

RESEARCH ARTICLE (ORIGINAL) 

## Postvention: Perceptions of healthcare students and professionals about a scenario for telesimulation-based learning

*Pósvenção: Percepções de estudantes e profissionais de saúde sobre um cenário de aprendizagem baseado em telessimulação*

*Posvención: Percepciones de estudiantes y profesionales sanitarios sobre un escenario para la enseñanza basado en la telessimulación*

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### Abstract

**Background:** The perceptions of healthcare students and professionals regarding the design of a telesimulation scenario on postvention contribute to evaluating its use in health education.

**Objective:** To understand the perceptions of healthcare students and professionals about factors related to the design of a scenario for telesimulation-based learning in postvention.

**Method:** A cross-sectional study using a non-probability convenience sample of 60 healthcare students and professionals. Data were collected remotely using the Simulation Design Scale, a course characterization and evaluation instrument. Data were analyzed using descriptive statistics and regression analysis.

**Results:** Participants gave higher mean scores to the fidelity factor and lower scores to the support and problem-solving factors. There was agreement on the effects of feedback and reflection. Training in psychology and problems with the Internet were associated with the study's outcome.

**Conclusion:** Participants' perceptions highlight the benefits of telesimulation in postvention training, although they also reveal barriers that suggest the need for further study of this strategy.

**Keywords:** bereavement; suicide; simulation training; students; health care professionals

### Resumo

**Enquadramento:** As percepções de estudantes e profissionais da saúde sobre o *design* de uma telessimulação sobre a posvenção contribuem para avaliar sua utilização no ensino em saúde.

**Objetivo:** Compreender percepções de estudantes e profissionais da saúde sobre fatores relacionados com o design de um cenário para o ensino baseado em telessimulação sobre a posvenção.

**Metodologia:** Estudo transversal com uma amostra de conveniência não-probabilística de 60 estudantes e profissionais de saúde. Os dados foram recolhidos remotamente através da Escala do Design da Simulação, um instrumento de caracterização e avaliação de cursos. Os dados foram analisados com estatísticas descritivas e análise de regressão.

**Resultados:** Os participantes atribuíram maiores médias ao fator realismo e menores aos fatores de apoio e resolução de problemas. Houve concordância sobre o impacto do *feedback* e reflexão. Formação em psicologia e problemas com *internet* estiveram associados ao desfecho do estudo.

**Conclusão:** As percepções dos participantes reforçam as vantagens da telessimulação no ensino sobre posvenção, embora revelem barreiras que indicam a necessidade de futuros estudos sobre essa estratégia.

**Palavras-chave:** luto; suicídio; treinamento por simulação; estudantes; profissionais de saúde

### Resumen

**Marco contextual:** Las percepciones de estudiantes y profesionales sanitarios sobre el diseño de una telessimulación sobre posvención contribuyen a evaluar su uso en la docencia sanitaria.

**Objetivo:** Comprender las percepciones de estudiantes y profesionales sanitarios sobre los factores relacionados con el diseño de un escenario para la enseñanza basado en la telessimulación sobre posvención.

**Metodología:** Estudio transversal con 60 participantes, estudiantes y profesionales de la salud, seleccionados por muestreo no probabilístico de conveniencia. La recogida de datos virtuales se realizó mediante la Escala de Diseño de Simulación, instrumento de caracterización y evaluación del curso. Los datos se analizaron mediante estadística descriptiva y regresión.

**Resultados:** Los participantes dieron puntuaciones medias más altas al factor realismo y más bajas a los factores apoyo y resolución de problemas. Hubo acuerdo sobre el impacto del *feedback* y la reflexión. La formación en psicología y los problemas con Internet se asociaron con el resultado del estudio.

**Conclusión:** Las percepciones de los participantes refuerzan las ventajas de la telessimulación en la enseñanza de la posvención, aunque muestran barreras que indican la necesidad de futuros estudios sobre esta estrategia.

**Palabras clave:** aflicción; suicidio; entrenamiento simulado; estudiantes; profesionales sanitarios

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## Introduction

Suicide has a far-reaching impact on society as a whole, especially on those who remain after the death and experience suicide bereavement (Stubbe, 2023). Suicide bereavement has its own specificities, as it encompasses particular aspects and reactions related to suicide. Attention to these specificities is understood in the context of postvention (Dantas et al., 2022; Pedrollo et al., 2022). The main benefits associated with postvention include reducing the symptoms and sensations of bereavement, preserving well-being and life, and being a form of suicide prevention for this population (Bartone et al., 2019; Stubbe, 2023). Prevention must be implemented through collaborative work involving society as a whole, but it is essential to highlight the role of healthcare professionals in this context (Pedrollo et al., 2022; Stubbe, 2023).

Healthcare professionals can implement various postvention interventions and strategies at the individual and collective level, but they need training and capacity building to do so (Dantas et al., 2022; Pedrollo et al., 2022). Despite this, the teaching of postvention is still rare in student curricula, and its application in professional health practice is also lacking (McGill et al., 2023). Considering that thousands of people die by suicide every year, the number of survivors of bereavement by suicide becomes even more significant. For this reason, there is an urgent need for reflection and action on training and professional qualification in the health sector.

One way to develop training and capacity-building processes in the health sector on postvention is through simulation-based learning (SBL; INACSL Standards Committee et al., 2021a; Pedrollo et al., 2022). This pedagogical model is also advancing in the field of innovation, with its extension to virtual modalities such as telesimulation (Yasser et al., 2023).

SBL as a pedagogical strategy to address postvention provides the opportunity to evaluate the simulation plan of the scenarios used, also known as design. In this way, this study aimed to understand the perceptions of healthcare students and professionals about factors related to the design of a scenario for telesimulation-based training in postvention.

## Background

The term postvention was proposed by Edwin Shneidman (1973) in the 1970s. As a form of suicide prevention for future generations, postvention is characterized by the promotion of actions and interventions to care for survivors of bereavement by suicide (Shneidman, 1973; McGill et al., 2023).

The understanding of postvention is gradual and emphasizes the importance of an attentive and humanized approach to the bereaved (Stubbe, 2023; Pedrollo et al., 2022). Training and professional qualifications to support the bereaved are fundamental to care (Bartone et al., 2019).

Investment in this area is needed. SBL is one way to

improve these processes. It allows participants to develop skills, build knowledge, and engage with aspects of the teaching-learning process in a safe, proactive, and evidence-based manner (INACSL Standards Committee et al., 2021b).

Evaluating participants' perceptions of the design of scenarios used in simulated activities allows for a better understanding of their feasibility and effectiveness, with a focus on the proposed and expected objectives (INACSL Standards Committee et al., 2021c). A well-evaluated design strengthens the robustness of its construction (Pedrollo et al., 2022).

## Research question

What are the perceptions of healthcare students and professionals regarding the factors associated with the design of a scenario for telesimulation-based learning in postvention?

## Methodology

This is a cross-sectional descriptive study developed in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. The research was approved by the Research Ethics Committee under opinion number 4.608.709.

Data collection was integrated into the activities of a suicide postvention training course. The course took place online between August and October 2021, in two editions, with a total workload of 20 hours. The course was coordinated by postgraduate researchers from a Brazilian mental health research laboratory.

A total of 140 places were available for the two editions. The target audience consisted of healthcare students and professionals, regardless of professional category. The course was promoted through social media and institutional emails of the coordinators' research laboratory.

A total of 69 students and professionals trained and working in nursing, pharmacy, medicine, psychology, and occupational therapy enrolled in the course. These participants had access to a free online platform with content on suicide, bereavement, bereavement by suicide, postvention, telesimulation, professional practice, and mental health promotion.

The final activity of the course aimed to develop a telesimulation that followed the guidelines described in the interprofessional simulated scenario entitled "Initial support for the bereaved by suicide (postvention)" (Pedrollo et al., 2022). The scenario is available in full and free of charge in the scientific literature (Pedrollo et al., 2022). The expected objective of the scenario is to develop initial support measures for people bereaved by suicide (Pedrollo et al., 2022).

To experience the telesimulation, participants were divided into four groups, each with a maximum of 25 members, and invited to participate in a synchronous online meeting lasting a maximum of 2 hours on the Google Meet



platform. A total of four synchronous sessions were held. The sessions were structured as follows: opening moments, pre-briefing, telesimulation, debriefing, and investigation. At each session, two course participants represented the healthcare professionals responsible for providing up to 20 minutes of virtual care to a person bereaved by suicide. The preparation of these participants was based on the studies conducted during the course. The other participants in the telesimulation played the role of observers. The telesimulation was facilitated by two mental health specialists. At each session, prior agreements were made with the participants to ensure that an ethical and respectful environment was maintained during the virtual activity. As suggested in the description of the scenario, after the telesimulation experience, priority was given to debriefing and then to research.

Participants were invited to complete the survey regarding their perceptions of the telesimulation design. The researchers invited them verbally and via *Google Meet* chat and sent them a hyperlink to access the REDCap platform, where the informed consent form and data collection instruments were available.

The sample was defined using a non-probabilistic convenience sampling technique. Inclusion criteria were being a healthcare professional or student, having participated in the telesimulation proposed in the training course, and being 18 years of age or older. Participants who were enrolled in the course but did not participate in the telesimulation were excluded.

Participants completed three instruments. The first was a characterization questionnaire consisting of 13 items, including the participant's name, age, gender (female, male, prefer not to say), color or ethnicity, marital status (with or without a partner), geographic location (city and state), academic background (degree), education level, length of work experience, access to the Internet for their studies during the course (yes or no), difficulties connecting to the Internet during the telesimulation (yes or no), previous contact with the topic of clinical simulation (yes or no) and previous contact with the theme of postvention (yes or no).

The course evaluation questionnaire contained 19 questions divided into five categories (content, evaluation, personal experience, online support staff, and course). Each question had a six-point Likert-type response (*very poor, poor, fair, good, excellent, and none of the above*).

The Simulation Design Scale evaluates the elements that make up the simulation, with 20 self-report statements (Almeida et al., 2015). The scale is divided into five factors: objectives and information, support, problem-solving,

feedback/guided reflection, and fidelity (realism), and two subscales: agreement and importance. The scoring of each subscale is based on Likert-type responses ranging from 1 to 5 points.

The data obtained were organized in a Microsoft Excel 10 spreadsheet, entered in duplicate, and cross-referenced to minimize errors. Descriptive analyses and regression tests were proposed, with multicollinearity assessed using the variance inflation factor (VIF; Vatcheva et al., 2016). A threshold value of 5 was adopted for the VIF (Kim, 2019). For this purpose, a matrix of independent and dependent variables was constructed. The independent variables included age, gender, academic background, education level, length of work experience, student experience, internet access, connection difficulties, quality of access, and previous contact with SBL and postvention. The outcome variable was the problem-solving factor. Due to multicollinearity, the variable quality of Internet access was excluded, while the others were followed by regression tests.

The variables selected for regression testing were defined by the generalized Akaike Information Criterion (AIC). The model used was the Generalized Additive Model for Location, Scale and Shape (GAMLSS; Rygby & Stasinopoulos, 2005), with a significance level of 95.0% ( $\alpha = 0.05$ ; Rygby & Stasinopoulos, 2005). All statistical steps and analysis were performed using R statistical software.

## Results

The scenario was evaluated by 60 participants (Mean age = 32.8 years; Minimum = 19 years; Maximum = 56 years; Standard deviation = 8.78), the majority of whom were female (90.0%), white (61.6%), from the Southeast region of Brazil (75.0%), with a degree in psychology (50.8%), and 39.0% with a postgraduate degree. The average professional experience was close to 5 years (Minimum = 0 years; Maximum = 28 years; Standard deviation = 6.54). Only nine participants (15.0%) reported having problems accessing the Internet. More than 70.0% reported having had no previous contact with clinical simulation; however, more than 51.0% said they had had previous contact with the topic of postvention.

The results of the participants' evaluations show positive perceptions in relation to all the factors of the agreement and importance subscales, which is reflected in the high averages attributed to these items. The perceptions related to the realism factor stand out, with averages close to the maximum possible values to be achieved (Table 1).

**Table 1***Analysis of the agreement and importance subscales of the Simulation Design Scale (n = 58)*

Subscales	N*	Mean	SD†	Median	Minimum	Maximum
<b>Agreement</b>						
Objectives and Information	56	23.04	3.03	24	10	25
Support	55	16.55	4.16	19	5	20
Problem Solving	56	21.89	3.89	23	9	25
Feedback/Guided Reflection	56	18.77	2.89	20	5	20
Fidelity (Realism)	56	9.68	0.81	10	6	10
<b>Importance</b>						
Objectives and Information	56	23.70	2.07	25	17	25
Support	56	18.14	2.53	19,5	10	20
Problem Solving	56	22.82	2.84	24	13	25
Feedback/Guided Reflection	57	18.96	2.51	20	5	20
Fidelity (Realism)	58	9.52	1.27	10	4	10

*Note.* \*N = Number; †SD = Standard-deviation.

Source: Created by the authors (2024).

In the detailed analysis of the agreement subscale, most participants expressed total agreement with all the statements, with item 15 of the feedback and guided reflection factor standing out. Although to a lesser extent, items

2 and 3 of the objectives and information factor were the only ones to receive “strongly disagree” responses (Table 2).

**Table 2***Descriptive analysis of the participants' responses on the agreement subscale of the Simulation Design Scale (n = 60)*

Factors and items	Number of responses (%)				
	SD <sup>*</sup>	D <sup>†</sup>	UN <sup>‡</sup>	A <sup>**</sup>	SA <sup>††</sup>
<b>Objectives and Information</b>					
1. There was enough information provided at the beginning of the simulation to provide direction and encouragement.	- (-)	- (-)	- (-)	9 (16.4)	46 (83.6)
2. I clearly understood the purpose and objectives of the simulation.	1 (1.8)	- (-)	1 (1.8)	8 (14.5)	45 (81.8)
3. The simulation provided enough information in a clear manner for me to problem-solve the situation.	1 (1.8)	- (-)	1 (1.8)	15 (27.3)	38 (69.1)
4. There was enough information provided to me during the simulation.	- (-)	2 (3.6)	- (-)	11 (20.0)	42 (76.4)
5. The cues were appropriate and geared to promote my understanding.	- (-)	1 (1.9)	2 (3.7)	13 (24.1)	38 (70.4)
<b>Support</b>					
6. Support was offered in a timely manner.	- (-)	- (-)	1 (1.9)	16 (30.8)	35 (67.3)
7. My need for help was recognized.	- (-)	- (-)	3 (7.0)	15 (34.9)	25 (58.1)
8. I felt supported by the teacher's assistance during the simulation.	- (-)	- (-)	1 (2.2)	11 (24.4)	33 (73.4)
9. I was supported in the learning process.	- (-)	- (-)	1 (1.8)	11 (20.0)	43 (78.2)
<b>Problem Solving</b>					
10. Independent problem-solving was facilitated.	- (-)	1 (1.8)	3 (5.5)	13 (23.6)	38 (69.1)
11. I was encouraged to explore all possibilities of the simulation.	- (-)	1 (2.0)	4 (7.8)	12 (23.5)	34 (66.7)
12. The simulation was designed for my specific level of knowledge and skills.	- (-)	1 (1.8)	3 (5.7)	8 (15.1)	41 (77.4)
13. The simulation allowed me the opportunity to prioritize nursing assessments and care.	- (-)	- (-)	1 (1.9)	16 (29.6)	37 (68.5)
14. The simulation provided me an opportunity to goal set for my patient.	- (-)	- (-)	5 (9.4)	14 (26.4)	34 (64.2)
<b>Feedback/Guided Reflection</b>					
15. Feedback provided was constructive.	- (-)	- (-)	1 (1.8)	3 (5.6)	50 (92.6)
16. Feedback was provided in a timely manner.	- (-)	- (-)	1 (1.8)	8 (14.5)	46 (83.7)
17. The simulation allowed me to analyze my own behavior and actions.	- (-)	- (-)	2 (3.8)	7 (13.5)	43 (82.7)
18. There was an opportunity after the simulation to obtain guidance/feedback from the teacher in order to build knowledge to another level.	- (-)	- (-)	2 (3.6)	4 (7.1)	50 (89.3)
<b>Fidelity (Realism)</b>					
19. The scenario resembled a real-life situation.	- (-)	- (-)	1 (1.8)	6 (10.7)	49 (87.5)
20. Real-life factors, situations, and variables were built into the simulation scenario.	- (-)	- (-)	2 (3.6)	6 (10.7)	48 (85.7)

Note. SD<sup>\*</sup> = Strongly Disagree with the statement; D<sup>†</sup> = Disagree with the statement; UN<sup>‡</sup> = Undecided – you neither agree or disagree with the statement; A<sup>\*\*</sup> = Agree with the statement; SA<sup>††</sup> = Strongly agree with the statement.

Source: Created by the authors, 2024.

Among the factors related to the outcome of the study, psychologists showed a relative reduction of 54.0% in the mean score for the problem-solving factor compared to participants from other backgrounds (estimate = -0.76; SD = 0.33; t-value = -2.30; Pr(>|t|): 0.02; AR = 0.46; LI\_AR = 0.24; LS\_AR = 0.89). Participants who experienced problems accessing the Internet registered a relative decrease of 57.0% in the mean score of the problem-solving factor compared to those who did not experience this difficulty (estimate = -0.83; SD = 0.34; t-value = -2.40; Pr(>|t|): 0.01; AR = 0.43;

LI\_AR = 0.21; LS\_AR = 0.85). The Shapiro-Wilk normality test showed  $W = 0.97$ ,  $p$ -value = 0.27.

After two editions of the course, 69 participants (49.2%) passed, while 38 (33.9%) responded to the final evaluation. Most items were rated as good. Participants reported devoting up to 4 hours per week to the course ( $n = 24$ ) and acquiring theoretical (89.4%) and practical (94.7%) knowledge about postvention. Satisfaction was rated as high (89.4%), and all participants (100.0%) expressed their intention to recommend the course to others.



## Discussion

Assessing participants' perceptions of the elements that make up the design of telesimulation-based learning is fundamental to understanding aspects related to its use. The design assessed in this study included factors related to objectives and information, support, problem-solving, feedback and guided reflection, and fidelity (INACSL Standards Committee et al., 2021b; Almeida et al., 2015). The participants' perception of fidelity stood out in relation to the other factors, both in the means of the subscales analyzed and in the two statements of the factor, which received a total agreement of more than 85.0% of the participants. In the design, fidelity is a fundamental element so that the participants' experience in the proposed situation is close to the reality of care, even if developed in a virtual environment, as occurs in telesimulation (INACSL Standards Committee et al., 2021b; Yasser et al., 2023).

The scenario for telesimulation used in the study is described in the scientific literature as high fidelity (Pedrollo et al., 2022). Its structure and organization prioritize realism through conceptual, physical, and psychological dimensions related to the initial support of those bereaved by suicide (Pedrollo et al., 2022; INACSL Standards Committee et al., 2021b).

Telesimulation can provide tools to maintain realism, particularly through the use of audiovisual resources. However, technology alone does not guarantee the effectiveness of the teaching-learning process (Yasser et al., 2023). For this reason, maintaining realism is also related to factors such as support, facilitation, and preparation of simulationists (INACSL Standards Committee et al., 2021b; INACSL Standards Committee et al., 2021d). Although participants agreed with the statements related to the support factor, it was lower on average. Support during the telesimulation is fundamental for achieving the expected objectives and outcomes (Costa et al., 2020). It can be addressed in different ways in the design, namely by presenting cues to the participants, recognizing their needs and the support provided by the facilitator during the activity, promoting a constant exchange between all participants (INACSL Standards Committee et al., 2021b). In telesimulation, these interactions can be challenging, particularly in an approach such as postvention. A recent scoping review of postvention, conducted by researchers affiliated with a North American institution, highlighted the need for investment in education and training in the health care field to support survivors of bereavement by suicide (Daly et al., 2024). Brazilian studies on attitudes toward suicidal behavior reinforce the existence of needs related to the training of students and professionals in preparing, improving, and managing the care to be provided (Vedana & Zanetti, 2019; Faria et al., 2022).

On the importance subscale, the problem-solving factor had the lowest mean. Although the perception of the importance of problem-solving did not stand out significantly, it is important to note that the problem-solving skills expected in postvention training include multiple

dimensions represented by different factors (INACSL Standards Committee et al., 2021b).

Through telesimulation, the participant experienced a relationship between decision-making and problem-solving to promote the expected teaching and learning process (Park et al., 2022). A complex problem can be solved based on this set of factors that were addressed in the simulation plan through the autonomy experienced, the recognition of the aspects of the activity, the level of knowledge and existing skills, the opportunity to evaluate the experience, and the establishment of care goals (INACSL Standards Committee et al., 2021b).

In relation to feedback and reflection, the items that make up the factor showed responses of total agreement with more than 80.0%. This result shows that the participants agreed with the way the feedback and reflection on the telesimulation were carried out, which can be related to the debriefing.

A study with Brazilian students, conducted to validate the design of simulated infection control scenarios, analyzed feedback and reflection, with results that also emphasize the importance of debriefing (Dias et al., 2022; Nascimento et al., 2020). Debriefing is considered one of the pillars of SBL. This moment is considered to enhance the discussions about the knowledge, skills, and competences built together with the other participants and facilitators in the simulation, especially when it is carried out on the basis of a theoretical model (Dias et al., 2022; Nascimento et al., 2020).

Among other results, the associations identified showed that participants who had problems accessing the Internet had a significant reduction in mean scores on the problem-solving factor. This finding supports the understanding that in telesimulation, the effective experience of the participant at all stages is related to the appropriate use of technological resources. Thus, the barriers experienced can affect the teaching-learning process as well as the perception of the design (INACSL Standards Committee et al., 2021b; Yasser et al., 2023).

Regarding academic background, psychologists showed a reduction in the mean score for the problem-solving factor. Since telesimulation was not designed for a single professional category, perceptions are influenced by the ability to solve the problems presented based on the skills and abilities of each profession (Dantas et al., 2022; Ruckert et al., 2019).

The study also presented results related to the training course. Although the strategies discussed in the scientific literature in relation to postvention (Ruckert et al., 2019) are still scarce, few approaches relate to the pillars of teaching, research, and extension on this topic, as was done in this study. Therefore, it should be noted that the positive evaluations of the course strengthen an area that can be explored and that involved the participants. It is hoped that future studies will explore the construction of new knowledge about postvention, including its evaluation. Limitations include that the participants' perceptions were limited to a virtual experience. The cross-sectional approach does not allow us to explore the temporality of events. In addition, the sample was

selected for convenience, which limits the generalizability of the data.

## Conclusion

The research examined the perceptions of healthcare students and professionals on factors related to the design of a scenario for telesimulation-based training in postvention. The reproduced scenario provides an opportunity for training and capacity building in health, aimed at postvention, covering different healthcare professionals and students.

Participants' perceptions confirm the importance of factors such as fidelity, feedback, and reflection in telesimulation. However, aspects such as support and problem-solving revealed barriers that need to be improved in future studies. The identified associations underline the need for a closer look at specific training in postvention, as well as the use of the Internet in telesimulation processes. The topic of postvention is promising for future research, teaching, and extension, especially in developing and evaluating innovative proposals for telesimulation-based learning, with a focus on participants' perceptions.

### Author contributions

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