

Care for Cancer Patients from the Perspective of Integrative Oncology

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Cuidado ao Paciente Oncológico na Perspectiva da Oncologia Integrativa

Atención al Paciente Oncológico desde la Perspectiva de la Oncología Integrativa

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ABSTRACT

Introduction: Integrative oncology is a recent and promising field, which aims a patient-centered comprehensive care, within an evidence-based approach. **Objective:** To investigate the scientific knowledge produced on integrative oncology in hospital care. **Method:** Integrative review with searches in PubMed, LILACS, SciELO and MOSAICO databases carried out from February to March 2022. Based in the eligibility criteria (studies related to the subject published from 2000 to 2022, available in full by public access, in English, Portuguese and Spanish) seven articles were selected and analyzed according to the thematic modality. **Results:** The eligible articles were published between 2018 and 2021, with emphasis on European production, which corresponds to four (57.14%) articles. The content of the studies was organized in two themes, namely: *the implementation of integrative oncology care* and *the equitable access to integrative oncology and other challenges*. It has been observed that integrative oncology has been practiced in different scenarios, with variable actions taken, and its central challenge is to expand the user access, through the development of evidence-based guidelines and the implementation of funding and professional qualification policies. **Conclusion:** The scientific knowledge produced indicates that the implementation of integrative oncology care in hospital attention is still limited, with challenges related to equitable access, funding, management and qualification of health professionals.

Key words: integrative oncology; oncology service, hospital; hospital medicine; patients; integrality in health.

RESUMO

Introdução: A oncologia integrativa é um campo recente e promissor que visa ao cuidado integral centrado no paciente, com uma abordagem baseada em evidências. **Objetivo:** Verificar o conhecimento científico produzido sobre a oncologia integrativa na atenção hospitalar. **Método:** Revisão integrativa com buscas nas bases de dados PubMed, LILACS, SciELO e MOSAICO, realizadas de fevereiro a março de 2022. A partir dos critérios de elegibilidade (estudos referentes ao tema publicados de 2000 a 2022, disponíveis na íntegra no acesso público, nos idiomas inglês, português e espanhol), foram selecionados sete artigos, analisados de acordo com a modalidade temática. **Resultados:** Os artigos elegíveis foram publicados entre 2018 e 2021, com destaque para a produção europeia, que corresponde a quatro (57,14%) artigos. O conteúdo dos estudos foi organizado em dois temas: *a implementação de cuidados de oncologia integrativa e o acesso equitativo à oncologia integrativa e outros desafios*. Foi observado que a oncologia integrativa tem sido praticada em diferentes cenários, com variadas ações realizadas, e tem como desafio central a ampliação do acesso ao usuário, por meio do desenvolvimento de diretrizes baseadas em evidências e da implementação de políticas de financiamento e qualificação profissional. **Conclusão:** O conhecimento científico produzido aponta que a implementação de cuidados de oncologia integrativa na atenção hospitalar ainda é limitada, com desafios relacionados ao acesso equitativo, ao financiamento, à gestão e à qualificação dos profissionais de saúde. **Palavras-chave:** oncologia integrativa; serviço hospitalar de oncologia; medicina hospitalar; pacientes; integralidade em saúde.

RESUMEN

Introducción: La oncología integrativa es un campo reciente y prometedor, que apunta a la atención integral centrada en el paciente, en un enfoque basado en la evidencia. **Objetivo:** Verificar el conocimiento científico producido sobre oncología integrativa en la atención hospitalaria. **Método:** Revisión integrativa con búsquedas en las bases de datos PubMed, LILACS, SciELO y MOSAICO, realizada de febrero a marzo de 2022. A partir de los criterios de elegibilidad (estudios relacionados con el tema publicados entre 2000 y 2022, disponibles en su totalidad para acceso público, en inglés, portugués y español) fueron seleccionados siete artículos, analizados según la modalidad temática. **Resultados:** Los artículos elegidos fueron publicados entre 2018 y 2021, con énfasis en la producción europea, lo que corresponde a cuatro (57,14%) artículos. El contenido de los estudios se organizó en dos temas, a saber: *la implementación de la atención oncológica integradora y el acceso equitativo a la oncología integradora y otros desafíos*. Se ha observado que la oncología integrativa se ha practicado en diferentes escenarios, con acciones variables, y su desafío central es ampliar el acceso de los usuarios, a través del desarrollo de pautas basadas en evidencia y la implementación de políticas de financiamiento y calificación profesional. **Conclusión:** El conocimiento científico producido apunta que la implementación de la atención oncológica integrativa en la atención hospitalaria aún es limitada, con desafíos relacionados con el acceso equitativo, el financiamiento, la gestión y la calificación de los profesionales de la salud. **Palabras clave:** oncología integrativa; servicio de oncología en hospital; medicina hospitalar; pacientes; integralidad en salud.

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INTRODUCTION

The incidence and prevalence of cancer¹ and the repercussions on the lives of patients and their families² reveal the importance of comprehensive care, with an expanded look¹ for the recognition of care demands. Considering that cancer treatment can be a long period³, permeated by different anxieties, fears and uncertainties, cancer patients may feel fragile, which points to the need for welcoming care.

A study carried out with cancer patients admitted to a public institution identified weaknesses in professional care linked to gaps in information, communication and encouragement of autonomy⁴. In this scenario related to hospital care, the care with the welcoming approach and the recognition of biopsychosocial and spiritual needs can be translated into a moment of support² for the patient and their families.

Thus, in cancer care, it is important to strengthen services³ and expand care, considering the biopsychosocial-spiritual model². Qualified care characterized by effective communication, safety, and respect for patient autonomy should be sought⁴. In oncology, care aimed at improving the quality of life of patients³ should be implemented in support of the care demands of these patients¹. At this juncture, the concept and potential of integrative oncology (IO) emerges.

IO can be understood as cancer patient care based on integrative medicine and seeks the integration, in a safe and coordinated way, of unconventional approaches based on evidence from conventional cancer care⁵. Despite being a relatively new field⁵, its conception is rooted in prominent centers in cancer care and research, with consistent bibliographic production in this field of knowledge⁶.

From the perspective of IO, in the follow-up of conventional treatments (surgery, chemotherapy, radiotherapy, molecular therapy, among others), five categories of alternative and complementary medicine (CAM) can be applied, defined as practices based on biology, body manipulation practices, traditional medical systems, mind-body techniques, and energy therapies^{6,7}.

Care practices should be patient-centered, from cancer diagnosis to survival⁸. In oncology care, discussions on the use of cam can contribute to patient-centered care, with an approach to psychosocial aspects and greater patient involvement⁹.

Complementary modalities, when combined with conventional care, can contribute to the reduction of adverse symptoms⁶ and to the quality of life of cancer patients⁷. In the oncology field, integrative modalities can be based on the management of late and prolonged

effects of treatment and promote health and well-being for the patient⁸.

When considering the multidimensionality of the human being, IO integrates a model of care that considers pluralism in health⁶, and its recognition, both scientific and by the patient⁵, needs to be accompanied by the development of research⁷, in order to expand its use safely⁵. Thus, the objective of this study was to verify the scientific knowledge produced about IO in hospital care.

METHOD

This is an integrative literature review, whose method seeks to synthesize knowledge and incorporate evidence related to a given theme, which can bring contributions to health care¹⁰. To operationalize this integrative review, six steps were followed, namely: 1. identification of the theme and construction of the guiding question; 2. definition of the inclusion and exclusion criteria and search in the literature; 3. categorization of the selected studies; 4. evaluation of these studies; 5. interpretation of the results; 6. synthesis of knowledge¹⁰.

To construct the guiding question and conduct the searches in the literature, the PICO¹¹ strategy was used (P: hospital care; I: IO; C: not applicable; O: scientific knowledge). Thus, the guiding question was: “what is the scientific knowledge produced about integrative oncology in hospital care?”

The searches were carried out from February to March 2022 in the PubMed; Latin American and Caribbean Health Sciences Literature (LILACS); *Scientific Electronic Library Online* (SciELO) and Health Models and Traditional, Complementary and Integrative Medicines in the Americas (MOSAICO) databases.

To conduct the searches, controlled descriptors were used, available in the *Medical Subject Headings* (MeSH) and in the Health Sciences Descriptors (DeCS), combined through the boolean operator AND. In English, the descriptors were used as follows: *Integrative Oncology AND Hospitals*; *Integrative Oncology AND Oncology Service, Hospital*; *Integrative Oncology AND Outpatient Clinics, Hospital*; *Integrative Oncology AND Hospital Medicine*. In Portuguese, the following were used: *Oncologia Integrativa AND Hospitais*; *Oncologia Integrativa AND Serviço Hospitalar de Oncologia*; *Oncologia Integrativa AND Ambulatório Hospitalar*; *Oncologia Integrativa AND Medicina Hospitalar*.

The inclusion criteria established were: studies published from 2000 to 2022, available in full in public access, in English, Portuguese and Spanish, referring to the subject under study. The time frame from 2000 was defined by the fact that the term *Integrative Oncology* was

coined that year¹². As exclusion criteria, the following were defined: duplicate publications, which did not mention the term “integrative oncology”, and course completion papers, dissertations and theses.

Figure 1 depicts the process of search and selection of studies, using the *Preferred Reporting Items for Systematic reviews and Meta-Analyses* (PRISMA) flowchart.

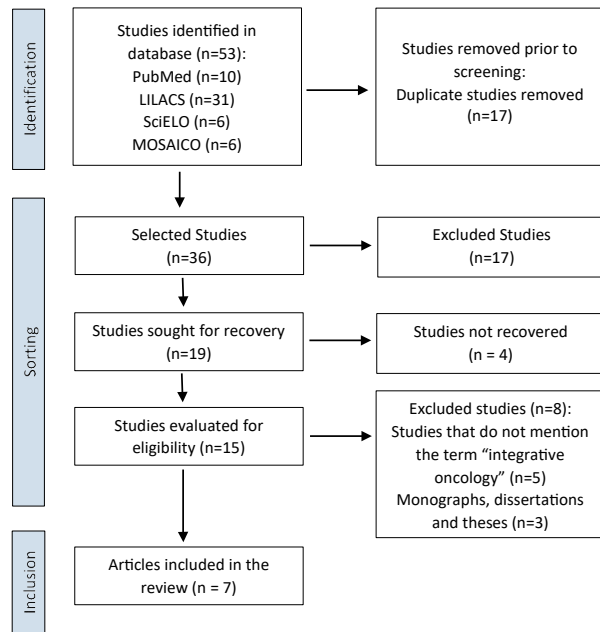


Figure 1. PRISMA flowchart referring to the process of identification, screening and inclusion of studies¹³. Passos (MG), Brazil, 2022

The selected studies were characterized and presented in a table according to: title, journal, year, country, objective and conclusions. For the qualitative synthesis, content analysis was performed thematic modality¹⁴, with the data organized into themes.

RESULTS

In Table 1¹⁵⁻²¹, the selected studies are characterized according to title, journal and year of publication, country, objective and conclusions.

The articles were mainly published in the journals *Complementary Medicine Research* and *Complementary Therapies in Medicine*, with the publication of two (28.57%) articles each. The period of publication of the selected studies was from 2018 to 2021, with a predominance of 2018 with four (57.14%) articles, followed by 2021 with two (28.57%) articles. And about the country where the study was carried out, there was a preponderance of Germany with three (42.85%) articles, thus reinforcing the prominence of the European continent with four (57.14%) articles.

Regarding the objectives of the studies, different aspects related to IO in hospital care were addressed, such as: the concepts of IO¹⁹; the implementation of care practices and integrative strategies in hospitals^{16,20}; the availability of integrative medicine therapies¹⁵ and their prevalence²¹; the description of the practice¹⁷, the obstacles and facilitators for the provision of this service¹⁸.

Regarding the conclusion of the articles, we can see the successful implementation of the concepts of IO in the care of patients with primary cancer¹⁹; the need for equitable access to evidence-based integrative medicine¹⁵ and its realization in the daily care of patients²⁰; individualized homeopathy as an additional safe and supportive treatment¹⁷ and the emphasis on spirituality by cancer patients undergoing chemotherapy²¹; time constraints and high workload¹⁶ as barriers to the implementation of IO in the hospital environment and, as facilitators, the realization of measures aimed at political orientation, greater strategic planning¹⁸ and a program with high flexibility¹⁶.

By performing content analysis thematic modality, the data of the selected studies were organized into two themes, namely: the implementation of integrative oncology care and equitable access to integrative oncology and other challenges.

DISCUSSION

With the change in the vision of health from the biomedical model to the biopsychosocial-spiritual model, IO has been researched and used in oncology centers in various parts of the world, with an expansion in hospital care, as observed in the following themes:

IMPLEMENTATION OF INTEGRATIVE ONCOLOGY CARE

In the field of cancer care, there was an increase in interest, in countries such as Australia and Germany, in the implementation of IO concepts^{18,19}. Different hospital settings in which the integrative approach was adopted appeared in the selected studies, for example, the hematology/oncology department of the university children's hospital in Bern¹⁷ and the cancer center of a hospital specializing in anthroposophic medicine^{19,20}.

Due to the growing importance of IO¹⁹, it is essential to know the process of implementing integrative strategies in the care of cancer patients²⁰ in health services, with the lifting of barriers and facilitators¹⁸.

In the process of implementing an integrative care program, a study identified the need to consider the availability of time as well as structural and communicational aspects¹⁶. In the pediatric oncology context, raising the demands of different actors, such as

caregivers and the service's health team, is important in the process of implementing an integrative care program¹⁶.

This initial survey suggested the need to develop a qualification plan for service team members and integrative change focused on comprehensive care¹⁶. Thus, he pointed out the need to adapt to the structures

of the service, time, communication, willing staff and qualification¹⁶.

In health services, care relationships permeated by active listening, empathy, and accessible language² can contribute to the bond with cancer patients. Patient *advocacy* understood as practices of health professionals

Table 1. Characterization of the selected studies according to title, journal, year, country, objective and conclusions

Title	Journal / Year	Country	Purpose	Conclusions
Availability of integrative medicine therapies at National Cancer Institute-designated comprehensive cancer centers and community hospitals ¹⁵	J Altern Complement Med./2021	USA	To compare the availability of integrative medicine therapies in community hospitals and comprehensive cancer centers designated by the <i>National Cancer Institute</i>	In community hospitals, there is a need for equitable access to evidence-based integrative medicine
Development of an integrative care program in a pediatric oncology Unit ¹⁶	Complement Med Res./2021	Germany	Describe what needs to be considered in the implementation of care practices in the setting of an integrative care program composed of anthroposophical treatments in an ICU of a teaching hospital	The ICU context, time constraints, and high workload are factors that should be recognized and considered. A program with high flexibility was the solution in this specific scenario
Complementary individual homeopathy in paediatric cancer care: a case series from a University Hospital, Switzerland ¹⁷	Complement Ther Med./2018	Switzerland	Present descriptive data of the collaboration between the department of hematology/oncology of the children's university hospital of Bern and the Institute of Complementary Medicine, University of Bern, together with four detailed case histories of patients treated with additional individualized homeopathy	In Bern, additional individualized homeopathy was established with this collaboration in pediatric oncology, being, during conventional cancer treatment, a safe and supportive additional treatment. However, the results of this study should not be generalizable
Integrative oncology and complementary medicine cancer services in Australia: findings from a national cross-sectional survey ¹⁸	BMC Complement Altern Med./2018	Australia	Identify IO services in Australia and explore barriers and enablers to IO service delivery	Despite the expansion in the provision of IO, there is still limitation or non-existence of these services in many areas. Thus, for equitable access to the services of IO, become necessary measures aimed at policy orientation and greater strategic planning

to be continued

Table 1. Continuation

Title	Journal / Year	Country	Purpose	Conclusions
Integrative cancer care in a certified Cancer Centre of a German Anthroposophic hospital ¹⁹	Complement Ther Med./ 2018	Germany	Evaluate the IO concepts of the certificate anthroposophic-integrative cancer center of the Gemeinschaftskrankenhaus hospital	Successful implementation of IO concepts in the certified anthroposophical-integrative cancer center of the Gemeinschaftskrankenhaus hospital, considering the application of these concepts in a high proportion of patients, in all age groups, with primary cancer
Implementation of an integrative oncological concept in the daily care of a German Certified Breast Cancer Center ²⁰	Complement Med Res./2018	Germany	Analyze how integrative strategies have been implemented in the daily care of patients with primary breast cancer	In a certified breast cancer center, the implementation of integrative therapies may occur, within the scope of anthroposophic medicine, in the daily care of patients
Prevalence of integrative and complementary practices in patients undergoing antineoplastic chemotherapy ²¹	Cogit Enferm./2019	Brazil	To analyze the prevalence of integrative and complementary practices in patients undergoing antineoplastic chemotherapy	High prevalence of the use of integrative and complementary practices, especially spirituality, by cancer patients undergoing chemotherapy treatment

Captions: ICU = intensive care unit; IO = integrative oncology.

that involve promoting safety, guaranteeing qualified care, defending and protecting rights²², is also important in care². The use of light technologies, linked to the relational aspects of care²³, can bring positive repercussions translated into relationships of trust, acceptance and support⁴. Thus, it is important to recognize the potential of interpersonal relationships as a form of support for cancer patients².

Access to information is an important aspect for cancer patients when contributing to the exercise of autonomy⁴. Based on the empowerment of these patients on integrative and complementary measures to conventional cancer treatment, the potential of counseling sessions offered at regular intervals to patients and family members emerges²⁴. Thus, health professionals should build channels of dialogue permeated by sensitive and attentive listening, which can support the joint elaboration of coping strategies in the face of situations of vulnerability and difficulty².

Practices need to prioritize humanized care, incorporating what is recommended by the Brazilian National Humanization Policy⁴. The relationship between physical spaces and the production of health practices is recognized, and the environment is one of the elements considered by the Brazilian National Humanization Policy,

bringing a look at the influence of the physical structure on the work processes. The hospital environment model can be associated with strategies aimed at promoting welcoming, inclusive and interactive spaces that enhance the protagonism of the subjects and value subjectivities²⁵. Thus, the environment should favor the planning and implementation of care aligned with IO, considering the vulnerability of these patients and the value of expanding and strengthening the practices offered, including to accompanying family members, who tend to experience periods of great physical and emotional exhaustion, which may have repercussions on the effectiveness of the patient support network². In this scenario, the importance of the cancer patient support network is highlighted, associated with the support received from people who occupy different social roles, such as family, friends, co-workers, neighbors and community².

The qualification of the health professional is fundamental in the process of implementing IO in hospital care. In cancer care, it is important to understand the knowledge and practices of health professionals in search of effective care¹ and promotion of quality of life. Regarding the use of CAM, oncologists may report concerns

related to adverse effects²⁶. Considering that patients and oncologists may have different views on CAM, approaches related to its safe and effective use should be encouraged²⁶. Actions directed to permanent education processes on the subject may also be necessary²⁶, seeking to contribute to the knowledge and implementation of IO services.

In addition, there are integrative therapies based on the concept of anthroposophic medicine, which can be integrated into the care of cancer patients^{19,20}. In an anthroposophic-integrative cancer center, the IO therapies identified were: surgery, standard antineoplastic treatment and radiation, integrated with non-pharmacological interventions and complementary mistletoe therapy (*Viscum album* L.)¹⁹. In the care of patients with primary breast cancer, the study by Schad et al.²⁰ identified high use of integrative therapies.

Gurgel et al.²¹ found a prevalence of 77.1% in the use of integrative and complementary practices by cancer patients in a chemotherapy outpatient clinic of a university hospital, with emphasis on spirituality²¹. In another study, massage, psychological well-being and modalities involving movements were identified as the most common IO services¹⁸. Cancer patients can attribute benefits associated with the use of integrative and complementary practices, such as general well-being, pain control, improved sleep, tranquility and increased faith²¹.

In the setting of the hematology/oncology department of a children's university hospital, the addition of complementary individual homeopathy to the standard treatment for insomnia, mucositis, affective dysfunctions and permissive tissue infection was portrayed through the report of four cases of pediatric cancer patients¹⁷. In the results, in an immediate temporal relationship with the additional treatment, clinical improvement was observed in all four patients¹⁷.

It is understood the multidimensionality of the cancer patient and the need for a supportive network that enables active collaboration between people, welcoming presence and emotional support². Therefore, it is necessary to recognize the relevance of expanding care strategies that involve complementary practices to conventional ones, which bring with them the potential to alleviate physical and emotional discomforts, as well as to optimize the result of the treatment adopted.

In this sense, it is important to evaluate the actions that are being carried out aiming at safety, clinical impact, as well as quality of life related to the patient's health¹⁹.

EQUITABLE ACCESS TO INTEGRATIVE ONCOLOGY AND OTHER CHALLENGES

Difficulties in accessing health services can trigger fears, anxieties and distress¹. Access to integrative medicine

practices was also addressed¹⁵. However, this access to IO services may still be limited¹⁸.

When comparing integrative medicine practices between community hospitals and comprehensive cancer centers designated by the *National Cancer Institute*, there was less availability of acupuncture, meditation and music therapy in community hospitals¹⁵. In addition, in community hospitals that serve low-income populations, less availability of acupuncture, meditation, yoga and Tai Chi was observed, compared to those that serve middle-income populations¹⁵. Given these findings, compared to comprehensive cancer centers, the offer of integrative medicine therapies, in general, is lower in community hospitals, especially in those that serve low-income populations¹⁵.

The expansion of IO space in hospital care and the weaknesses pointed out in selected studies related to equitable access are important reflections on the access of cancer patients to these services. Considering the oncological scenario, there is a need for equitable access to evidence-based integrative medicine^{15,18}.

Lack of funding appeared as the main barrier to IO¹⁸. The literature points out that IO funding can come from different sources, such as the institution's own resources, philanthropy, patient contribution and volunteering¹⁸.

Aspects related to costing were also addressed in a study conducted in Brazil²¹. Regarding the costing of integrative and complementary practices used by cancer patients, in addition to the Brazilian Unified Health System, other modalities found were donation, participation in research, own and philanthropic costing²¹. The data predominantly indicate the costing of these integrative and complementary practices not conducted in Brazilian Unified Health System²¹.

In addition to the barriers related to financing, challenges were also identified related to uncertainties about patient demand, the establishment of these services and weaknesses in the support of oncologists or management¹⁸. In this sense, a study related to the implementation, in a comprehensive oncology center, of an integrative program pointed out the need for institutional support, financing, planning and leadership, as well as a prepared and dedicated team⁸.

In addition, it was observed that the use of integrative and complementary practices may not be associated with professional indication²¹. Considering that the use of CAM may not be discussed by oncologists²⁶ and that this theme may be important for cancer patients, it is necessary to identify the forms of discussion of the subject in the contexts of care in oncology⁹.

Regarding the use of CAM, a study conducted in a Chinese general hospital identified that a significant

portion of cancer patients (77.6%) started using it since diagnosis²⁶. Another study conducted in Turkey identified the use of CAM by cancer patients, with non-pharmacological use by 96% of participants, especially prayer, and pharmacological use by 4%, especially herbal products²⁷.

Santos et al.² point out the contributions of religiosity in coping with moments of difficulty². The use of pharmacological CAM (such as dietary supplements, vitamins and herbal products) may be associated with a higher level of education²⁷. Another problem evidenced in the literature refers to the use of pharmacological CAM without prior knowledge of the physician²⁷, which may indicate the existence of a gap in communication between the cancer patient and the health professional²⁶.

Communication between health professionals and cancer patients should be permeated by active listening and openness to approach different aspects of care, such as those related to the use of CAM²⁶. Thus, in the routine evaluation of the cancer patient, questions about the use of this medicine should be asked²⁷.

Thus, it is important to understand that initiatives that promote physical, emotional and/or spiritual comfort have the potential to reflect positively on the patient's clinical conditions. In the context of IO being related to the integration between conventional treatment and integrative and complementary practices, it is important to understand that, when interfering in a harmful way to treatment, integrative and complementary practice should not be used²¹. Therefore, the need for continuing education of health professionals to support clinical practice is reinforced²¹.

It is necessary to build strategies to expand the access of cancer patients to integrative medicine therapies¹⁵. Thus, financing, qualification of professionals and development of evidence-based clinical guidelines appear as important aspects in the implementation of IO¹⁸.

The health care network, organized to guarantee access and qualified care to cancer patients¹, plays an important support role through reception, recognition of needs, and singularized and comprehensive care². The scenario experienced by cancer patients and their families points to the need for longitudinal¹ and comprehensive care. In addition to technical competence⁴, the health professional must be prepared to approach the patient recognizing their particularities and life situation², which points to the need to stand up as cancer patients perceive the care received from health professionals⁴.

The care of cancer patients from the perspective of the biopsychosocial-spiritual model² – aiming at patient-centered care²⁸, which is ethical and promotes rights⁴ – points out the possible contributions of the

implementation of IO services in hospital care. Thus, it is expected to expand the knowledge and implementation of IO practices in all services of the Health Care Network that provide care to cancer patients and their families, seeking a coordinated and co-responsible action, guided by the principles of welcoming, humanization and qualification of health care in the oncological context.

The present study had as limitations the inclusion of research only in English, Portuguese and Spanish and the non-application of an instrument in order to evaluate the quality of the articles. In relation to the contributions, through this review, the possible contributions of IO to the comprehensive care of cancer patients were verified, which can support discussions in teaching, management and care spaces on possibilities for their effectiveness in hospital care.

CONCLUSION

The scientific knowledge produced indicates that the implementation of IO care in hospital care is still limited, with challenges related to equitable access, financing, management, and qualification of health professionals.

Among the data obtained in this study, the European continent stands out in producing scientific knowledge about IO in hospital care. In addition, understanding health based on the biopsychosocial-spiritual model has provided a growing interest in implementing and studying IO care practices. At this juncture, it is believed that, in hospital care, IO can contribute to singular and comprehensive care based on recognizing the multidimensional needs of the cancer patient.

In this sense, there is a need for effective actions and public policies to encourage the implementation of IO practices in hospital care, especially those related to the process of training health professionals, patient-centered care practices, and health care networks that aim to contribute to improving the quality of life of cancer patients with a focus on integrality.

CONTRIBUTIONS

William Messias Silva Santos and Jaqueline Silva Santos contributed substantially to the design and/or planning of the study in obtaining, analyzing, and/or interpreting the data, as well as in the writing and critical review. Gilmar Antonio Batista Machado, Maria Ambrosina Cardoso Maia, and Raquel Dully Andrade contributed substantially to the study's design and/or planning, as well as in the writing and/or critical review. All authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

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