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Core competencies for the training of advanced practice nurses in oncology: a Delphi study

Competências centrais para a formação do enfermeiro de prática avançada em oncologia: um estudo Delphi

Competencias centrales para la formación del enfermero de práctica avanzada en oncología: un estudio Delphi

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ABSTRACT

Objective: To map out and validate the core competencies for the training of advanced practice nurses in oncology. **Methods:** Exploratory-descriptive research with a quantitative approach using the Delphi technique. Initially, a matrix composed of six domains outlining 112 core competencies of the clinical nurse specialist in oncology was elaborated. The Likert scale was used to measure the degree of agreement. Data collection took place through the Google Forms® platform from February to May 2021. Data were compiled and analyzed based on expert suggestions and literature. **Results:** 100 competencies achieved consensus (agreement level above 85.7%) in the first round; 13 new competencies were proposed by expert members; and 125 were validated during the Delphi technique. **Conclusion:** The mapping and validation of core competencies will allow the development of new training models aimed at advanced practice in oncology and future educational harmonization.
Descriptors: Oncology Nursing; Advanced Practice Nursing; Evidence-Based Nursing; Clinical Competence; Professional Competence.

RESUMO

Objetivo: Mapear e validar as competências centrais para a formação do enfermeiro de prática avançada em oncologia. **Métodos:** Pesquisa exploratório-descritiva, de abordagem quantitativa, com utilização da técnica Delphi. Inicialmente, elaborou-se uma matriz composta por seis domínios, com 112 competências centrais do enfermeiro clínico especialista em oncologia. Utilizou-se a escala de Likert para mensurar o grau de concordância. A coleta de dados ocorreu por meio da plataforma Google Forms® de fevereiro a maio de 2021. Os dados foram compilados e analisados com base nas sugestões de especialistas e na literatura. **Resultados**: 100 competências obtiveram consenso (nível de concordância acima de 85,7%) na primeira rodada; 13 novas competências foram propostas pelos membros especialistas; e 125 foram validadas no transcorrer da técnica Delphi. **Conclusão**: O mapeamento e a validação de competências centrais permitirão a elaboração de novos modelos de formação voltados para a prática avançada em oncologia e harmonização educacional futura.
Descritores: Enfermagem Oncológica; Prática Avançada de Enfermagem; Enfermagem Baseada em Evidências; Competência Clínica; Competência Profissional.

RESUMEN

Objetivo: Mapear y validar competencias centrales para la formación del enfermero de práctica avanzada en oncología. **Métodos:** Investigación exploratoria-descriptiva, de abordaje cuantitativo, con utilización de la técnica Delphi. Inicialmente, elaborado una matriz compuesta por seis dominios, con 112 competencias centrales del enfermero clínico especialista en oncología. Utilizado la escala de Likert para mensurar el grado de concordancia. La recolecta de datos ocurrió mediante la plataforma Google Forms® de febrero a mayo de 2021. Los datos fueron compilados y analizados basados en las sugestiones de especialistas y la literatura. **Resultados**: 100 competencias obtuvieron consenso (nivel de concordancia arriba de 85,7%) en la primera rodada; 13 nuevas competencias fueron propuestas por los miembros especialistas; y 125 fueron validadas en el transcurrir de la técnica Delphi. **Conclusión**: El mapeo y validación de competencias centrales permitirán la elaboración de nuevos modelos de formación vueltos a la práctica avanzada en oncología y harmonización educacional futura.
Descriptores: Enfermería Oncológica; Enfermería de Práctica Avanzada; Enfermería Basada en la Evidencia; Competencia Clínica; Competencia Profesional.

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INTRODUCTION

Advanced practice nursing (APN) originated in Canada and the United States of America (USA) over 40 years ago. According to the International Council of Nurses (ICN)[1], the advanced practice nurse is one who has acquired the base of specialized knowledge, complex decision-making skills, and clinical competencies for an expanded practice, whose characteristics are shaped according to the context of each country and the diverse existing practice scenarios. APN is based on the education and preparation of nurses at the postgraduate level (master's and/or doctorate), together with the specification of criteria and core competencies for their performance, expanding the limits of the scope of practice, through advanced care techniques that influence clinical health outcomes in individuals, families, and communities[1].

The customarily used terminologies to refer to advanced practice nurses are: "nurse practitioner" (NP) and "clinical nurse specialist" (CNS). The NP has a greater involvement in clinical care, having an expanded scope of practice that gives them autonomy to coordinate diagnoses and prescribe treatments and/or medications. The CNS, on the other hand, tends to have less responsibility in clinical actions and greater focus on activities that involve education, leadership, improvements in the quality of care (development and implementation of clinical guidelines and protocols), and management of health services; provides highly complex and specialized care[2].

It is noteworthy that the CNS is the one that provides direct clinical care to the patient in a specific area of nursing practice, working collaboratively with the members of the health team. Specialty practice can be defined by population (e.g., pediatrics, geriatrics, women's health); clinical environment (intensive care, emergency, palliative care…); a disease or subspecialty (oncology, diabetes…); type of care (e.g., psychiatric, rehabilitation); or type of problem or dysfunction (such as pain, soreness, incontinence). The title of CNS represents academic and professional training; its role, a widely recognized category of advanced practice nursing around the world[1]. In oncology, these professionals are called "oncology clinical nurse specialist" (OCNS).

Currently, in Brazil, there are debates about the APN implementation process, with greater emphasis on Primary Care, due to the population's growing health needs and lack of access to human resources[3-4]. However, it is noteworthy that there are multiple spheres of professional activity, oncology being one. Studies demonstrate the relevance of the role of advanced practice nurses in oncology, with significant improvements in the clinical outcomes of patients. In addition, their work contributes to a better quality of care, reduces health costs, and there is still evidence of high levels of population satisfaction regarding the care provided[5].

It is estimated that, in 2020, there were 19.3 million new cases of cancer and around 10 million deaths worldwide[6]. In Brazil, for the biennium 2020-2022, the data point to the occurrence of 625 thousand new cases of cancer each year[7]. Thus, the importance of training nurses for advanced practice in oncology is evident, with essential competencies for working with this patient profile, which has such complex care needs.

The training of advanced practice nurses needs to occur through recognized educational programs and courses with objectives and contents focused on clinical practice[8], which is the starting point in discussions about strategies for the consolidation of teaching and, consequently, of professional performance. Furthermore, it should aim at a high degree of professional autonomy and independence in clinical practice. To develop new methods for providing cancer care, increase the numbers, and expand the roles of professionals such as advanced practice nurses, will be of the utmost importance to fill current and potential gaps in cancer care. To reconfigure, design, and harmonize education is essential to provide excellent care, safe clinical outcomes, and ensure patient satisfaction[9]. Innovative approaches are essential in supporting nurses to acquire the necessary skills to perform their role in an advanced way in the presented scenario.

It is observed that competence is the individual's ability to articulate and mobilize three interdependent dimensions — knowledge, skills, and attitudes — in order to intervene in a given context and achieve the desired results[10]. The construction of competencies favors the professional training process and its instrumentalization is expressed in knowing how to act, to want and to be able to act[11]. It should be noted that the core competencies of advanced practice nurses in oncology include aspects related to leadership, clinical experience, care management, evidence-based practice, health education, research and continuous innovation, assertive and ethical decision-making, interprofessional collaboration, involvement with policies and regulations related to oncology, and the use of technologies.

Thus, in the desire to minimize existing knowledge gaps[4-5,12] on the APN theme, this study intends to contribute with the proposition of core competencies for the training of advanced practice nurses in oncology in order to guarantee safe and quality care in the entire continuum involving cancer.

OBJECTIVE

To map out and validate the core competencies for the training of advanced practice nurses in oncology.

METHODS

Ethical aspects

The research was approved by the Ethics Committee in Research with Human Beings of the Universidade Federal de Santa Catarina (CEPSH-UFSC), following the guidelines and regulatory standards that involve research on human beings.

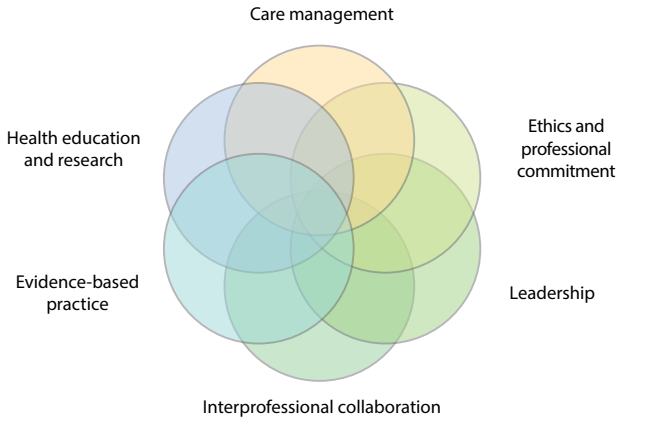
Study design and data collection instrument

This is an exploratory-descriptive research with a quantitative approach using the Delphi technique, developed in three rounds. This technique seeks to obtain a consensus from a group of specialists on a proposed problem, through a systematic communication structure, ensuring a space for the expression of opinions and positions based on the generated data, which circulate in one or more rounds, preserving participants' anonymity[13-15].

This research was based on the American model of training and performance in advanced practice, called CNS. Therefore, for the elaboration of the initial matrix with the core competencies

of the advanced practice nurse in oncology - OCNS, the following references were used: Oncology Clinical Nurse Specialist Competencies[16], Statement on Clinical Nurse Specialist Practice and Education[17], The Essentials of Doctoral Education for Advanced Nursing Practice[18], and Common Advanced Practice Registered Nurse: Doctoral-Level Competencies[19].

The data collection instrument (first round) was developed in two parts: the first had questions about the sociodemographic characteristics of the expert participants; and the second was structured through established domains and related competencies. The model initially proposed in the first round with the OCNS core competencies was composed of six domains (D1 to D6), with 112 competencies, as shown in Figure 1.



D1 - Care management: 43 competencies.
This domain is subdivided into: Health promotion and cancer prevention (2 competencies); Assessment of health/illness status (16 competencies); Diagnosis and care plan (18 competencies); and Assessment of the care plan (7 competencies).
D2 – Ethics and professional commitment: 13 competencies.
D3 – Leadership: 24 competencies.
D4 – Interprofessional collaboration: 10 competencies.
D5 – Evidence-based practice: 17 competencies.
D6 – Health education and research: 5 competencies.

Figure 1 – Domains and core competencies of the oncology clinical nurse specialist (OCNS)

The group of specialists was asked to reflect on the core competencies presented and insert their opinion, evaluating them as to their relevance ("Is the competence a necessary knowledge, skill or attitude for the OCNS?"), specificity ("Is the competence clearly stated and specified?"), and comprehensiveness ("Is there any aspect of knowledge, skill, or attitude lacking for the OCNS?"). The Likert scale was used to measure the degree of agreement, with scores ranging from 1 to 3 (1 – I agree; 2 – I am not decided; and 3 – I disagree). For the "I'm not decided" option, it was recommended that the specialists indicate suggestions for changes regarding the competence in question. The data collection instrument was made available online through the Google Forms® platform.

Participant selection, study period, and Delphi technique development

The selection of participants took place according to the criteria of the Delphi technique, which respects and values experience and knowledge on the specific area of the study[14]. For the selection of the sample, a search was carried out on the Lattes Platform, which is the database of virtual curricula of research groups and institutions in the areas of science and technology of the National Council for Scientific and Technological Development (CNPq). The advanced search (by subject) was carried out in two ways, using the words: 1) oncology OR onco-hematology OR cancer AND nurse OR nursing OR oncology nursing; and 2) advanced practice OR advanced practice AND nursing AND oncology. A search was also carried out on the LinkedIn social network using the same words to select the sample. The research inclusion criteria, considered in the selection of national curricula, were: (a) oncology or onco-hematology nurse specialist, with a minimum master's degree (academic or professional); and over five years professional experience in clinical practice as an oncology nurse; and (b) nurse, with experience in teaching and/or research in the field of oncology or onco-hematology, with a minimum doctorate degree (academic or professional). In addition to these searches, convenience sampling was also used with the snowball sampling technique, in which the initial contacts could invite and/or indicate other specialists who fit the established inclusion criteria. All contacts with research participants took place via e-mail.

It should be noted that, prior to each round of the Delphi technique, a pilot test was carried out. Thus, between two and three judges evaluated the content and answered the data collection instrument, considering the clarity and objectivity of the language/writing, possible interpretation biases, subjectivity and/or ambiguity; in addition, there was the possibility to provide comments and suggestions. The participants in the pilot tests were nurses with a doctoral degree, with experience in the area of care, teaching and/or research, given the need for a critical judgment on the forms developed in each round. They were not part of the research sample.

Data collection with the expert members was carried out between February and May 2021, with the application of the form in subsequent rounds, until consensus was reached, which occurred in the third round. For consensus, it is highlighted that the level established in this research was equal to or greater than 85% of responses in alternative 1 (agree) of the Likert scale, for each of the competencies presented. For the exclusion of an item, a value equal to or less than 50% was considered in alternative 3 (disagree). In order not to influence the specialists' answers, it was decided not to inform the statistics/percentage of competence agreement in the feedbacks of the Delphi technique rounds. At each round, the data were transferred from Google Forms® to the Microsoft Excel® program for analysis (descriptive statistics).

A total of 143 specialists were contacted for receiving the invitation letter, which contained information about the research, inclusion criteria, guidelines on the Delphi technique, instructions on completing the instrument, expected response time, and deadline. Of these, 25 agreed to participate and constituted the first round sample. Support material on the topic "Advanced Practice Nursing in Oncology", the access link to the instrument, and the Free and Informed Consent Term (FICT) was sent to the participants, required to be filled out to start the research. In the instrument of the first round, 112 structured competencies were presented to the specialists, divided among the six domains.

At the end of each section/domain, two open questions were raised; thus, participants were given the possibility to present proposals for new competencies or suggestions for changes/alterations to the presented competencies, if they had selected "I am not decided".

After the period from February 1st to March 1st, 2021, the first round ended. Two participants were excluded from the research in this initial round, as they answered "No" to the question "Have you heard about Advanced Practice Nursing?". Thus, the total number of specialists included in the research was 23. The answers to the open questions were analyzed considering the similarity and relevance of the opinions expressed, comparing them to the existing content in the instrument. The data were compiled and analyzed in detail, in the light of the scientific literature and based on the specialists' suggestions, who proposed 13 new competencies, as well as suggested changes in 13 of the competencies presented among the domains.

The second round of the Delphi technique took place from March 26 to April 21, 2021. The 23 expert members who responded to the first round were contacted, informing them about the objectives of this stage of the research, expected response time, and deadline, in addition to the Google Forms® access link. The data collection instrument was restructured, exposing the preliminary feedback from the first round and maintaining, for the specialists' analysis, the competencies that had not reached consensus, as well as the proposed new competencies, and the competencies with suggestions for changes. It is noted that, in total, 34 competencies were re-presented, of which 12 had not reached consensus in the first round, 13 were new competencies and nine received interesting suggestions for changes in their description/writing, despite reaching consensus. For these nine competencies, two alternative responses were considered in the second round: "I agree" (to the proposed suggestion) and "I disagree" (to the proposed suggestion). Thus, the participants who selected "disagree" chose to maintain the "original" competence, which had already obtained prior consensus, and not the proposed new competence (that is, they disagreed with the change). The instrument of the second round had structured questions and open questions, allowing the participants who selected the option "I am not decided" to propose new competencies or suggest changes/alterations in the competencies presented. For an adequate evaluation by the participants, all competencies that reached consensus were presented in full at the beginning of each section/domain. After analyzing the answers to the structured and open questions, it was observed that five competencies remained without consensus, requiring a new round for the specialists to give their opinions and suggestions.

The third round took place from April 30 to May 17, 2021. The 21 specialists who participated in the second round were contacted and provided with the access link to the instrument. In this step, the restructured form was presented, containing the five competencies without consensus, as well as the results of the second round, with the competencies that had already obtained consensus, which were displayed at the beginning of each section/domain. Note that, as this was the last round, there was no possibility of suggesting adjustments/improvements to the competencies in question, with the response options being reduced to two alternatives: "agree" (approval of the competency for the final consensus) and "disagree" (exclusion of competence for final consensus). The reduction to two alternatives was intended to facilitate the participants' decision and mitigate data dispersion[15]. Fifteen specialists responded to the data collection instrument, thus ending the third and final round of the Delphi technique. The rounds developed in this research can be seen in Figure 2.

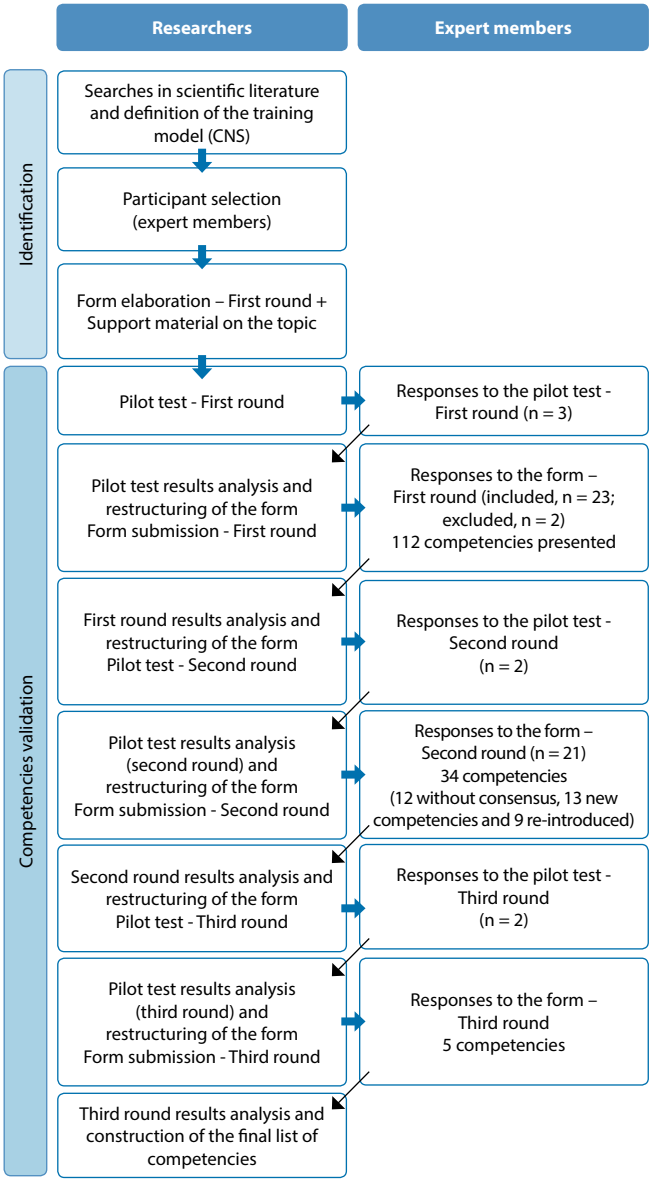


Figure 2 – Rounds of the Delphi technique developed in the research.

RESULTS

The research was composed of 23 specialist members in the first round. Of these, 21 participated in the second round (91.3%); and 15 in the third (and last) round (65.2%). The sociodemographic characteristics of the specialist members throughout the three rounds are shown in Chart 1.

It is noteworthy that there was a predominance of female specialists throughout all rounds of the Delphi technique, from the Southeast region of Brazil, with specialization in oncology or

onco-hematology, academic master's and doctorate, with over 15 years of professional experience in oncology or onco-hematology clinical practice and over 11 years in teaching and/or research in the area of oncology or onco-hematology.

In the first round instrument, 112 structured competencies were presented to the specialists divided among the six domains. Of these, 100 reached consensus and none were eliminated through statistical analysis. Regarding the 12 competencies that did not reach consensus, the level of agreement ranged from 65.2% to 82.6%. The domains Ethics and professional commitment (D2) and Health education and research (D6) reached consensus in all the competencies presented. As per the 12 competencies that did not reach consensus, changes in description/writing were proposed for four of them. For the other eight competencies, the specialists did not make any suggestions despite having selected the option "I am not decided". These competencies were presented unchanged for review and reassessment in the second round. Also, the competencies with suggested changes were brought to the participants for further consideration after analysis and restructuring. It is noteworthy that 13 new competencies were proposed by the specialists in this round among all the existing domains. For nine competencies, interesting suggestions for changes in description/writing were also given, despite reaching consensus. These also went on to the second round for further appreciation.

In the second round, 34 competencies were presented to the expert members for analysis, reflection, and for expressing their opinions. The total competencies in this round were divided between the domains as follows: D1 - Care management: 18 competencies; D2 - Ethics and professional commitment: 3 competencies; D3 - Leadership: 7 competencies; D4 – Interprofessional collaboration: 3 competencies; D5 - Evidence-based practice: 2 competencies; and D6 – Health education and research: 1 competency. It is noteworthy that, of the total of these competencies, six did not reach consensus, with the level between 61.9% and 81%. For one of the competencies, marked with a suggestion to change the writing (already validated in the first round), the participants chose to keep the original one (disagreeing with the new proposal). Thus, after meticulously compiling and analyzing the suggestions and recommendations obtained in the second round, five competencies were included in the third round for a new participant evaluation. Regarding the 13 new competencies proposed by the expert members in the first round and presented in this one, it is emphasized that all of them reached consensus (Table 2). It is noteworthy that 28 competencies were validated in the second round, distributed among the six domains.

In the third round of the Delphi technique, the five competencies presented relate to three domains. These competencies underwent changes until reaching the level of consensus (Chart 3).

The 125 OCNS core competencies validated using the Delphi technique are presented in Chart 4 (supplementary material), by domain and percentage of agreement.

Chart 1 - Sociodemographic characterization of specialist members

Characteristics	Round 1 (n = 23)	Round 2 (n = 21)	Round 3 (n = 15)
Sex			
Female	21 (91.3%)	20 (95.2%)	15 (100%)
Male	2 (8.7%)	1 (4.8%)	0 (0%)
Regions of Brazil			
North	1 (4.3%)	1 (4.8%)	0 (0%)
Northeast	2 (8.7%)	2 (9.5%%)	1 (6.7%)
Midwest	3 (13%)	3 (14.3%)	1 (6.7%)
Southeast	12 (52.2%)	11 (52.4%)	10 (66.7%)
South	4 (17.4%)	3 (14.3%)	2 (13.3%)
Portugal	1 (4.3%)	1 (4.8%)	1 (6.7%)
Academic degree			
Specialization in oncology or onco-hematology	16 (69.6%)	15 (71.4%)	11 (73.3%)
Specialization in uni/multiprofessional residency in oncology or onco-hematology	4 (17.4%)	3 (14.3%)	2 (13.3%)
Master's (academic)	19 (82.6%)	17 (81%)	14 (93.3%)
Master's (professional)	3 (13%)	3 (14.3%)	1 (6.7%)
Doctorate (academic)	14 (60.9%)	13 (61.9%)	11 (73.3%)
Doctorate (professional)	0 (0%)	0 (0%)	0 (0%)
Post-doctoral	3 (13%)	3 (14.3%)	2 (13.3%)
Time of professional experience in oncology or onco hematology clinical practice			
Up to 5 years	0 (0%)	0 (0%)	0 (0%)
From 6 to 8 years	3 (13%)	3 (14.3%)	1 (6.7%)
From 9 to 11 years	4 (17.4%)	3 (14.3%)	2 (13.3%)
From 12 to 14 years	1 (4.3%)	1 (4.8%)	1 (6.7%)
From 15 to 17 years	5 (21.7%)	5 (23.8%)	4 (26.7%)
From 18 to 20 years	3 (13%)	2 (9.5%)	0 (0%)
Over 20 years	7 (30.4%)	7 (33.3%)	7 (46.7%)
Time of experience with teaching and/or research in the field of oncology or onco hematology			
Up to 5 years	4 (17.4%)	4 (19%)	2 (13.3%)
From 6 to 10 years	4 (17.4%)	3 (14.3%)	2 (13.3%)
From 11 to 15 years	6 (26.1%)	6 (28.6%)	4 (26.7%)
From 16 to 20 years	5 (21.7%)	4 (19%)	4 (26.7%)
Over 20 years	4 (17.4%)	4 (19%)	3 (20%)

Chart 2 - New core competencies of the oncology clinical nurse specialist (OCNS) proposed by the expert members and validated using the Delphi technique

Description	Consensus Level
Domain 1 - Care management **A) Health promotion and cancer prevention**	
1. Acts towards health promotion and cancer prevention throughout the continuum of care, as well as carrying out screening and early detection of the disease, according to existing recommendations/protocols.	95.2%
B) Assessment of health/disease status	
2. Evaluates and identifies the need for palliative and end-of-life care, considering: aspects related to the control and management of symptoms and pain; and improving cancer patients' quality of life.	100%
3. Evaluates adverse reactions/side effects related to the proposed treatment, as well as clinical manifestations related to the underlying disease (cancer).	100%
C) Diagnosis and care plan	
4. Promotes/facilitates adaptations to orthoses, prostheses and/or other conditions resulting from the disease or cancer treatment (such as amputation, breast implants, stomas, drains/probes, among others).	95.2%
5. Contributes to a better understanding of the therapeutic plan and developing concepts for the self-management of symptoms by the patient, involving family, caregivers, and support networks.	95.2%
6. Plans/promotes meetings between cancer patients and those interested in specific topics, for the exchange of knowledge and experiences, patient reception, guidance, discussions, and support (e.g., group of patients with stomas, survivorship, group of patients undergoing chemotherapy, among others).	90.5%
D) Care plan evaluation	
7. Plans and evaluates nursing care in line with other health team interventions, to improve the results of patients with a previous, current or potential diagnosis of cancer.	90.5%
Domain 2 - Ethics and professional commitment	
8. Guides patients and family members/caregivers on the feasibility of access involving cancer therapy and informs them on rights related to the context of oncology.	100%
Domain 3 - Leadership	
9. Evaluates barriers and facilitators of the patient's family context and their support networks, considering the particularities, possibilities and limitations that exist, to achieve the best results.	100%
10. Encourages nurses in the development and implementation of innovative research focused on the care of patients with a previous, current, or potential diagnosis of cancer, allowing moments for debate and stimulation through investigative questions related to the practice of oncology nursing.	90.5%
Domain 4 - Interprofessional collaboration	
11. Promotes a care plan incorporating actions linked to palliative care, in an increasing/progressive manner and in conjunction with the interprofessional team; seeking to provide therapeutic continuity to the cancer patient, their family/caregivers and the community in general, throughout the different stages of treatment.	90.5%
Domain 5 - Evidence-based practice	
12. Implements interventions that improve the quality of and happiness/satisfaction with life of cancer patients and their families/caregivers, based on scientific evidence and existing/validated instruments.	95.2%
Domain 6 - Health education and research	
13. Contributes to the health education process, which involves teams, managers, and the community in general — which needs to build their knowledge and increase their autonomy in individual and collective care, especially related to cancer.	95.2%

Chart 3 - Core competencies of the oncology clinical nurse specialist (OCNS) and changes proposed by specialist members

Description		Consensus Level
Domain 1 - Care management **C) Diagnosis and care plan**		
Original: Builds distinct diagnoses related to cancer and risk factors for patients, focusing on clinical manifestations of the disease and its treatment.	**Round 2 –** Builds distinct **nursing** diagnoses related (…)	81%
	Round 3 – Develops nursing diagnoses related to the **patient's history**, **considering their health/disease status**, risk factors, clinical manifestations **of cancer and current therapies**.	100%

Description		Consensus Level
Domain 1 - Care management **C) Diagnosis and care plan**		
Original: Incorporates current and emerging genetic/genomic evidence in the delivery of nursing care, while considering patient values and advanced clinical judgment.	**Round 2 –** Competency did not reach consensus. Despite choosing the option "I am not decided", there were no suggestions for changes. Participants were asked to reassess.	61.9%
	Round 3 – Incorporates genetics/genomics **knowledge into clinical practice** when planning patient and family care, considering their values and advanced clinical judgment.	93.3%
Domain 3 - Leadership		
Original: Evaluates organizational policies, procedures, and/or protocols for their ability to support and improve the outcomes of cancer programs/treatments; using the results of these assessments to promote structural and/or process changes.	**Round 2 –** Competency did not reach consensus. Despite choosing the option "I am not decided", there were no suggestions for changes. Participants were asked to reassess.	76.2%
	Round 3 – Actively participates in the construction and evaluation of institutional policies, procedures, and/or protocols, **with the objective of supporting** cancer programs/treatments **and using** the results of these evaluations to promote structural and/or process changes **in health organizations.**	86.7%
Original: Participates in legislative and regulatory initiatives to promote and improve population health care throughout the continuum of cancer.	**Round 2 –** Competency did not reach consensus. Despite choosing the option "I am not decided", there were no suggestions for changes. Participants were asked to reassess.	76.2%
	Round 3 – Is aware of and seeks insertion in decision-making spaces, with the objective of promoting quality care to the population's health throughout the continuum of cancer.	93.3%
Domain 5 - Evidence-based practice		
Original: Develops innovative solutions and/or policies within the health system that can be generalized to different oncology units and/or environments, by populations, or specialized services.	**Round 2 –** Competency did not reach consensus. Despite choosing the option "I am not decided", there were no suggestions for changes. Participants were asked to reassess.	76.2%
	Round 3 – Develops innovative solutions and/or **participates in the construction of** policies within the health system, which can be generalized to different oncology units and/or environments, by populations, or specialized services.	100%

DISCUSSION

There are, in the world, continuous discussions to establish and outline the standards and fundamental competencies for the performance of advanced practice nurses. Although internationally there are different models of development and implementation of APN, there are domains of competence that are common to most structures. A study[20] that sought to map and analyze common competencies between countries pointed to 17 essential competencies, regardless of the professional practice environment, such as: research, clinical and professional leadership, interprofessional collaboration, specialized clinical judgment/evaluation, ethical and legal practice, education and teaching, health promotion, quality and safety management, care management, evidence-based practice, high level of professional autonomy, communication, advocacy and mentoring, among others. Thus, it is clear that there's a trend linked to the domains of core competencies of these advanced practice professionals, also portrayed in the present research, whose focus was the oncology scenario.

In Latin America, considering the need to establish criteria for the training of advanced practice nurses in Primary Health Care (PHC), the Pan American Health Organization (PAHO) and the World Health Organization (WHO) presented a document with 64 core competencies, which includes seven domains (Care management, Ethics, Interprofessional collaboration, Health promotion and prevention, Evidence-based practice, Research and Leadership), in order to guide the preparation of advanced practice and nursing regulation[3]. It is noted that the domains established for advanced practice in PHC are similar to those defined in this research for advanced practice in oncology (Care management, Ethics and professional commitment, Leadership, Interprofessional collaboration, Evidence-based practice, and Health education and research), validating the nature of this training.

In 2005, the Oncology Nursing Society invited national organizations related to advanced practice to review, analyze, debate, and develop the competencies of advanced practice nurses in oncology. At the time, it was decided to separate the competencies of the oncology NPs and CNSs for consensus, due to the differences in their functions and professional performance, although some of the competencies may overlap between such categories in some of the clinical practice scenarios. After this initiative, documents with the recommendations of essential competencies for the training of advanced practice nurses in

oncology were validated and published, which present 110 competencies for the CNS[16] and 121 competencies for the NP[21]. The OCNS competencies were designed and directed towards an effective and quality professional practice, relating cost-benefit to patients' clinical results, as well as collaborating with/stimulating the practice of the nursing and interdisciplinary team and of the health systems and institutions[16]. It is observed that, in the document[16], the OCNS had its competencies structured by spheres of influence (patient, nursing practice, and organization/systems). However, in the present research, it was decided to systematize the competencies by domains in the mapping process, for later validation by the expert members.

Regarding the new competencies proposed by the expert members in the second round of the Delphi technique, it is observed that they are related to: the assessment of adverse reactions to the proposed treatment and/or the disease; support for patients' self-management of symptoms; guidance/education; support in the adaptive processes resulting from treatment and/or illness; care plan incorporating actions linked to palliative care; assessment of barriers and facilitators of the family context; and support networks and care planning in accordance with the other members of the health team. In line with these competencies, a systematic review[5], which sought evidence on the training of advanced practice nurses in oncology, demonstrated among the main results: better clinical outcomes related to the control and management of symptoms; improvement in the quality of life and longevity of cancer patients; support in relation to psychological aspects, reducing patients' concerns about the disease and/or treatment; patient satisfaction guarantee; and shared decision making. Therefore, it is understood that the competencies of advanced practice nurses in oncology will consequently reflect on their professional performance, being evidenced in clinical outcomes of impact.

We highlight the existence of guidelines[22-23] that recommend the integration of palliative care and cancer care in clinical practice in health institutions. A systematic review and meta-analysis study[24] demonstrates improvements in quality of life, symptom burden and longevity, when palliative care is integrated in the care of patients with advanced cancer. Thus, the importance of the theme "palliative care" being part of the professional training process of oncology advanced practice nurses is emphasized. This concern was demonstrated by the specialist members, given the suggestions for new competencies indicating the inclusion of palliative and end-of-life care in cancer patient care, considering the control and management of symptoms and pain as well as interventions to ensure the patient's quality of life together with the interprofessional team and involvement of the family and/or caregivers.

In addition to the above, we highlight the originality displayed in the competence "Implements interventions that improve the quality of and happiness/satisfaction with life of cancer patients and their families/caregivers, based on scientific evidence and existing/validated instruments" for considering, in addition to quality of life, aspects related to the index of happiness and satisfaction with life. Studies[25-26] indicate that cancer patients want better health and cure to be happy, as well as experience more daily difficulties (suffering), and consider what is missing at that moment important for their lives. However, even experiencing this disease process, they perceive life differently and have higher rates of happiness and life satisfaction compared to theoretically healthy people. Thus, it is noted that this topic was considered by the expert members in the validation of competence for training in advanced practice.

The five competencies that advanced to the third round of the Delphi technique contained expressions such as: diagnoses, genetic/genomic evidence, organizational and health system policies, and legislative and regulatory initiatives. These competencies underwent substantial consideration by the expert members until consensus was reached, demonstrating attention and caution with regard to spaces that still need expansion and advances in our country, particularly in the work of nurses in these scenarios. It is noteworthy that, in the context of genetics/genomics, the nurse acts as an integral member of the interdisciplinary team regarding health care that is based on genomics and comprises diagnosis, prevention, and treatment. Advanced practice nurses, through oncogenetic counseling, act in an educational way, offer support to patients and families, interpret test results and/or diagnostic exams[27]. Regarding political issues (institutional and within the scope of the health system) and insertion in decision-making spaces, it is observed that nurses have the potential to assume responsibilities in the area of management, being able to develop competencies to occupy positions in decision-making environments and of political propositions[28]. However, it is necessary to build and consolidate the insertion of advanced practice nurses in these decision-making spaces in order to favor clinical practice and promote advances in the field of oncology.

Although the OCNS can work in a certain area of oncology, educational preparation is recommended to provide care in the most varied health care settings. Thus, their training for advanced practice requires the development of competencies to work with cancer patients and their families throughout the continuum of care, including prevention, screening, early detection, diagnosis, treatment, rehabilitation, survivorship, and palliative care, together with the interdisciplinary health team. It appears that this training involves, for example, advanced courses in pathophysiology, pharmacology, and clinical assessment, as well as specific courses and clinical experiences necessary for this professional to develop all the recommended skills[16]. In addition, it is observed that the role of this nurse becomes a challenge, due to the complexity and diversity of the practice, as well as the emergence of varied knowledge in recent years[29]. Technological and scientific advances continually change the care of cancer patients, thus reflecting on the role of advanced practice nurses in different care environments[21].

It should be noted that the implementation of the role of advanced practice nurses, through adequate training and regulation, is a strategy for health expansion and universal coverage[3]. However, this alone is not enough; Innovative solutions are essential to face the challenges of different areas of professional practice and specialties, especially in the oncology scenario, due to worldwide estimates of incidence and prevalence of cancer and high complexity of care. It is necessary to broaden the debates on the methods of professional training by competencies, create

and/or adapt advanced level teaching programs, and restructure curricula and pedagogical projects, so that, with expanded training and practice, these nurses can effectively promote major changes and resoluteness in the care provided to this population.

Study limitations

A limitation of this study was the difficulty in obtaining expert members' direct contact (electronic mail) through the tools used in the search, as this information is not available for public consultation. Therefore, communication was carried out via platforms, prolonging the process of sample selection and feedback by participating members.

There were also limitations related to the number of specialist members who met the inclusion criteria, that is, specialists in oncology or onco-hematology, with a minimum master's degree and considerable professional experience in clinical practice or in teaching and research in the field of oncology or onco-hematology. In this sense, there is a need to rigorously establish the criteria that will guide the choice of specialists, avoiding losses in the development and results of the research.

Contributions to the field of nursing, health, or public policies

The competencies validated in this research illustrate the essence of OCNS training and reflect the role of this professional in the care of patients diagnosed with previous, current or potential cancer, from prevention to the end of life — together with the interdisciplinary health team. These core competencies guide OCNS's clinical practice and establish a differentiated professional performance profile, expanding the limits of their scope of action, in order to positively impact the health of individuals, families, and communities. This consensus collaborates with research on the APN theme, particularly in the context of oncology, and can be used as a basis by educational institutions, associations, organizations, and health institutions, thus standardizing and instrumentalizing the OCNS professional training model.

CONCLUSIONS

The initial matrix with the OCNS core competencies was composed of six domains (D1 to D6), with 112 competencies. The expert members recommended 13 new competencies; and, during the Delphi technique, a consensus was reached for a total of 125 competencies (D1 – Care management: 50 competencies; D2 - Ethics and professional commitment: 14 competencies; D3 - Leadership: 26 competencies; D4 – Interprofessional collaboration: 11 competencies; D5 - Evidence-based practice: 18 competencies; D6 – Health education and research: 8 competencies).

It is noteworthy that aspects related to leadership, interprofessional collaboration, specialized clinical judgment, critical thinking, evidence-based practice, care management, ethics and professional commitment, communication, education/teaching, research and professional autonomy reflect the nature of APNs and steer towards an expanded, effective, and excellent professional practice. OCNS training proposes the development of core competencies for working with cancer patients and their families, throughout the continuum of care, collaborating with/influencing clinical practice and health systems, together with the interprofessional team.

The mapping and validation of OCNS's core competencies will allow the development of new training models aimed at advanced practice in oncology and future educational harmonization in our country, helping graduate programs through a safe educational tool — a profile of competencies.

SUPPLEMENTARY MATERIAL

Chart 4 - OCNS core competencies validated through the Delphi technique.

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