



Questionnaire of evaluation of satisfaction and impact of the integrative oncology activities of the Tuscan Regional Health Service addressed to oncologists and health professionals of oncology departments

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Received: 8 October 2025 / Accepted: 4 August 2026

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Abstract

Purpose This cross-sectional survey aimed to assess the impact of integrative oncology services within the public Tuscan Health System (THS), by evaluating the perspectives of the healthcare professionals involved, with particular attention to opportunities and potential challenges.

Methods The Tuscan Regional Working Group ‘*Integration of Complementary Medicine in the Regional Oncology Network*’ approved a 15-item questionnaire (14 multiple-choice and one open-ended question) addressed to oncologists and healthcare professionals working in oncology departments. The survey was administered anonymously via Google Forms in November 2024, and data collection concluded in December 2024.

Results Among 176 respondents, the majority were medical oncologists (39.2%), followed by nurses (33%), psycho-oncologists (4.5%), and other professionals. The impact of integrative oncology services on cancer patients was evaluated as follows: useful (32.4%), very useful (29.5%), fair (23.3%), poor (11.4%), and irrelevant (3.4%). Regarding the frequency with which respondents recommend that patients visit public integrative oncology clinics, 29% reported “sometimes”, 22.2% “rarely”, 15.9% “fairly often”, 15.3% “often”, 9.1% “very often”, and 8.5% “never”. Notably, 47.7% of oncologists reported recommending CIM to cancer patients. The most frequently recommended interventions were acupuncture (51%), nutritional counselling (27%) and integrative medicine (11%), followed by traditional Chinese medicine (TCM) techniques, energy-based exercises, homeopathy, and others.

Conclusions The integration of complementary and integrative medicine (CIM) into oncology appears feasible. Shared clinical practice and open dialogue may help to reduce mutual prejudices and institutional barriers, ultimately benefiting patients with cancer. Further studies are warranted to better assess the clinical impact and generalizability of integrative oncology.

Keywords Integration of complementary integrative medicine · Tuscan Public Healthcare · Integrative oncology · Oncologists · Evaluation of the experience

Introduction

Complementary and integrative medicine (CIM) is particularly widespread among cancer patients. Numerous studies conducted in Europe have shown that one in three cancer patients use them, with prevalence rates up to 51% among adults and ranging from 6 to 91% among children [1, 2], usually in combination with conventional oncological

treatments. In fact, it is reported that only 1% of cancer patients refused all treatment while 15% of older patients (aged ≥ 75 years) refused chemotherapy partially or completely. [3, 4] Patients appear to use CIM to better manage the adverse effects of conventional anticancer treatments and cancer-related symptoms [5, 6].

In Italy, patient interest in CIM has increased markedly in recent decades, especially after the 2000s [7, 8] but also more recently [9]. A study conducted in five Tuscan oncology departments found that 37.9% of patients in the sample

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used one or more types of CIM, with 66.3% informing their physicians and 89.6% reporting benefits [10].

Given this context, a better understanding of the impact of CIM therapies on conventional treatments and patient well-being is crucial to support evidence-based care and reduce reliance on unverified self-treatment practices.

The use of CIM in the diagnostic and therapeutic pathway for cancer patients is commonly referred to as Integrative Oncology. The aim of this approach is twofold: first, to reduce the main side effects of conventional cancer treatments and improve patient compliance, thus enhancing therapeutic efficacy; and second, to promote patient empowerment, improve quality of life (QoL), and enhance overall well-being by allowing patients to play a more proactive role in the therapeutic process.

C. Witt et al. [11] defined Integrative Oncology as follows: “Integrative oncology is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments. Integrative oncology aims to optimize health, quality of life, and clinical outcomes across the cancer care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.”

So far, only a few studies in the literature have assessed the opinions and satisfaction of healthcare personnel in oncology departments who work with integrative oncology services.

Integrative Oncology in the Public Health System of the Tuscany Region

Tuscany Region has identified oncology and cancer care as a priority sector for CIM, as outlined in regional resolutions No. 1224/2016 [12]. In agreement with the Regional Institute for Study, Prevention and Oncological Network (ISPRO), several complementary therapies proven to be safe and effective have been included in oncology protocols (DGR 418/2015) [13].

This is in line with the multidisciplinary approach to cancer care recommended by the Italian Association of Medical Oncology (AIOM) since 2018 and by the European Society of Breast Cancer Specialists (EUSOMA) [14].

The integration process began in 2010 [15] through a productive collaboration with the Tuscan Cancer Institute, later renamed ISPRO. ISPRO (www.ispro.toscana.it) has since assumed responsibility for the operational coordination of the Tuscan oncological network, through the Coordination Body of the Regional Oncological Network, and for the planning and management of all activities in the regional oncological area.

Currently, 19 (nineteen) clinics provide integrative oncology treatments within the Tuscan healthcare service (THS). In order to facilitate a more profound comprehension of this reality, the Regional Centre for Integrative Medicine conducted a survey of the activities and characteristics of the clinics providing integrative oncology treatments. The aforementioned investigation yielded the following findings: in 2022, 2,273 cancer patients received 11,843 complementary medicine treatments [16] (Table 1).

After careful consideration and in consultation with ISPRO, it was determined within the working group ‘Integration of complementary medicine in the regional oncology network’ that an in-depth survey addressed to physicians and healthcare professionals involved in integrative oncology activities would be the most appropriate course of action, based on the available data.

Hence, the decision was made to conduct a survey about satisfaction and impact of the integrative oncology activities of the Tuscan Regional Health Service addressed to physicians and health workers of Tuscan cancer departments.

Aim

The aim of this cross-sectional survey was to assess the satisfaction and impact of integrative oncology services among medical doctors and health professionals working in Tuscan public oncology units, who have been in contact with these activities for several years.

Methods

The working group ‘Integration of complementary medicine in the regional oncology network’ set up at ISPRO in 2023 discussed, approved and prepared for dissemination the questionnaire ‘Evaluation of satisfaction and impact of the integrative oncology services of the Tuscan Health Service’.

In January 2024, a proposal for a survey investigating the opinions of oncologists and other healthcare professionals working in oncology departments regarding integrative oncology activities was submitted to the designated working group. The questionnaire was evaluated by the ISPRO Epidemiology Unit and received a favorable opinion in

Table 1 N. cancer patients and provided treatments in the public Health Service of the Region of Tuscany in 2024

Therapy	n° patients	n° treatments
Acupuncture and TCM	1,236	9,172
Herbal medicine	713	1,627
Homeopathy	299	910
Techniques of TCM	25	134
Total	2,273	11,843

March 2024. In July 2024, the Heads of Department of the Tuscan Oncology Network approved it. The initiative was subsequently introduced to clinical staff of hospitals providing integrative oncology services through the Heads of Department of the Tuscan health authorities and university hospitals, who also distributed the survey link. In October 2024, the questionnaire was administered via Google Forms to ensure anonymous participation. Data collection closed on 6 December 2024. The data summarized below include all responses received by that date.

This cross-sectional study was based on a self-administered questionnaire composed predominantly of closed-ended questions and one open-ended item. The survey targeted oncologists and healthcare professionals within the Tuscan Health System (THS) involved in oncology care, with the aim of assessing their perceptions of integrative medicine services offered to cancer patients.

Survey questions

1. Profession of the responders
2. How many years have you been working with the integrative oncology centre/outpatient clinic at your hospital?
3. What is your current level of knowledge of complementary and integrative medicine?
4. How do you assess the impact of the integrative oncology service on the health of cancer patients?
5. What do you think is the level of satisfaction of patients who use the integrative oncology service?
6. How do you rate the communication between the integrative oncology service and the oncology department at your institution?
7. How often do you propose that patients seek treatment at the integrative oncology service?
8. When referring to the Integrative Oncology service, which complementary therapies/techniques do you recommend to patients? (multiple answer)
9. To improve which symptoms in particular? (multiple answer)
10. What are the major critical issues of the integrative oncology service? (multiple answer)
11. Have you had any conflicts with the operators of the integrative oncology service?

If yes, for what reasons? (multiple answer).
12. What do you suggest to implement and make the service more efficient?
13. Has working with the integrative oncology service changed your view of the cancer patient and your clinical practice? If yes, how? (multiple answer)
14. Do you think more training in integrative oncology for non-expert staff would be useful? If yes, on which topics? (multiple answer)
15. Further comments and/or recommendations for the implementation of the integrative oncology service

Results

General data

The questionnaire was sent to 167 medical oncologists, 346 nurses, 14 psycho-oncologists; the number of other healthcare operators is not available.

A total of 176 health workers responded, broken down by profession: the majority were medical oncologists 69 (39.2%), followed by nurses 58 (33%), radiotherapists 14 (8%), social health workers 15 (8.5%), oncological surgeons 12 (6.8%) and psycho-oncologists 8 (4.5%).

Therefore, the response rate was 69 out of 167 (41.3%) oncologists working in Tuscan hospitals. Including 12 oncological surgeons in this professional category, the response rate was 81/167 (48.5%), 58/346 (16.8%) for nurses and 8/14 (57.1%) for psycho-oncologists. The total number of other healthcare professionals of Oncological Departments of THS is not available.

Interestingly, the survey results indicated that 95 (54%) of the 176 respondents were medical doctors (oncologists, oncological surgeons, radiotherapists, other physicians) whilst 81 (46%) were social and healthcare personnel, such as psycho-oncologists, nurses, and health social workers.

Furthermore, it is noteworthy that a significant proportion of the respondents 91 (51.2%) have been collaborating with the integrative oncology centre of their health facility for a considerable amount of time, with 35 (19.9%) reporting a collaboration spanning between five and 10 years, and 56, a substantial 31.3%, indicating a duration exceeding 10 years (Question 2). The professional category with the most protracted collaboration, spanning a duration of over a decade, is that of nurses 28/58 (48.3%) followed by oncologists with a collaboration duration of 5–10 years and over 10 years 29/69 (42%). A significant proportion of physicians 78/95 (82.2%) and healthcare professionals 65/81 (80.2%) have been in contact for a minimum of three years.

Level of knowledge of CIM

The respondents' declarations regarding their knowledge of CIM reveal a medium level of knowledge for 76 (43.2%) of 176 respondents, a poor level of knowledge for 62 (35.2%), a good level of knowledge for 36 (19.9%), and an absence of knowledge for the remaining small percentage 3 (1.7%) (Question 3).

The proportion of oncologists who self-assessed their knowledge of CIM as medium to good was 44/69 (63.8%), a figure exceeded by the level of knowledge of radiotherapists, who assessed their knowledge as 9/14 (64.3%). Overall, the level of knowledge among medical personnel was medium to good at 65/95 (65.3%), while among health social personnel it was 50/81 (61.7%).

Impact of Integrative Oncology on cancer patients

The impact of the integrative oncology service on the health of patients with cancer (Question 4) was evaluated as follows: useful 57/176 (32.4%), very useful 53 (30.1%), fair 40 (22.7%), poor 20 (11.4%), and irrelevant 6 (3.4%). (Fig. 1).

Furthermore, the respondents' opinion on the level of satisfaction of patients using integrative oncology services (Question 5) is positive for 157/176 (89.3%), ranging from 54 (30.7%) who consider it fair, to 62 (35.2%) who consider it good and high for 41 (23.3%) (Fig. 2). Actually, the impact of CIM on cancer patients' health is viewed as useful by the majority of medical doctors, with 76/95 (80%) of oncologists and other medical doctors, and 75/81 (91.6%) of social health personnel sharing this opinion.

The following data illustrate the frequency with which 176 responders suggest patients visit public integrative oncology clinics (Question 7): sometimes 51 (28.9%), rarely 39 (22.2%), fairly often 29 (16.4%), often 27 (15.3%), very often 16 (9.1%) and only 15 (8.5%) is never (Fig. 3).

Fig. 1 Question 4

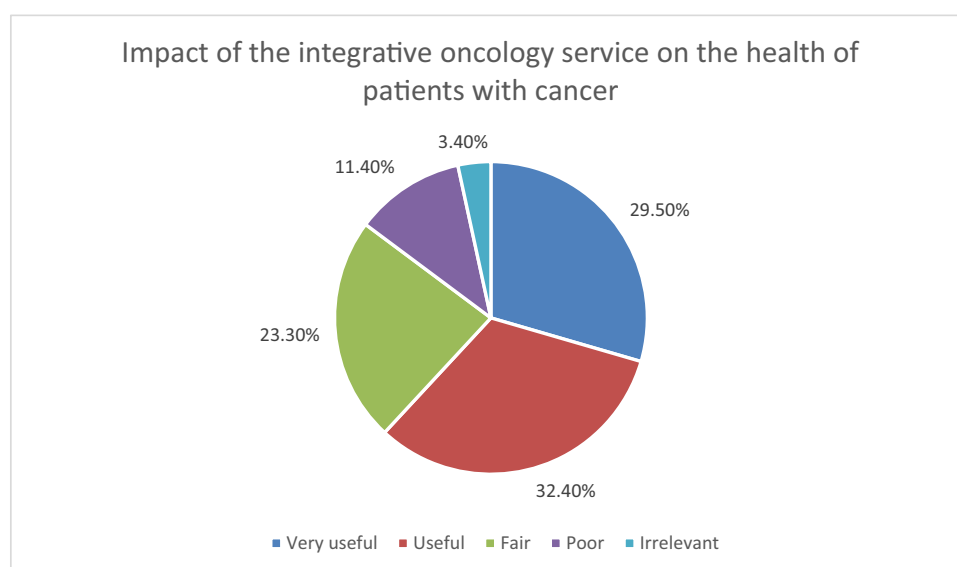


Fig. 2 Question 5

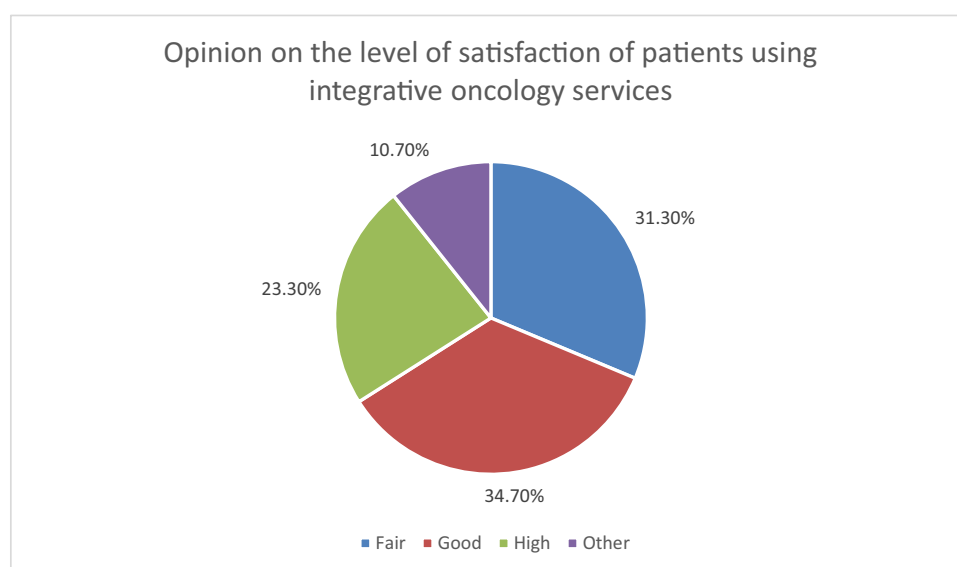
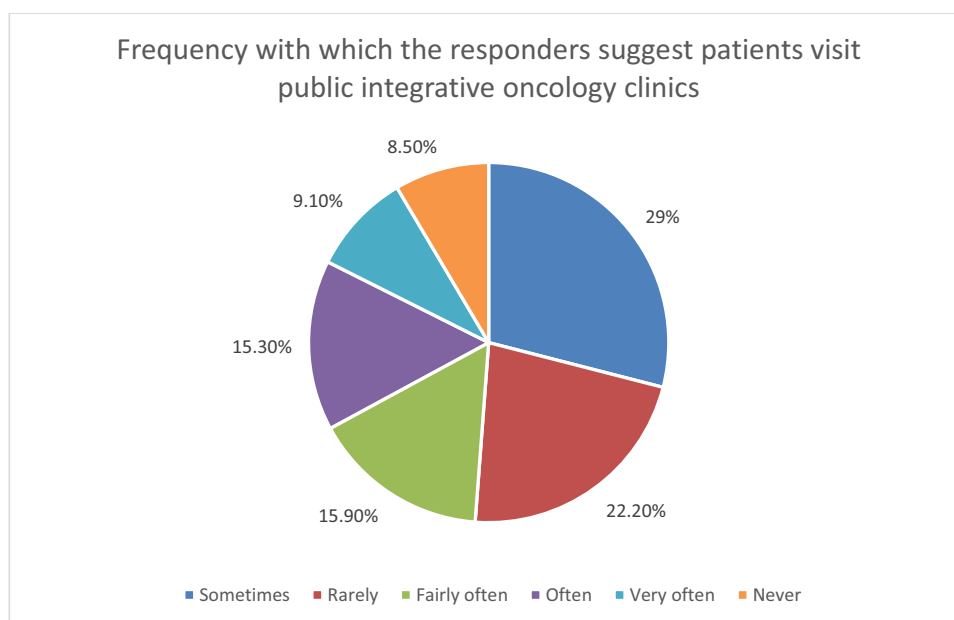


Fig. 3 Question 7

It is interesting to note that 33/69 (47.7%) of oncologists suggest complementary therapies to cancer patients fairly often, often and very often, which is higher than that of physicians as a whole 43/95 (45.3%) and higher than that of health social workers 29/81 (35.8%). However, the professional category that most frequently suggests turning to CIM are psycho-oncologists 6/8 (75%).

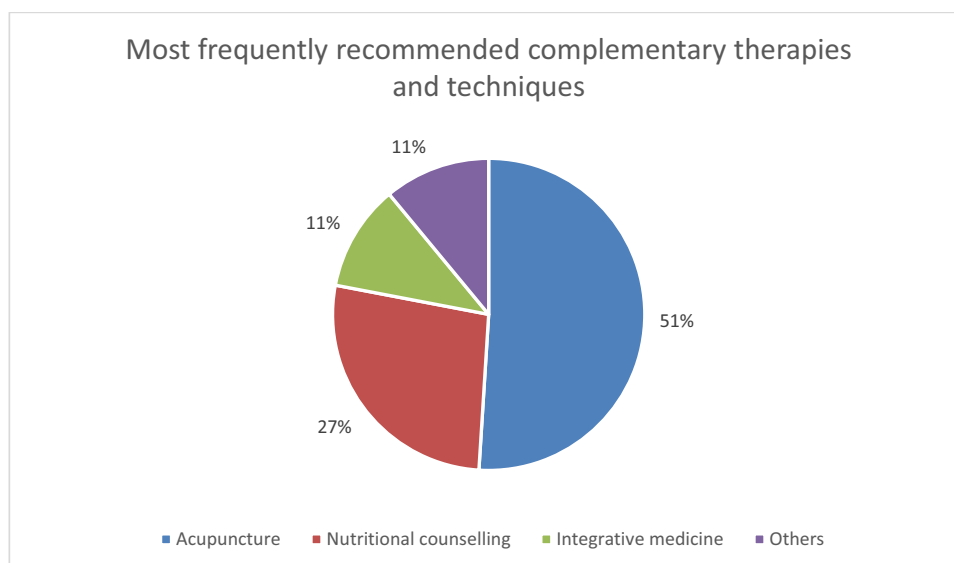
Critical aspects and perspectives

The most frequently recommended complementary therapies and techniques (Question 8) are acupuncture 89/176 (51%), nutritional counselling 47 (27%), and integrative

medicine 19 (11%), followed by TCM techniques, energy gymnastics, homeopathy, etc. (Fig. 4).

Referral to integrative oncology outpatient clinics is recommended for the following symptoms: nausea and vomiting, anxiety, fatigue, pain, hot flashes, insomnia, depression, lymphoedema, radiodermatitis, peripheral neuropathy, etc.

Furthermore, the most critical aspects of the integrative oncology service were identified as follows: communication problems between complementary medicine operators and the staff working in the Oncology Department 78/175 (44.9%), long waiting lists 43 (24.4%), location of services 42 (23.9%), discontinuity of the service 29 (16.5%),

Fig. 4 Question 8

contractual problems, delays in assigning tasks to operators 28 (15.9%). (Question 10).

The majority of physicians 48/95 (50.5%) reported that communication between the integrative oncology services and the oncology department is poor or non-existent and 69/82 (39%) of social health personnel concurred. Conversely, the vast majority of psycho-oncologists 7/8 (87.5%) assessed communication as average or good.

In the present study, 169 (96%) of the responders declared not have had problems with professionals working in the Integrative Oncology service (Question 11), specifically 89/95 (93.7%) of medical personnel and 80/81 (98.8%) of health social personnel. Of the 12 (4%) affirmative answers (question with multiple answers), 7 expressed reservations regarding the efficacy of complementary therapies, 3 about the costs of the integrative treatments and 2 about disagreements on the therapeutic choices that were made.

In response to the question regarding the implementation of integrative oncology services (Question 12) (Fig. 5), 56/176 (31.8%) of respondents indicated a preference for enhanced patient education, 76 (43.2%) advocated for strengthened internal communication between the services and oncology departments, and 23 (13.1%) emphasised the importance of disseminating outcomes.

In response to the inquiry regarding the influence of collaboration with integrative oncology services on their perspective of cancer patients and clinical practice (Question 13), 94/176 (53.4%) of respondents indicated that they had not experienced a change. Among 82 who responded in the affirmative, 42 (51.8%) reported that their collaboration had been beneficial in terms of greater openness to complementary treatments. Forty (49.4%) indicated an enhanced comprehension of the role of complementary medicines in improving patient well-being and quality of

life, and 79 (44.7%) reported an increased awareness of the psychological, familial, and occupational distress experienced by patients.

It was also clear that the vast majority of respondents 157/176 (89%) considered more training in integrative oncology for non-expert staff to be useful, and in particular on the mechanism of action of acupuncture 115/157 (73.2%), the role of diet and exercise 86 (54.8%), the indications of phytotherapy, in particular the topic of possible herb/drug interactions 71 (45.2%), and the evidence for homeopathic medicine 60 (38.2%) (Question 14) (Fig. 6).

Finally, the responses to the open-ended section of the questionnaire, in which respondents were invited to provide additional comments. Most responses were constructive; however, a small number of comments expressed criticism of integrative oncology services.

Constructive examples

The open feedback provided at the end of the questionnaire addressed various themes including scientific evidence, communication and collaboration between conventional and integrative medicine and, most prominently, the need to promote a holistic vision of the patient also within conventional oncology.

In this regard, we report the following comment from a psycho-oncologist, “The CIM clinic constantly helps us to maintain a comprehensive understanding of patients’ needs, especially in the more complex cases, where it is challenging to ensure the acceptance of therapeutic pathways and where numerous adverse events may occur during treatment”.

In short,

Fig. 5 Question 12

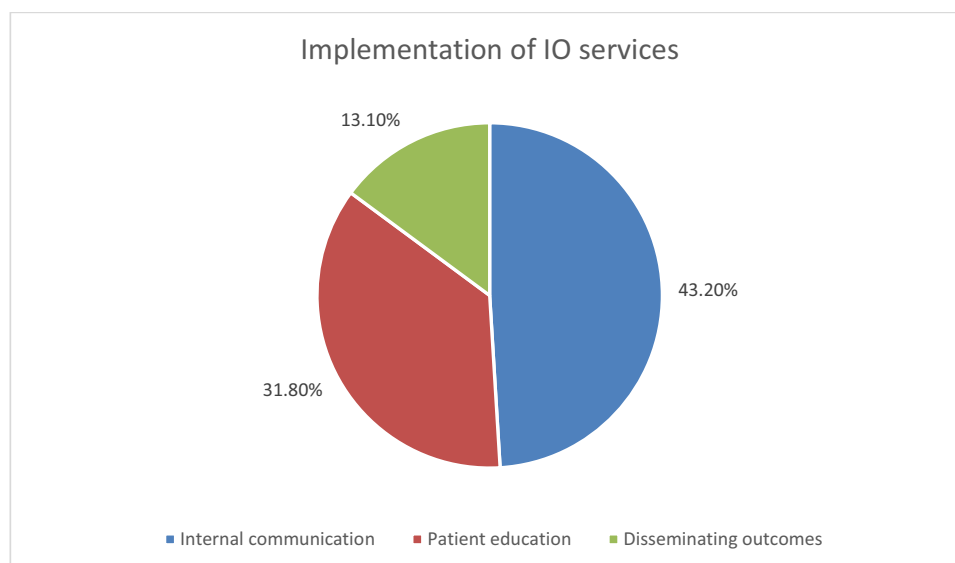
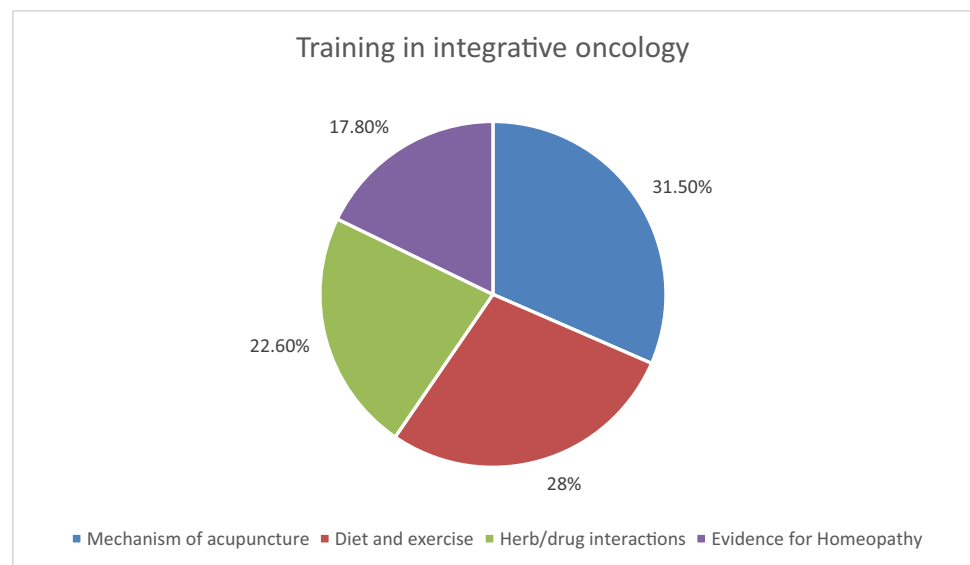


Fig. 6 Question 14

- o The Integrative Oncology outpatient clinic constantly helps us in a comprehensive view of patients' needs, especially in the most complex situations, where it is difficult to get treatment pathways accepted and there are many adverse events in the treatment pathway
- o The service of Integrative Oncology not being within the hospital where I work makes contact more difficult, but the operators are always very helpful and the patients are very satisfied with the attention given to them and the results they obtain in terms of clinical symptoms
- o I work in oncohaematology and have only partial knowledge, refresher courses and promotion of the service would be useful.

Critical examples:

- o They take funds away from far more useful services for cancer patients
- o We invest limited resources in far more effective actions and not in therapies not evidence based, in particular homeopathy.

Discussion

Only a few studies in the literature have assessed the opinions and satisfaction of healthcare personnel in oncology departments who work on a daily basis directly or indirectly with integrative oncology services, particularly in a public hospital setting.

Among them is the cross-sectional questionnaire survey conducted at a single institution in Ireland (Chang et al., 2011) [17]. The study aimed to assess the knowledge and attitudes toward CAM use in oncology among healthcare

professionals (N = 156). Although this study demonstrated a high prevalence of CAM use among these professionals (39.7%), most of them reported insufficient knowledge (58.8%). Furthermore, up to 80% were unsure of the roles of CAM practices in cancer-related contexts, and therefore unable to counsel patients regarding their benefits and limitations. Consequently, a majority expressed interest in learning more about CAM therapies and showed a high level of interest in CAM education.

Another, larger study (Yang et al., 2017) [18] explored Chinese oncologists' knowledge, attitudes, and clinical practices regarding CAM use by their patients through an online survey. A total of 6,007 oncologists completed the questionnaire, and most of them (75.6%) did not want to initiate discussions due to a lack of knowledge about these therapies. Four out of five responding oncologists self-reported inadequate knowledge, and only 22.0% had received formal education on CM. Nearly half (44.9%) believed CM treatments were effective for symptom management and cancer treatment, but most did not encourage their use.

A survey conducted in Germany (Reis et al., 2019) [19] investigated paediatric oncologists' (POs) information and training needs, as well as preferences regarding CIM training content, through a paper-based and online survey. A total of 101 German paediatric oncologists completed the questionnaire. Only 11.4% agreed that they were sufficiently informed about CIM. They considered an overview of CIM therapies and information on relaxation techniques, herbal remedies, and acupuncture for managing cancer-related symptoms such as lack of appetite, nausea, or vomiting as the most important components of CIM training materials.

A cross-sectional study was conducted in Iran in 2021 [20], involving 210 healthcare professionals (HPs) selected from healthcare centers, clinics, and hospitals, though not

exclusively from oncology settings. A majority of respondents had a positive attitude toward CAM ($n = 166$, 79%), but their level of knowledge was limited ($n = 154$, 73.6%). The most commonly used CAM modalities were herbal medicine (93.2%), exercise therapy (75.4%), and hydrotherapy (75.2%), while the least commonly used were magnetic therapy (2.9%) and hypnosis (4.8%). The most frequently cited reasons for CAM use among HPs included fewer side effects compared to medical treatments (57.4%), lower cost (34.9%), treatment of non-serious diseases not requiring clinic referral (32.1%), and greater accessibility than conventional medical treatments (30.6%). The results indicated that most HPs used at least one CAM modality and held a positive attitude toward CAM overall.

Also in 2021, a survey was conducted by Bagot JL et al. [21] in France but specifically concerning homeopathy and the perception among oncologists and general practitioners of the use of this medicine in supportive cancer care. Two cross-sectional surveys of French physicians were conducted involving 150 specialist oncologists, 197 general practitioners (GPs), 97 with homeopathic training (HGPs) and 100 and without (NHGPs). Ten percent of oncologists stated they prescribe homeopathy; 36% recommend it; 54% think that homeopathy is potentially helpful in supportive care in oncology (SCO). Two-thirds of the NHGPs sometimes prescribe homeopathy in the context of SCO and 58% regularly refer their patients to homeopathic doctors. HGPs have a positive perception of homeopathy in SCO.

In the context of studies from the Global South, a multicenter cross-sectional study was carried out by Ammar et al. [22] from February to June 2022 among healthcare workers (HCWs) treating cancer patients in central Tunisia. Data were collected using a self-administered questionnaire developed by the investigators. A positive attitude toward CAM use was observed in 56% of HCWs. Integration of CAM into supportive oncology care was supported by 78%, and personal CAM use was reported by 53%. Additionally, 38.8% had previously used CAM in treating their cancer patients. A total of 54.3% of HCWs had sought information on CAM, with the Internet being the main source (37.1%). Regarding CAM training, 78% considered it necessary for HCWs, and 73.3% expressed a desire to receive such training.

In 2023, Bo-Young Youn et al. [23] developed a mixed-methods systematic review on perception, attitudes, and knowledge of using CIM for cancer patients among healthcare professionals (42 studies). Most publications were from European countries. Nurses had more positive views than other professions but did not have much knowledge; oncologists were highly concerned regarding herb–drug interactions; integration of CAM into the healthcare system seemed plausible yet lacked enough evidence. HCPs felt the strong need to participate in various CAM training to offer broader options to cancer patients and agreed that

CAM education should be provided in medical schools and continuing education programs.

Bo-Young Y. et al. conducted in 2024 a large international, online, anonymous, cross-sectional survey on researchers and clinicians who published their work in oncology journals indexed in MEDLINE [24]. The link to the survey was sent to 47,991 researchers and clinicians whose contact information was extracted from their publications and 751 respondents completed the survey. A great part of the respondents were unsure when asked if most CIM therapies are effective ($n = 202$, 34.77%).

Hesmert and colleagues [25] conducted online a multicentre, cross-sectional, anonymous full survey using a self-developed, semi-structured, web-based questionnaire via all-inclusive e-mail distribution lists of four German university hospitals. 2,026 participants fully answered the questionnaire. Nurses constituted the largest professional group (59%), followed by physicians (28%), physiotherapists, psychologists, midwives and other professions. The overall attitude toward CIM (10-point Likert scale, 10 = “very favourable”) was clearly positive ($M \pm SD$: 7.43 ± 2.33), with notable differences between professional groups: midwives (9.05 ± 1.18), physiotherapists (8.44 ± 1.74), and nurses (8.08 ± 1.95) expressed the highest support, whereas physicians (5.80 ± 2.39) the lowest. 42% of the participants incorporated CIM in patient care (from 33% of physicians to 86% of midwives). The average self-assessed knowledge level about CIM was moderate ($M \pm SD$: 5.83 ± 2.03). Midwives reported the highest level of knowledge (7.24 ± 1.95), physicians the lowest (5.54 ± 2.02). Less than one third (28.5%) of participants agreed or rather agreed that they feel confident in counseling patients about CIM and less than half of the participants (42.4%) agreed or rather agreed that they are often asked about CIM by patients.

In our survey, psycho-oncologists may have been more represented because their clinical focus inherently emphasizes the psychological dimension of cancer care and the integration of mind and body. Similar to integrative medicine physicians, they are particularly attuned to holistic and supportive approaches, which may explain their greater interest and engagement with integrative oncology topics.

Notably, Jiang et al. [26] identified a significant gap between the perceived importance and the actual utilization of supportive and integrative oncology services among cancer patients and caregivers. The findings underscore the need for improved patient and caregiver education about integrative oncology services, clearer referral pathways, more systematic and early integration of supportive care discussions into oncology practice. Overall, the study suggests that enhancing knowledge and communication strategies is essential to reduce underutilization and ensure that patients and caregivers fully benefit from integrative oncology

services. Improving education and proactive provider communication is essential to increase utilization.

In this context, the survey results from Tuscany are particularly noteworthy. It seems that practitioners have a generally positive attitude towards integrative oncology as a supportive treatment for cancer patients and are more willing to recommend it. Notably, this favourable perspective correlates with a higher self-assessed level of knowledge regarding CIM. In fact, the level of knowledge among medical personnel was rated as medium to good by 65.2% of respondents.

Another factor likely contributing to the overall positive attitude among oncology healthcare professionals (89.3% rated integrative oncology as very useful, useful, or fairly useful) is the long-standing implementation of integrative oncology activities in Tuscany. For 82.2% of respondents, collaboration with integrative oncology services had been established for at least three years and in many cases for more than ten years.

As highlighted by the aforementioned studies, among Tuscan oncologists and healthcare workers (HCWs) there is also a strong demand for more information about CIM, its use in clinical practice, and evidence of efficacy. Consequently, there has been an escalation in efforts to administer professional training courses in Tuscany on the utilisation of CIM in oncology. The most recent of these, a hybrid course, focused on the application of CIM to mitigate the adverse effects of the latest-generation anticancer therapies (immunotherapy, molecular-targeted drugs, monoclonal antibodies, cell therapy in oncohaematology, etc.), was held in November 2024.

Bias

The questionnaire's omission of a question regarding the personal use of CIM by the professionals it targets is a clear indication of a first bias. This oversight could preclude the ability to differentiate between those who have already chosen CIM for their healthcare and those who have gained a favourable opinion based on the results obtained from the activity of the IO. However, we included a question on the level of knowledge of CIM of each participant (Question 3).

Moreover, it was not possible to calculate precisely the number of operators who received the link to the questionnaire, but we reported the number of oncologists, nurses, and psycho-oncologists who received it.

Another limitation is that these regional findings cannot be generalized beyond this specific context. However, Tuscany is currently the only Italian region that has formally integrated selected complementary medicine modalities—specifically those most widely used by the population—into its Regional Public Health Service. The questionnaire focused on these modalities, as its aim was to assess the

level of acceptance among oncology department professionals who have directly observed the effects of such treatments in clinical practice, also with a view to future development and service improvement.

Finally, although mind–body methods such as meditation and yoga are widely utilized, they were not included in the survey because they are not currently provided within the public Tuscan healthcare system, primarily due to the lack of a formally recognized professional qualification framework.

Conclusions

This study shows how the integration of CIM in oncology is possible and how, through a common and shared clinical practice, mutual prejudices and barriers can be overcome for the benefit of patients, particularly those with cancer. These findings reflect the experience of a specific regional public healthcare system with long-term institutional integration. Further studies conducted in other European regions are warranted to better assess the clinical impact and generalizability of integrative oncology.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s00520-026-11083-1>.

Acknowledgements The Authors would like first to thank the General Health, Welfare and Social Cohesion Directorate of the Region of Tuscany. They also wish to thank all the oncologists of the cancer departments of Tuscany's health authorities and university hospitals who collaborate daily with CIM experts to improve the health and quality of life of patients with cancer. Finally, the Authors extend their thanks to the other members of the Working Group "Integration of CMs in the Oncology network of the Region of Tuscany" and to Marco Picchi, Maria Grazia Campus and Franco Tomassi (ARTOI) for his technical and IT support.

Authors contributions All authors contributed to the study conception, design and interpretation of the results. The first draft of the manuscript was written by E.G.R. and M.D.S. Tables and figures were prepared by T.C. Material preparation, data collection and analysis were performed mainly by E.G.R., M.D.S., T.C. and by all the other authors: C.P.G., F.M., V.L., C.A., M.C.P., F.C., A.S., M.T.B., M.R., L.D., K.B., R.G., S.D. All authors revised previous versions of the manuscript critically and approved the final version for publication.

Funding No, this research did not receive funding.

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval This study was conducted in accordance with the Declaration of Helsinki. Human.

Ethics and Consent to Participate declarations: not applicable. The Internal Review Board (IRB), the Heads of Oncology Departments of the Tuscan Oncology Network, approved it in July 2024.

Disclosure No competing financial interests exist. The Region of Tuscany supported all the costs for this study.

Competing interest The authors declare no competing interests.

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