

Development and validation of a book on incontinence-associated dermatitis throughout the life cycle

Mayara Raposo^{1,*} , Leila Blanes¹ , Denise Nicodemo¹ 

ABSTRACT

Objective: To develop and validate a book on the management of incontinence-associated dermatitis in newborns, children, adults, and older adults. **Method:** A descriptive, exploratory study. The chapters of the book were defined after a search for studies published since 2009 in the PubMed/Medline, LILACS, BDENF, and EMBASE databases, using the keywords: adult, child, dermatitis, diaper rash, urinary incontinence, fecal incontinence, and aged. The written content and illustrations were then created. Upon completion, the book was validated by experts through the Delphi technique and the content validity index was calculated. **Results:** Based on the literature review, the book's chapters were defined, and the textual content was written and proofread to improve grammar and readability. The illustrations were then included and the book layout was designed. The book was validated by seven experts in two rounds of consultation, achieving a 96% level of agreement among them. **Conclusion:** The book on *Management of Incontinence-Associated Dermatitis in newborns, children, adults, and older adults* was successfully developed and validated.

Descriptors: Child. Aged. Diaper rash. Urinary incontinence. Fecal incontinence. Enterostomal therapy.

Construção e validação de livro sobre dermatite associada à incontinência no ciclo vital

RESUMO

Objetivo: Construir e validar um livro sobre cuidados com a dermatite associada à incontinência em recém-nascido, criança, adulto e idoso. **Método:** Estudo descritivo exploratório. Realizado levantamento bibliográfico nas bases de dados eletrônicas: PubMed/Medline, LILACS, BDENF, EMBASE, com os descritores: adulto, criança, dermatite, dermatite das fraldas, incontinência urinária, incontinência fecal, idoso, publicados a partir do ano de 2009, e, então, definidos os capítulos do livro. A seguir, foram construídos o conteúdo escrito e as ilustrações. Após finalização, foi realizada a validação com os especialistas por meio da técnica de Delphi e realizado o índice de validade de conteúdo. **Resultados:** Com base na literatura encontrada, foram definidos os capítulos do livro e escrito o conteúdo textual. Em seguida, foi feita a inclusão das ilustrações, diagramação e revisão de português. A etapa de validação contou com sete juízes em duas rodadas; após avaliação, obteve-se um nível de concordância de 96% entre eles. **Conclusão:** Foi construído e validado o livro sobre *Cuidados com a dermatite associada à incontinência em recém-nascido, criança, adulto e idoso*.

DESCRIPTORES: Criança. Idoso. Dermatite das fraldas. Incontinência urinária. Incontinência fecal. Estomaterapia.

¹Universidade Federal de São Paulo, Escola Paulista de Medicina  – São Paulo (SP), Brazil.

*Corresponding author: mayleticia22@hotmail.com

Section Editor: Manuela de Mendonça F. Coelho

Received: Mar. 24, 2024 | Accepted: Sep. 12, 2024

How to cite: Raposo M, Blanes L, Nicodemo D. Development and validation of a book on incontinence-associated dermatitis throughout the life cycle. ESTIMA, Braz J Enterostomal Ther. 2025;23:e1556. https://doi.org/10.30886/estima.v22.1556_IN

Construcción y validación de un libro sobre dermatitis asociada a la incontinencia en el ciclo vital

RESUMEN

Objetivo: Construir y validar un libro sobre atención a la dermatitis asociada a la incontinencia en recién nacidos, niños, adultos y ancianos. **Método:** Estudio descriptivo y exploratorio. Se realizó un levantamiento bibliográfico en las bases de datos electrónicas: PubMed/Medline, LILACS, BDNF y EMBASE, utilizando los descriptores: adulto, niño, dermatitis, dermatitis del pañal, incontinencia urinaria, incontinencia fecal, anciano, en publicaciones a partir del año 2009. Con base en esta revisión, se definieron los capítulos del libro. A continuación, se elaboraron el contenido escrito y las ilustraciones. Una vez finalizado, se realizó la validación con los expertos a través de la técnica Delphi y se calculó el índice de validez de contenido. **Resultados:** Con base en la literatura recopilada, se definieron los capítulos de libros y se redactó el contenido textual. Luego, se incluyeron las ilustraciones, se realizó la diagramación y la revisión lingüística en portugués. La etapa de validación contó con la participación de siete jueces en dos rondas, alcanzando un nivel de concordancia del 96% entre ellos. **Conclusión:** Se elaboró y validó el libro sobre *Atención a la Dermatitis Asociada a la Incontinencia en recién nacidos, niños, adultos y ancianos*.

DESCRIPTORES: Niño. Anciano. Dermatitis del pañal. Incontinencia urinaria. Incontinencia fecal. Estomaterapia.

INTRODUCTION

Incontinence-associated dermatitis (IAD) is an inflammatory condition of the skin caused by prolonged exposure to urine and/or feces. Moisture from these sources leads to damage of the stratum corneum^{1,2}.

The stratum corneum, the outermost layer of the skin, functions as the primary biomechanical barrier. It is continuously renewed and consists of 15 to 20 layers of flattened skin cells, known as corneocytes, which are embedded in a lipid matrix. This structure forms a semipermeable barrier and includes the natural moisturizing factor^{1,2}.

Prolonged contact of the skin with urine and feces alters its pH, which normally ranges from 4 to 6. In this context, it is important to note that skin pH plays a crucial role in maintaining barrier function. However, when this pH is disrupted, it affects the cohesion of the stratum corneum and compromises its role as a protective barrier against bacterial invasion¹⁻³.

Excessive exposure to moisture, combined with friction and alterations in skin pH, leads to the disruption of lipid layers, corneocyte edema, and increased stratum corneum thickness. These changes accelerate transepidermal water loss, reduce skin elasticity, and facilitate the penetration of irritating and infectious agents, such as *Candida albicans* and *Staphylococcus aureus*¹⁻³.

IAD typically affects the perianal and gluteal regions, thighs, external genitalia, and suprapubic area. It is characterized by superficial, diffuse lesions with irregular margins and no necrosis, accompanied by hyperemia, edema, burning sensation, pruritus, pain, and ulcerations^{4,5}.

Diagnosis is based on clinical evaluation of the skin in the genital and perineal regions across all stages of life. In individuals with dark-colored skin, the identification of IAD lesions is more challenging, as hyperemic areas may not be easily distinguishable from non-hyperemic areas⁴⁻⁶.

The occurrence of IAD is associated with several factors, including tissue tolerance to external aggression, a weakened epidermal barrier, reduced capacity for skin regeneration and repair, alterations in the microclimate of the perineal region, and changes in urinary and fecal continence. These conditions are closely related to age-dependent changes in skin physiology⁷⁻⁹.

Newborns (NB) and infants exhibit functional and anatomical immaturity of the skin, characterized by a thinner stratum corneum. They possess an underdeveloped epidermal barrier and increased skin permeability, which, combined with an immature immune system, renders them more susceptible to bacterial and fungal invasion, absorption of topical agents, and the development of skin lesions¹⁰.

During adulthood, the skin attains functional and structural maturity, providing an effective waterproofing barrier that prevents the absorption of excess moisture. It also serves as a protective shield against irritants, environmental factors, chemicals, and harmful bacteria, all of which have the potential to cause skin lesions¹¹⁻¹³.

Senile skin is characterized by a decline in collagen and elastin synthesis, reduced dermal thickness, and loss of subcutaneous fat. Glandular alterations are also observed, including decreased sebum production, elevated skin pH, increased transepidermal water loss, and reduced skin hydration^{14,15}.

These effects of the natural aging process result in skin that is drier, thinner, more fragile, and less elastic, making it more susceptible to damage, particularly in the presence of incontinence. Consequently, the combination of aging and incontinence significantly increases the risk of skin injury^{14,15}.

IAD is a significant clinical concern that affects individuals across all age groups; however, it is more prevalent at the extremes of age and among critically ill patients¹¹.

This form of dermatitis is common in NB and young children, with the highest incidence occurring between 9 and 12 months of age. It affects approximately 16% of children, and it is estimated that 7 to 35% of the pediatric population experiences this condition at some point during childhood^{10,11}.

In adulthood, the prevalence and incidence of IAD vary widely across studies. Reported prevalence ranges from 5.6 to 50.0%, while incidence rates range from 3.4 to 25.0%. The highest prevalence is observed among adult patients admitted to intensive care units, where up to 50% of patients may be affected. This condition is closely associated with the level of care dependency, use of diapers, duration of exposure to moisture, as well as the use of oxygen therapy and parenteral nutrition^{11,12,15}.

Aged patients with incontinence are at significant risk of developing IAD, with lesions affecting approximately 36% of individuals in long-term care facilities. Perineal skin damage is particularly common among those with double incontinence or the presence of liquid feces^{11,12,14,15}.

As an adverse event that causes discomfort and pain, IAD significantly contributes to prolonged hospitalization and increased healthcare costs. However, it is preventable. Therefore, it is crucial for the nursing team to identify and monitor risk factors, as well as to implement prevention and treatment protocols aimed at monitoring vulnerable areas and addressing any injuries that occur⁸⁻¹⁰.

The assessment and management of IAD present significant challenges for healthcare professionals, as there is no established consensus on prevention, evaluation, and treatment strategies tailored to each stage of the life cycle. Consequently, there is a need to develop educational materials to support professionals in caring for patients with IAD. Such resources would enable healthcare teams to implement evidence-based interventions, guided by scientific research and adapted to the specific characteristics of skin care at each phase of life.

The literature includes materials that offer general guidelines for IAD care; however, these are often based on the practical experiences of individual professionals or specific healthcare services. Such resources frequently lack in-depth discussion of age-related skin characteristics and are not always supported by scientific evidence.

OBJECTIVES

Thus, the present study aimed to develop and validate an educational booklet on the prevention and treatment of IAD in NB, children, adults, and older adults.

METHODS

This was a descriptive-exploratory study, approved by the Research Ethics Committee of Universidade Federal de São Paulo, CAAE: 17959219.3.0000.5505.

The development of this booklet followed the established steps for creating educational materials in healthcare, encompassing the phases of development, validation, and dissemination¹⁶. The validation process was conducted using the Delphi technique.

During the development phase, a literature review was conducted to gather existing scientific knowledge on the subject and to define the chapters of the booklet, including both textual and illustrative content.

In the validation phase, expert judges in skin lesions caused by IAD were selected. An invitation letter was sent, and upon acceptance, the Informed Consent was provided. After the Informed Consent was signed, the prepared content along with an evaluation questionnaire was delivered. The purpose of this questionnaire was to assess the content of the booklet in terms of its objectives, clarity, and relevance.

The search for relevant information on IAD was conducted using national and international electronic databases (PubMed/MEDLINE, LILACS, BDENF, and EMBASE). This literature review focused on topics such as prevention, treatment, assessment, risk factors, guidelines, and protocols. The identified studies were reviewed in full, and those deemed pertinent were selected to form the textual content of the booklet.

The search strategies used to identify scientific information for the content of the booklet *Management of Incontinence-Associated Dermatitis in newborns, children, adults, and older adults* (*Cuidados com a dermatite associada à incontinência em recém-nascido, criança, adulto e idoso*) involved the combination of search descriptors in both Portuguese and English. Portuguese terms included: *adulto, criança, dermatite, dermatite das fraldas, incontinência urinária, incontinência fecal, idoso*; and English terms were: Incontinence-Associated Dermatitis, Pediatric OR Child OR Children, New Born, Adult, Elderly OR Old Age.

When consulting the databases, the filter “last 10 years” was applied to limit the results to more recent publications. The following types of studies were excluded from the search: case studies, case series, *in vitro* studies, animal studies, and expert opinion.

Only materials published since 2009 in Spanish, English, or Portuguese were selected. The search was conducted between April and September 2019.

A total of 2,219 articles on IAD were identified. Of these, 1,512 addressed NB and children, from which 48 articles were selected. In the adult population, 402 articles were found, with 21 meeting the selection criteria. For the aged population, 306 articles were identified, and 50 were selected for inclusion in the development of the booklet.

Following the initial survey, articles were first screened by their titles, and duplicates were removed. The remaining articles were then assessed based on their abstracts. Subsequently, full-text evaluations were conducted, and only those articles that fully met the predefined inclusion and exclusion criteria were selected for the development of the booklet.

The entire article review process on IAD was conducted separately for each age range: NB and children, adults, and older adults.

After organizing the content extracted from the articles, essential and coherent themes were identified and categorized. Based on these themes, along with the topics addressed in the only available guide on IAD, six chapters were defined and developed to compose the booklet.

The booklet was initially written using the Word 2013 word processor, followed by layout and design in Adobe InDesign CC. The final version was exported in PDF format and optimized for compatibility with major digital book readers.

The structure of the booklet was based on the recommendations of the Brazilian Association of Technical Standards (2006), specifically standard NBR 6029, which outlines general principles for the formatting of books and pamphlets, including guidelines for margins, fonts, and spacing.

To illustrate the booklet's content, images of patient injuries were included from the authors' personal collections as well as from specialist nurses who generously contributed their materials. For the use of identifiable images of individuals, written authorization was obtained either from the individuals themselves or, when necessary, from their family members. Additionally, illustrative images were sourced from the Shutterstock image bank.

To validate the booklet with professionals, the Delphi technique was employed as a method for gathering expert opinions and criteria on the subject. Questionnaires were used to assess the items presented in the booklet. All professionals completed a questionnaire consisting of closed-ended questions that generated quantitative scores. Based on these scores, the booklet was evaluated as either adequate or inadequate in relation to its proposed objective.

The inclusion criteria for the judges were as follows: specialization in Stomatherapy Nursing and/or Dermatology Nursing, with clinical experience in IAD care in outpatient and/or hospital settings, and a minimum of two years of experience.

Professionals were selected based on their publications on IAD, with analysis conducted using their Lattes Curriculum Vitae on the Lattes Platform of the National Council for Scientific and Technological Development (*Conselho Nacional de Desenvolvimento Científico e Tecnológico* – CNPq). The goal for those selected to participate in the study was to achieve a minimum score of five points, as established by other authors¹⁷⁻²⁰.

The criteria for selecting nursing specialists were based on the following areas of interest: Dermatology Nursing, Enterostomal Therapy, Health Technology, and Instrument Validation. They received the following scores: thesis or dissertation in the area – 2 points/work; undergraduate or specialization monograph in the area and participation in groups/projects – 1 point; teaching experience, work guidance, and practical work in the area – 0.5 points; authorship of two works and participation in an evaluation board – 0.25 points.

Seven enterostomal therapists were selected, with the following scores: four specialists – 6 points, two specialists – 5.5 points, and one specialist – 5 points. The group of five dermatotherapy nurses selected received the following scores: two specialists – 6 points, two other professionals – 5.5 points, and one specialist – 5 points.

Healthcare professionals who had been inactive for more than one year in courses or work related to the treatment and/or prevention of IAD were excluded from this study. Additionally, professionals who did not respond to the Invitation Letter, the Informed Consent, or the questionnaire within a maximum of eight days were also excluded.

The judges received the Invitation Letter and the Informed Consent via Google Forms by email and confirmed their intention to participate in the research. They were then sent the booklet in PDF format, along with the evaluation questionnaire (via Google Forms). The purpose of the questionnaire was to assess the content, purpose, and clarity of the booklet, as well as to gather suggestions. The link to access the questionnaire was available for 10 days.

The questionnaire used to evaluate the booklet was adapted from studies on the validation of manuals in the healthcare field. It was divided into three sections: the first section, titled “objective,” aimed to assess the importance of the topic; the second section evaluated the “structure and presentation of the book,” and the third section focused on judgments regarding the “relevance” of the content.

The questionnaire consisted of 22 objective questions and 3 subjective questions, which invited suggestions for improvements in each section. On average, it took approximately 20 minutes to read and respond to all the questions.

After data collection, the information was compiled, and the Content Validity Index (CVI) was calculated to measure the proportion of judges who agreed with the aspects of the instrument and its items. A Likert-type scale was employed, assigning points to measure agreement and representativeness. Responses ranged from “relevant” to “not representative” and from “clear” to “unclear”¹⁹.

A questionnaire with five alternative responses was used, with only one choice allowed for each question. The response options were as follows: 1 = inadequate (I); 2 = partially adequate (PA); 3 = adequate (A); 4 = fully adequate (FA); and not applicable (NA). These terminologies have been previously used in other studies in Brazil for the validation of educational materials^{19,20}.

For validation purposes, a quantitative evaluation of each questionnaire item was conducted. The CVI was calculated by dividing the number of responses rated as “3” (adequate) or “4” (fully adequate) by the total number of responses for each item. A CVI value of 0.78 or higher is required when six or more validation experts participate in the process^{19,20}.

For the validation of the instrument as a whole, no consensus exists among the various formulas. In this study, the following calculation was chosen: the sum of all the CVIs for each item, calculated separately, was divided by the total number of items considered in the evaluation of the questionnaire. A minimum agreement of 0.90 or higher was required, following the criteria suggested by other authors^{19,20}.

After completing the development and validation of the book *Management of Incontinence-Associated Dermatitis in newborns, children, adults, and older adults* (*Cuidados com a dermatite associada à incontinência em recém-nascido, criança, adulto e idoso*), the Portuguese version was revised, formatted, and laid out. The National Library was then contacted to register the International Standard Book Number (ISBN) (registration number 978-65-00-11930-5) and the cataloging card.

The book was released in PDF format, online.

RESULTS

The chapters of the book were defined based on the reading and theoretical review of the articles. Subsequently, the textual content was developed, focusing on information relevant to each age group: NB and children, adults, and older adults. Images to illustrate each chapter were then selected. For the layout, the Adobe InDesign CC program was used.

Twelve experts were selected according to the criteria described above, and an Invitation Letter was sent. All agreed to participate in the research. Subsequently, the Informed Consent was sent, and 10 evaluators responded, all confirming their participation. The book was then sent in PDF format, along with the evaluation questionnaire. Seven experts completed all stages of the validation process within the deadline set by the researcher.

The evaluators were enterostomal therapy nurses and dermatology specialists, with an average of 18.6 years of nursing training and an average of 15.3 years of experience in enterostomal therapy. Two specialists had experience in caring for NB and children, three had experience with adults, and two had experience with aged individuals. Four specialists held a doctorate, while three had a master's degree.

In the content validation stage, two rounds of the Delphi technique were conducted. In the first round, the total CVI was 0.94 for the "objective" criterion (Table 1), 0.92 for the "structure and presentation" criterion (Table 2), and 1.00 for the "Relevance" criterion (Table 3).

In Table 2, item 2.2 ("the information is presented in a clear and objective manner"), the CVI was 0.71. The adjustment requested by the evaluators was made to the book (Chart 1). In the second round, the item's score increased to 0.85, and the total CVI for the relevance criterion was revised to 0.93. The overall CVI achieved was 0.96, with a level of agreement between the evaluators of 96%.

Table 1. Expert evaluation of the criterion: objective — requirement inherent to the goals or purposes intended with the use of the book.

Likert terminology	I		PA		A		FA		NA		CVI	
	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd
Rounds												
1.1 It is consistent with the needs of healthcare professionals.	0	0	0	0	4	4	3	3	0	0	1.0	1.0
1.2 The criteria in the chapter "Assessment of Incontinence-Associated Dermatitis" are consistent	0	0	0	0	3	3	4	4	0	0	1.0	1.0
1.3 The criteria in the chapter "Risk Assessment for the Development of Incontinence-Associated Dermatitis" are consistent	0	0	1	1	3	3	3	3	0	0	0.85	0.85
1.4 The criteria in the chapter "Caring for Newborns and Children with Incontinence-Associated Dermatitis" are consistent	0	0	1	1	3	3	3	3	0	0	0.85	0.85
1.5 The criteria in the chapter "Caring for Adults with Incontinence-Associated Dermatitis" are consistent	0	0	0	0	3	3	4	4	0	0	1.0	1.0
1.6 The criteria in the chapter "Caring for the Aged with Incontinence-Associated Dermatitis" are consistent	0	0	1	1	2	2	4	4	0	0	0.85	0.85
1.7 It is suitable for circulation in the scientific community in the healthcare field.	0	0	0	0	3	3	4	4	0	0	1.0	1.0
1.8 It meets the needs of institutions that provide care for individuals with incontinence-associated dermatitis.	0	0	0	0	4	4	3	3	0	0	1.0	1.0
Overall CVI											0.94	0.94

CVI: Content Validity Index; I: inadequate; PA: partially adequate; A: adequate; FA: fully adequate; NA: not applicable.

Some suggestions made by the evaluators, despite the items meeting the agreement target established in the first and second rounds, were considered to improve the content of the book. Chart 1 presents the suggestions for improvements highlighted by the judges, along with the corresponding modifications made.

Table 2. Expert evaluation of the criterion: structure and presentation — requirement referring to the form of presentation and guidance, including overall organization, structure, presentation strategy, coherence, and formatting.

Likert terminology	I		PA		A		FA		NA		IVC	
	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd
Rounds												
2.1 Is the book suitable for guiding the planning of care for incontinence-associated dermatitis by the healthcare team?	0	0	0	0	4	4	3	3	0	0	1.0	1.0
2.2 Are the contents presented clearly and objectively?	0	0	2	1	3	3	2	3	0	0	0.71	0.85
2.3 Are the presented contents scientifically accurate?	0	0	1	1	4	4	2	2	0	0	0.85	0.85
2.4 Is the material appropriate to the sociocultural level of the proposed target audience (healthcare professionals)?	0	0	0	0	4	4	3	3	0	0	1.0	1.0
2.5 Is the sequence of proposed content logical?	0	0	0	0	5	5	2	2	0	0	1.0	1.0
2.6 Are the contents well structured in terms of agreement and spelling?	0	0	0	0	4	4	3	3	0	0	1.0	1.0
2.7 Does the writing style match the knowledge level of the target audience (healthcare professionals)?	0	0	1	1	4	4	2	2	0	0	0.85	0.85
2.8 Are the cover, back cover, and introduction (in the current format) consistent?	0	0	0	0	3	3	4	4	0	0	1.0	1.0
2.9 Are the illustrations expressive and sufficient?	0	0	1	1	2	2	4	4	0	0	0.85	0.85
2.10 Is the number of pages appropriate?	0	0	0	0	4	4	3	3	0	0	1.0	1.0
Overall CVI											0.92	0.93

CVI: Content Validity Index; I: inadequate; PA: partially adequate; A: adequate; FA: fully adequate; NA: not applicable.

Table 3. Avaliação dos especialistas quanto ao critério: relevância – refere-se à característica que avalia o grau de significado do material educativo apresentado.

Likert terminology	I		PA		A		FA		NA		IVC	
	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd
Rounds												
3.1 Do the topics address key aspects that should be reinforced?	0	0	0	0	5	5	2	2	0	0	1.0	1.0
3.2 Does the book propose that professionals acquire knowledge on the prevention and treatment of incontinence-associated dermatitis?	0	0	0	0	2	2	5	5	0	0	1.0	1.0
3.3 Does the book cover the necessary topics to support healthcare professionals who provide care to patients at risk of or with incontinence-associated dermatitis?	0	0	0	0	3	3	4	4	0	0	1.0	1.0
3.4 Is the book appropriate for use by healthcare professionals in their educational activities?	0	0	0	0	2	2	5	5	0	0	1.0	1.0
Overall CVI											1.0	1.0

CVI: Content Validity Index; I: inadequate; PA: partially adequate; A: adequate; FA: fully adequate; NA: not applicable.

Chart 1. Suggestions for improvements provided by experts.

Suggestions for improvement by experts	Modifications
Combine all age groups into a single chapter on skin anatomy and physiology.	Chosen to be kept separated
Add information about the risks of using oily formulations in the diaper area.	Modification implemented
Mention the need for a medical prescription for corticosteroid use.	Modification implemented
Clarify the classification of IAD risk factors according to the “Perineal Assessment Tool” scale.	Modification implemented
Center the images.	Modification implemented
Add data on the prevalence of IAD in the adult Brazilian population.	Modification implemented
Add information on using the appropriate quantity of product for the prevention or treatment of IAD in the perineal area.	Modification implemented

In the second round, the overall CVI of the book was 0.96 (Table 4).

The book has 92 pages, 38 images in the text and a chart, with ISBN registration number: 978-65-00-11930-5 (Figure 1).

Table 4. Overall Content Validity Index.

Evaluated criteria	Overall CVI	
Rounds	1 st	2 nd
Objective	0.94	0.94
Structure and presentation	0.92	0.93
Relevance	1.0	1.0
Overall CVI		0.96

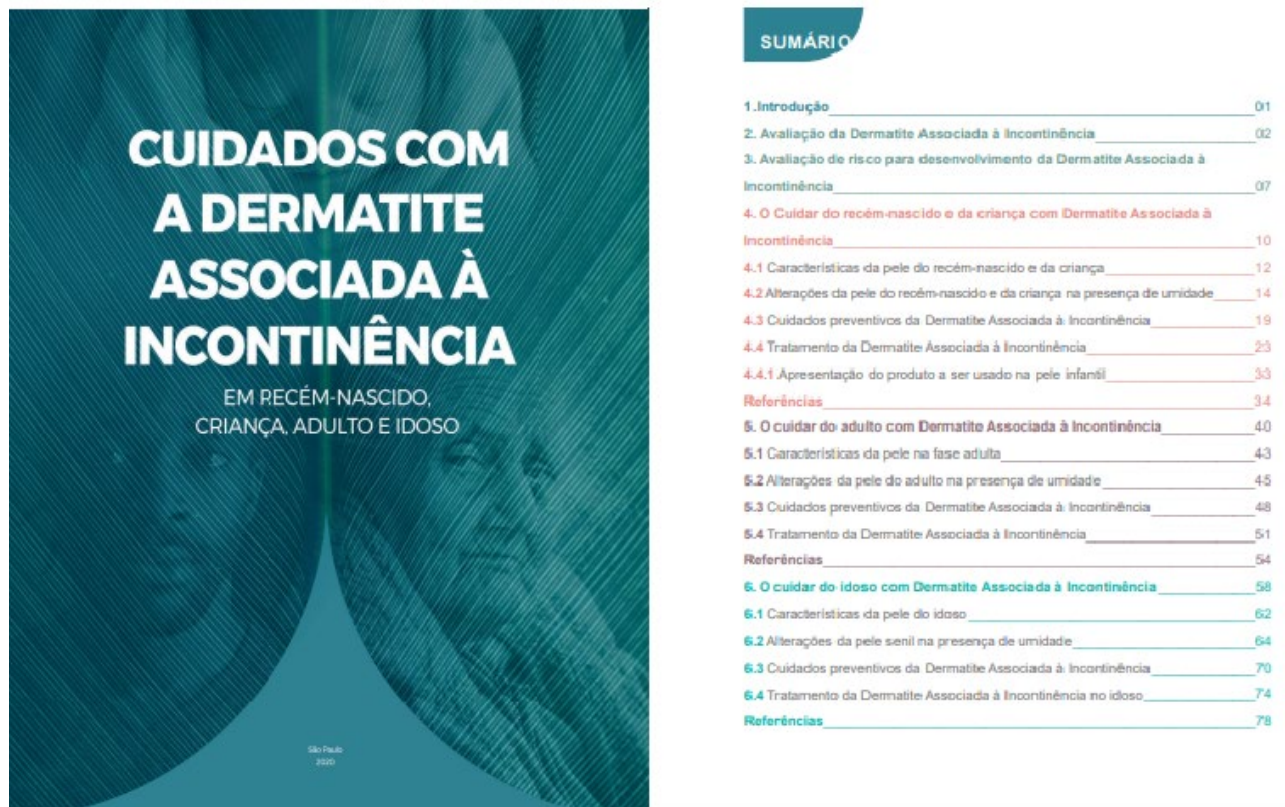


Figure 1. Book "Management of Incontinence-Associated Dermatitis in newborns, children, adults, and older adults" (*Cuidados com a dermatite associada à incontinência em recém-nascido, criança, adulto e idoso*); 2020.

DISCUSSION

IAD is common in patients with urinary and/or fecal incontinence and is more prevalent at extreme age ranges: NB, children, and the aged. However, it can affect individuals of all ages. As long as the skin is exposed to excessive moisture, there is a risk of developing IAD^{1,2}.

The book was developed to provide healthcare professionals involved in the care of individuals with IAD, or at risk of developing it, with relevant and comprehensive information to support their clinical practice. To facilitate access and consultation, the decision was made to address IAD care across all age groups within a single publication. To ensure the originality of the material, a search was conducted in national and international databases, and no publications with the same characteristics were identified.

IAD often develops in critical clinical situations; however, it has been observed that patients may continue to present with lesions even after stabilization, which can negatively impact their recovery and delay hospital discharge. Therefore, care for patients with skin vulnerability must be provided by professionals with scientific knowledge, enabling them to perform accurate clinical diagnoses and plan appropriate strategies for the prevention and treatment of IAD^{12,21,22}.

In addition to its social impact, care for IAD represents a significant cost for healthcare services, largely due to the indiscriminate use of materials for its prevention and treatment. Moreover, the characteristics of the lesions and the rationale for the selection of specific materials by healthcare professionals are often poorly documented and insufficiently described⁶.

Educational activities conducted within institutions should foster reflection among those involved in skin care, encouraging awareness of their actions and clinical practices¹⁶. This underscores the importance of ensuring that healthcare professionals have easy access to materials that support their practice with relevant and evidence-based information.

Differentiating IAD from other skin lesions, such as pressure injuries, presents a significant challenge for professionals caring for individuals at risk. An accurate diagnosis is essential to ensure the effectiveness of the care plan implemented, highlighting the need for an easily accessible and reliable source of information^{4,21}.

The authors confirmed that the use of materials based on the best available evidence contributed to a reduction in the incidence and a delay in the onset of IAD in critically ill patients^{22,23}. Additionally, other studies have emphasized the importance of continuing education for healthcare professionals as a foundation for clinical practice, enhancing both knowledge and the ability to perform accurate visual differential diagnoses of IAD^{4,21}.

Based on this information, this book was developed and validated with the objective of establishing a safe and effective clinical practice grounded in scientific evidence.

Educational materials are important tools in health education, as they are developed using content derived from carefully selected literature. Their main characteristics include being visually appealing, objective, easy to understand, and tailored to the specific needs of a given health context. Information manuals serve as strategic resources to enhance access to information and support the multidisciplinary team's efforts in guiding patients and family members throughout the processes of treatment, recovery, and self-care¹⁶.

The method used to validate the book was the Delphi technique, which was deemed the most appropriate for this study. This methodology is widely recognized as one of the most effective for verifying and validating scientific premises. Since its inception, the Delphi technique has evolved through criticism, reassessment, and refinement, contributing to its continued dissemination and application in various fields of research²⁴.

This technique is a methodology that aims not only to achieve consensus during the methodological process, but also serves as a tool for collecting expert opinions in a more reliable and structured manner²⁴.

This research followed the three stages of the Delphi methodology: development, validation, and dissemination. In the material development stage, articles resulting from the research were selected using four search strategies to cover all age groups (NB, children, adults, and aged individuals).

The articles resulting from this search were selected, and duplicates, as well as those that did not meet the inclusion criteria of this study, were removed. The selected articles were read in full, and their data were compiled and organized into the chapters of this book. After developing all the content, the layout was created, incorporating images, shapes, and colors in harmony with the objective of the book.

In preparing the book's content, technical language was adopted, suitable for the audience of both specialist and non-specialist healthcare professionals who provide assistance to people at risk or with IAD.

In the validation stage, seven experts evaluated the material produced in terms of "objective," "structure," and "presentation and relevance." The evaluation instrument used was a questionnaire with objective questions. To achieve agreement among the experts, two rounds of evaluation were conducted. The CVI was employed to calculate the proportion of agreement among the experts, and in general, all the subitems evaluated received validation with CVI values above 0.78, which is considered acceptable²⁴. The overall CVI of the book was 0.96, which exceeded the required threshold.

During the validation process, the judges suggested some changes to the content: adding the risks associated with using oily formulations in the perineal region, the need for a medical prescription for the use of corticosteroids, providing

a more detailed description of the classification of IAD risk factors, adding the prevalence of IAD in the adult Brazilian population, addressing the importance of avoiding excessive use of products in the diaper region, both for prevention and treatment of IAD, and repositioning the images centrally on the page. These adjustments were made.

The request to place the anatomy and physiology of the skin for all age groups in a single chapter was not accepted, and it was decided to keep them in separate chapters, as the skin presents different anatomical and physiological characteristics at each stage of life.

All of the experts' observations provided additional information that the researcher might not have observed throughout the work and were of great importance in the development of the topic addressed, further improving the construction of the book.

In the dissemination stage, the book was registered with the ISBN 978-65-00-11930-5, and subsequently disseminated digitally, so that health professionals and undergraduates could have access. Websites of specialist associations, universities, among others, are being used to assist in the dissemination stage of the book.

The results obtained using the Delphi technique show that the book meets the objectives proposed for its creation and, therefore, can support the practice of professionals who care for people with IAD. Like this book, other books have already been developed and validated using the Delphi technique²⁵.

During the development of this book, a limitation was the lack of scientific evidence for the use of some broad clinical practices of off-label use of products, such as hydrocolloid powder for the treatment of IAD. These could not be scientifically confirmed in the selected studies and were therefore not included in the book. Therefore, studies with scientific rigor should be encouraged and carried out to support clinical practice conduct.

It is hoped that this book will serve as an incentive for further research, and it is recommended that, based on this work, other approaches to exploring the content may emerge, such as the development of material on the same subject and age range aimed at the lay public, parents, and caregivers, so that informed care can be provided to individuals in situations of skin vulnerability. Additionally, the creation of videos, applications, and other means of disseminating this knowledge is encouraged.

CONCLUSION

The book entitled *Management of Incontinence-Associated Dermatitis in newborns, children, adults, and older adults* (*Cuidados com a dermatite associada à incontinência em recém-nascido, criança, adulto e idoso*), aimed at health professionals, was created and validated.

Acknowledgments: None.

Authors' contributions: MR: Conceptualization, Data curation, Writing – original draft, Investigation, Methodology, Resources, Software, Visualization. LB: Project administration, Writing – review & editing, Funding acquisition, Supervision. DN: Formal analysis, Writing – review & editing, Validation.

Availability of research data: All data were generated or analyzed in the present study.

Funding: Not applicable.

Conflict of interests: None.

REFERENCES

1. Pather P, Hines S, Kynoch K, Coyer F. Effectiveness of topical skin products in the treatment and prevention of incontinence-associated dermatitis: a systematic review. JBI Database System Rev Implement Rep. 2017 May;15(5):1473-96. <https://doi.org/10.11124/JBISIR-2016-003015>
2. Beeckman D, Van den Bussche K, Alves P, Arnold Long MC, Beele H, Ciprandi G, Coyer F, de Groot T, De Meyer D, Deschepper E, Dunk AM, Fourie A, García-Molina P, Gray M, Iblasi A, Jelles R, Johansen E, Karadağ A, Leblanc K, Kis Dadara Z, Meaume S,

- Pokorna A, Romanelli M, Ruppert S, Schoonhoven L, Smet S, Smith C, Steininger A, Stockmayr M, Van Damme N, Voegeli D, Van Hecke A, Verhaeghe S, Woo K, Kottner J. Towards an international language for incontinence-associated dermatitis (IAD): design and evaluation of psychometric properties of the Ghent Global IAD Categorization Tool (GLOBIAD) in 30 countries. *Br J Dermatol*. 2018 Jun;178(6):1331-40. <https://doi.org/10.1111/bjd.16327>
3. Jiang H, Shen J, Lin H, Xu Q, Li Y, Chen L. Risk factors of incontinence-associated dermatitis among critically ill patients: a systematic review and meta-analysis. *Front Med (Lausanne)*. 2023 Apr;10:1146697. <https://doi.org/10.3389/fmed.2023.1146697>
 4. Park S, Jung Kim E, Ja Lee S, Jeong Kim E, Yeon Lee J, Eun Hong J. Knowledge and visual differentiation ability of the pressure injury classification system and incontinence-associated dermatitis among hospital nurses: a descriptive study. *Healthcare (Basel)*. 2024 Jan;12(2):145. <https://doi.org/10.3390/healthcare12020145>
 5. Deprez J, Kottner J, Eilegård Wallin A, Ohde N, Bååth C, Hommel A, Hultin L, Josefson A, Beeckman D. What are the prognostic factors for the development of incontinence-associated dermatitis (IAD): a protocol for a systematic review and meta-analysis. *BMJ Open*. 2023 Jul;13(7):e073115. <https://doi.org/10.1136/bmjopen-2023-073115>
 6. Cunich M, Barakat-Johnson M, Lai M, Arora S, Church J, Basjarahil S, Campbell JL, Disher G, Geering S, Ko N, Leahy C, Leong T, McClure E, O'Grady M, Walsh J, White K, Coyer F. Corrigendum to "The costs, health outcomes and cost-effectiveness of interventions for the prevention and treatment of incontinence-associated dermatitis: a systematic review". *Int J Nurs Stud*. 2023 Mar;139:104433. <https://doi.org/10.1016/j.ijnurstu.2022.104433>
 7. Yates A. Preventing skin damage and incontinence-associated dermatitis in older people. *Br J Nurs*. 2018 Jan;27(2):76-7. <https://doi.org/10.12968/bjon.2018.27.2.76>
 8. Fastner A, Hauss A, Kottner J. Skin assessments and interventions for maintaining skin integrity in nursing practice: an umbrella review. *Int J Nurs Stud*. 2023 Jul;143:104495. <https://doi.org/10.1016/j.ijnurstu.2023.104495>
 9. Barakat-Johnson M, Basjarahil S, Campbell J, Cunich M, Disher G, Geering S, Ko N, Lai M, Leahy C, Leong T, McClure E, O'Grady M, Walsh J, White K, Coyer F. Corrigendum to "Implementing best available evidence into practice for incontinence-associated dermatitis in Australia: a multisite multimethod study protocol" [J. Tissue Viability 30 (2021) 67-77]. *J Tissue Viability*. 2024 Feb;33(1):150. <https://doi.org/10.1016/j.jtv.2023.11.006>
 10. Reick S, Burckhardt M, Palm R, Kottner J. Measurement instruments to evaluate diaper dermatitis in children: systematic review of measurement properties. *Nurs Open*. 2023 Sep;10(9):5813-26. <https://doi.org/10.1002/nop2.1863>
 11. Meirelles LCS, Rocha BP, Wammes AL, Santos DM, Silva DM, Souza LM. Incidência de dermatite associada à incontinência em pacientes de unidade de internação clínica. *Rev Enferm UFRJ*. 2020;28:e51323. <https://doi.org/10.12957/reuerj.2020.51323>
 12. Zhou X, He Z, Chen YH, Zuo LE. Effect of a 1-piece drainable pouch on incontinence-associated dermatitis in intensive care unit patients with fecal incontinence: a comparison cohort study. *J Wound Ostomy Continence Nurs*. 2017 Nov/Dec;44(6):568-71. <https://doi.org/10.1097/WON.0000000000000375>
 13. Campbell J, Coyer FM, Mudge AM, Robertson IM, Osborne SR. Candida albicans colonisation, continence status and incontinence-associated dermatitis in the acute care setting: a pilot study. *Int Wound J*. 2017 Jun;14(3):488-95. <https://doi.org/10.1111/iwj.12630>
 14. Grden CRB, Martins AR, Cabral LPA, Reche PM, Arcaro G, Brasil D, Bordin D. Incontinence associated dermatitis in elderly people admitted to a university hospital. *Rev Bras Enferm*. 2020 Sep;73(Suppl 3):e20190374. <https://doi.org/10.1590/0034-7167-2019-0374>
 15. Qiao G, Banharak S. Incontinence-associated dermatitis in older intensive care patients: a review and case report. *J Multidiscip Healthc*. 2023 Nov;16:3299-308. <https://doi.org/10.2147/JMDH.S434275>
 16. Echer IC. The development of handbooks of health care guidelines. *Rev Lat Am Enfermagem*. 2005 Sep-Oct;13(5):754-7. <https://doi.org/10.1590/S0104-11692005000500022>
 17. Castro AV, Rezende MA. A técnica Delphi e seu uso na pesquisa de enfermagem: revisão bibliográfica. *REME Rev Min Enferm*. 2009;13(3):429-34.
 18. Fehring RJ. Methods to validate nursing diagnoses. *Heart Lung*. 1987 Nov;16(6 Pt 1):625-9. PMID: 3679856.
 19. Wynd CA, Schmidt B, Schaefer MA. Two quantitative approaches for estimating content validity. *West J Nurs Res*. 2003 Aug;25(5):508-18. <https://doi.org/10.1177/0193945903252998>
 20. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health*. 2006 Oct;29(5):489-97. <https://doi.org/10.1002/nur.20147>
 21. Sokem JAS, Ferreira AM, Bergamaschi FPR, Coelho MMF, Sarat CNF, Ribeiro EBR, Souto CC, Carneiro LM, Rigotti MA. Intervenção educativa sobre dermatite associada à incontinência: estratégia de ensino no instagram. *ESTIMA, Braz J Enterostomal Ther*. 2022;20:e2322. https://doi.org/10.30886/estima.v20.1244_PT

22. Coyer F, Gardner A, Doubrovsky A. An interventional skin care protocol (InSPiRE) to reduce incontinence-associated dermatitis in critically ill patients in the intensive care unit: a before and after study. *Intensive Crit Care Nurs*. 2017 Jun;40:1-10. <https://doi.org/10.1016/j.iccn.2016.12.001>
23. Lee YJ, Kim JY; Korean Association of Wound Ostomy Continence Nurses. Effects of pressure ulcer classification system education programme on knowledge and visual differential diagnostic ability of pressure ulcer classification and incontinence-associated dermatitis for clinical nurses in Korea. *Int Wound J*. 2016 Mar;13 Suppl 1(Suppl 1):26-32. <https://doi.org/10.1111/iwj.12546>
24. Shang Z. Use of Delphi in health sciences research: a narrative review. *Medicine (Baltimore)*. 2023 Feb;102(7):e32829. <http://dx.doi.org/10.1097/MD.00000000000032829>
25. Lima PS, Blanes L, Ferreira LM, Gomes HFC. Manual educativo de cuidados à criança de gastrostomia: construção de validação. *REME Rev Min Enferm*. 2018;22:e-1123. <https://doi.org/10.5935/1415-2762.20180068>