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ADAPTAÇÃO CULTURAL E VALIDAÇÃO DE CONTEÚDO DA ESCALA DE AVALIAÇÃO DO RISCO DE INFEÇÃO EM UTENTES ADULTOS RAC (RODRÍGUEZ-ALMEIDA-CAÑON) PARA PORTUGUÊS DE PORTUGAL

CULTURAL ADAPTATION AND CONTENT VALIDATION OF THE RAC (RODRÍGUEZ-ALMEIDA-CAÑON) ADULT INFECTION RISK ASSESSMENT SCALE FOR PORTUGUESE FROM PORTUGAL

ADAPTACIÓN CULTURAL Y VALIDACIÓN DEL CONTENIDO DE LA ESCALA DE EVALUACIÓN DEL RIESGO DE INFECCIÓN EN RDULTOS RAC (RODRÍGUEZ-ALMEIDA-CAÑON) PARA PORTUGUESES EN PORTUGAL

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RESUMO

Introdução: As Infeções Associadas aos Cuidados de Saúde (IACS) têm sido uma preocupação na área da saúde, pelos prejuízos para a saúde pública. Pelo que, a estratificação do risco da população hospitalizada, através de instrumentos validados, é essencial para implementação de medidas eficazes na prevenção das IACS.
Objetivo: Adaptar culturalmente a Escala de Avaliação do Risco de Infeção em Utentes Adultos RAC (Rodríguez-Almeida-Cañon). Neste artigo descrevem-se as seguintes etapas: preparação, tradução prévia, retrotradução, revisão da retrotradução e validação de conteúdo, através de um painel de peritos.
Métodos: Após a tradução e retrotradução da escala recorrendo a tradutores bilingues, foi realizada uma validação de conteúdo, através de um painel de Delphi, onde participaram 11 peritos na área das IACS, de ambos os sexos, com experiência clínica e/ou envolvimento prévio em investigação na área da prevenção e controlo de infeções. Os itens da escala RAC foram avaliados relativamente à sua clareza, relevância teórica e pertinência prática. A validade de conteúdo foi determinada, através do índice de validade de conteúdo.
Resultados: Da auscultação dos peritos, foi consensual manter os 15 itens de avaliação, agrupados em fatores intrínsecos e extrínsecos, obtendo um nível de concordância da escala, traduzida para português de Portugal, de 95%.
Conclusão: A escala RAC mostrou-se válida em termos de conteúdo, sendo que a utilização de instrumentos de avaliação do risco de infeção é essencial para a prevenção da mesma, contribuindo para a melhoria da qualidade dos cuidados e direcionando as intervenções da equipa de profissionais de saúde. Para assegurar a validade da escala, será ainda realizada a respetiva validação psicométrica.

Palavras-chave: medição de risco; infeção hospitalar; controle de infeções; estudo de validação

ABSTRACT

Introduction: Healthcare-Associated Infections (HAIs) have been a concern in the healthcare field due to their impact on public health. Therefore, risk stratification of hospitalized populations, using validated instruments, is essential for implementing effective measures to prevent HAIs.
Objective: Aimed to culturally adapt the RAC Infection Risk Assessment Scale (Rodríguez-Almeida-Cañon) for adult patients. This article describes the following steps: preparation, preliminary translation, back-translation, review of the back-translation, and content validation through a panel of experts.
Methods: After translating and back-translating the scale using bilingual translators, content validation was carried out through a Delphi panel involving 11 experts in the field of HAIs, of both sexes, with clinical experience and/or previous involvement in infection prevention and control research. The items of the RAC scale were evaluated for clarity, theoretical relevance, and practical pertinence. La validez de contenido se determinó mediante el índice de validez de contenido.
Results: Based on the feedback from the experts, there was consensus to retain the 15 assessment items, grouped into intrinsic and extrinsic factors. The Portuguese (Portugal) version of the scale achieved a 95% agreement level.
Conclusion: The RAC scale proved to be valid in terms of content. The use of infection risk assessment instruments is essential for infection prevention, contributing to improved quality of care and guiding healthcare professionals' interventions. To ensure the validity of the scale, a psychometric validation will also be conducted.

Keywords: risk measurement; hospital-acquired infection; infection control; validation study

RESUMEN

Introducción: Las Infecciones Asociadas a la Atención Sanitaria (IAAS) han sido una preocupación en el ámbito de la salud debido a su impacto en la salud pública. Por ello, la estratificación del riesgo de las poblaciones hospitalizadas, mediante instrumentos validados, es esencial para implementar medidas eficaces en la prevención de las IAAS.
Objetivo: adaptar culturalmente la Escala de Evaluación del Riesgo de Infección RAC (Rodríguez-Almeida-Cañon) para pacientes adultos. En este artículo se describen las siguientes etapas: preparación, traducción preliminar, retrotraducción, revisión de la retrotraducción y validación de contenido utilizando el índice de validez de contenido.
Métodos: Tras la traducción y retrotraducción de la escala por traductores bilingües, se llevó a cabo una validación de contenido mediante un panel Delphi con la participación de 11 expertos en el ámbito de las IAAS, de ambos sexos, con experiencia clínica y/o participación previa en investigaciones sobre prevención y control de infecciones. Los ítems de la escala RAC fueron evaluados en cuanto a su claridad, relevancia teórica y pertinencia práctica. La validez de contenido se determinó a partir del nivel de concordancia entre los expertos.
Resultados: Según la retroalimentación de los expertos, se consensuó mantener los 15 ítems de evaluación, agrupados en factores intrínsecos y extrínsecos. La versión portuguesa (de Portugal) de la escala alcanzó un nivel de concordancia del 95%.
Conclusión: La escala RAC demostró ser válida en términos de contenido. El uso de instrumentos para la evaluación del riesgo de infección es esencial para su prevención, contribuyendo a la mejora de la calidad asistencial y orientando las intervenciones de los profesionales de salud. Para asegurar la validez de la escala, también se llevará a cabo su validación psicométrica.

Palabras clave: medición del riesgo; infección nosocomial; control de infecciones; estudio de validación

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INTRODUCTION

Healthcare-associated infections (HAIs) represent a global concern in the healthcare sector, as they pose significant health risks to patients and increase the burden on healthcare facilities, resulting in higher economic costs for institutions. In addition, human suffering is a major consequence of HAIs, given their negative impact on the quality of life of patients and their families (Rodríguez-Acelas et al., 2017).

HAIs are infections acquired within healthcare settings and are typically absent at the time of admission, although they may be in an incubation period (Monegro et al., 2025). They usually develop during hospitalization, manifesting at least 48 hours after admission. The most common types include bloodstream infections associated with central venous catheters, urinary tract infections linked to urinary catheters, surgical site infections, and ventilator-associated pneumonia (Khan et al., 2017).

The World Health Organization (WHO) reports that in Europe, approximately 37,000 deaths per year are directly attributable to HAIs, with an additional 110,000 deaths indirectly related (WHO, 2011). According to an infographic published by the European Centre for Disease Prevention and Control (ECDC), based on studies conducted in hospitals and long-term care facilities across European Union countries between 2016 and 2017, it was estimated that 1 in 15 patients in hospitals and 1 in 26 patients in long-term care facilities acquired at least one HAI (ECDC, 2018). The study also estimated that a total of 8.9 million HAIs occur annually in European hospitals and long-term care facilities. In hospitals, the most common HAIs are pneumonia, surgical site infections, and bloodstream infections. In contrast, HAIs acquired in long-term care facilities tend to be less severe, with urinary tract infections, non-pneumonia respiratory infections, and skin and soft tissue infections being the most prevalent (ECDC, 2018).

Given this evidence, investing in HAI prevention is imperative by understanding the risk factors that increase patient susceptibility and by identifying effective interventions and strategies to mitigate these risks.

It is therefore essential to identify the inherent risks of acquiring HAIs, stratify patient risk, and implement appropriate interventions. This process is fundamental for infection prevention and control, contributing to both patient safety and the quality of care provided.

Prevention and control of HAIs is a key quality standard in specialized medical-surgical nursing, with specialist nurses playing a central role in designing and leading evidence-based infection prevention and control plans. It is also crucial to establish institutional strategies that address transmission routes and ensure proper training of healthcare teams in delivering safe care (Order of Nurses, 2017).

By identifying risk factors in advance, as well as each patient's level of risk for infection, targeted strategies can be implemented to reduce HAI occurrence. Most risk factors are related to patient susceptibility, comorbidities, and prior invasive procedures (Siracusa et al., 2019). Additional risks may arise from antibiotic exposure, multidrug-resistant organisms, and specific clinical conditions that facilitate colonization and infection, such as disease severity, wounds, and the presence of invasive devices (Zaha et al., 2019).

In a systematic review with meta-analysis conducted by Rodríguez-Acelas et al. (2017), several risk factors were identified and categorized into intrinsic and extrinsic factors. Based on this review, the Risk Assessment Scale for Infection in Adult Patients (RAC) was developed. The scale underwent content validation by 23 experts, achieving a content validity index of 0.83–1.0 for individual items (Rodríguez-Acelas, Cañon-Montañez, Almeida, et al., 2019). Its psychometric properties and reliability were subsequently tested through a prospective cohort study (Rodríguez-Acelas, López de Ávila, et al., 2022), confirming the scale's validity and reliability in a hospital setting in Brazil. The RAC Scale consists of 15 items grouped into intrinsic factors (eight items reflecting patient conditions at admission) and extrinsic factors (seven items related to care provided during hospitalization).

Therefore, the objective of the present study is to perform a cross-cultural adaptation of the RAC Scale into European Portuguese, with content validation as the initial phase and psychometric validation in a subsequent phase.

1. THEORETICAL FRAMEWORK

Healthcare-associated infections (HAIs) remain a significant threat to patient safety and serve as a key indicator of the quality of care provided. Globally, millions of people are affected by HAIs each year, resulting in increased morbidity, mortality, and healthcare costs (WHO, 2019).

Early assessment of infection risk is essential to guide targeted prevention strategies, minimizing the occurrence of HAIs and optimizing the use of institutional resources. For such assessments to be effective, it is crucial to employ validated and culturally adapted instruments that structure risk stratification based on patient susceptibility and exposure to clinical procedures (Rodríguez-Acelas, Cañon-Montañez, & Almeida, 2019; Rodríguez-Acelas et al., 2021).

HAI risk factors can be broadly categorized into intrinsic and extrinsic factors, following a conceptual framework similar to the Model of Social Determinants of Health by Whitehead and Dahlgren (1991), which explains how individual and contextual conditions influence health outcomes. Inspired by this model, intrinsic factors refer to individual characteristics, while extrinsic factors pertain to environmental conditions and healthcare exposures.

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Intrinsic factors include age, sex, comorbidities (e.g., diabetes mellitus, renal failure, lung disease), nutritional status, smoking, alcohol consumption, pre-existing wounds or injuries, and reduced mobility (Siracusa et al., 2019). These factors reflect biological vulnerability and are often not readily modifiable.

Extrinsic factors are associated with hospital-related exposures and procedures performed during admission. Examples include invasive procedures (e.g., vascular catheter placement, mechanical ventilation, urinary catheterization), previous hospitalizations, intra- or inter-hospital transfers, prolonged length of stay, intensive pharmacological therapy (e.g., broad-spectrum antibiotics), and recent surgery (Rodríguez-Acelas et al., 2021).

A systematic understanding of these factors is essential for developing targeted care plans, selecting appropriate precautions, and optimizing resource use in infection prevention programs (WHO, 2019).

Despite their importance, relatively few validated instruments are available in clinical practice. Notable examples include the RAC Scale (Rodríguez-Acelas et al., 2019), which integrates intrinsic and extrinsic factors into 15 items; the NNIS Risk Index (Gaynes et al., 2005), one of the earliest tools for estimating surgical site infection risk; the Surgical Site Infection Risk Prediction Models (Walraven & Musselman, 2013), focused on postoperative infections; and the INICC Surveillance System (Rosenthal et al., 2005), which not only calculates infection rates through epidemiological surveillance but also evaluates risks associated with invasive devices.

The RAC Scale stands out for its practicality, rapid application, and comprehensive approach, enabling risk stratification into three categories—low, medium, and high—within the first hours of hospital admission (Rodríguez-Acelas, Cañón-Montañez, & Almeida, 2021).

Therefore, this study aims to adapt and validate the RAC Scale for the Portuguese context, ensuring semantic and cultural equivalence while promoting evidence-based tools that strengthen infection prevention across the national health system.

2. METHODS

This methodological study focuses on the cross-cultural adaptation of the RAC Scale for infection risk assessment in adult patients into European Portuguese.

The original Risk Assessment Scale for Infection in Adult Patients (RAC) comprises 15 items organized into two dimensions: eight intrinsic factors and seven extrinsic factors.

The intrinsic factors are sex, age, smoking habits, alcohol consumption, nutritional status, comorbidities, non-surgical injuries or wounds, and physical mobility.

The extrinsic factors include previous hospitalization, intra- or inter-hospital transfer, inpatient service, length of stay, surgical intervention during hospitalization or within the past 12 months, invasive procedures, and pharmacological and/or non-pharmacological therapy (Rodríguez-Acelas, Cañon-Montañez, Almeida, et al., 2019).

Each item is evaluated using a Likert scale, with clearly defined response options to facilitate objective completion. Based on the total score, infection risk can be stratified into three categories: low risk (4–11 points), medium risk (12–21 points), and high risk (≥22 points) (Rodríguez-Acelas, Cañon-Montañez, Almeida, et al., 2019).

The translation process followed the procedures recommended in the Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures (Beaton et al., 2000), including translation, synthesis, back-translation, and expert-based face and content validation.

Prior to translation, electronic consent was obtained from the original authors of the RAC Scale. The initial translation was independently performed by two bilingual translators from Portugal, resulting in two versions in European Portuguese.

The synthesis phase was conducted by the research team, who compared the two translations with the original instrument. A detailed report was prepared documenting all discrepancies and the strategies used to resolve them. Consensus between the translators and the researchers resulted in a single Portuguese version.

Subsequently, back-translation was performed by two bilingual translators from Brazil to identify potential conceptual and semantic inconsistencies and to verify that the scale retained its original meaning. The resulting version was then sent to the original authors for review.

The approved version was incorporated into a Google Forms® questionnaire and submitted for content validation via a Delphi panel.

Prior to submission to experts, a face validity pre-test was conducted with five nurses specialized in medical-surgical nursing. All participants possessed advanced competence in Infection Prevention and Control Nursing and had a minimum of three years of experience in local coordinating groups of the Infection Prevention and Control and Antimicrobial Resistance Programme ("PPCIRA") in Portuguese public institutions.

The pre-test did not generate any suggestions for changes to the digital version of the instrument. Following this step, the version was submitted to the Delphi panel for review, aiming to validate the content of the items in a single round conducted in 2023.

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2.1 Sample

Twenty-four health professionals—including nurses, physicians, and microbiologists—with experience in research and/or "PPCIRA" clinical groups were invited to participate in the expert panel, following a procedure like that used in the original Brazilian validation study. Recruitment was conducted using the snowball method (with double consent), and experts were contacted via email. The selection process aimed to ensure diversity and representativeness, including professionals from various health institutions across Portugal, with both clinical and academic experience.

Of the 24 professionals invited, seven did not respond, four agreed to participate but did not complete the data collection instrument, and two were excluded due to having less than three years of effective experience in "PPCIRA" clinical groups and/or insufficient research experience in the field.

Written informed consent was obtained from all experts who completed the instrument.

The literature provides varying recommendations regarding the appropriate number of experts for content validation. While as few as two experts may be considered acceptable, most guidelines recommend a minimum of six experts—a criterion met in this study (Jünger et al., 2017; Yusoff, 2019).

The final panel consisted exclusively of nurses, with an average of 22.5 years of professional experience (range: 12–40 years) and 8.9 years of experience as members of "PPCIRA" groups (SD = 7.21; range: 3–25 years). Most participants held a master's degree (n = 8) and were certified as Specialists in Medical-Surgical Nursing (n = 8). Their professional roles were distributed across care provision (63.6%), teaching/research (18.2%), and management (18.2%).

Geographical representation included the North, Centre, Lisbon and Tagus Valley, and Algarve regions, further reinforcing the heterogeneity and representativeness of the panel.

2.2 Data collection instruments

An electronic questionnaire was developed and administered using the Google Forms® platform and sent via email to the experts who had previously consented to participate in the study.

The questionnaire was divided into two sections. The first section confirmed the predefined inclusion criteria and collected sociodemographic and professional information from the experts, including gender, years of professional experience, years of experience as a "PPCIRA" member, region of origin, academic and professional qualifications, area of specialization, and field of activity (care provision, research, teaching, or other).

The second section consisted of items designed to validate the content of the RAC Scale in European Portuguese, focusing on item clarity, practical relevance, and theoretical relevance. The aim was to ensure semantic, conceptual, and cultural equivalence of the translated version. Item clarity assessed comprehensibility and wording, practical relevance examined applicability in clinical practice, and theoretical relevance evaluated the adequacy of each item in relation to the construct being measured.

Experts rated each item using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). An open-text field was also provided for comments and suggestions regarding item reformulation.

This study was approved by the Ethics Committee and the Board of Directors of a hospital within a Local Health Unit in the Central Region of Portugal (22/CES/2022). All procedures adhered to the principles of the Declaration of Helsinki (World Medical Association, 2024).

2.3 Statistical analysis

The data collected in this study were organized in an Excel spreadsheet, double-checked for accuracy, and exported for statistical analysis using the Statistical Package for the Social Sciences® (SPSS), version 28 (2022).

The Content Validity Index (CVI) evaluates the relevance, adequacy, ease of calculation, and comprehensibility of a health measurement instrument. It can be reported both for the overall scale (S-CVI) and for individual items (I-CVI) (Yusoff, 2019).

In this study, content validity was assessed using the CVI at both the item level (I-CVI) and the scale level (S-CVI) (Polit & Beck, 2006; Yusoff, 2019; Markus et al., 2025). The I-CVI was calculated by averaging the ratings assigned by the 11 experts for each item regarding clarity, practical relevance, and theoretical relevance. The S-CVI was calculated as the overall percentage of items considered valid.

According to the literature, CVI values ≥ 0.78 at the item level and ≥ 0.80 at the scale level are considered indicative of good content validity (Lynn, 1986; Polit & Beck, 2006). These thresholds were adopted in the present study for the acceptance of both individual items and the overall scale.

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3. RESULTS

Although nurses, physicians, and microbiologists were invited to participate, only nurses completed the questionnaire. On average, the nurses had 22.5 years of professional experience (SD = 9.22; range: 12–40 years) and 8.9 years of experience as members of "PPCIRA" groups (SD = 7.21; range: 3–25 years).

Most participants held a master's degree (n = 8) and the title of Specialist Nurse in Medical-Surgical Nursing (n = 8). Their professional roles were distributed across care provision (63.6%), teaching and research (18.2%), and management (18.2%).

Regarding geographical representation, the nurses were based in the North, Centre, Lisbon and Tagus Valley, and Algarve regions (Portuguese Regional Health Administrations), reinforcing the heterogeneity and representativeness of the panel.

Table 1 – Sociodemographic characteristics of the expert panel (n= 11)

Variables		**% (*n*)**	***M* (SD)**
Gender	Female	72.7 (8)	
	Male	27.3 (3)	
Region	Central Region	27.3 (3)	
	Algarve	18.2 (2)	
	Lisbon and Tagus Valley	45.5 (5)	
	North	9.1 (1)	
Academic qualifications	Master's degree	72.7 (8)	
	Bachelor's degree	27.3 (3)	
Area of specialisation	Medical-Surgical Nursing	72.7 (8)	
	Community Nursing	18.2 (2)	
	No speciality	9.1 (1)	
Area of practice	Care provision	63.6 (7)	
	Teaching/Research	18.2 (2)	
	Management	18.2 (2)	
Professional experience (years)			22.55 (9.22)
Experience as a member of "PPCIRA"			8.91 (7.22)

Note: %- percentagem; *n*= sample size; M = mean; DP = standard deviation.

Regarding the fifteen items of the instrument, consensus among the experts was reached in the first round for all aspects, including clarity of language, practical relevance, and theoretical relevance.

Table 2 summarizes the results for clarity, practical relevance, and theoretical relevance as essential components of infection risk assessment. An agreement level of 98% was achieved for item clarity and response options, and 93% for practical and theoretical relevance.

Overall, the items of the infection risk assessment scale were considered suitable for clinical practice, achieving a total agreement level of 95% among experts. These results indicate that the instrument adequately represents the content necessary to assess infection risk in adult patients.

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Table 2 – Content Validity Index (I-CVI and S-CVI) of the RAC Scale According to the e-Delphi Panel (n = 11)

Item	Clarity I-CVI	Practical relevance I-IVC	Theoretical relevance I-IVC	S-IVC
Intrinsic factors				
1. Gender	0.91	0.82	0.82	
2. Age	1.00	0.91	0.91	
3. Smoking habits	1.00	0.91	0.91	
4. Alcohol consumption	0.91	0.73	0.82	
5. Nutritional classification	0.91	0.91	0.91	
6. Comorbidities	1.00	1.00	0.91	
7. Non-surgical injury or wound	1.00	1.00	1.00	
8. Physical mobility	1.00	1.00	1.00	0.95
Extrinsic factors				
9. Previous hospitalisation	1.00	1.00	1.00	
10. Intra/inter-hospital transfer	1.00	0.91	0.91	
11. Inpatient service	1.00	0.91	0.82	
12. Length of stay	1.00	1.00	1.00	
13. Surgical intervention during hospitalisation or in the last months	1.00	1.00	1.00	
14. Invasive procedures	1.00	1.00	1.00	
15. Previous pharmacological and/or non-pharmacological therapy	1.00	1.00	1.00	
Overall	0.98	0.95	0.92	

Note: I-IVC = Item Content Validity Index; S-IVC = Scale Content Validity Index.

4. DISCUSSION

The cross-cultural adaptation and content validation of the RAC infection risk assessment scale for adult patients in the Portuguese context represents a significant contribution to healthcare, as no instrument previously existed in Portugal that enabled health professionals to assess or stratify infection risk in hospital settings (Acelas, 2017). Originally developed in Brazil, this scale has also been adapted for use in Colombia (Rodríguez-Acelas et al., 2019).

For content validation, a Delphi panel was employed. Since there is no consensus on the ideal number of experts for this process and to ensure sample heterogeneity, 11 experts meeting the predefined criteria were included. The panel was predominantly female, with an average professional experience of 22.55 ± 9.22 years. Although nurses, physicians, and microbiologists were invited, only nurses participated. While this composition ensures specialized expertise in infection control, it also represents a limitation.

In the original Brazilian study by Rodríguez-Acelas et al. (2019), the 23 experts were also predominantly nurses with experience in infection control, clinical practice, and hospital management. Similarly, in the Colombian adaptation (Rodríguez-Acelas et al., 2017; Rodríguez-Acelas, López De Ávila, et al., 2022), the panel comprised 11 experts, primarily from nursing, though with some diversity in professional backgrounds. The predominance of nursing in these validation processes highlights the importance of including experts from other health disciplines in future studies to foster a more multidisciplinary perspective.

I In the present study, the overall Content Validity Index (CVI) was 0.95, indicating a high degree of consensus among experts regarding item clarity, theoretical relevance, and practical applicability. This value exceeds that reported in the original Brazilian study (average CVI = 0.90; Rodríguez-Acelas, Cañon-Montañez, & Almeida, 2019) and is comparable to the Colombian adaptation, where mean CVI values ranged from 0.88 to 0.95, depending on the dimension assessed. According to Lynn (1986), for a panel of six or more experts, the item-level CVI should be ≥0.78, while Polit and Beck (2006) suggest that values ≥0.80 indicate good content validity. Trindade et al. (2018) further argue that CVI ≥0.90 reflects an excellent level of agreement. Based on these benchmarks, the results of the Portuguese validation confirm the semantic and conceptual robustness of the RAC Scale, supporting its suitability for use by nursing professionals in assessing infection risk in hospitalized patients.

Among the limitations of this study, it should be noted that the panel consisted exclusively of nurses. Future research should incorporate perspectives from other health professionals, as hospital infection control is inherently a multidisciplinary responsibility. Additionally, further studies are required to evaluate the psychometric properties of the scale, including reliability and construct validity, in samples representative of the Portuguese hospital population.

The findings also underscore the importance of assessing individual infection risk, recognizing that each patient presents unique characteristics and risk factors. These may arise from intrinsic factors (e.g., comorbidities) or extrinsic factors (e.g., the hospital environment), which together determine whether the risk of acquiring infection is higher or lower (Rodríguez-Acelas et al., 2017; World Health Organization, 2002). For this reason, infection risk assessment should be integrated into standard infection prevention measures. By identifying patients at increased risk, health professionals can reinforce preventive interventions, thereby contributing to safer hospital environments.

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CONCLUSION

This study concludes that the Portuguese version of the RAC Adult Infection Risk Assessment Scale exhibits clear and appropriate semantics, facilitating its comprehension and implementation by healthcare professionals. The high level of expert agreement (95%) further reinforces the validity and applicability of the scale as an effective tool for assessing and stratifying infection risk. Nevertheless, it is essential to pre-test the adapted version with a representative sample of the target population to further evaluate its clarity, relevance, and feasibility in real clinical practice. This step is a prerequisite for subsequent psychometric validation studies, which must be conducted before the RAC Scale can be formally implemented in Portuguese clinical settings. The scale is considered a highly valuable tool, as no other validated instrument currently exists in Portugal for infection risk assessment. By enabling early identification and stratification of risk, healthcare professionals support healthcare professionals in making more targeted and personalized decisions for efficient infection prevention, ultimately contributing to safer, patient-centred care.

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CONFLICT OF INTERESTS

There is no funding for this study.

AUTHORS' CONTRIBUTION

Conceptualization, M.M. and C.C.; data curation, M.M. and L.T.B.; formal analysis, M.M., F.P.S., L.T.B., M.A.D. and C.C.; investigation, M.M., and C.C.; methodology, M.M. and C.C.; project administration, M.M. and F.P.S.; supervision, M.A.D. and C.C.; validation, F.P.S., M.A.D. and C.C.; writing- original draft, M.M; writing- review & editing, M.M., F.P.S., L.T.B., M.A.D. and C.C.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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