceptable, siendo reformulados y enviados a una segunda ronda de validación.

Conclusión: Se construyó y validó un escenario simulado sobre COVID prolongado, demostrando su potencial para ser utilizado en la educación de pregrado en enfermería y contribuir a la cualificación profesional en la Atención Primaria de Salud.

Descriptores: Síndrome post agudo de COVID-19; Entrenamiento simulado; Atención primaria de salud; Atención de enfermeira; Educación en enfermería.

INTRODUCTION

Primary Health Care (PHC), considered the preferred entry point for the Unified Health System (SUS), played a fundamental role in the response to COVID-19⁽¹⁾. Most individuals infected with SARS-CoV-2 developed a mild form of the disease and were therefore eligible for monitoring by the basic health network, which had to undergo a process of adaptation and restructuring to meet this demand⁽¹⁻²⁾. Strategies such as active screening for respiratory symptoms, detection of new cases, establishment of specific units, separation of flows between infected and uninfected patients, as well as telemedicine, proved effective in

controlling the infection⁽²⁾. The pandemic has brought enormous challenges to public health. The physical and psychosocial symptoms of people who survived the disease require attention from health teams, especially PHC professionals⁽³⁾.

Long COVID, or Post-COVID-19 Syndrome, consists of persistent symptoms for weeks or months after acute SARS-CoV-2 infection. Long COVID can also be subdivided into Post-Acute COVID (lasting more than three weeks but less than 12 weeks) and Chronic COVID (lasting more than 12 weeks)⁽⁴⁻⁵⁾. There is no consensus in the literature regarding terminology and definitions for this health condition. For example, the US Department of Health and Human Services uses the term "long COVID," while the UK's National Institute for Health and Clinical Excellence has adopted the terminologies "ongoing symptomatic COVID-19" and "Post-COVID-19 Syndrome," while the World Health Organization has opted for the term "Post-COVID Condition"⁽⁴⁾.

The manifestations of long COVID are heterogeneous and multisystemic, involving general symptoms (generalized pain, muscle or joint pain and mobility dysfunction, fatigue, fever, hair loss, rash, and weight loss); neurological (headache, cognitive impairment, and loss of smell, taste, and hearing); mental health (depression, anxiety, Post-Traumatic Stress Disorder, and sleep disturbances); cardiopulmonary (chest pain, sore throat, dyspnea, palpitations, and cough); and gastrointestinal (lack of appetite, diarrhea, nausea, vomiting, and abdominal pain)⁽⁶⁾.

As members of the multidisciplinary team, nurses also contribute to the care of patients with long COVID-19. Nurses perform several functions in this type of case; for example, they identify health problems, promote individual autonomy and self-care, and conduct educational groups, aiming for comprehensive care by covering not only the biological aspects but also the psychological, social, and spiritual aspects of the patients, caregivers, and their families⁽⁷⁾. Nursing care for patients with long COVID-19 should be systematized, focusing on nursing consultations, whether in the office or at home⁽⁷⁾. With the high number of patients affected by long COVID-19, there is a need for training nurses working in PHC to effectively manage these cases.

In nursing, clinical simulation has been a widely used teaching-learning strategy and can be applied at different levels of healthcare. Simulation emerges and stands out as a key mediator for achieving experiential learning, by enabling the experience of a real-life event in a safe and controlled environment⁽⁸⁾. Nursing simulation enables the practical development of students, who acquire technical skills, critical reasoning, and decision-making skills through techniques such as role-play and the use of interactive videos or mannequins⁽⁹⁾.

An interdisciplinary review of long COVID-19 showed that, despite hundreds of published studies on the topic, healthcare professionals still have questions about how to assess and manage long COVID-19 cases⁽⁴⁾. The same author emphasized that the education and training of professionals working with long COVID-19 should be based on scientific evidence⁽⁴⁾. Furthermore, no studies were found in the literature describing the process of developing and validating simulated scenarios for nursing consultations with patients with long COVID-19. Considering the potential of clinical simulation and the challenges encountered in training students and healthcare professionals in the post-COVID-19 pandemic world⁽¹⁰⁻¹¹⁾, the development of simulated scenarios for long COVID-19 is necessary.

The present study aimed to develop a simulated scenario for undergraduate teaching on nursing consultation in long COVID situations in Primary Health Care.

METHOD

This is a methodological study applied to the construction and validation of a clinical simulation scenario. This type of study aims to develop, validate, and evaluate methods, instruments, techniques, or tools, such as educational technologies⁽¹²⁻¹³⁾. The simulated scenario, including the clinical case, was subjected to Content Validity, a process that assesses the representativeness of the content of each item in the constructed instrument⁽¹⁴⁻¹⁵⁾. The study was developed in two stages: Stage 1 - Construction and validation of the clinical case; Stage 2 - Construction and validation of the simulated scenario.

Stage 1 - Construction and validation of the clinical case

The first stage of the study was conducted between December 2023 and January 2024. The clinical case was prepared following the steps of the following Instructional Script: 1. Guiding questions that direct the case study: Who is the person involved?; What is the study place?; What happened? What is the problem? How did it happen?; Why did it happen?; What are the alternatives to solve or alleviate the identified problems?; What solutions or alternatives are being proposed?; 2. Identification of the place or person under study; 3. Summary of the problems or changes identified; 4. Theoretical basis; 5. Alternatives or proposals; 6. Actions implemented or recommended; 7. Discussion of the clinical case⁽¹⁶⁾.

For clinical case validation, the judges were selected, by convenience, from the Lattes Platform of the National Council for Scientific and Technological Development (CNPq), based on an adapted selection system⁽¹⁷⁾. According to this system, the judge can be classified as: junior expert (five points), master expert (between six and 20 points), or senior expert

(over 20 points). Furthermore, one point was added for each year of clinical or teaching experience in the area of interest of the study (Table 1):

Chart 1 – Criteria for selecting experts. Ribeirão Preto, São Paulo, Brazil, 2024

CRITERIA	POINTS
At least 4 years of clinical experience in Primary Health Care (Mandatory)	4
Minimum of 1 year of teaching experience in Primary Health Care or Clinical Simulation	1
Research experience with published articles in the area of Primary Health Care or Clinical Simulation or COVID-19	1
Participation of at least two years in a research group in the area of Primary Health Care or Clinical Simulation	1
Doctorate in Nursing in the area of Primary Care or Clinical Simulation in Health or COVID-19	2
Master's Degree in Nursing in Primary Health Care or Clinical Simulation or COVID-19	1
Nursing residency in the area of Primary Health Care	1

Source: Adapted⁽¹⁷⁾

There is no consensus regarding the necessary number of judges in a methodological study; however, it is recommended to use an odd number of judges, as well as a minimum of three validators for the items regarding equivalence and agreement of responses⁽¹⁸⁾. The sample consisted of nine judges. The judges were invited via email. Those who accepted the invitation were sent the link to the electronic form (GoogleForms®) containing the prepared clinical case, as well as instruments for characterizing the judges and validating the adapted content⁽¹⁹⁾. The judges analyzed the clinical case and evaluated each item proposed by the validation instrument according to a Likert-type scale, containing the options: "strongly disagree"; "disagree"; "agree"; "strongly agree"; "I don't know," within a period of up to 30 days. All invited judges responded to the form within the established deadline, with no losses or need for replacements.

Stage 2 - Construction and validation of the simulated scenario

This phase was conducted between February and April 2024. Based on the validated clinical case, a simulation scenario was developed on nursing consultation in PHC during a long COVID-19 situation. The scenario construction was guided by the International Nursing Association of Clinical Simulation and Learning (INACSL) Standards of Good Practices for Simulation in Healthcare, which reflect best practices in healthcare and health sciences education disciplines, including the following individual standards: Professional

Development; Prebriefing: Preparation and Briefing; Simulation Design; Facilitation; Outcomes and Objectives; The Debriefing Process; Operations; Professional Integrity; Continuing Interprofessional Simulation (IPE); Performance Assessment and Learning⁽²⁰⁾. The debriefing was structured according to the following stages: emotional, descriptive, evaluative, analytical, and conclusive⁽²¹⁾.

Once finalized, the scenario was put into action with the participation of three volunteer nurses at the Simulation Center of a public university far from the capital of São Paulo state. The scenario implementation included the briefing, scenario, and debriefing stages, and was filmed and emailed as a video to the panel of judges.

At this stage, the sample of judges consisted of professors with experience in simulation, enrolled students, and graduates of the Graduate Program who had taken a specific course on clinical simulation, selected by convenience. The snowball technique was used to select judges, starting with a seed participant, who then indicated the next participant, and so on, until the group of judges was formed⁽²²⁾. The invitation was sent by email, and the simulation video included a link to the electronic form (Google Forms®) containing an adapted instrument for scenario validation⁽¹⁹⁾, to be returned within 30 days. The validation instrument consisted of a scenario observation checklist, organized into briefing, scenario, and debriefing, in which the judge was asked to assess whether the respective item was adequately "performed," "not performed," or "partially performed" throughout the assisted simulation. Initially, 15 potential participants were contacted; However, four nominated participants were excluded for not responding within the established 30-day deadline, totaling a group of eleven judges. There was no need for replacement, since the minimum number of judges had already been reached.

The data were organized in Microsoft Excel® spreadsheets; analyzed using descriptive statistics, and represented by absolute and relative frequency, mean, median, minimum, and maximum. The analyses were performed with SAS 9.4 statistical software. Data normality was assessed using the Shapiro-Wilk test. The Content Validity Index (CVI) was calculated using the following formula: $CVI = \text{number of "strongly agree" and "agree" responses} / \text{total number of responses}$. The mean CVI of the clinical case was also calculated, which consists of the arithmetic mean of the CVI of all items comprising the instrument⁽¹⁵⁾. An CVI greater than or equal to 0.80 was considered acceptable⁽²³⁾. The validation form also provided open-ended response fields for validators to make observations and suggestions, which were analyzed qualitatively. Qualitative data were categorized and presented in tables, using alphanumeric codes to preserve the identity of participants, with the letter J for judge

followed by the number corresponding to the chronological order of inclusion in the research (Ex.: J8).

The study was submitted to the Research Ethics Committee for review, in accordance with the recommendations of Resolution No. 466 of December 12, 2012, of the National Health Council, and was analyzed and approved under Protocol No. 6,187,905, CAAE: 68073623.7.0000.5393. All participants signed an Informed Consent Form (FICF).

RESULTS

Stage 1 - Construction and validation of the clinical case

Once constructed, the clinical case was submitted for validation by the panel of judges. Regarding the mandatory criterion of at least four years of clinical experience in PHC, the validators had an average of eleven years of experience (median = 8 years; min. = 5 years; max. = 21 years). Most also had at least one year of teaching experience in PHC or Clinical Simulation (n = 7, 78%), published articles in PHC, Clinical Simulation, or COVID-19 (n = 5.56%), and participated for at least two years in a research group in PHC or Clinical Simulation (n = 5.56%). On the other hand, only one expert had completed a nursing residency in PHC (n = 1, 11%), three had a master's degree in nursing with a dissertation in PHC, Clinical Simulation, or COVID-19 (n = 3.33%), and none had a doctorate in nursing or a thesis in any of the areas of interest of the study. The validators' body consisted of eight master experts (n=8, 89%) and one senior expert (n=1, 11%). The group presented an average score of 13 points (median=10; Min.=7; Max.=23).

All items of the instrument obtained a CVI above 0.80, with the vast majority of the scored items reaching CVI= 1.00 (100%) and only two having CVI= 0.88. The average CVI of the clinical case was 0.98, above that recommended in the literature, and considered validated (Table 1).

Table 1 – Content validation of the clinical case with the judges (n=9). Ribeirão Preto, São Paulo, Brazil, 2024

	SD	D	A	SA	DK	CVI
Language						
The sequence of the simulation text is logical	-	-	5	4	-	1.00
The simulation's writing style is compatible with the target audience (nursing students)	-	-	5	4	-	1.00
The simulation text seems clear and understandable	-	-	4	5	-	1.00
Content						
The simulation content presents relevant information	-	-	6	3	-	1.00

for the simulation on nursing care in long COVID situations.

The content is related to the theory	-	-	6	3	-	1.00
The presentation of the simulation content favors learning on the topic	-	-	5	4	-	1.00
The simulation content is appropriate for the target audience (nursing students)	-	-	6	3	-	1.00
The simulated clinical situation is similar to that found in reality	-	-	6	3	-	1.00

Objectives

Simulation can be applied in the training of nursing students on nursing care in long COVID situations	-	-	5	4	-	1.00
The objective of the scenario is clear	-	-	6	3	-	1.00
The purpose of the scenario is relevant to the nursing student's practice	-	-	5	4	-	1.00

Applicability

The limitations of simulation do not exceed its use in nursing education	-	-	5	3	1	0.88
Simulation promotes learning on the topic of nursing care in long COVID situations	-	-	5	4	-	1.00

Cultural acceptability

The text is compatible with the target audience (nursing students) and meets the different student profiles	-	1	5	3	-	0.88
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Average CVI						0.98
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Source: The author, 2024.

Note: SD: strongly disagree / D: disagree / A: agree / SA: strongly agree / DK: don't know / CVI: Content Validity Index

In addition to the assessment of the CVI and average CVI, the comments made by the judges were also considered:

Depending on the students' learning level, I might even suggest a complete physical exam. But these are just suggestions, as the content is excellent. [...] I added some suggestions above, but the text is very clear and achieves its objective. (J5)

I suggest replacing common terminology with technical terms in the case, such as: shortness of breath/dyspnea. [...] As suggested above, I think it's important to include technical terminology throughout the case, considering that the simulation will be with nursing students. (J9)

Although the clinical case was validated in the first round, some suggestions regarding the terminology used were accepted, changing "shortness of breath" to the technical term "dyspnea," as well as minor grammatical corrections. The suggestion to perform a complete physical examination was incorporated in the next stage (scenario construction), as one of the

actions expected by the student/simulation participant. The use of technical terminology was also considered in the scenario development. Since there were no significant changes to the structure or content of the clinical case, no further rounds of validation were necessary.

Stage 2 - Construction and validation of the simulated scenario

Once validated, the clinical case was used as the basis for constructing the simulated scenario. The scenario was put into action at the EERP/USP Simulation Practice Center with the participation of three volunteers and recorded for validation purposes. After recording, the video was edited to identify each phase of the simulation (briefing, scenario, and debriefing) (Figure 1).

Figure 1 – Implementation of the simulated scenario “Nursing consultation in Primary Health Care in long COVID situations”.



Source: The author, 2024.

After being edited, the video was sent to the judges for validation. The sample consisted of 11 judges, including a professor with experience in clinical simulation and ten students/alumni who had taken a clinical simulation course in their graduate program.

Regarding the scenario validation form, the vast majority of items obtained a CVI higher than 0.80, reaching an average CVI of 0.90. Only two items (no. 20 and no. 21), referring to the “Scenario in Action” stage, had a lower CVI, obtaining 0.60 and 0.50, respectively (Table 2).

Table 2 – Content validation of the simulated scenario “Nursing consultation in Primary Health Care in long COVID situations” with the judges (n = 11). Ribeirão Preto, São Paulo, Brazil, 2024

Brazil, 2024

STEPS	COMPLETION			CVI
	YES n(%)	PARTIAL n(%)	NO n(%)	
BRIEFING				
Facilitator presents the scenario to students	10 (91%)	1 (9%)	0 (0%)	1.00
Facilitator establishes confidentiality agreement	11 (100%)	0 (0%)	0 (0%)	1.00
Facilitator promotes the construction of a safe learning environment	11 (100%)	0 (0%)	0 (0%)	1.00
Facilitator presents the theme and objective of the scenario	11 (100%)	0 (0%)	0 (0%)	1.00
The clinical case is described	10 (91%)	1 (9%)	0 (0%)	1.00
Facilitator presents the location and materials available at the UBS office	11 (100%)	0 (0%)	0 (0%)	1.00
Facilitator defines the roles of those involved	10 (91%)	1 (9%)	0 (0%)	1.00
Facilitator invites students to participate	7 (64%)	2 (18%)	2 (18%)	0.80
SCENARIO IN ACTION				
Facilitator introduces themselves to the client	11 (100%)	0 (0%)	0 (0%)	1.00
Handles requests	11 (100%)	0 (0%)	0 (0%)	1.00
Offers qualified listening	10 (91%)	1 (9%)	0 (0%)	1.00
Performs anamnesis	10 (91%)	1 (9%)	0 (0%)	1.00
Collects data regarding previous COVID-19 history	9 (82%)	1 (9%)	1 (9%)	0.90
Identifies and assesses current symptoms and signs	11 (100%)	0 (0%)	0 (0%)	1.00
Performs physical examination	8 (73%)	3 (27%)	0 (0%)	1.00
Correlates signs and symptoms with previous history of COVID-19	10 (91%)	0 (0%)	1 (9%)	0.90
Provides guidance on long COVID (persistence of symptoms even after the COVID-19 virus has been active in the body)	9 (82%)	2 (18%)	0 (0%)	1.00
Reinforces guidelines on proper nutrition and hydration	9 (82%)	2 (18%)	0 (0%)	1.00
Reinforces guidelines on healthy lifestyle habits and regular physical activity	8 (73%)	2 (18%)	1 (9%)	0.90
Provides guidance on observing symptoms, worsening or appearance of new symptoms	4 (36%)	2 (18%)	5 (46%)	0.60
Forward for medical evaluation	4 (36%)	1 (9%)	6 (55%)	0.50
DEBRIEFING				
Facilitator asks how participants felt	11 (100%)	0 (0%)	0 (0%)	1.00
Facilitator encourages participants to describe the scenario they experienced	8 (73%)	2 (18%)	1 (9%)	0.90

Facilitator highlights the positive aspects of the actions taken	6 (55%)	3 (27%)	2 (18%)	0.80
Facilitator leads participants to reflect on what could have been done differently or better	7 (64%)	3 (27%)	1 (9%)	0.90
Facilitator encourages participants to summarize their learning	7 (64%)	4 (36%)	0 (0%)	1.00
Average CVI				0.90

Source: The author, 2024.

Note: CVI: Content Validity Index

Only items 20 and 21 needed to be revised. These items concerned the participant's performance on the scene regarding the criteria "Guides regarding observation of symptoms, worsening or appearance of new symptoms" and "Refers for medical evaluation," respectively. Combined with the levels of agreement identified, the following observations/suggestions were made regarding these same items (Chart 2):

Chart 2 – Judges' suggestions (n=11) for validating the simulated scenario content. Ribeirão Preto, São Paulo, Brazil, 2024

STAGE	SUGGESTIONS/COMMENTS	n(%)
<i>Briefing</i>	-	-
Scenario in action	<i>I suggest, thinking of undergraduate students, that they work a little more, during the prebriefing phase, on what long Covid is, its signs and symptoms. (J2)</i> <i>It's not clear from the video that the patient was referred for medical evaluation, even though it states that "this will be discussed with the team." I didn't follow the instructions regarding actions to be taken if symptoms worsen. (J10)</i>	2(13)
<i>Debriefing</i>	-	-

Source: The author, 2024.

In order to improve these items, the presentation and mandatory reading of the municipal protocol for the Management of Post-Covid Syndrome in Primary Health Care⁽²⁴⁾ was included as a preparatory activity in the prebriefing. This material provides guidance on the need for referrals and guidance on worsening symptoms, among other guidelines that support the practice of PHC professionals dealing with long COVID cases. These guidelines may help participants in the simulated scenario successfully perform the expected actions. If the municipality does not have a specific protocol, the Ministry of Health's manual for assessing and managing post-COVID conditions in Primary Health Care⁽²⁵⁻²⁶⁾ may be used.

Finally, the scenario was sent back to the judges for a new round of validation, achieving a 100% level of agreement among the judges regarding the modified items, resulting in the final version of the scenario (Chart 3 and Figure 2).

Chart 3 - Script for the simulated scenario "Nursing consultation in Primary Health Care in long COVID situations". Ribeirão Preto, São Paulo, Brazil, 2024

Scenario: Nursing consultation in Primary Health Care in long COVID situations
Target audience: Nursing undergraduate students
Objectives: GENERAL: perform nursing consultation on patients with a history of previous COVID. SPECIFIC: - Perform anamnesis and identify signs and symptoms of long COVID; - Correlate clinical picture with previous history; - Develop a care plan for patients with signs and symptoms of long COVID.
Location: Nursing office in a Basic Health Unit
Required team: 1 facilitator and 2 role-players (standardized patient and nurse)
Patient characteristics: Female, 44 years old
Equipment: 1 office table, 3 chairs
Materials: sphygmomanometer, stethoscope, oximeter, thermometer, glucometer, medical record sheets, pen, bottle with 70% alcohol, bottle with cotton
Duration: 35 minutes – briefing (5 minutes), scenario in action (10 minutes) and debriefing (20 minutes)
Simulation prerequisites: The student must have knowledge of nursing fundamentals, semiology and semiotechnics.
Preparation: Theoretical class to introduce students to the municipal protocol and/or Ministry of Health manual for managing long COVID in Primary Health Care, which should also be made available in full as required reading ⁽²⁴⁻²⁶⁾ . The class should be taught by the facilitator seven days before the simulation, synchronously - in person or online.
Description of the clinical case: Patient TSS, a 44-year-old female, receptionist at a dental office, with no history of comorbidities. She has a family history of hypertension (father and paternal grandparents). She reports that she was diagnosed with COVID-19 about 12 weeks ago, but despite experiencing a severe cough, fever, and fatigue, she did not require hospitalization. Since then, she has experienced a dry cough, dyspnea, chest pain, and frequent fatigue and malaise after exertion. She sought out a local Basic Health Unit for an appointment because she feels the symptoms have disrupted her routine and is concerned. During her pre-consultation screening, TSS tells the unit nurse that she went to the neighborhood Basic Health Unit because she had already been evaluated at the Emergency Room, but her symptoms persist. She also mentions that, in addition to the symptoms mentioned, she has also noticed a depressed mood and frequent forgetfulness. When measuring vital signs, it is identified that the patient is presenting the following data: FR: 17 ipm BP: 110 X 70 mmHg HR: 98 bpm SpO2: 95%
Facilitator's remarks before the start of the scenario (briefing) You will participate in a clinical simulation scenario in Primary Health Care. I would like to formalize the learning agreement with you. This activity is not evaluative; it is intended for

learning. We must maintain confidentiality about what will happen from now on, which is crucial to avoid causing any embarrassment to your colleagues. We also need to agree that your actions must be similar to the real environment—that is, do exactly as you would in the Basic Health Unit's nursing office. I emphasize that this is not an evaluation activity, but rather a learning experience in a safe and controlled environment. So, please rest assured about your participation. Our goal is to provide a moment of learning and reflection on what will happen during the scenario. The scene features two role-players, one nurse and one patient.

You will be required to perform a nursing consultation on a patient in your area of coverage. Here are materials available for you to use if needed: sphygmomanometer, stethoscope, oximeter, thermometer, and glucometer.

(after choosing two volunteer undergraduates to act as participants in the scene)

You will now enter the nurse's office. The patient is waiting in the reception area to be called. We ask that you, when you feel ready, receive information from the nurse in charge of triage.

Nurse's speech :

Good morning!

Patient Tereza Santos Silveira, a 44-year-old woman, reports being diagnosed with COVID-19 approximately 12 weeks ago. Since then, she has experienced a dry cough, dyspnea, chest pain, frequent fatigue, and malaise after exertion. She sought medical attention at the local Basic Health Unit because she feels the symptoms have disrupted her routine and is concerned. She also reports a depressed mood and frequent forgetfulness. Vital signs: RR: 17 bpm; BP: 110 x 70 mmHg; HR: 98 bpm; SpO2: 95%.

Script/role-player's speeches during the consultation:

"Good morning, I caught COVID about 3 months ago and since then I have had a dry cough, shortness of breath and fatigue, especially when I make any kind of effort and sometimes I also feel chest pain."

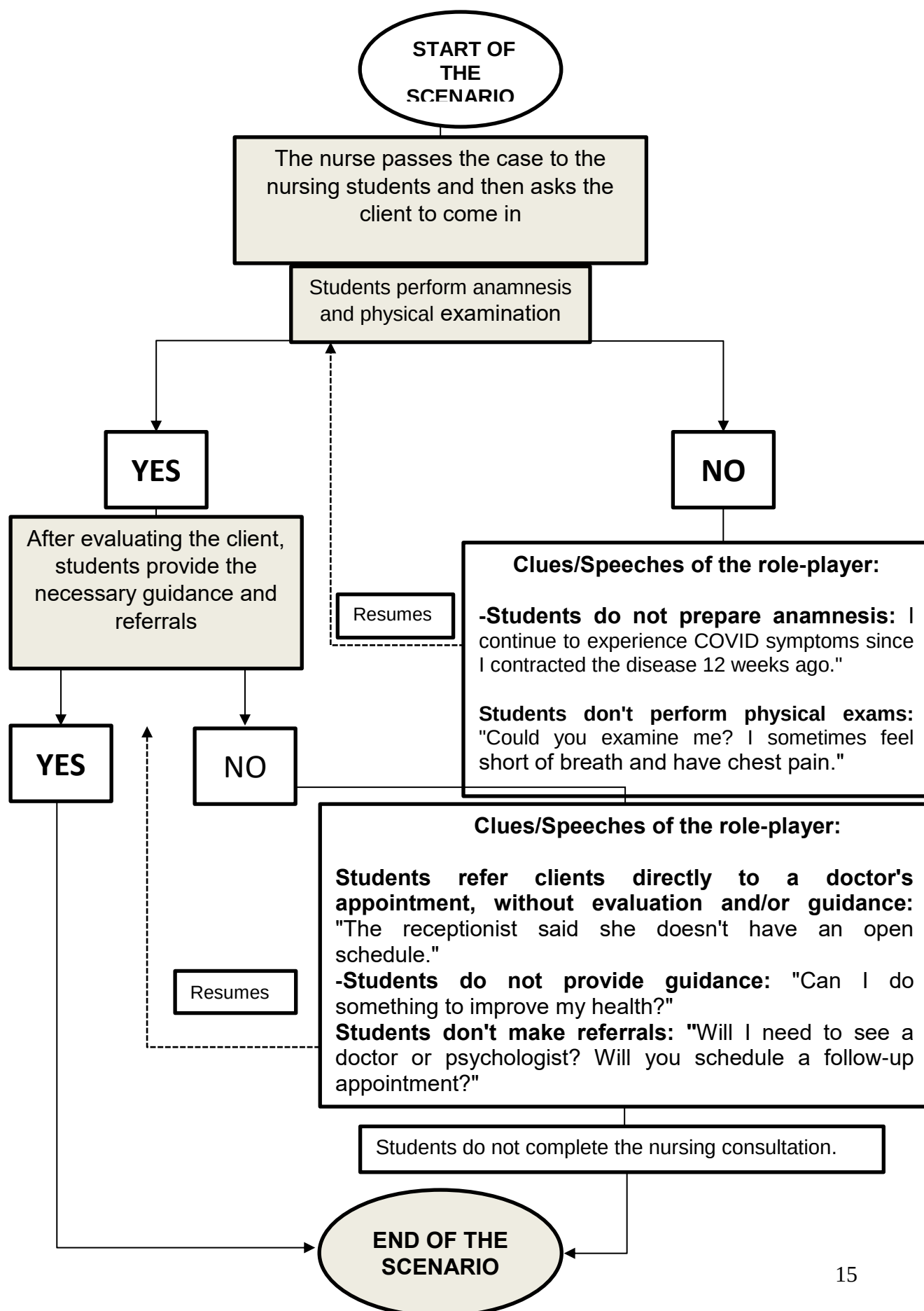
"Besides, I've been a little depressed, my memory isn't good either, I've been forgetting simple everyday things. I'm worried because these things are getting in the way of my routine."

Scenario events and expected actions	
Scene	Expected actions
Case handover	- Graduates introduce themselves, invite the client to sit down and ask why they are seeking care, to obtain more information.
Customer review	- Collection of data regarding previous COVID-19 history; - Identification of current symptoms and signs; - Listening with empathy and attention to mental health and identifying a support network; - Hand hygiene and continuation with the physical examination; - Verification of vaccination card.
Student Conduct	- Correlate signs and symptoms with previous history; - Provide guidance on long COVID, persistence of symptoms even after the COVID-19 virus has been active in the body; - Reinforce guidelines on proper nutrition and hydration; adequate sleep

	patterns, avoiding smoking and alcohol use; monitoring symptoms, worsening or appearance of new symptoms; - Refer for medical evaluation and schedule a follow-up; - Request psychological support from CAPS.		
Possible unexpected outcomes: - Students are unable to complete an anamnesis – the role-player provides clues, mentioning the signs and symptoms that began after contracting COVID-19 12 weeks ago. - Students do not undergo physical examinations – the actor asks if he will be examined, as he sometimes feels short of breath and chest pain. - Students refer clients directly to schedule a medical appointment without evaluating them – client advised by the receptionist that there is no open schedule - Students do not follow instructions – client asks about actions that can improve their current health status. - Students do not make referrals – the client asks about the possibility of having a medical consultation, psychology consultation and follow-up with the nurse.			
Main points of the debriefing: Emotional: How did you feel? Descriptive: Could you describe the scenario you experienced? Evaluative: What did you do well? What were the positive aspects? Analytical: What would you do differently? What points could be improved? Conclusion: What do you take with you to other caregiving opportunities? What lessons did you learn?			
Theorizing: - Theorize about the clinical picture with the previous history of COVID-19; - Highlight the importance of adequately carrying out anamnesis and complete physical examination; - Relate symptoms to routine and habits, so that we can provide appropriate guidance within the client's possibilities.			
Instrument for student assessment by the facilitator Among the actions taken, observe the main ones for achieving the scenario's objectives:			
MAIN EXPECTED ACTIONS	YES	NO	PARTIALLY
He/she welcomed the client's demands, offering qualified listening	()	()	()
Performed anamnesis	()	()	()
Washed the hands before proceeding with the physical examination	()	()	()
Performed physical examination	()	()	()
Provided guidance on long COVID and healthy lifestyle habits	()	()	()
Made the necessary referrals	()	()	()
Scheduled a follow-up appointment with the nurses	()	()	()

Source: The author, 2024.

Figure 2 – Decision tree of the simulated scenario “Nursing consultation in Primary Health Care in long COVID situations”.



Source: The author, 2024.

DISCUSSION

Ensuring quality professional education in PHC, building clinical and collaborative experiences, and creating spaces for strong and innovative clinical leadership exemplifies the ability to influence and bring an interdisciplinary team together around a project, which facilitates innovation in care⁽²⁷⁾. Expanding the discussion further and considering the training of future nurses, authors report that a traditional approach to learning nursing care is expensive and inadequate to meet healthcare demands⁽²⁸⁾. Therefore, the proposal to work with active methodologies, such as clinical simulation, is essential in the teaching and learning of future nursing professionals, especially regarding care in long-term COVID-19 situations.

In the validation of the clinical case, an average CVI of 0.98 was obtained. Authors validated the content and applicability of a High-Fidelity Simulation Scenario Planning and Development form and its Operational Manual, instruments that can be used by professionals to build simulation scenarios aimed at training students' skills. This study considered a CVI equal to or greater than 0.80 to be adequate⁽²⁹⁾. The clinical case developed was considered validated by the judges.

The indices obtained in the validation of the clinical case and the simulation scenario, both above 0.90, corroborated the findings of other studies on the construction and validation of simulated scenarios. The scenario on the promotion of breastfeeding in PHC had an average CVI = 1.00, while the interprofessional scenario developed for the identification and management of sepsis obtained an average CVI = 0.98⁽³⁰⁻³¹⁾.

The COVID-19 pandemic has raised concerns among professors regarding students' clinical preparation⁽³²⁾. Simulation was a teaching strategy designed for student practice at a time when healthcare institutions temporarily suspended the admission of students⁽³²⁾. Considering simulation as a teaching-learning strategy and the importance of having a validated scenario that could be used with students, the proposed scenario was suitable for use by professors and students as an active teaching strategy.

In this study, two items had low validation scores: "professional guidance on symptoms, both regarding worsening and the emergence of new symptoms" and "referral for medical evaluation." These items were revised and forwarded for a new round of validation. The modification consisted of including a theoretical class and mandatory reading as preparatory activities for the prebriefing. Although many authors consider the debriefing to be

the most important part of the simulation, the judges' suggestions revealed the concern that poorly executed prebriefing could compromise student learning and performance in the simulation. Prebriefing is the stage that precedes the implementation of the scenario, in turn subdivided into: preparation (preparatory activities that provide theoretical and practical support to promote good student performance, which can be carried out days or weeks before the simulation) and briefing (the moment in which all necessary guidance is provided to students, occurring immediately before the execution of the scenario)⁽²⁰⁾.

A scoping review of prebriefing in nursing simulation revealed a scarcity of studies on prebriefing⁽³³⁾. Most of the studies found in the literature on clinical simulation do not mention the prebriefing phase, and when this step is referenced, it is done superficially⁽³³⁾. However, the authors unanimously agree on the relevance of prebriefing in ensuring the psychological safety of students in the scenario, which enhances satisfaction, reduces anxiety and improves learning, making this an essential step in simulation-based education⁽³³⁾.

Prebriefing involves prior preparation for what will be experienced in the scenario and students in this space need to be informed about the simulation theme with scientific references that focus on the subject to be addressed in the simulated scenario⁽³⁴⁾.

Several types of preparatory activities can be used by educators in a simulation scenario. A previous study found positive results from the use of a video in preparing for a scenario on nursing care in a surgical center⁽³⁵⁾. This resource was highlighted by students as a very useful tool that provided greater confidence in their performance in the simulated scenario⁽³⁵⁾.

In another study on virtual simulation in mental health for elderly people and adolescents, questionnaires were used as a pre-simulation tool, allowing participants to test their knowledge on the topic before executing the scenario⁽³⁶⁾.

There are challenges regarding the implementation of simulated scenarios in PHC. At first, the need for adequate infrastructure (laboratories and simulation centers), human resources (facilitators, debriefers, and professional actors), and materials (mannequins and high-fidelity simulators) can be seen as obstacles to simulation-based education, especially in contexts with limited financial resources⁽³⁷⁾. On the other hand, *in situ* simulation, a clinical simulation modality that occurs in a real environment, may offer a better cost-benefit ratio compared to off-site simulation, as it relies on previously available spaces and resources. There is evidence that *in situ* simulation also contributes to the development of nursing competencies, with improvements in learning based on knowledge, skills, and attitudes⁽³⁸⁾. In

this regard, *in situ* simulation, that is, the replication of the simulated scenario directly in Basic Health Units or Family Health Units, may prove to be a viable and effective alternative.

Furthermore, in health/nursing education, technical and procedural skills may be overemphasized to the detriment of communication and interpersonal relationships, reflecting the current care model, which focuses on biomedical and curative aspects. When addressing topics relevant to PHC, such as long COVID, it is essential to ensure that the simulation scenario provides opportunities for learners to develop and enhance welcoming and qualified listening skills, as well as health promotion guidelines⁽³⁹⁾.

One limitation of this study is the lack of a scenario evaluation process with the target audience, namely nursing undergraduates. Further studies are recommended to analyze students' perceptions of the clinical simulation, the challenges of the scenario, and its potential for improvement. Furthermore, the small sample size and the fact that the panel of judges in the second validation stage was composed primarily of graduate students, not professors, can also be considered limitations, which may have influenced the diversity of perspectives and the comprehensiveness of the assessment of the scenario's effectiveness.

CONCLUSION

A simulated scenario for nursing consultations with patients with long COVID-19 in the PHC setting was constructed and validated. The methods used in this study proved appropriate, and its development can contribute to nursing teaching and learning. The study presents the scenario script as a final product, which can be replicated by educators, both in undergraduate nursing education and for the training and development of nurses already working in PHC. Future studies are recommended to evaluate the effectiveness of the scenario and its impact on participants' learning and skills development.

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Availability of data and material

Access to the dataset may be granted upon request to the corresponding author.

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