

Cross-cultural adaptation and content validity of the *Escala de Autoeficácia em Reanimación Cardiopulmonar*, Brazilian version*

Adaptação transcultural e validade de conteúdo da *Escala de Autoeficácia em Reanimación Cardiopulmonar* versão brasileira

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ABSTRACT

Objective: to estimate the evidence of content validity of the *Escala de Autoeficácia em Reanimación Cardiopulmonar Básica y Avanzada*, translated and cross-culturally adapted for the Brazilian context. **Methods:** a methodological study of the cross-cultural adaptation and content validation of the *Escala de Autoeficácia em Reanimación Cardiopulmonar Básica y Avanzada* for the Brazilian context was conducted. Clarity was assessed by 40 adolescents (Basic Life Support subscale) and 40 healthcare professionals (Advanced Life Support subscale), with items considered adequate when agreement was $\geq 80\%$. Content validity was assessed by 10 emergency and urgent care specialists using the Content Validity Index, with values of ≥ 0.78 for individual items and ≥ 0.90 for the overall scale considered acceptable. **Results:** the items presented a Content Validity Index of ≥ 0.80 . The overall Content Validity Index values were 0.94 for clarity and 0.96 for relevance, demonstrating excellent evidence of content validity. **Conclusion:** the Brazilian version of the *Escala de Autoeficácia em Reanimación Cardiopulmonar Básica y Avanzada* demonstrated satisfactory evidence of content validity. **Contributions to practice:** the instrument provides a potential tool to support educational strategies in cardiopulmonary resuscitation and to expand research and health education initiatives involving adolescents.

Descriptors: Self Efficacy; Heart Arrest; Surveys and Questionnaires; Cardiopulmonary Resuscitation; Nursing.

RESUMO

Objetivo: estimar as evidências de validade do conteúdo da *Escala de Autoeficácia em Reanimación Cardiopulmonar Básica y Avanzada* traduzida e adaptada transculturalmente para versão brasileira. **Métodos:** estudo metodológico de adaptação transcultural e validação de conteúdo da *Escala de Autoeficácia em Reanimación Cardiopulmonar Básica y Avanzada* para o contexto brasileiro. A clareza foi avaliada por 40 adolescentes (subescala de Suporte Básico de Vida) e 40 profissionais de saúde (subescala de Suporte Avançado de Vida), considerando-se adequados itens com concordância $\geq 80\%$. A validade de conteúdo foi avaliada por 10 especialistas em urgência e emergência, por meio do Índice de Validade de Conteúdo, adotando-se valores $\geq 0,78$ para os itens e $\geq 0,90$ para a escala global. **Resultados:** os itens apresentaram índice de validade de conteúdo $\geq 0,80$. Os índices globais de validade de conteúdo foram de 0,94 para clareza e 0,96 para relevância, demonstrando excelentes evidências de validade de conteúdo. **Conclusão:** a versão brasileira da *Escala de Autoeficácia em Reanimación Cardiopulmonar Básica y Avanzada* apresentou evidências de validade de conteúdo satisfatórias. **Contribuições para a prática:** disponibiliza instrumento com potencial para subsidiar estratégias educativas em reanimação cardiopulmonar e ampliar pesquisas e ações de educação em saúde com adolescentes. **Descritores:** Autoeficácia; Parada Cardíaca; Inquéritos e Questionários; Reanimação Cardiopulmonar; Enfermagem.

Introduction

Cardiac arrest is a public health problem that affects people worldwide and has clinical, social, and economic repercussions. It is characterized by a sudden cessation of cardiac function, absence of breathing or agonal breathing (gasping), and loss of consciousness⁽¹⁻²⁾.

Cardiopulmonary resuscitation is the primary intervention capable of altering this outcome, and its effectiveness depends not only on technical proficiency but also on the individual's confidence in performing the necessary maneuvers⁽³⁾.

In this scenario, self-efficacy, understood as the belief in one's own ability to perform specific actions, constitutes a central construct for performance in critical situations⁽⁴⁾. Its measurement thru structured instruments allows for the estimation of the perception of the ability to perform specific actions; higher levels of self-efficacy favor engagement, persistence, and confidence in decision-making, while lower levels can compromise performance even in the presence of adequate knowledge⁽⁵⁾.

Self-efficacy in the face of cardiac arrest is related to the quality of care and adherence to periodic training among healthcare professionals⁽⁶⁾. Evidence shows that educational interventions in cardiopulmonary resuscitation contribute to the improvement of knowledge, attitudes, self-efficacy, and confidence among students. Self-efficacy, in turn, is associated with the confidence to perform resuscitation maneuvers, reinforcing the strategic role of adolescents as the target audience for educational actions and potential knowledge multipliers⁽⁷⁻⁸⁾.

Few scales assess self-efficacy related to both basic and advanced cardiopulmonary resuscitation practices. The *Escala de Autoeficacia en Reanimación Cardiopulmonar (RCP) Básica y Avanzada* stands out for enabling this integrated assessment. The scale was developed in Spain and demonstrated high reliability and internal consistency⁽⁹⁾.

The assessment of self-efficacy in emergency situations requires instruments that encompass com-

petencies related to basic and advanced cardiopulmonary resuscitation support and different audiences⁽⁴⁻⁶⁾. In this context, the need to expand the assessment of self-efficacy among adolescents stands out, considering the specificities of this audience and their potential participation in educational actions on first aid and cardiopulmonary resuscitation. The availability of instruments adapted to the Brazilian sociocultural context can facilitate the evaluation of educational interventions and the production of evidence on factors associated with self-efficacy. Given this, the cross-cultural adaptation of the scale and the evaluation of its content validity for use in the Brazilian context, including its applicability among adolescents, become relevant.

Therefore, this study aimed to estimate the evidence of content validity of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada*, translated and cross-culturally adapted for the Brazilian context.

Methods

Type of study

This was a methodological study involving the translation, cross-cultural adaptation, and assessment of evidence of content validity of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* for use in Brazil. The study was conducted between September 2025 and January 2026 in Recife, following authorization from the authors of the original instrument.

Research instrument

The *Escala de Autoeficacia en Reanimación Cardiopulmonar (RCP) Básica y Avanzada* was developed in Madrid, Spain, in 2015, and published in 2018⁽⁹⁾. The instrument was selected based on a previously conducted scoping review, considering its theoretical foundation and the evidence of validity and reliability described by the authors.

The scale is composed of two subscales. The

first, aimed at basic life support, contains 12 items related to the recognition of cardiac arrest, activation of emergency services, and the performance of initial resuscitation maneuvers. The second, aimed at advanced life support, includes 15 items on advanced resuscitation procedures, including identification of cardiac arrest rhythms, use of medications, and defibrillation. In the end, each subscale provides an overall measure of self-efficacy for the respective level of support⁽⁹⁾.

The original version was administered to approximately 1,400 healthcare professionals, including doctors, nurses, and nursing technicians, showing satisfactory evidence of validity and high internal consistency, with Cronbach's alpha coefficients exceeding 0.92⁽⁹⁾.

Stages of the study and sample

For the development of the study, the five steps of the translation, adaptation, and validation protocol were followed: i) Translation of the original instrument into Brazilian Portuguese by two independent, bicultural translators; ii) Comparison of the versions by an independent translator; iii) Blind back-translation of the preliminary version translated by two other independent and bicultural translators; iv) Comparison of the back-translated versions by a committee of experts; v) Pilot test of the pre-final version: cognitive debriefing, with the target population and experts⁽¹⁰⁾.

The first four steps of the translation and transcultural adaptation were supported by a company specialized in the process of translation and transcultural adaptation. 1. The instrument was translated from Spanish to Brazilian Portuguese by two independent bilingual and bicultural translators, resulting in two translated versions. The instrument was translated from Spanish to Brazilian Portuguese by two independent bilingual and bicultural translators, resulting in two translated versions. 2. The translations were compared by a third translator, who analyzed the semantic and conceptual divergences and created a synthesis version. The translations were compared by a third translator, who analyzed the semantic and conceptual divergences and produced a synthesis

version. 3. In the back-translation, the synthesis version in Brazilian Portuguese was back-translated into Spanish by two independent bilingual translators, without prior access to the original instrument, with the aim of verifying the maintenance of meanings and ensuring semantic equivalence between the versions. 4. The back-translated versions were compared to the original instrument by a multidisciplinary committee of translators and specialists with a minimum of two years of experience in emergency and urgent care and/or instrument validation. The semantic, conceptual, and content equivalences were evaluated until the pre-final version was obtained, with the participation of the principal author of the original scale to ensure fidelity to the construct.

The fifth step, corresponding to the pilot test and content validation, involved two samples due to the two subscales. According to the methodological framework adopted for cross-cultural adaptation, this stage was conducted with 40 participants in each group, a number considered adequate for evaluating the comprehension and clarity of the items⁽¹⁰⁾. The Basic Life Support (BLS) subscale was administered to 40 adolescents aged 10 to 19, enrolled from seventh to ninth grade in a public school in Recife, with consent, assent, and school attendance. The Advanced Life Support (ALS) subscale was applied to 40 healthcare professionals, nurses or doctors, with experience in cardiopulmonary resuscitation after graduation. Data collection was carried out until the previously established quantity for each group was reached, with no sample losses at this stage.

The sampling was non-probabilistic, by convenience and with replacement. Initially, a visit was made to the selected school to present the research objectives and obtain institutional authorization. After the approval of the administration, the adolescents were invited in person in the classroom and informed about the objectives, procedures, and participation criteria. To those interested, the Free and Informed Consent Terms (FICT) were provided for signature by the legal guardians. After the signed term was returned, the adolescents signed the Free and Informed Assent Form

and participated in the research thru self-administered instruments applied in person in the classroom.

The professionals were recruited thru an institutional research group, email, messaging apps, and a snowball strategy, respecting the inclusion criteria and voluntary adherence and signing of the FICT.

The clarity of the items was evaluated by the target population of adolescents and health professionals according to each subscale of BLS and ALS, using a dichotomous scale ("clear" or "not clear"), with items having a minimum agreement of 80% being considered "clear." Items that did not meet this criterion were revised according to the participants' suggestions.

In parallel, ten specialists in emergency and urgent care evaluated the conceptual equivalence regarding the clarity of the items, and the content equivalence regarding the relevance of the items. The number of specialists was determined according to the methodological framework adopted for the cross-cultural adaptation of instruments⁽¹⁰⁾. The selection was carried out thru intentional sampling, including nurses and doctors with a minimum of two years of experience in the area of emergency and urgent care. Professionals who participated in the evaluation of semantic, conceptual, and content equivalences or the pilot test of the advanced life support subscale were excluded.

The evaluation was conducted individually, electronically. The clarity of the items was evaluated on a four-point Likert scale: (1) not clear; (2) somewhat clear; (3) clear, but needs minor adjustments; and (4) very clear and concise. Relevance was assessed on a similar scale: (1) not relevant; (2) relevant, but requires major changes; (3) relevant, but requires minor changes; and (4) very relevant and concise.

Data analysis

The data analysis was conducted using IBM SPSS Statistics Base and Microsoft Excel. Initially, the data were organized in spreadsheets in Microsoft Excel and subsequently analyzed in IBM SPSS. The categorical variables were described by absolute and relative frequencies, while the quantitative variables were

presented by mean and standard deviation or median and interquartile range, according to the data distribution evaluated by the Shapiro-Wilk test, adopting a significance level of 5% ($p < 0.05$).

The data from the evaluation by the 10 specialists were subjected to descriptive analysis. For the dimensions of clarity and relevance, the Item Content Validity Index (I-CVI) and the Scale Content Validity Index based on the average of the items (S-CVI/Ave) were calculated, with acceptable values being equal to or greater than 0.78 for the item index and 0.90 for the overall index⁽¹⁰⁾.

Ethical aspects

Stages IV and V were carried out after obtaining the Free and Informed Consent Terms (FICT) from adults and legal guardians and the Free and Informed Assent Form from adolescents, in accordance with the current resolution for research involving human beings, ensuring the privacy, confidentiality, and protection of the participants.

The study adhered to the ethical principles in force for research involving human beings and was approved by the Research Ethics Committee of the Federal University of Pernambuco under opinion no. 7.865.002/2025, Certificate of Presentation for Ethical Appreciation 91264025.7.0000.5208.

The authors declare that they used the generative artificial intelligence ChatGPT, as support in the linguistic review and textual enhancement of the manuscript, without interference in the conception, data analysis, or interpretation of the results.

Results

The stages of translation, synthesis, back-translation, and evaluation of clarity and content preserved the conceptual meaning and intent of the original items. The adjustments focused on the terminological, cultural, and operational suitability to the Brazilian context, as described below.

Translation of the original instrument into Bra-

zilian Portuguese: Two Target Language Translations (TLT1 and TLT2) were obtained, with variations in style without compromising the meaning of the items. TLT1 presented terminology more compatible with health usage in Brazil, while TLT2 maintained greater literalness, such as “compressions” versus “massage” and “shock” versus “discharge.”

Comparison of the versions by a third translator - Synthesis I: A third translator compared the versions and prepared the Preliminary Initial Target Language Version (PITLV), in which terms from TLT1 were prioritized for their greater clarity and suitability to the Brazilian context, without significant divergences.

Blind back-translation of the preliminary version: The PITLV was back-translated by two translators, resulting in the initial preliminary back-translation (R-PI1 and R-PI2), which were similar to each other and compatible with the original version. The divergences were specific and related to lexical choices resulting from the adaptation to the Brazilian context and the target population.

Comparison of the back-translated versions by a committee of experts - Synthesis II: A committee of six experts met virtually to draft the pre-final version. The translators from stages 1 and 3 participated, along with two specialist nurses, one with 12 years of experience in the Mobile Emergency Care Service and another with a doctorate and experience in instrument validation, in addition to the author of the original instrument, a doctoral nurse from the University of Madrid, whose contribution was fundamental to the pre-final version.

The main modifications involved the reformulation of the terms of the Likert scale, maintaining the original six gradations: none, very little, little, reasonable, quite a lot, and total confidence. In item BLS-2, the emergency service number was adapted to 192, corresponding to the Mobile Emergency Care Service (*Serviço de Atendimento Móvel de Urgência* – SAMU). The modifications to the translation and transcultural adaptation process are summarized in Figure 1.

Adaptation stage	Item/Section	Original version	Adapted version	Type of equivalence	Justification
Translation and synthesis	Scale title	<i>Escala de Autoeficacia en Reanimación Cardiopulmonar (RCP) Básica y Avanzada</i>	Self-Efficacy Scale in Basic and Advanced Cardiopulmonary Resuscitation (RCP)	Semantics	Linguistic adaptation to Brazilian Portuguese.
Translation and synthesis	General instructions	Original terminology in Spanish	Review of the wording and descriptors of the response scale	Semantic and conceptual	Better understanding of self-efficacy levels by the respondents.
Committee of experts	BLS*-2	Activates 112/061	SAMU [†] – 192	Cultural	Adaptation to the Brazilian pre-hospital care system.
Committee of experts	BLS-12	Generic reference to defibrillation	Inclusion of the term AED [‡]	Conceptual	Greater terminological precision.
Committee of experts	ALS [§] -2	Defibrillable rhythm	Shocking rhythm	Semantics	Most commonly used term in Brazil.
Committee of experts	ALS-4	Diagnosing cardiac arrest rhythms	Identify rhythms of cardiac arrest	Conceptual	Adequacy of the evaluated action to the self-efficacy proposal.
Evaluation by the target audience	BLS-3	Act automatically	Act immediately	Semantics	Adaptation of comprehension for teenagers.
Evaluation by the target audience	BLS-4,5,6	Chest compressions	Chest compressions	Semantics	Simplification of language.
Evaluation by the target audience	BLS-7	Airway permeabilization	Inclusion of procedure explanation	Conceptual	Increase in clarity for the lay population.
Pre-final version	Full scale	—	Consolidation of the modifications	Global	Culturally adapted Brazilian version.

*BLS: Basic Life Support; [†]SAMU: *Serviço de Atendimento Móvel de Urgência*; [‡]AED: Automated External Defibrillator; [§]ALS: Advanced Life Support

Figure 1 – Summary of the main modifications made during the transcultural adaptation process of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* for the Brazilian context. Recife, PE, Brazil, 2026

After the translation and transcultural adaptation of the instrument, the next step was V, the pilot test of the pre-final version in the target language - cognitive debriefing, related to content validation. To evaluate the clarity of the items in the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* – BR (Basic and Advanced Cardiopulmonary Resuscitation Self-Efficacy Scale – BR), the target population was selected according to the subscales of BLS (adolescents) and ALS (health professionals), and to assess the conceptual and content equivalence (clarity and relevance) of the items, specialists in emergency/urgent care were chosen.

40 adolescents participated in the pilot test re-

garding the application of the Basic Life Support (BLS) subscale, with a majority being female, 22 (55%), with an age median of 14 years and an interquartile range of two years (P25–P75: 13–15), enrolled in the 7th, 8th, and 9th grades of elementary school, with a predominance in the 8th grade of 21 (52.5%).

In the evaluation of the clarity of the items in the pre-final version of the BLS subscale, the majority were considered clear by more than 80% of the participants, reaching the recommended agreement index. However, the item BLS-8 (“Correctly placing an oropharyngeal airway [Guedel]”) did not reach this percentage, indicating the need for a revision of the wording for better understanding by the target audience (Table 1).

Table 1 – Evaluation of the clarity of the Basic Life Support subscale of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* – BR in adolescents (n=40). Recife, PE, Brazil, 2026

Item evaluated	Clear	Unclear
	n (%)	n (%)
<i>Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada</i> – BR	40 (100.0)	0 (0.0)
Rate your response based on the scale: confidence (none; very little; little; reasonable; quite a bit; total)	39 (97.5)	1 (2.5)
Self-efficacy in basic life support	40 (100.0)	0 (0.0)
1. Quickly activate the emergency system	40 (100.0)	0 (0.0)
2. Provide detailed information to 192 without losing your calm	38 (95.0)	2 (5.0)
3. Automatically perform the current resuscitation protocols	36 (90.0)	4 (10.0)
4. Identify the location for chest compressions	37 (92.5)	3 (7.5)
5. Perform chest compressions without interruption	37 (92.5)	3 (7.5)
6. Perform chest compressions with the recommended depth	39 (97.5)	1 (2.5)
7. Open and ensure the patency of the airways in a person in cardiopulmonary arrest	34 (85.5)	6 (15.0)
8. Correctly placing an oropharyngeal airway (Guedel®)	30 (75.0)	10 (25.0)
9. Ventilate effectively with bag-valve-mask (Ambu®)	39 (97.5)	1 (2.5)
10. Administer the recommended oxygen volume	40 (100.0)	0 (0.0)
11. Synchronize compressions with ventilation	37 (92.5)	3 (7.5)
12. Apply a shock with an automated external defibrillator	40 (100.0)	0 (0.0)
General: Perform basic life support effectively	40 (100.0)	0 (0.0)

For the evaluation of the ALS subscale, 40 healthcare professionals participated, predominantly female, 22 (55%), with an average age of 34.38 years (standard deviation = 5.6). Half were from Pernambuco, 20 (50%), and 9 (22.5%) from Alagoas. The majority were composed of nurses, 32 (80%), and

25 (62.5%) had specialization, mainly in emergency and urgent care. The main place of work was the Mobile Emergency Care Service, with 16 (40%) participants. The experience time showed a median of 5.0 years (P25–P75: 2.0–7.8) and 32 (80%) reported RCP training in the last two years.

In the evaluation of the clarity of the items in the pre-final version of the ALS subscale, all items were considered clear by more than 80% of healthcare professionals, meeting the recommended minimum

agreement index. These results indicate an adequate understanding of the items and language compatible with the professional context (Table 2).

Table 2 – Evaluation of the clarity of the Advanced Life Support subscale of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* – BR of healthcare professionals (n=40). Recife, PE, Brazil, 2026

Item evaluated	Clear	Unclear
	n (%)	n (%)
<i>Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada</i> – BR	40 (100.0)	0 (0.0)
Rate your response based on the scale: confidence (none; very little; little; reasonable; quite a bit; total)	40 (100.0)	0 (0.0)
Self-efficacy in advanced life support	40 (100.0)	0 (0.0)
1. Check for the presence of carotid pulse	39 (97.5)	1 (2.5)
2. Differentiate a defibrillable rhythm from a non-defibrillable one	37 (92.5)	3 (7.5)
3. Apply a shock with a manual defibrillator	40 (100.0)	0 (0.0)
4. Diagnose pre/post-arrest rhythms	40 (100.0)	0 (0.0)
5. Intubate a patient in cardiopulmonary arrest	39 (97.5)	1 (2.5)
6. Use devices for managing difficult airways (supraglottic devices, bougie, McCoy blade...)	38 (95.0)	2 (5.0)
7. Interpret capnography	40 (100.0)	0 (0.0)
8. Establish a peripheral intravenous access	39 (97.5)	1 (2.5)
9. Establish an intraosseous access if intravenous access is not possible.	38 (95.0)	2 (5.0)
10. Administer medication according to the protocol	38 (95.0)	2 (5.0)
11. Detect arrhythmias with hemodynamic compromise	40 (100.0)	0 (0.0)
12. Suspect the possible cause of the stop	38 (95.0)	2 (5.0)
13. Consider special resuscitation situations	34 (85.5)	6 (15.0)
14. Identify the do-not-resuscitate criteria	38 (95.0)	2 (5.0)
15. Identify the criteria for suspending an already initiated resuscitation	38 (95.0)	2 (5.0)
General: perform advanced life support effectively	40 (100.0)	0 (0.0)

Both in the BLS and ALS subscales, suggestions regarding unclear items were analyzed and incorporated to improve clarity and linguistic adequacy. Ten specialists participated in the conceptual and content evaluation, including seven nurses and three doctors. The majority were male, aged between 29 and 55 years (average age of 39.1 years), with professionals from Pernambuco predominating, with seven participants.

The specialists presented high academic qualifications, including specialization, master's, and doctorate, with training between 1995 and 2019. They mainly worked in the Mobile Emergency Care Service and

in hospital emergency services, with a work experience ranging from 4 to 20 years. They all reported participation in updated RCP training in the last two years.

The content evaluation showed satisfactory results, with I-IVC $\geq$ 0.80 for all items. In the Basic Life Support subscale, the S-IVC/Ave values were 0.92 for clarity and 0.95 for relevance. In Advanced Life Support, both domains showed 0.96. In the complete instrument, the global indices were 0.94 for clarity and 0.96 for relevance, indicating a high level of agreement among the experts (Table 3).

Tabela 3 – Evaluation of the conceptual and content equivalence of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* – BR by specialists (n=10). Recife, PE, Brazil, 2026

Item evaluated	Conceptual (I-IVC*)	Content (I-IVC)
	Clarity	Relevance
<i>Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada</i> – BR	1.00	1.00
Rate your response based on the scale: confidence (none; very little; little; reasonable; quite a bit; total)	1.00	1.00
Self-efficacy in basic life support	1.00	1.00
1. Quickly activate the emergency system	1.00	1.00
2. Provide detailed information to 192 without losing your calm.	1.00	1.00
3. Automatically perform the current resuscitation protocols	0.90	1.00
4. Identify the location for chest compressions	0.90	1.00
5. Perform chest compressions without interruption	0.90	1.00
6. Perform chest compressions with the recommended depth	1.00	1.00
7. Open and ensure the patency of the airways in a person in cardiopulmonary arrest	0.90	0.90
8. Correctly placing an oropharyngeal airway (Guedel®)	0.90	0.90
9. Ventilate effectively with bag-valve-mask (Ambu®)	0.90	0.90
10. Administer the recommended oxygen volume	0.80	0.90
11. Synchronize compressions with ventilation	0.80	0.90
12. Apply a shock with an automated external defibrillator (AED)	0.90	0.80
General: Perform basic life support effectively	1.00	1.00
S-IVC/AVE [†] (Basic life support)	0.92	0.95
Self-efficacy in advanced life support	1.00	1.00
1. Check for the presence of carotid pulse	0.90	0.90
2. Differentiate a defibrillable rhythm from a non-defibrillable one	0.80	0.80
3. Apply a shock with a manual defibrillator	0.90	0.90
4. Diagnose pre/post-arrest rhythms	0.90	0.90
5. Intubate a patient in cardiopulmonary arrest	1.00	1.00
6. Use devices for managing difficult airways (supraglottic devices, bougie, McCoy blade...)	1.00	1.00
7. Interpret capnography	1.00	1.00
8. Establish a peripheral intravenous access	1.00	1.00
9. Establish an intraosseous access if intravenous access is not possible.	1.00	1.00
10. Administer medication according to the protocol	0.90	0.90
11. Detect arrhythmias with hemodynamic compromise	1.00	1.00
12. Suspect the possible cause of the stop	1.00	1.00
13. Consider special resuscitation situations	1.00	1.00
14. Identify the do-not-resuscitate criteria	1.00	1.00
15. Identify the criteria for suspending an already initiated resuscitation	1.00	1.00
General: perform advanced life support effectively	1.00	1.00
S-IVC/AVE (Advanced life support)	0.96	0.96
S-IVC/AVE (Global)	0.94	0.96

*I-IVC: Item Content Validity Index; [†]S-IVC/AVE: Scale Content Validity Index

Although the indices of conceptual and content validity were satisfactory, suggestions from experts were incorporated to enhance clarity and linguistic and cultural appropriateness. The adjustments resulted in the final version for the Brazilian context, with the evaluation of other psychometric properties still being necessary.

Discussion

Psychometric instruments require cultural adaptation, in addition to translation, to preserve the evaluated construct. In cardiopulmonary resuscitation, where quick decisions involve technical knowledge and perception of competence, the adaptation of self-efficacy scales requires methodological rigor and cultural sensitivity.

The translation, transcultural adaptation, and content validation of the *Escala de Autoeficacia en Reanimación Cardiopulmonar Básica y Avanzada* required linguistic, terminological, and operational adjustments to ensure semantic, conceptual, and functional equivalence in the Brazilian context⁽⁹⁾. The methodological framework adopted conferred robustness to the process by considering the linguistic, cultural, and contextual dimensions of the adaptation⁽¹⁰⁾. Other studies that used this framework reinforce its applicability and methodological consistency in different sociocultural contexts⁽¹²⁻¹⁶⁾.

The differences between the initial translations highlighted the importance of the translators' thematic expertise. The choice of terms compatible with Brazilian clinical practice favored greater conceptual accuracy and alignment with the terminology of care. The literature highlights that translators with knowledge of the construct help reduce ambiguities and preserve the technical meaning of the items⁽¹⁷⁻¹⁸⁾.

The synthesis was crucial to balance fidelity to the original instrument and intelligibility for the target population. Very literal translations can compromise understanding, while excessive simplifications can reduce the breadth of the construct⁽¹⁹⁾. Careful

adjustments are essential to avoid interpretative distortions in measurement⁽²⁰⁾.

Although the discrepancies in the back-translation were subtle, its execution reinforced the consistency of the process and allowed for the verification of the maintenance of the original content. Methodological evidence indicates that this stage acts as a mechanism for conceptual quality control, even when it does not produce substantial changes⁽²¹⁻²²⁾.

The analysis by the multidisciplinary committee enabled adjustments in the intensity of the statements, contextualization of the scenarios, and adaptation to the Brazilian healthcare system. The participation of the original author ensured structural fidelity, especially in the interpretation of the scores and the clarification of the term "periparada," preserving the conceptual coherence of the instrument⁽²³⁾.

The replacement of references to the Spanish emergency system with the Mobile Emergency Care Service (SAMU-192) highlights the need for functional equivalence in transcultural adaptations. The literature emphasizes that the maintenance of conceptual meaning depends on the incorporation of local operational specificities⁽²⁴⁾.

Regarding the response structure, the six-point Likert scale preserved the original interpretative logic, although the number of categories may influence psychometric properties⁽²⁵⁾. The decision sought to ensure international comparability and coherence with the theoretical conception of the scale.

The pilot test with two distinct audiences constitutes a relevant contribution, as the original instrument was developed only for healthcare professionals. The inclusion of adolescents in the basic life support subscale expands its applicability and addresses the gap in instruments for this age group. This approach is in line with the recommendation to involve end users in evaluating the comprehensibility of the instruments⁽²⁶⁾.

Weaknesses in students' theoretical-practical knowledge about basic life support are associated with insecurity in acting in emergency situations⁽²⁷⁾. In this sense, structured educational interventions demon-

trate a significant improvement in knowledge and practical performance in cardiopulmonary resuscitation⁽²⁸⁾, reinforcing the relevance of instruments capable of measuring self-efficacy as a formative indicator.

In addition to knowledge and practical skills, self-efficacy influences the willingness and confidence to act in emergencies. Thus, its measurement in adolescents can enhance the evaluation of educational programs in cardiopulmonary resuscitation. Given the increasing inclusion of this audience in health education and first aid actions, valid measures can assist in monitoring interventions, identifying learning needs, and improving strategies for training potential lay rescuers⁽²⁹⁾.

The evaluation by specialists revealed high content validity indices, exceeding the established criteria, indicating conceptual consistency and item representativeness, in line with the results observed in the original scale development study⁽¹⁰⁾. Such findings support initial evidence of content validity for the Brazilian version.

The validation of instruments is a continuous process, dependent on the context of application and the characteristics of the population⁽³⁰⁾. Future studies should investigate additional evidence of validity and reliability in different educational and healthcare settings.

Study limitations

As limitations, the study was conducted in a single geographical context, with adolescents from only one public school, which may restrict the generalization of the findings to populations with different socio-cultural characteristics, educational levels, and degrees of health literacy. Moreover, convenience sampling may introduce selection biases. It is also emphasized that the validation was restricted to evidence of content validity, not considering other psychometric properties, such as construct validity, internal consistency, reliability, and temporal stability (test-retest), the latter being relevant to assess the reproducibility of the

measures over time. Additionally, possible effects of differential understanding between different age groups within the adolescent group were not evaluated.

Contributions to practice

The results of this study contribute to the advancement of scientific knowledge by providing a Brazilian version of the self-efficacy scale in cardiopulmonary resuscitation with evidence of content validity, suitable for the national sociocultural context.

For health and nursing, the findings support the preliminary use of the instrument in identifying gaps in competence perception and in planning educational strategies in basic and advanced life support. It also highlights its potential in research with adolescents, expanding the scope of health education and first aid.

However, it is emphasized that the contributions are limited to evidence of content validity, and additional studies are needed to evaluate other psychometric properties before their widespread incorporation into healthcare and educational practice.

Conclusion

The evaluation by the target audience and experts demonstrated clarity and relevance of the items, with content validity indices exceeding the established criteria. Although limited to evidence of content validity, the Brazilian version proved to be conceptually appropriate for the national context. Thus, the study provides a culturally adapted version of the scale, with evidence of content validity for use in research on self-efficacy in cardiopulmonary resuscitation in Brazil.

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Authors' contribution

Conception and design or data analysis and interpretation: **Mendes AWV, Frazão CMFQ**. Writing of the manuscript or relevant critical review of the intellectual content: **Mendes AWV, Perrelli JGA, Butche RCGS, Frazão CMFQ**. Final approval of the version to be published: **Perrelli JGA, Butche RCGS, Frazão CMFQ**. Agreement to be responsible for all aspects of the manuscript related to the accuracy or integrity of any part of the manuscript: **Mendes AWV, Crispim MO, Gomes AS, Galindo Neto NM, Perrelli JGA, Butche RCGS, Frazão CMFQ**.

Data availability

The authors declare that the data used and/or analyzed during the present study are available upon reasonable request to the corresponding author.

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