

# Educational booklet for family physicians: Copper IUD, a study on construction and validation

Cartilha educativa para médicos de família, DIU de cobre: um estudo sobre construção e validação  
*Folleto educativo para médicos de família, DIU de cobre: un estudio sobre construcción y validación*

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## Abstract

**Introduction:** Long-acting reversible contraceptives (LARC) are an effective contraception option, but they are of low use and acceptance. Public health strategies have been implemented to promote the use of these methods, highlighting the importance of training non-specialist physicians in gynecology. **Objective:** This study addressed the development and validation of an educational booklet on the copper intrauterine device (Cu-IUD) for family physicians, aiming to overcome these barriers and promote informed and inclusive clinical practice. **Methods:** The study adopted a methodological development design with technology validation. The booklet was developed on the basis of an integrative literature review, the author's experience, and the collaboration of a Generative Artificial Intelligence model (ChatGPT-4) for content organization and illustration generation. It was then submitted to three groups of evaluators: the first comprised obstetrics and gynecology specialists, the second included faculty from other medical specialties, and the third consisted of the target audience. Validation was carried out through structured questionnaires, adapted according to the groups of judges. **Results:** The booklet received suggestions for improvement. Evaluation scores for the content validity index (CVI) were high across all groups. Cronbach's alpha ( $\alpha$ ) values were adequate. **Conclusions:** The inclusion of suggestions from the evaluators significantly contributed to the improvement of the booklet, validating it as a useful educational resource in the area of contraception for family physicians. The high CVIs highlight its adequacy for the proposed objectives, indicating its usefulness in promoting informed and inclusive clinical practice, with the research's reliability demonstrated by  $\alpha$ .

**Keywords:** Education, medical; Long-acting reversible contraception; Intrauterine devices, copper.

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## Resumo

**Introdução:** Os contraceptivos reversíveis de longa duração (LARC) são uma opção eficaz de contracepção, porém, enfrentam baixa utilização e aceitação. Estratégias de saúde pública têm sido implementadas para promover o uso desses métodos, destacando a importância da capacitação de médicos não especialistas em ginecologia. **Objetivo:** Este estudo aborda a elaboração e validação de uma cartilha educativa sobre o dispositivo intrauterino de cobre (DIU-Cu) para médicos de família e comunidade, visando a superar essas barreiras e promover uma prática clínica informada e inclusiva. **Métodos:** O estudo adotou um desenho de desenvolvimento metodológico com validação de tecnologia. A cartilha foi elaborada com base em revisão integrativa da literatura, experiência do autor e colaboração de um modelo de Inteligência Artificial Generativa (ChatGPT-4) para organização do conteúdo e geração das ilustrações. Posteriormente, foi submetida a três grupos de avaliadores: o primeiro, composto por especialistas em ginecologia e obstetrícia; o segundo, por docentes de outras especialidades médicas; e o terceiro, pelo público-alvo. A validação foi realizada por meio de questionários estruturados, adaptados conforme os grupos de avaliadores. **Resultados:** A cartilha recebeu sugestões para aprimoramento. As notas de avaliações para fins do Índice de Validade de Conteúdo (IVC) foram elevadas em todos os grupos. Os valores alfa de Cronbach ( $\alpha$ ) foram adequados. **Conclusões:** A inclusão de sugestões dos avaliadores contribuiu significativamente para o aprimoramento da cartilha, validando-a como um recurso educativo útil na área de contracepção para médicos de família e comunidade. Os altos IVCs destacam sua adequação aos objetivos propostos, indicando sua utilidade na promoção de uma prática clínica informada e inclusiva, sendo a confiabilidade da pesquisa demonstrada pelo  $\alpha$ .

**Palavras-chave:** Educação médica; Contracepção reversível de longo prazo; Dispositivos intrauterinos de cobre.

## Resumen

**Introducción:** Los anticonceptivos reversibles de larga duración (LARC) son una opción efectiva de anticoncepción, sin embargo, enfrentan baja utilización y aceptación. Se han implementado estrategias de salud pública para promover el uso de estos métodos, destacando la importancia de capacitar a médicos no especialistas en ginecología. **Objetivo:** Este estudio aborda la elaboración y validación de un folleto educativo sobre el dispositivo intrauterino de cobre (DIU-Cu) para médicos de familia, buscando superar estas barreras y promover una práctica clínica informada e inclusiva. **Métodos:** El estudio adoptó un diseño de desarrollo metodológico con validación de tecnología. El folleto fue elaborado a partir de una revisión integrativa de la literatura, la experiencia del autor y la colaboración de un modelo de Inteligencia Artificial Generativa (ChatGPT-4) para la organización del contenido y la generación de ilustraciones. Posteriormente, fue sometido a tres grupos de evaluadores: el primero compuesto por especialistas en ginecología y obstetricia, el segundo por docentes de otras especialidades médicas, y el tercero por el público objetivo. La validación se realizó a través de cuestionarios estructurados, adaptados según los grupos de jueces. **Resultados:** El folleto recibió sugerencias para su mejora. Las calificaciones de evaluación para el índice de validez de contenido (IVC) fueron altas en todos los grupos. Los valores de alfa de Cronbach ( $\alpha$ ) fueron adecuados. **Conclusiones:** La inclusión de sugerencias de los evaluadores contribuyó significativamente al mejoramiento del folleto, validándolo como un recurso educativo útil en el área de anticoncepción para médicos de familia. Los altos IVC resaltan su adecuación para los objetivos propuestos, indicando su utilidad en la promoción de una práctica clínica informada e inclusiva, siendo la fiabilidad de la investigación demostrada por el  $\alpha$ .

**Palabras clave:** Educación médica; Anticoncepción reversible de larga duración; Dispositivos intrauterinos de cobre.

## INTRODUCTION

Long-acting reversible contraceptives (LARCs), which include copper-containing intrauterine devices (Cu-IUDs) and hormonal (levonorgestrel) intrauterine devices, as well as levonorgestrel or etonogestrel implants, offer a reliable contraceptive solution. Despite their advantages, such as high effectiveness, user-independent behavior, and no long-term effect on fertility, the use and acceptance of these methods remain low.<sup>1-4</sup>

Barriers to LARC use are common and include time pressures during medical appointments, misunderstandings about risk and eligibility, and limited access to procedures. International experiences, such as those in the United Kingdom, demonstrate that public health interventions focused on information, availability, and free access to LARCs can significantly increase LARC use. Prioritizing patient autonomy, the importance of providing women with comprehensive information about all available contraceptive methods is emphasized.<sup>4-6</sup>

The adoption of LARCs, especially in countries with considerable reproductive health challenges, has been promoted by consortia and international organizations, emphasizing not only their contraceptive benefits but also their advantages in terms of sustainability and addressing global population issues. Furthermore, it is vital to recognize that family physicians are often patients' first and, often, only medical contact. This reality reinforces the importance of training these professionals to provide accurate guidance on contraceptive methods, prioritizing the knowledge that empowers their patients to choose.<sup>7</sup>

In this context, the validated educational booklet emerges as one response to this need, aiming to equip family and community physicians with up-to-date technical information so they can perform this role with excellence. This article presents the development and validation of an educational booklet focused on the Cu-IUD, intended for these physicians, as an initiative to overcome existing barriers and promote informed and inclusive clinical practice, aligned with women's needs and preferences.

## METHODS

### Study design

This was a methodological development study with technology validation. This type of study was used to develop the instrument with the help of generative artificial intelligence (GAI), subsequently improving and technically validating it in the second stage of the research with expert instructors in the field. Subsequently, it was validated by non-expert instructors and the target audience. Data collection was conducted using structured questionnaires with closed-ended Likert-scale questions and space for comments from the evaluators. Thus, the study design for validating the educational booklet followed the following steps:<sup>8-11</sup>

1. Contextualizing the definition of the study objective and the research question in light of the target audience's reality;
2. Integrative review of the existing literature on long-acting reversible contraception;
3. Development of the educational booklet based on the reviewed literature, the author's experience, the refinement with input from technical reviewers, and GAI workflow support;
4. Validation of the educational booklet through structured questionnaires, adapted according to the reviewer group, with closed-ended questions on the Likert scale.

### Methodology

After reviewing the literature and contextualizing the study objectives within the context of the target audience, using primary care as the setting, the work was developed in four stages.

The first stage consisted of developing the booklet on the basis of an integrative literature review, the author's experience, and the collaboration of an AI model (ChatGPT-4, OpenAI), which helped in organizing the content and generating the illustrations. The booklet's text sought to be written in a technical, clear, and succinct manner, coupled with illustrations that complemented the information. After the association process, a script was developed with the content to compose the booklet, using the criteria of Moreira et al.<sup>11</sup> These criteria define the techniques for ensuring that the material meets its objectives; that is, it is easily understood by the target audience and limits the possibility of misleading information.

Evaluators were selected through purposive sampling, according to pre-established criteria based on the available information. In the second and third stages, they were selected according to their extensive experience and knowledge, analyzing their Lattes Curriculum and assigning scores considering *stricto sensu* postgraduate studies, publications and years of teaching in the specific medical field, according to criteria adapted from Santos.<sup>10</sup> Invitations were sent in person or by email.

In the second stage, the booklet was submitted to the first group of evaluators, comprised of faculty specialists in obstetrics and gynecology. This dynamic stage was used for technical and pedagogical evaluation, with modifications made on the basis of suggestions, ultimately leading to the booklet's refinement and publication. Although open to comments in subsequent stages, no further modifications were made after this stage.

In the third stage, the booklet was submitted to the second group of evaluators, comprised of faculty members from other medical specialties. The aim was to evaluate the booklet from the perspective of faculty members from other specialties, that is, those without specific knowledge of the field in question.

In the fourth stage, the booklet was submitted to the third group of evaluators, composed of resident physicians and specialists in family and community medicine, invited in person and by email. Thus, their contribution was sought to assess the receptiveness and suitability of the booklet in the perception of the target audience.

The exclusion criterion was evaluators who did not respond to the invitation within 30 days, as well as those who accepted and did not respond within 60 days.

The evaluation questionnaire sent to the evaluators was developed on the basis of the Suitability Assessment of Materials and adapted according to the objectives of the booklet and the specific needs of the evaluator group.<sup>10,12</sup> For the purposes of a judging tool, it was structured into domains focused on the evaluator group.<sup>10,12</sup>

The free online survey software LimeSurvey was used, with a MySQL database and Secure Sockets Layer (SSL) encryption, which allows for secure internet sessions. The questionnaires were made available at <https://www.labioet.net.br/pesquisa>, with participation conducted through closed lists of invited individuals, and non-anonymous responses were provided only to the researcher for feedback and communication purposes.

After accepting the informed consent form available on the online platform, the evaluators accessed the questionnaire and responded to the items (questions), selecting between the scores 4 (Adequate); 3 (Needs minor revision to be adequate); 2 (Needs major revision to be adequate), or 1 (Inadequate), considering the scores adopted for the evaluation. If the answer was "1" or "2," the evaluators were required to provide a descriptive and argumentative opinion to justify their response.<sup>10</sup>

To assess the adequacy of the booklet for each item individually in the respective instruments, the content validity index (CVI) was used. The CVI was calculated using the formula "CVI = number of responses with scores 3 or 4 (per item or overall)/total number of responses." The overall assessment (CVI-G) for each instrument was calculated by averaging the sum of all items. Values greater than or equal to 0.80 (80%) were considered the cut-off value for each item and for the overall score for validation purposes. This value was then adopted as the approval decision criterion.<sup>8-10</sup>

The data were processed using descriptive statistical analysis, with simple frequency distribution, using the open-source LibreOffice Calc program. This statistical analysis provided information to identify potential patterns, trends, and intra-group differences between participating evaluators, as well as content validation of the educational booklet by keeping the groups separate.<sup>8-10</sup>

The statistical analysis to establish the reliability and internal consistency of the research measurement instruments was performed using Cronbach's alpha ( $\alpha$ ). This analysis initially focused on the data set corresponding to the instrument administered to the third group and then extended to the items that shared correspondence with the instruments of the other two groups. Appropriate  $\alpha$  values were established between 0.70 and 0.95, indicating that values below this suggest a low number of questions (sample), low interrelationship between items, or heterogeneous constructs.<sup>13,14</sup> This coefficient was calculated using the open-source GNU PSPP program. The published booklet (ISBN 978-65-00-88627-6) is available at <https://labioet.net.br/registros/index.php/s/8xKwwS8t5rZRH99>. The study was approved by the Research Ethics Committee of the State University of Amazonas (CAAE: 67872623.0.0000.5016).

## RESULTS

In the curriculum analysis, the average score of the evaluators participating in the study in the first and second groups exponentially exceeded the minimum proposed — e.g., in the first group, 80% of the participants were renowned professors and national references in their fields within obstetrics and gynecology.

On the LimeSurvey platform, 8 evaluators were registered in the first group; 10 in the second; and 39 in the third. Respectively, 5, 9, and 10 responded, totaling 24 completed questionnaires. The evaluators were geographically distributed across several states, representing the five regions of Brazil.

In the first group, the CVI calculated for each item and the CVI-G reached the maximum value (1). The CVI scores for each item of the instrument are detailed in Table 1.

In a dynamic development of the booklet, modifications were made following suggestions presented by faculty evaluators in the obstetrics and gynecology specialty, which were then communicated and evaluated by the others (Chart 1). Thus, with different perceptions, albeit specific, there were significant suggestions for improving and enriching the educational instrument.<sup>13,14</sup>

The CVI-G of faculty evaluators from other medical specialties reached 0.99. The CVI scores for each item of the tool are detailed in Table 2.

The comments from the second group were positive, and some observations may point to limitations of the booklet (Chart 2).

The CVI-G of the target audience evaluators reached 0.94. The CVI scores for each item of the tool are detailed in Table 3.

The comments from the third group point to limitations of the booklet regarding the potential expectations of the target audience (Chart 3).

$\alpha$  for the data set of the instrument applied to the second group was 0.77, and 0.87 in the third group. In the 8 items in which there was correspondence in all groups, the value was 0.86.<sup>13,14</sup>

## DISCUSSION

According to the American Academy of Family Physicians, family medicine is a specialty without boundaries. Its emphasis is on providing continuous and comprehensive primary care to the individual and family throughout the life cycle, not limited by age, sex, organ system, or type of problem, whether biological, behavioral, or social. This holistic and integrative approach is its central characteristic.<sup>15</sup>

**Table 1.** Responses from the first group of evaluators (professors specializing in obstetrics and gynecology) regarding the validation criteria of the booklet under development.

Item	Validation				CVI
	1	2	3	4	
Objectives					
1. The information/content is consistent with the needs of the primary care physician.	0	0	0	5	1
2. The information/content is important for understanding what long-acting reversible contraceptives are.	0	0	0	5	1
3. It invites and/or encourages changes in the primary care physician's contraception guidance for their patients.	0	0	0	5	1
Structure and presentation					
4. The information presented is scientifically accurate.	0	0	0	5	1
5. The messages are presented clearly and objectively.	0	0	0	5	1
6. The material is appropriate for the level of the family physician.	0	0	0	5	1
7. The proposed content follows a logical sequence.	0	0	0	5	1
8. The information is well-structured in terms of grammar and spelling.	0	0	0	5	1
9. The writing style corresponds to the level of medical knowledge.	0	0	1	4	1
10. The title and topic sizes are appropriate.	0	0	0	5	1
11. The illustrations are appropriate and sufficient.	0	0	1	4	1
12. The material is appropriate.	0	0	0	5	1
13. The number of pages is adequate.	0	0	1	4	1
Relevance					
14. The themes portray key aspects that should be reinforced.	0	0	0	5	1
15. The booklet proposes knowledge construction.	0	0	0	5	1
16. The material addresses the topics non-specialist physicians need to know to guide their patients regarding contraception.	0	0	0	5	1

Evaluation: 1. inadequate; 2. needs major revision to be adequate; 3. needs minor revision to be adequate; 4. adequate; CVI: content validity index per item; \*Tables were transcribed directly from the research data, with minimal grammatical revision and no changes in content or meaning to preserve the accuracy of the data collected.

Improving health service delivery is an imperative that involves expanding the availability of these medical professionals and their problem-solving capabilities. In this context, family and community physicians play a fundamental role as essential access points to the health system. By expanding their presence and strengthening their clinical and counseling skills, we can ensure a more effective and comprehensive response to the population's needs. Investing in the training of these professionals not only improves the quality of care but also contributes to the promotion of public health, enabling communities to access appropriate, timely, and holistic health care. Therefore, expanding the availability and improving the capabilities of these physicians are essential steps in the quest for a more effective and inclusive health care system.<sup>15,16</sup>

The importance of family and community physicians being well-informed about LARCs is closely linked to providing adequate guidance to their patients and, thus, popularizing knowledge about contraceptive alternatives with these highly effective methods. To this end, these physicians must be properly trained, endowed with the necessary expertise. Thus, the educational booklet serves as a tool to support these professionals, addressing everything from sensitivity to cultural and social issues to the application of eligibility criteria and combating stigma and misconceptions. It also emphasizes the importance of fostering an environment of open and respectful dialogue, aiming for autonomy and informed choice among their patients.

**Chart 1.** Compilation of observations from the first group of evaluators (professors specializing in obstetrics and gynecology) on the booklet under development.

	<b>Comments and suggestions</b>	<b>What did you think of the booklet?</b>	<b>What should be added to the booklet?</b>	<b>Action</b>
Evaluator 1	Page 9: The insertion procedures failed to mention that the cervix must be clamped and pulled for hysterometry and IUD insertion. Page 11: I would add a % sign to the numbers; it's more informative and immediately legible, even if the physician doesn't pay attention to the column heading. Page 14: Review the topic of drug interactions.	Clear and visually pleasing.	In comments.	Modified.
Evaluator 2	Inform the physician and patients of the importance of keeping the document indicating the IUD type, batch, insertion date, and removal date.	Excellent idea.	Already mentioned in suggestions.	Modified, except for the number of pages.
Evaluator 3	Grammatical notes (e.g., "cervical cancer," new terminology (STI)).	Very good.	Nothing to add.	Modified.
Evaluator 4	Excellent initiative.	I found the material appropriate and easy to understand, which will expand the portfolio of resources needed for large-scale contraceptive guidance.	Complete.	Not applicable.
Evaluator 5	Well-structured, informative, and appropriate.	Very appropriate and educational.	Nothing to add.	Not applicable.

\*The charts were transcribed directly from the research data, with minimal formal adjustments and no changes to content or meaning to preserve the accuracy of the data collected.

Therefore, we sought to ensure that the booklet was concise yet comprehensive, covering the essential information recommended by the World Health Organization (WHO) for adequate patient guidance on the use of this contraceptive. Care was taken to separate the guidance, the objective of the booklet, from the performance of the procedure itself from other appropriate technical training, safeguarding the autonomy of the medical professional, which is not legally limited by specialties as long as they take responsibility for the act, according to the opinion of the Federal Council of Medicine No. 17/04.<sup>1-6,17</sup>

Moreira et al.<sup>11</sup> address the importance of effective communication in the development of health education materials and highlight the need to consider language, illustration, and layout to create readable, understandable, effective, and culturally relevant materials. Furthermore, they emphasize communication as a fundamental tool in health care, emphasizing the responsibility of professionals to promote health and prevent disease through qualified communication. They also highlight the importance of adapting communication to patients' needs and cultural contexts and suggest the inclusion of strategies to overcome reading and comprehension barriers.

**Table 2.** Responses from the second group of evaluators (professors from other medical specialties) regarding the validation criteria of the developed booklet.

Item	Validation				
	1	2	3	4	CVI
Content comprehension and relevance					
1. Is the booklet's content understandable to medical professionals with general training?	0	0	0	9	1
2. Is the language used accessible, even for those without specific knowledge in obstetrics and gynecology?	0	0	2	7	1
3. In your opinion, does the booklet address issues that are relevant and applicable in family medicine?	0	0	0	9	1
Integration with prior knowledge and interest					
4. Does the booklet successfully integrate the prior knowledge of professionals from other specialties, facilitating understanding of the topics presented?	0	0	0	9	1
5. Does the material spark interest throughout the reading?	0	0	2	7	1
Clarity of language					
6. Is the language used in the booklet understandable and fluid?	0	0	1	8	1
7. Does the conversational style facilitate understanding of the text?	0	0	1	8	1
8. Is the information presented in a clear context?	0	0	0	9	1
Use of visual resources					
9. Does the cover capture the reader's attention and convey the purpose of the material?	1	0	4	4	0.88
10. Are the illustrations relevant and appropriate for the content?	0	0	2	7	1
11. Do the illustrations and tables contribute to the understanding and/or dynamics of the content?	0	0	0	9	1
Structure and objectives					
12. Is the objective clear, facilitating the understanding of the material?	0	0	0	9	1
13. Is the format of the booklet suitable for assimilating information in clinical practice?	0	0	0	9	1
14. Is the organization of the booklet appropriate?	0	0	0	9	1
15. Is learning facilitated by the use of topics?	0	0	0	9	1
16. Do the strategies used encourage the practical application of the concepts presented?	0	0	1	8	1

Evaluation: 1. inadequate; 2. needs major revision to be adequate; 3. needs minor revision to be adequate; 4. adequate;

CVI: content validity index per item; \*Tables were transcribed directly from the research data, with minimal grammatical revision and no changes in content or meaning to preserve the accuracy of the data collected.

In this work, the challenge was to effectively convey technical knowledge to physicians, employing communication strategies that facilitate the transfer of this knowledge to their patients. The goal is not only to inform but also to promote patients' autonomy of choice, recognizing and respecting their individual needs and diverse contexts. This approach sought to ensure that physicians can offer accurate and personalized guidance, empowering patients to make informed choices about contraceptive options.<sup>17</sup>

Validation is inherently subjective, given the lack of a fully objective procedure capable of ensuring comprehensive and adequate coverage of the content under analysis. This reality makes it essential to collaborate with diverse groups of evaluators, whose role is to evaluate and validate the content of emerging tools, incorporating their perspectives and specialized knowledge.<sup>8-10</sup>

The importance of this recognition goes beyond a mere formality, establishing itself as a pillar for the quality of the developed tool. This process is vital to upholding the legitimacy and credibility of research findings, underscoring the critical value of the validation process in scientific research.<sup>14,18</sup>

**Chart 2.** Compilation of observations from the second group of evaluators (instructors from other medical specialties) on the developed booklet.

Specialty		Comments and suggestions
Evaluator	Pediatrics	Congratulations!! The booklet is excellent! Suggestions: In the introduction, or in Chapter 2, address the meaning of the cover image, as well as ensure the woman's choice of the best contraceptive method and the option of using no method. The specifics of contraceptive use in adolescence should be discussed, including decision-making rights and the role of the family. Include a table with the main advantages and disadvantages of the most commonly used contraceptive methods. Graphically present the myths and truths about IUD use. Suggest a protocol for periodic follow-up by the family and community physician and gynecologist (e.g., when to refer the woman to the OB/GYN, in the care line).
Evaluator	Pathology	An excellent tool for instructing family physicians on the use of contraceptives using an IUD. Suggestions: For those new to IUD use, I suggest a practical demonstration. Improve the cover. Congratulations on publishing this booklet.
Evaluator	Clinical medicine and intensive care	No comments.
Evaluator	General and head and neck surgery	The cover needs to be improved, providing something more appropriate.
Evaluator	Clinical medicine endocrinology	I find it very educational, easy to read, with a captivating presentation in bullet points and excellent illustrations. The content is highly relevant to women.
Evaluator	Clinical medicine and geriatrics	I couldn't determine from the booklet whether a properly trained family doctor can insert an IUD.
Evaluator	Psychiatry	The booklet fulfills its intended purpose. The theoretical part fulfills its purpose well, but its limitations are inherent and clash with medical practice itself, which in this case is the IUD insertion procedure. It doesn't generate interest because it's a topic far removed from psychiatry.
Evaluator	Anesthesiology	No comments.
Evaluator	Rheumatology	The visual organization could be more appealing. The cover doesn't seem to connect with the content, except for the fact that it features a woman. But overall, the booklet is very good.

\*The charts were transcribed directly from the research data, with minimal formal adjustments and no changes in content or meaning to preserve the accuracy of the data collected.

As outlined by Pasquali,<sup>18</sup> the inclusion of the insights of experts in the field in question, as well as the opinions of the tool's recipients, allows for a detailed analysis of both the understanding of the included items and their relevance to the applied context. This thorough analysis, known as content validation, is essential to ensure that the tool not only meets theoretical and methodological needs but also effectively resonates with the target audience. When evaluators analyze the instrument's technical accuracy, comprehensibility, and relevance to the target audience, content validation is assessed.

In the initial validation process of the booklet, selecting evaluators on the basis of specific criteria was essential. These criteria aimed to include professionals with extensive experience in the field of medical education, proven by years of teaching, publications and research – from which a deep command of relevant conceptual theories and a solid understanding of educational methods in the medical field are extracted.<sup>10</sup>

**Table 3.** Responses from the target audience (third group of evaluators) regarding the validation criteria of the developed booklet.

Item	Validation				CVI
	1	2	3	4	
Relevance to clinical practice					
1. Does the booklet address information and concepts that are directly relevant to the family physician's clinical practice?	0	0	2	8	1
2. Does the booklet provide practical guidance that can be easily incorporated into the family physician's clinical routine?	0	0	2	8	1
3. Does the booklet adapt to the primary care context, considering the demands and scope of this environment?	0	0	2	8	1
Usefulness in patient guidance					
4. Is the information contained in the booklet useful for guiding patients about the copper IUD?	1	0	0	9	0.9
5. Do you believe the content can be applied when interacting with patients?	0	0	0	10	1
Clarity of language					
6. Is the language used in the booklet understandable and fluid?	0	1	2	7	0.9
7. Does the conversational style facilitate understanding of the text?	0	1	2	7	0.9
8. Is the information conveyed in a clear context?	0	1	2	7	0.9
Use of visual resources					
9. Does the cover capture the reader's attention and convey the purpose of the material?	0	2	3	5	0.8
10. Are the illustrations relevant and appropriate for the content?	0	0	4	6	1
11. Do the illustrations and tables contribute to the understanding and/or dynamics of the content?	0	0	3	7	1
Structure and objectives					
12. Is the booklet's format suitable for assimilating information in clinical practice?	0	1	1	8	0.9
13. Does the information in the booklet meet the needs of family physicians when educating their patients about the copper IUD?	0	1	4	5	0.9
14. Is learning facilitated by the use of bullet points?	0	0	2	8	1
15. Is the objective clear, facilitating comprehension of the material?	0	1	2	7	0.9

Evaluation: 1. inadequate; 2. needs major revision to be adequate; 3. needs minor revision to be adequate; 4. adequate;

CVI: content validity index per item; \*Tables were transcribed directly from the research data, with minimal grammatical revision and no changes in content or meaning to preserve the accuracy of the data collected.

**Chart 3.** Compilation of observations from the target audience (third group of evaluators) on the developed booklet.

Comments and suggestions	
Evaluator	The most appropriate title for this specialist is "family and community physician." References could be made on family and community medicine tools and principles of primary health care, focusing on communication skills techniques for a more effective approach to the topic. It's also possible to involve couples in decisions related to reproductive planning. I emphasize the possibility of inserting a copper IUD immediately postpartum, providing this additional opportunity for people, especially during prenatal appointments.
Evaluator	I believe there could be more illustrations, in addition to a more in-depth discussion of the IUD insertion procedure.
Evaluator	The text doesn't make it clear whether the manual is intended for physicians working in primary care (who may or may not be family physicians).
Evaluator	I suggest including links to videos demonstrating IUD insertion in practice.
Evaluator	Long information, redundancy.
Evaluator	I suggest a more in-depth discussion on the need for ultrasound in the assessment before and after IUD insertion. I suggest a cover with more specific illustrations regarding the method.

\*The charts were transcribed directly from the research data, with minimal formal adjustments and no changes to content or meaning to preserve the accuracy of the data collected.

In the third stage, evaluators without specific knowledge of gynecology were sought, with the advantage of the critical and thorough perspective of a professor, providing a more comprehensive and general view of the effectiveness and relevance of the educational material, in addition to feedback on the understanding and applicability of the content by physicians who are not specialists in gynecology or family and community medicine.<sup>18</sup>

Therefore, the first two groups that validated the booklet were characterized by high-quality evaluators, given the primary need for knowledge transmission with high technical quality and completeness within the limits of the intended needs.<sup>19</sup> Subsequently, the third group represented the validation of the main pragmatic issue: the suitability and receptiveness of the target audience.<sup>8-10</sup> In other words, there would be no point in the instrument being pedagogically and technically adequate if it did not gain acceptance from the target audience, which implies much more complex issues, including generational ones.<sup>19,20</sup>

The booklet's development sought to be concise yet complete, aligned with the established objectives and conscious of its purpose, which is to serve as a resource for physicians in patient care based on the information provided. Accordingly, it was decided to focus the content on the Cu-IUD, addressing the topics recommended by the WHO for adequate patient guidance.<sup>17,19</sup> However, an evaluator from the first group suggested reducing the number of pages while also recommending increasing the number of illustrations. This dilemma highlighted the booklet's limitations, especially its difficulty in covering additional topics that, while not directly related to the Cu-IUD, are vital in the context of the available options,<sup>17</sup> such as specific strategies for adolescents and the advantages and disadvantages of other methods. At this point, although the booklet clarifies that there are no contraindications exclusive to this age group, as long as other limitations are observed, it does not address the nuances of the method's use in relation to decision-making rights and the role of the family, aspects that merit an extensive separate chapter.

## CONCLUSION

The inclusion of suggestions from specialty evaluators contributed significantly to the improvement of the booklet, ensuring its relevance and applicability. The iterative evaluation and review process resulted in a final version of the booklet that received positive reviews, highlighting its value as an educational resource in the field of long-acting reversible contraception, specifically designed for family and community medicine specialists. High values were achieved for CVI and CVI-G (content validity indices), indicating the booklet's suitability for validation purposes across all evaluator groups. The reliability and internal consistency of the measurement instruments were assessed using  $\alpha$ , both for the second and third group data sets and the items common to these groups.

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## CONFLICT OF INTERESTS

Nothing to declare.

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