

VALIDATION OF A BOOKLET FOR THE CORRECT USE OF PERSONAL PROTECTIVE EQUIPMENT IN THE CONTEXT OF COVID-19

Ana Beatriz Pereira da Silva¹ 

Harlon França de Menezes² 

Hosana Lourenço da Silva¹ 

Michelle Carneiro Fonseca¹ 

Aurean D'Eça Junior³ 

Richardson Augusto Rosendo da Silva¹ 

¹Universidade Federal do Rio Grande do Norte. Natal, Rio Grande do Norte, Brasil.

²Universidade Federal Fluminense, Escola de Enfermagem Aurora de Afonso Costa. Niterói, Rio de Janeiro, Brasil.

³Universidade Federal do Maranhão, Departamento de Enfermagem. São Luís, Maranhão, Brasil.

ABSTRACT

Objective: to describe the process for the elaboration and validation of a digital educational booklet intended for health professionals on the correct use of Personal Protective Equipment in the context of COVID-19.

Method: a methodological study conducted between June and September 2020, operationalized in three stages: 1st stage: bibliographic survey; 2nd stage: elaboration of the booklet with the graphic designer to help in the development process of the technology; 3rd stage: content validation of the booklet by specialists through the Delphi technique. The validation was performed by 35 health and biology professionals and the local for selection of these was the *Lattes* Platform, using the Delphi technique in two rounds. The Content Validation Index was considered an acceptance criterion, with an agreement ≥ 0.78 among the judges being considered a good level.

Results: the first version of the booklet obtained a global Content Validation Index of 0.79. There were suggestions for improvement that were accepted and, after the Delphi 2 phase, there was the resubmission of the booklet; it presented a global Content Validation Index of 0.99.

Conclusion: the booklet was validated regarding its content and is compatible with its intended purpose, being important for the promotion of knowledge about the correct procedure to put on this equipment so that prevention measures are effective and shared.

DESCRIPTORS: Coronavirus infections. Validation study. Education in health. Methodological research in nursing. Protective equipment.

HOW CITED: Silva ABP, Menezes HF, Silva HL, Fonseca MC, D'Eça Junior A, Silva RAR. Validation of a booklet for the correct use of personal protective equipment in the context of COVID-19. *Texto Contexto Enferm* [Internet]. 2021 [cited YEAR MONTH DAY]; 30:e20200561. Available from: <https://doi.org/10.1590/1980-265X-TCE-2020-0561>

VALIDAÇÃO DE CARTILHA PARA USO CORRETO DE EQUIPAMENTO DE PROTEÇÃO INDIVIDUAL NO CONTEXTO DA COVID-19

RESUMO

Objetivo: descrever o processo de construção e validação de uma cartilha educativa digital destinada aos profissionais de saúde sobre o uso correto de Equipamentos de Proteção Individual no contexto da COVID-19.

Método: estudo metodológico, realizado entre junho e setembro 2020, operacionalizado em três etapas: 1ª etapa: levantamento bibliográfico; a 2ª etapa: elaboração da cartilha junto ao *designer* gráfico para auxiliar no processo de desenvolvimento da tecnologia; 3ª etapa: validação de conteúdo da cartilha por especialistas, através da técnica Delphi. A validação foi realizada por 35 profissionais da saúde e da biologia, tendo como local para seleção destes a Plataforma *Lattes*, utilizando a técnica de *Delphi* em duas rodadas. Considerou-se o Índice de Validade de Conteúdo como critério de aceitação, com a concordância $\geq 0,78$ entre os juízes, sendo um nível considerado bom.

Resultados: a primeira versão da cartilha obteve Índice de Validade de Conteúdo global de 0,79. Houve sugestões de melhoria que foram acatadas e, após a fase Delphi 2, onde ocorreu a ressubmissão da cartilha, ela apresentou Índice de Validade de Conteúdo global de 0,99.

Conclusão: a cartilha foi validada quanto ao seu conteúdo e é compatível com o fim a que se propõe, sendo importante a promoção do conhecimento sobre a paramentação correta destes equipamentos para que as medidas de prevenção sejam efetivas e compartilhadas.

DESCRITORES: Infecções por coronavírus. Estudo de validação. Educação em saúde. Pesquisa metodológica em enfermagem. Equipamentos de proteção.

VALIDACIÓN DE UNA CARTILLA PARA EL USO CORRETO DE EQUIPOS DE PROTECCIÓN PERSONAL EN EL CONTEXTO DE COVID-19

RESUMEN

Objetivo: describir el proceso de elaboración y validación de una cartilla educativa digital sobre el uso correcto de Equipamos de Protección Personal en el contexto de COVID-19, destinada a los profesionales de la salud.

Método: estudio metodológico realizado entre junio y septiembre de 2020, efectivizado en tres etapas: 1ª etapa: levantamiento bibliográfico; 2ª etapa: elaboración de la cartilla junto al diseñador gráfico para asistir en el proceso de desarrollo de la tecnología; 3ª etapa: validación del contenido de la cartilla a cargo de especialistas, a través de la técnica *Delphi*. La validación fue realizada por 35 profesionales de la salud y de biología, con Plataforma *Lattes* como lugar elegido para su selección, utilizando la técnica *Delphi* en dos rondas. Se consideró el Índice de Validez de Contenido como criterio de aceptación, con un grado de acuerdo $\geq 0,78$ entre los jueces, considerándose un buen nivel.

Resultados: la primera versión de la cartilla obtuve un Índice de Validez de Contenido global de 0,79. Se presentaron sugerencia de mejora que fueron aceptadas y, después de la fase Delphi 2, en la cual se volvió a presentar la cartilla para su evaluación, la misma presentó un Índice de Validez de Contenido global de 0,99.

Conclusión: la cartilla fue validada en relación a su contenido y es compatible con el fin para el cual fue prevista, siendo importante la promoción del conocimiento sobre el manejo correcto de estos equipos para que las medidas de prevención sean efectivas y compartidas.

DESCRIPTORES: Infecciones por coronavirus. Estudio de validación. Educación en salud. Investigación metodológica en enfermería. Equipos de protección.

INTRODUCTION

A sudden increase in the number of people affected by respiratory diseases in a city of China, called Wuhan, brought with it an alert for the health authorities. It was observed that these cases were not usually known diseases and they had a much higher contagion capacity. In January 2020, the pathogen was therefore identified as a new type of Coronavirus (SARS-Cov-2), being called COVID-19¹.

As it is a new virus with general susceptibility to extensive symptomatic manifestations of difficult clinical diagnosis; the main symptoms are cough, fever, sore throat and dyspnea. Among the possible complications are Acute Respiratory Distress Syndrome (ARDS), acute liver and heart lesion, disseminated intravascular coagulation and acute respiratory insufficiency, which can lead to the patient's death. Its transmission is through contact with contaminated people or surfaces infected by the virus².

Due to the high transmissibility of COVID-19, several countries are adopting the disclosing of sanitary measures to reduce the contagion, since the health services were not prepared for a sudden increase of inpatients, whether due to lack of supplies, of equipment necessary to stabilize critical patients or of human resources. As a way to prevent collapse in these systems, the World Health Organization (WHO) recommended the practices of social distancing, aiming with this at reducing the probability and number of horizontal transmissions³.

Health institutions, such as hospitals, basic units and laboratories, among others, are places where there is a high risk of contamination as their activities involve the manipulation of chemical products, body fluids, and contact with people with some type of disease. The Personal Protection Equipment (PPE) protects the professionals from the risks of contamination and still provides more quality in the assistance since, in addition to that, they protect the critical patients who are in life threatening conditions and cannot be in contact with other pathogens⁴.

Ordinance 1,823 of August 23rd, 2012, instituted by the Ministry of Health, which is related to the National Worker's Health Policy, defines the actions for the protection and promotion of the worker's health and the reduction of morbimortality in their productive processes, including the health professionals⁵. It is of utmost importance to devise strategies capable of improving the professionals' conduct and increase their adherence in the use of PPE through trainings in formal or informal meetings, with professionals responsible for permanent education conducting these tasks, in addition to stimulating information and learning in the very workplaces⁶.

During all moments of a human being's life, health information is necessary for individual and community training and needs to reach all social groups, sensitizing them about the good practices in health and ways of transmission and prevention of diseases. Therefore, for the actions performed during the pandemic, a moment in which adaptations are necessary, digital tools such as informative booklets, videos and informative posts, are alternatives for easy dissemination⁷⁻⁸.

In this context, recognizing that scientific knowledge is dynamic, that the health practice is constantly updated, and that it is necessary to (re)think assistance in health to promote patient and professional safety, the need emerged to create a digital informative booklet guiding and helping professionals to deal with such event, protecting not only themselves but also all the population since the transmissibility of COVID-19 is high.

Such facts aroused the interest of elaborating an educational booklet for the correct use of Personal Protective Equipment in the context of COVID-19, based on science, as well as elaborating and validating it based on the judgment by specialists, using the Delphi technique. Therefore, the objective of this study is to describe the process for the elaboration and validation of a digital educational booklet intended for health professionals on the correct use of Personal Protective Equipment (PPE) in the context of COVID-19.

METHOD

A methodological study⁹, operationalized in three stages: 1st stage: Bibliographic survey; 2nd stage: Elaboration of the booklet with the graphic designer to help in the development process of the technology; 3rd stage: Content validation of the booklet by specialists through the Delphi technique in two rounds.

The first stage, the biographical survey, was carried out in June 2020 and aimed at searching publications in national and international journals, in addition to ordinances and technical notes to obtain information related to the professionals' assistance in cases of COVID-19 infection.

The databases that were consulted were the following: National Library of Medicine (PUBMED); SciELO; Web of Science; Cumulative Index to Nursing and Allied Health Literature (CINAHL); in addition to bulletins, recommendations, manuals and ordinances published in the pandemic period by the Ministry of Health and the National Health Surveillance Agency (*Agência Nacional de Vigilância Sanitária*, ANVISA) on their websites. The following guiding questions were used: what are the adequate practices during the use and handling of Personal Protection Equipment (PPE) by health professionals in the context of COVID-19? How can the care be provided to the contaminated patient in a way that is safe for the professional?

For refinement of the articles, the following inclusion criteria were used: articles that addressed the adequate practices in the use and handling of PPE by health professionals, published in the last two years, and that were available in full in the aforementioned databases. Articles and studies that did not answer the guiding questions or did not meet the objectives were excluded.

For the search, the descriptors indexed in the Medical Subject Heading (MeSH) were used by means of the Boolean operator AND, as follows: "Coronavírus" AND "Personal Protective Equipment" AND "Health Personnel". The publications were initially selected with the reading of their titles and abstracts to identify those that presented relevance for the study, and those who were not related to the research topic were excluded. After the full reading of the publications previously selected, those that composed the final sample to support the elaboration of the booklet were identified.

For the extraction of data from the articles included in the integrative review, the instrument used contained the identification of the article, introduction and objectives, methodological characteristics, results and conclusions, which scientifically based the elaboration of each item of the booklet proposed¹⁰. Regarding the publications of the Ministry of Health and ANVISA, these were selected based on the search for contents that addressed PPE and that were available at the moment of conducting the search.

The second stage was conducted after gathering the content pertinent to the booklet, elaborating a prototype with information, scenarios and texts that should be included. Then the scientific language was adapted, making it more appropriate and clear regardless of the schooling level. Subsequently, the material was delivered to a specialist in the area of graphic design to develop the illustrations and diagramming of the content.

The diagramming and structure of the texts, phrases and figures was performed by the diagrammer based on follow-up of the leading researcher and according to recommendations for texts of educational technologies, and the colored illustrations were created in the two-dimensional vector-based drawing software for graphic design.

The third stage involved the content validation of the booklet by specialists, through the Delphi technique in two rounds. The content was organized in an instrument through an online structured form on Google Docs, which resulted in the final version of the booklet with the suggestions for improvement by the judges.

As a strategy for the search of specialists in the third stage, Lattes Platform website of the National Council for Scientific and Technological Development (CNPq) was used as study *locus*. To such end, the sample size was defined from the following formula: $n = Z\alpha^2 \cdot P(1-P)/e^2$. The values

estimated were Z_a (confidence level) = 95%, P (proportion of agreement among the judges) = 85% and (accepted difference from what is expected) = 15%, which resulted in approximately 22 judges¹¹.

In this stage, the population was composed of specialists based on the following inclusion criteria: MScs, PhDs or specialists with knowledge/skill through professional experience in research, teaching and assistance in the area of infectious diseases, and/or control of hospital infection and worker's health.

An explanatory form with the instrument to be assessed and the Free and Informed Consent Form, as well as an invitation letter were sent via email. A 15-day deadline was stipulated for assessing the booklet and filling out the instrument. The second and third stages were conducted between July and September 2020.

The instrument submitted to the specialists consisted of three parts. The first part had data such as the identification of the specialists' characteristics. The second part of the instrument was composed of the booklet variables, assessed through a Likert scale with scores from 1 to 5: 1) totally inadequate; 2) inadequate; 3) neither adequate nor inadequate; 4) adequate; and 5) totally adequate; where items 4 and 5 were considered as in concordance¹⁰.

Finally, the third part involved the general assessment of the booklet based on the following criteria: organization, objectivity, clarity, precision, credibility, adequacy, ease of reading and understanding of the content. The Delphi technique was used, which consists of a method that aims at reaching consensus of opinion of a group of specialists by means of phases or cycles of questionnaire submissions, interspersed with controlled feedback of the opinions¹². To assess relevance/representativity, the answers can include: 1 = not relevant or not representative, 2 = the item needs major review to be representative, 3 = the item needs minor review to be representative, 4 or 5 = the item is relevant or representative.

The index score is calculated by adding up the agreement of the items marked with 4 or 5 by the specialists. Those that received scores of 1, 2 or 3 would be reviewed or excluded. In this way, the CVI has also been defined as the proportion of items that receive a score of 4 or 5 by the specialists.

After the analysis of the first Delphi round, the items that did not obtain Kappa values and Content Validation Index (CVI) within the parameters established as acceptable according to the judges' suggestions were modified and, immediately after that, the instrument was resubmitted to the specialists (Delphi round 2).

For content validation, the judges' assessments were introduced in a spreadsheet, where the scorings attributed to each item were verified to determine the level of agreement among them, calculating the Content Validation Index (CVI) for each of the items, the I-CVI (Content Validation of the Individual Items), and for the total set of items of the booklet (Global CVI). The relevance of the items was obtained by means of the Kappa (K) index and of the Content Validity Index (CVI).

The Kappa index enables the verification of the level of agreement and level of consistency (reliability) of the judges' opinions and assesses the proportion of agreement that ranges from "-1" to "+1". The closer to 1, the better the level of agreement among the observers. As acceptance criterion, an agreement ≥ 0.61 among the judges was established, considered as a good level¹³.

The following assessment pattern was considered: I-CVI equal to 1.00 – perfect, I-CVI from 0.81 to 0.99 – optimum, I-CVI from 0.61 to 0.80 – good, I-CVI from 0.41 to 0.60 – regular, and the items of the booklet with I-CVI values lower than or equal to 0.60 were excluded. In the absence of acceptable agreement among the specialists for a enough number of items foreseen for the final version of the instrument, repetition of the assessment process by the specialists was performed (Delphi round 2), as recommended until the level of agreement was reached. Items with CVI values equal to or greater than 0.78 were considered as validated¹⁴.

The research was conducted according to the required ethical standards, being approved by the Committee of Ethics in Research with human Beings.

RESULTS

A total of 222 papers were found after searching articles in the aforementioned databases. By applying the filters of articles published in the last two years in Portuguese, English and Spanish and that were available in full, a total of 115 articles was obtained. Based on those, titles and abstracts were read, applying the inclusion and exclusion criteria and removing duplicate papers, as shown in the flowchart in Figure 1.

At the end of this stage, a total of 51 articles was obtained for full reading. Subsequently, with the complete reading of the papers, 19 articles were selected to elaborate the review according to the criterion of selecting publications with significant information related to the handling of PPE by health professionals in the context of the COVID-19 pandemic.

It is worth noting that, in addition to the articles selected, the following were added as references: ANVISA Technical Notes No.01,04,05,06,07, 08 and the publication entitled “Recommendations for the protection of health care workers in the assistance of COVID-19 and other influenza-like syndromes”, released by the Ministry of Health; all publications being formulated in the pandemic context.

In the second stage, textual elaboration was performed based on the content, followed by the elaboration of the illustrations and, finally, the diagramming phase. It was sought to associate diversified content in terms of information, but pragmatic. The final version of the booklet, entitled “Personal Protective Equipment for Health Professionals: Safe Handling”, was elaborated with 18 pages consisting in cover, back cover, index card, introduction, objectives, steps for safe gowning, steps for degowning, final considerations and a list of references.

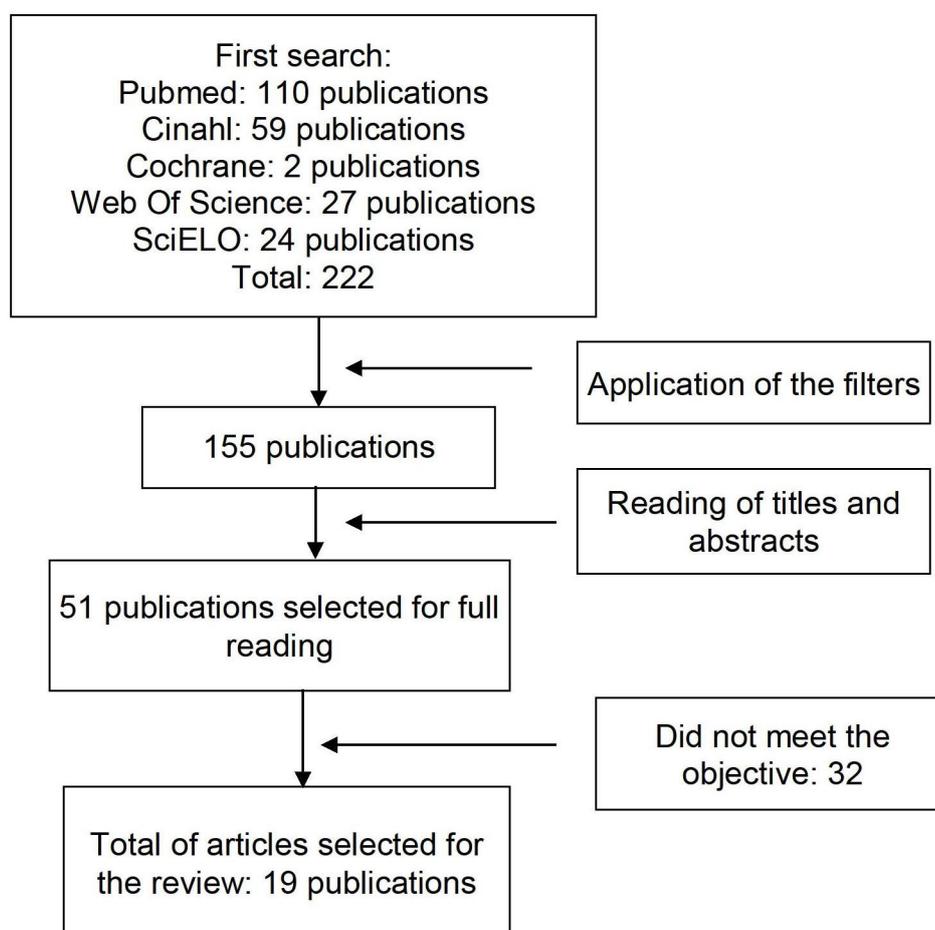


Figure 1 – Flowchart of the search of studies in the databases. Natal, Rio Grande do Norte, Brazil, 2020.

In the stage referring to the validation of the first version of the booklet, 20 specialists agreed to participate in the research in the “content judges” category. The professional profile indicated that 13 (65%) specialists were female and that seven (35%) were male. The participants’ age group varied from four (20%) aged between 30 and 39 years old, 12 (60%) aged between 40 and 49 years old, and four aged over 50 years old (20%). Regarding their professional training, there were 15 (70%) nurses, three (15%) physicians, and two (10%) biologists. All the judges were PhDs, and four (20%) were post-PhDs. Most of them worked in the education area (70%) or in research institutions in the health area (10%) and part in public hospitals (20%); 12 (60%) had from 11 to 20 years of experience while eight (40%) had more than 20 years of training.

The population composed of the content judges of the second version of the booklet had small variations, with 15 (75%) female specialists and five (25%) male specialists, 10 (50%) aged between 40 and 50 years old and four (20%) aged between 30 and 39 years old. Most of the specialists (70%) were professional nurses, followed by physicians (20%) and two biologists (20%), all PhDs, and four (20%) post-PhDs. The work area was predominantly education (60%), followed by public hospitals (25%), private hospitals (10%) and scientific research institutions (5%).

Verification of the validation in the first version of the booklet was through CVI calculation, with a value of 0.79 for the CVI global mean, considered good according to the criteria previously stipulated, where the I-CVI individual values varied from 0.70 to 0.95, and with a regular Kappa index (0.50). The global CVI corresponding to the second version of the booklet obtained a value of 0.99, considered optimum. All I-CVI values were satisfactory, varying from 0.90 to 1.0, and the Kappa index was optimum (0.97), as shown in Table 1.

The general assessment of the booklet, based on the criteria of organization, objectivity, clarity, precision, credibility, adequacy, ease of reading and understanding of the content was carried out according to Table 2, which compares the means with the second version of the booklet. In Figures 2 and 3, some illustrations from the validated version of the booklet are represented.

Chart 1 presents a synthesis of the qualitative analysis conducted by the specialists.

In Delphi round 1, the items received suggestions for changes or improvements, which supported the elaboration of the second version of the booklet. On the cover, the use of the image of male and female characters was suggested, since women represent a large part of the category. We were also heard reports of the suggestion to represent the medical professional as a woman and the Nursing professional as a man, so as not reassert the macho stigma in which Nursing is seen as an essentially female profession. Another aspect pointed out was the characters’ clothing, in which the coat should be properly closed and with no materials in its pockets. The booklet’s title also received suggestions for improvement.

In the introduction, there were recommendations on emphasizing the transmission through aerosols, given that it is one the easiest ways for contagion in the hospital setting, in addition to influencing the use of PPE and recommendations throughout the booklet. The terms “use” and “handling” were considered synonyms, in addition to suggestions to include the disposal method as an important factor. For the layout, it was also suggested that its contrast should be greater, making the reading of the material easier.

As for the methodology, it was suggested to use information of local and ANVISA bulletins, as there is recent production of guides about special precautions related to droplets and aerosols. Recommendations regarding the exchange of terms and figures were considered. Two specialists judged the methodology part as unnecessary in a booklet, considering that it is not part of the necessary guidelines for the professionals. It was also suggested to substitute the term “contaminated” for “infected”. On page 7 of the first version of the booklet, where the PPE is described, it was suggested to rename this section as “Which PPE should I use in the care of the patient with COVID-19?”.

Table 1 – Judges' agreement about the booklet variables in its first and second versions. Natal, Rio Grande do Norte, Brazil, 2020.

Items	1 st version of the booklet			2 nd version of the booklet		
	n (%) [*]	I-CVI†		N (%) [*]	I-CVI†	
1. Cover – Page 1 of the booklet	20	85	0.85	20	100	1
2. Introduction – Page 4 of the booklet	20	75	0.75	20	100	1
3. Booklet's objective – Page 5 of the booklet	20	70	0.70	20	100	1
4. Which PPE is to be used when providing care to suspected or confirmed patients affected by the new Coronavirus – Page 6 of the booklet	20	75	0.75	20	100	1
5. Stages for safe gowning (stage number 1) – Page 7 of the booklet	20	65	0.65	20	95	0.95
6. Stages for safe gowning (stage number 2) – Page 8 of the booklet	20	65	0.65	20	100	1
7. Stages for safe gowning (stage number 3) – Page 9 of the booklet	20	80	0.80	20	100	1
8. Stages for safe gowning (stages number 4 and 5) – Page 10 of the booklet	20	80	0.80	20	100	1
9. Stages for safe gowning (stages number 6 and 7) – Page 11 of the booklet	20	80	0.80	20	100	1
10. Stages for safe degowning (stages number 1 and 2) – Page 12 of the booklet	20	95	0.95	20	100	1
11. Stages for safe degowning (stages number 3, 4 and 5) – Page 13 of the booklet	20	70	0.70	20	100	1
12. Stages for safe degowning (stages number 6 and 7) – Page 14 of the booklet	20	85	0.85	20	100	1
13. Stages for safe degowning (stages number 8 and 9) – Page 15 of the booklet	20	85	0.85	20	90	0.90
14. Final considerations – Page 16	20	85	0.85	20	100	1
Global CVI			0.79			0.99
Kappa Index			0.50			0.97

*Agreement percentage; †Item-Level Content Validity Index

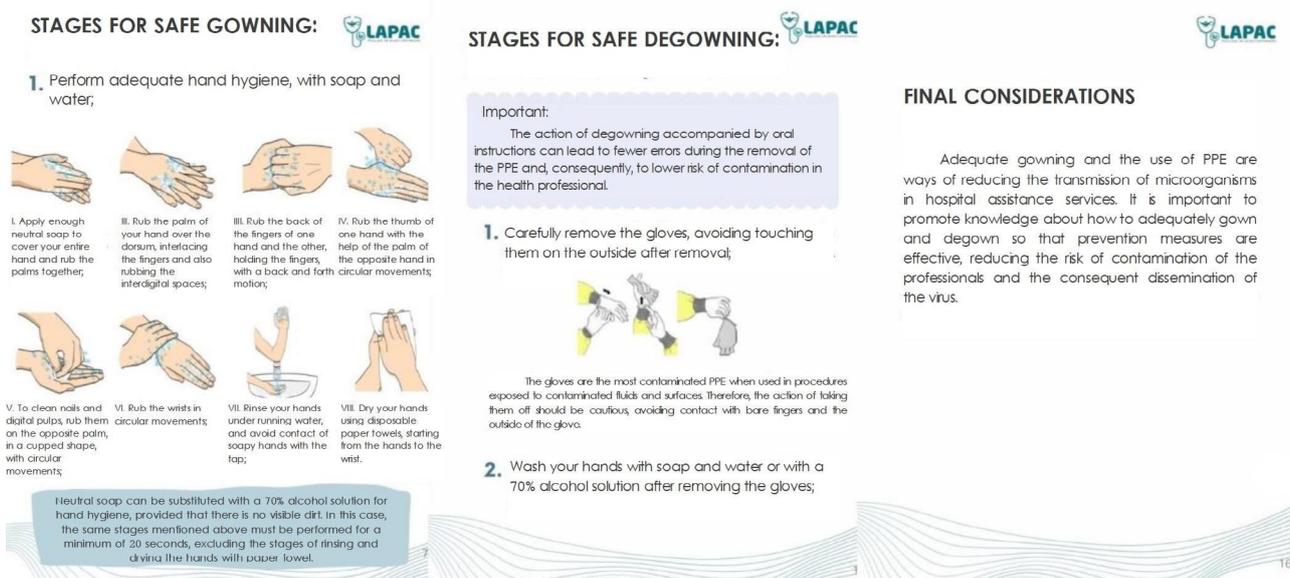
Table 2 – Global assessment of the first and second versions of the booklet. Natal, Rio Grande do Norte, Brazil, 2020.

Assessment requirements	Mean - 1 st version	Mean - 2 nd version
Usefulness / Pertinence	9.20	9.55
Consistency	8.70	9.45
Clarity	8.43	9.60
Objectivity	8.84	9.55
Simplicity	8.89	9.60
Practicable	9.25	9.50
Updating	8.55	9.50
Precision	8.45	9.35
Global score attributed to the booklet	8.50	9.45



*Sequence of pages, from left to right: Page 1 (Cover), Page 4 (Introduction), Page 6 (Which PPE is to be used when providing care to suspected or confirmed patients affected by the new Coronavirus?).

Figure 2 – Graphical representation of some of the pages of the booklet. Natal, Rio Grande do Norte, Brazil, 2020.



*Page 7 (Stage 1 for safe degowning), Page 12 (Stages 1 and 2 for safe degowning) and Page 16 (Final considerations of the booklet).

Figure 3 – Graphical representation of some of the pages of the booklet. Natal, Rio Grande do Norte, Brazil, 2020.

It was proposed to specify the different types of aprons and their respective purposes: common, hydrophobic and waterproof. It was also recommended to add explanatory notes about the face shield and the disposable shoe covers, as they are not in the illustration.

Another pertinent suggestion found in the form was the addition of information about the storage and reuse of high efficiency respirators and about the seal test. In addition, it was recommended to incorporate in the booklet how to untie the apron tie from the waist before taking the gloves off.

Chart 1 – Synthesis of the qualitative analysis conducted by the specialists. Natal, Rio Grande do Norte, Brazil, 2020.

Item	Suggestions of the specialists
Cover	Include both genders in the illustration and exclude pocket materials in the characters' coat.
Page 4	Include the possibility of SARS-CoV-2 transmission through aerosols. Greater contrast in the font color in relation to the color of the page background.
Page 5	Removal of the methodological part, informing only the objective.
Page 6	Changes in the title of the page to "Which PPE should I use in the care to the patient with COVID-19?". Add justifications for the use of PPE.
Page 7	Include hand washing technique. Specify the use of neutral soap or alcohol preparations.
Page 9	Add the need to perform the seal test when using high efficiency respirators.
Page 10	Describe justifications for the use of PPE.
Page 12	Include an item for sanitizing hands with 70% alcohol preparations after removing the gloves.
Page 13	Item for sanitizing the hands after removing the apron. Standardize the terms "apron", "gown", or "coat".
Page 15	Review the order of the items.

In the degowning stages, it was suggested to introduce items such as hand hygiene with 70% alcohol solutions in between equipment removals; however, this information, which was in one of the notes, was also criticized as a specialist who asserted that the ANVISA does not recommend so. In addition, the substitution of the term "antiseptics" for "neutral soap", given that the continuous use of antiseptics on the hands is not necessary, only in invasive procedures on the patient.

DISCUSSION

Education in health is a way of learning and permanent updating, as measures to conceive improvements in the service and in the individual professional practice. The use of training instruments, incentives for updating and courses must be encouraged by the responsible institutions to maintain a team working in health always updated and prepared for various situations¹⁵.

In this perspective, an example of significant elements to promote health is the development of manuals and booklets, in which knowledge elaboration can be understood as the transmission of health information, by using more advanced technologies or not, whose objectives are to sensitize, raise awareness and mobilize people to face individual and collective situations that interfere in their quality of life. The main objective for the elaboration of educational materials is health promotion with easy-to-understand contents, within the reality of the target audience, in order to ensure training based on reliable information extracted from studies¹⁶.

In their elaboration, the educational materials should be attractive, objective, not too extensive, but capable of providing significant guidance on the topic for which they are proposed, meet the specific needs of a certain health situation and of the audience for which the material is intended. In addition to that, as a way to ensure the quality of the material, it is fundamental to perform content validation or qualification by specialists in the subject matter. Such analysis is intended to establish the understanding of the items and their pertinence to the attribute that it is intended to validate, judging whether the items are referring or not to the objective in question, in addition to analyzing the possible suggestions that are presented, aiming at improving the material¹⁶.

The Delphi technique enables the resubmission of the instrument to be assessed two or more time, so as to obtain consensus of opinions⁹. Although the global CVI is considered good (0.79), according to the criteria established, there were relevant suggestions of the judges who contributed to improving the material and, consequently, to a more satisfactory global CVI. In the elaboration process of the second version of the booklet, the most frequent suggestions and recommendations made by

the judges were included, reaching a global CVI of 0.99 and a Kappa index of 0.97. This reasserts that the rehabilitation stage of the material content is seen as an opportunity to rethink and improve information based on various opinions, where points that could go unnoticed by some individuals can be addressed differently by another judge. Removing, adding, substituting or reformulating items constitute an essential stage in the validation process¹⁷⁻¹⁸.

The use of educational technologies proves to be quite effective to promote health practices and knowledge, and the booklets prove to be a proposal to influence good actions and constantly raise awareness of the adequate practices in the services, in addition to having a characterization that can arouse the reader's interest in the content approached¹⁹⁻²².

The use of means validated and socialized in the scientific community contributed to the improvement in assistance and collaborated with the professionals' scientific knowledge, helping in the fight against the transmission of infections given that this is a current topic in the country, both for the health professionals and for the population in general.

Therefore, it is believed that this paper will contribute to the elaboration of a booklet that may be used as an appropriate and validated instrument to guarantee health professionals adequate information about the safe handling of PPE, with clear and accessible language. As a study limitation, it is possible to mention the non-validation by a specialist in the communication area and for the use in specialized services.

CONCLUSION

Adequate gowning and the use of PPE are ways of reducing the transmission of microorganisms in the hospital assistance services. In this context, educational technologies such as booklets, have the role to spread information about a certain topic in a simple and easily accessible manner, and the validation stage ensures that the information contained in the instrument is accurate and appropriate for the target audience. Therefore, it is considered that the booklet entitled: "Personal Protection Equipment for Health Professional: Safe Handling" has content and face validation by the specialists (CVI=0.99) and meets its objectives.

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NOTES

ORIGIN OF THE ARTICLE

Extracted from the course conclusion paper - Elaboration and validation of an educational digital booklet on safety and handling of personal protective equipment for health professionals in the context of the fight against COVID-19, presented to the Undergraduate Program in Nursing, *Universidade Federal do Rio Grande do Norte*, in 2020.

CONTRIBUTION OF AUTHORITY

Study design: Menezes HF, Silva RAR.

Data collection: Silva ABP, Menezes HF, Silva HL, Fonseca MC, D'Eça Junior A, Silva RAR.

Data analysis and interpretation: Silva ABP, Menezes HF, Silva HL, Fonseca MC, D'Eça Junior A, Silva RAR.

Discussion of the results: Silva ABP, Menezes HF, Silva HL, Fonseca MC, D'Eça Junior A, Silva RAR.

Writing and/or critical review of the content: Silva ABP, Menezes HF, Silva RAR.

Review and final approval of the final version: Silva ABP, Menezes HF, Silva RAR.

APPROVAL OF ETHICS COMMITTEE IN RESEARCH

Approved by the Ethics Committee in Research with Human Beings of the *Universidade Federal do Rio Grande do Norte*, opinion No.4,099,608/2020, and Certificate of Presentation for Ethical Appreciation No. 33494820.8.0000.5537.

CONFLICT OF INTEREST

There is no conflict of interest.

EDITORS

Associated Editors: Selma Regina de Andrade, Gisele Cristina Manfrini, Natália Gonçalves, Ana Izabel Jatobá de Souza.

Editor-in-chief: Roberta Costa.

HISTORICAL

Received: October 23, 2020.

Approved: March 15, 2021.

CORRESPONDING AUTHOR

Harlon França de Menezes

harlonmenezes@hotmail.com