

Ljerka Armano^{*,**,*****}, Jasna Radić^{*}, Vanja Vasiljev^{**},
Tomislav Rukavina^{**}, Martina Trnčević^{**,***}, Andrea Armano^{****},
Aneta Perak^{*****}, Aleksandar Racz^{**,*****,*****}

Expectations of therapeutic effects of CAM in oncology: Between patient autonomy and professional scepticism

SUMMARY

Complementary and alternative medicine (CAM) is increasingly present in oncology, challenging the boundaries of conventional practice and raising important bioethical issues. This cross-sectional study investigated perceptions of the therapeutic value of CAM among 832 participants: 411 oncology patients and 421 healthcare professionals at a Croatian university hospital. Using validated CHBQ and IMAQ instruments, the results showed that patients' expectations were significantly higher than those of physicians ($p < 0.001$), particularly regarding psychophysical well-being (72.1%), immune system support (89.8%), and reduction of side effects (82.9%). Nurses occupied a middle position. These discrepancies reflect empirical differences and deeper ethical tensions between clinical authority and patient autonomy. CAM is a space where patients assert agency, seek meaning, and strive for holistic healing beyond biomedical reductionism. The findings underscore the need for ethical integration of evidence-based CAM into oncology care, supported by improved education and respectful dialogue. Supporting informed decision-making requires bridging epistemological gaps while respecting patients' values.

Keywords: Complementary and alternative medicine, healthcare professionals, oncology patients, therapeutic efficacy.

* UHC Sestre milosrdnice, Zagreb, Croatia.

** Faculty of Medicine, University of Rijeka, Rijeka, Croatia.

*** Nursing School Vinogradska, Zagreb, Croatia.

**** Aspira University of Applied Sciences, Split, Croatia.

***** Faculty of Teacher Education, University of Zagreb.

***** University of Applied Health Sciences, Zagreb, Croatia.

***** Faculty of Health studies, University of Rijeka, Rijeka, Croatia.

Correspondence Address: Ljerka Armano, Department of Nursing Care, UHC Sestre milosrdnice 29, Zagreb, 10000, Croatia. E-mail: ljerka.armano@kbcsm.hr

INTRODUCTION

Complementary and alternative medicine (CAM) encompasses a broad range of health practices and products that are not part of conventional medicine or recognized by an established healthcare system (NIH, 2025). In recent decades, CAM has increasingly entered oncology and other clinical fields, prompting a re-examination of medicine's epistemological and ethical foundations (Fadlon, 2004). The growing public interest in these practices reflects a paradigm shift from a strictly biomedical model toward a pluralistic understanding of health, healing, and the human person.

From a bioethical perspective, the use of CAM directly involves the four core principles of biomedical ethics – autonomy, beneficence, non-maleficence, and justice (Beauchamp & Childress, 2019). Patient autonomy, as a central value of modern bioethics, implies the right to make informed decisions about one's own care, including the choice of complementary methods that resonate with personal values or cultural identity. Yet, genuine autonomy presupposes access to accurate information regarding efficacy and safety, which is often lacking in the realm of CAM (Ernst, 2004). The principles of beneficence and non-maleficence acquire special significance in oncology, where psychological well-being, existential meaning, and quality of life are crucial dimensions of care (Cassileth & Deng, 2004). While some CAM approaches can alleviate distress and enhance coping, others may expose patients to ineffective or even harmful interventions, highlighting the ethical need for critical evaluation, regulation, and responsible clinical guidance.

The principle of justice also arises in discussions about equitable access. Since many CAM therapies are not publicly reimbursed, their use often depends on patients' financial means, thereby reinforcing social inequities (Bishop & Lewith, 2010). At the same time, for many individuals, CAM represents an attempt to regain agency and holistic meaning in an increasingly technocratic health system. Ivan Illich (1976) warned of the "medicalization of life" and the loss of autonomy through institutional control, while Michel Foucault's concept of *biopower* described how medicine disciplines and normalizes the body. In this context, CAM may also be interpreted as a form of moral and existential resistance – a patient's effort to reclaim narrative ownership of illness and healing.

Philosophically, CAM challenges the Cartesian dualism and reductionism underlying biomedicine. Whereas conventional medicine privileges objectivity, quantification, and causal reasoning, many complementary approaches draw upon epistemological pluralism, holistic worldviews, and subjective experience as legitimate sources of knowledge (Capra, 1996; Kirmayer, 2011). Pellegrino and Thomasma (1993) conceptualized medicine as a moral practice rather than a mere technical enterprise, emphasizing the virtues of compassion, integrity, and *phronesis* (practical wisdom).

Within oncology, where curative limits are frequently reached, CAM may serve as a moral space in which patients pursue wholeness, dignity, and meaning beyond the boundaries of biomedicine (Crawford, 2006).

Globally, the World Health Organization's *Traditional Medicine Strategy 2014-2023* advocates for the evidence-based and culturally sensitive integration of traditional, complementary, and alternative medicine into national health systems (WHO, 2013). International surveys report that between 30% and 50% of adults use some form of CAM, depending on regional traditions and health-system structures (Barnes et al., 2004; Molassiotis et al., 2005). This global prevalence underscores CAM's enduring social and cultural significance and its ethical relevance for contemporary healthcare.

In Croatia, the coexistence of Western medical infrastructure and a longstanding folk-healing tradition offers a unique context for studying CAM. Previous research has shown that between one-third and two-thirds of oncology patients have used complementary treatments, most often herbal remedies, vitamins, and spiritual therapies (Andrašek, 2015; Armano, Petrak & Kern, 2017). A recent national study found that 55.6% of oncology patients and 32.2% of healthcare professionals had experience with CAM (Armano et al., 2025). The primary motivations were to strengthen immunity, alleviate side effects of chemotherapy, and improve psychophysical well-being.

Understanding these patterns requires considering not only behavioral but also cognitive and emotional components of attitudes toward CAM. Patients' affinity for CAM often arises from unmet emotional and existential needs and from the perception that conventional medicine insufficiently addresses the whole person. In contrast, healthcare professionals – especially physicians – tend to adopt a more cautious stance grounded in empirical standards and the demand for reproducible evidence. This epistemic gap reflects deeper moral tensions between professional authority and patient self-determination.

Within a bioethical framework, this divergence calls for dialogical ethics and mutual respect. Integrating CAM ethically into oncology care means neither uncritical acceptance nor categorical rejection, but rather cultivating epistemic humility and shared decision-making. Such an approach aligns with the virtue-ethical model of medicine as a relational and moral practice (MacIntyre, 1981; Pellegrino & Thomasma, 1993). It also resonates with the WHO's call for integrative, patient-centered care that values both scientific evidence and cultural diversity.

Against this backdrop, the present study investigates how oncology patients and healthcare professionals in Croatia perceive the therapeutic effectiveness of CAM methods and techniques. By exploring these attitudes within a bioethical

and philosophical framework, this research seeks to illuminate the moral and epistemological space between professional skepticism and patient autonomy, contributing to the ongoing discourse on the ethical integration of CAM into modern oncology.

OBJECTIVE AND HYPOTHESES

This study builds on the previously outlined ethical and philosophical framework by exploring how oncology patients and healthcare professionals in Croatia perceive the effectiveness of CAM.

The aim of this study was to investigate and compare the beliefs and attitudes of three groups – oncology patients, physicians, and nurses – toward the perceived therapeutic effectiveness of complementary and alternative medicine (CAM).

Null hypothesis: There are no statistically significant differences between oncology patients, physicians, and nurses in their attitudes toward the therapeutic effectiveness of individual methods and techniques from the spectrum of complementary and integrative medicine.

MATERIALS AND METHODS

The cross-sectional study was conducted between November 2022 and May 2023 at the University Hospital Centre Sestre milosrdnice in Zagreb, Croatia. The planned sample size was 1.200 respondents, proportionally distributed among strata and sub-strata, considering the total number of health professionals in the study area and the total number of patients in the specified period. The study intended to include approximately 30% of newly registered oncology patients, that is, an estimated 1.200 over six months, with a target sample of 400 patients. Among healthcare professionals, the planned sample included 150 physicians and 450 nurses. The final participation rates were as follows: 68.5% of oncology patients (411), 66.66% (100) of physicians and 71.33% (321) of nurses. Among healthcare professionals, the sample represented 16.6% of all physicians and 18.9% of all nurses/technicians employed at UHC Sestre milosrdnice, thus ensuring a representative study group.

Participants

The study was conducted using a proportionally stratified random sample, with participants divided into two strata: Stratum 1: oncology patients diagnosed with a disease classified as oncologic according to the International Classification of

Diseases, regardless of disease stage; Stratum 2: healthcare professionals working in oncology, further divided into Stratum 2.1: physicians and Stratum 2.2: nurses.

The study included healthcare professionals directly involved in oncology care, such as physicians and nurses working in oncology departments, as well as those indirectly involved in the care of cancer patients, such as healthcare professionals from the hematology, surgery, gynecology and otolaryngology departments of the university hospital where the study was conducted.

Questionnaire and data collection

Two different but thematically parallel questionnaires were used: one for healthcare professionals and the other for oncology patients. This ensured that the core constructions were consistent while respecting the different clinical roles and experiential perspectives of the two groups. Both questionnaires were adapted, with minor modifications, from previously validated instruments: the CAM Health Belief Questionnaire (CHBQ) and the Integrative Medicine Attitude Questionnaire (IMAQ) (Lie & Boker, 2004; Schneider, Meek & Bell, 2003). Eligible participants were invited to participate in the study during their hospital visits or work shifts. Trained researchers recruited oncology patients during outpatient appointments or inpatient stays, while healthcare professionals were approached through departmental meetings and workplace announcements. All respondents provided written informed consent prior to participation.

The surveys were conducted face-to-face to minimize non-response and increase comprehensibility. A trained interviewer assisted the participants in completing the questionnaires.

The data collected was stored anonymously and securely in a protected database, with trained staff responsible for data entry. To ensure data integrity, the responses were carefully checked for accuracy and completeness. In addition, all identifying information was removed to protect patient anonymity.

Informed consent

Written informed consent was obtained from the patients and healthcare workers who participated in this study.

Ethical approval

The research was approved by the Ethics Committee of the University Hospital Centre Sestre milosrdnice, Zagreb, Croatia (Class: 003-06/21-02/001, Reg. No.:

251-29-11/1-21-01-9), and was conducted in accordance with the Declaration of Helsinki, applicable national regulations and European Union legislation.

Statistical analysis

The collected data was organized according to the research objectives and presented in text and tabular form to gain a comprehensive understanding of attitudes, preferences, and behavioral trends related to the use of alternative medicine. Both descriptive and inferential statistical methods were used for the analysis. Descriptive statistics were used to summarize the data, with results presented in the absolute form of frequencies, percentages, and central tendency measures, including means, standard deviations, and ranges (minimum and maximum). The means of three or more groups are compared and a one-way analysis of variance (ANOVA) was performed, assuming a normal distribution of data. If the ANOVA results indicated statistically significant differences, a post hoc Tukey test was performed to determine which groups showed notable differences. This approach allowed for a more detailed examination of differences in attitudes and experiences related to CAM.

Availability of data

The data sets that were generated and/or analyzed as part of the current study are available upon request from the corresponding author.

RESULTS

Patients' and healthcare professionals' expectations of complementary and alternative medicine provide important insights into their views on the role and potential of these methods in healthcare. The analysis of the results aims to identify common and divergent expectations in terms of therapeutic efficacy, safety and the possibility of complementing conventional treatment. The differences in the expectations of patients and healthcare professionals regarding the prevention and treatment of disease, improvement of health, strengthening of the immune system, support for relaxation and reduction of side effects are presented, considering the degree of agreement with the statements given. The overall results show that patients have higher expectations of alternative medicine than health professionals, with the highest scores for treating illness, improving psychophysical health and boosting immunity.

Table 1. Level of agreement with the statements about expectations of alternative medicine

Statement	Degree of agreement on a Likert scale of 1 – 5	Stratum					
		Patients		Healthcare workers		Total	
		N	%	N	%	N	%
Disease prevention	I completely disagree.	22	5.4%	38	9.0%	60	7.2%
	I mostly disagree.	21	5.1%	31	7.3%	52	6.3%
	I neither agree nor disagree.	122	29.8%	149	35.3%	271	32.6%
	I mostly agree.	153	37.3%	127	30.1%	280	33.7%
	I completely agree.	92	22.4%	77	18.2%	169	20.3%
	Total	410	100.0%	422	100.0%	832	100.0%
Treatment of disease	I completely disagree.	21	5.1%	35	8.3%	56	6.7%
	I mostly disagree.	16	3.9%	30	7.1%	46	5.5%
	I neither agree nor disagree.	74	18.0%	124	29.4%	198	23.8%
	I mostly agree.	197	48.0%	163	38.6%	360	43.3%
	I completely agree.	102	24.9%	70	16.6%	172	20.7%
	Total	410	100.0%	422	100.0%	832	100.0%
Improvement of psychophysical health	I completely disagree.	13	3.2%	25	5.9%	38	4.6%
	I mostly disagree.	10	2.4%	29	6.9%	39	4.7%
	I neither agree nor disagree.	62	15.1%	93	22.0%	155	18.6%
	I mostly agree.	197	48.0%	168	39.8%	365	43.9%
	I completely agree.	128	31.2%	107	25.4%	235	28.2%
	Total	410	100.0%	422	100.0%	832	100.0%
Increasing immunity	I completely disagree.	1	0.2%	17	4.0%	18	2.2%
	I mostly disagree.	6	1.5%	22	5.2%	28	3.4%
	I neither agree nor disagree.	35	8.5%	83	19.7%	118	14.2%
	I mostly agree.	200	48.8%	181	42.9%	381	45.8%
	I completely agree.	168	41.0%	119	28.2%	287	34.5%
	Total	410	100.0%	422	100.0%	832	100.0%

Help with relaxation/sleep	I completely disagree.	6	1.5%	7	1.7%	13	1.6%
	I mostly disagree.	11	2.7%	21	5.0%	32	3.8%
	I neither agree nor disagree.	72	17.6%	88	20.9%	160	19.2%
	I mostly agree.	186	45.4%	184	43.6%	370	44.5%
	I completely agree.	135	32.9%	122	28.9%	257	30.9%
	Total	410	100.0%	422	100.0%	832	100.0%
Help with wound healing	I completely disagree.	8	2.0%	19	4.5%	27	3.2%
	I mostly disagree.	25	6.1%	42	10.0%	67	8.1%
	I neither agree nor disagree.	105	25.6%	144	34.1%	249	29.9%
	I mostly agree.	157	38.3%	128	30.3%	285	34.3%
	I completely agree.	115	28.0%	89	21.1%	204	24.5%
	Total	410	100.0%	422	100.0%	832	100.0%
Reducing treatment side effects	I completely disagree.	5	1.2%	15	3.6%	20	2.4%
	I mostly disagree.	9	2.2%	36	8.5%	45	5.4%
	I neither agree nor disagree.	56	13.7%	124	29.4%	180	21.6%
	I mostly agree.	190	46.3%	149	35.3%	339	40.7%
	I completely agree.	150	36.6%	98	23.2%	248	29.8%
	Total	410	100.0%	422	100.0%	832	100.0%

Table 1 shows the level of agreement between patients and healthcare professionals on different expectations of CAM. Overall, a higher proportion of respondents agreed with statements that emphasized the role of CAM in disease prevention, treatment, psychophysical well-being, strengthening the immune system, relaxation, wound healing, and mitigating treatment side effects (mostly agreed or completely agreed). Agreement was particularly high for the statements that promote relaxation and sleep, strengthen the immune system and improve psychophysical well-being. In contrast, responses to the statements on treating illnesses and reducing side effects were more divided.

There were differences between patients and healthcare professionals, with patients generally showing a higher acceptance of expectations in relation to alternative medicine in most categories. In contrast, healthcare professionals showed a greater proportion of neutral or negative responses, particularly in relation to the use of CAM to treat disease and reduce side effects of treatment.

While Table 1 provides a descriptive overview of the level of agreement, statistically significant differences between patients and healthcare professionals are detailed in Table 3, where patients consistently show higher levels of agreement ($p < 0.05$).

Table 2. Mean scores and standard deviation of respondents' beliefs and attitudes towards expectations of CAM

Statement	Physicians		Nurses		Patients	
	M	SD	M	SD	M	SD
Disease prevention	3.06	.973	3.52	1.167	3.66	1.048
Treatment of disease	3.47	1.039	3.49	1.129	3.83	1.011
Improvement of psychophysical health	3.48	.926	3.79	1.138	4.01	.921
Increasing immunity	3.74	.860	3.90	1.059	4.28	.705
Help with relaxation/sleep	3.57	.856	4.05	.909	4.05	.862
Help with wound healing	3.24	.976	3.63	1.082	3.84	.966
Reducing treatment side effects	3.42	.901	3.74	1.067	4.15	.825

Table 2 shows the means and standard deviations of respondents' beliefs regarding expectations of CAM. Patients consistently showed the highest level of agreement, while physicians were the most reluctant and nurses fell in between. Expectations regarding strengthening the immune system, improving psychophysical health and supporting relaxation received the highest scores in all groups. Conversely, disease prevention and wound healing were rated lower, especially by doctors. These results are consistent with the distribution of approval ratings shown in Table 1.

Table 3. Statistical significance of the differences in respondents' beliefs and attitudes regarding expectations of alternative medicine: Results of the Tukey test

Statement	(i) By profession/status	(j) By profession/status	Mean value (ij)	Standard error	P*	95% confidence interval	
						Lower bound	Lower bound
Disease prevention	Physician	Nurse	-.463 *	.124	.001	-.76	-.17
		Patient	-.602 *	.121	.000	-.89	-.32
	Nurse	Physician	.463 *	.124	.001	.17	.76
		Patient	-.138	.081	.202	-.33	.05
	Patient	Physician	.602 *	.121	.000	.32	.89
		Nurse	.138	.081	.202	-.05	.33

Treatment of disease	Physician	Nurse	-.016	.122	.991	-.30	.27
		Patient	-.365 *	.118	.006	-.64	-.09
	Nurse	Physician	.016	.122	.991	-.27	.30
		Patient	-.349 *	.079	.000	-.53	-.16
	Patient	Physician	.365 *	.118	.006	.09	.64
		Nurse	.349 *	.079	.000	.16	.53
Improvement of psychophysical health	Physician	Nurse	-.314 *	.116	.019	-.59	-.04
		Patient	-.535 *	.113	.000	-.80	-.27
	Nurse	Physician	.314 *	.116	.019	.04	.59
		Patient	-.220 *	.075	.010	-.40	-.04
	Patient	Physician	.535 *	.113	.000	.27	.80
		Nurse	.220 *	.075	.010	.04	.40
Increasing immunity	Physician	Nurse	-.160	.100	.247	-.40	.08
		Patient	-.545 *	.098	.000	-.77	-.32
	Nurse	Physician	.160	.100	.247	-.08	.40
		Patient	-.384 *	.065	.000	-.54	-.23
	Patient	Physician	.545 *	.098	.000	.32	.77
		Nurse	.384 *	.065	.000	.23	.54
Help with relaxation/ sleep	Physician	Nurse	-.477 *	.101	.000	-.71	-.24
		Patient	-.484 *	.098	.000	-.71	-.25
	Nurse	Physician	.477 *	.101	.000	.24	.71
		Patient	-.007	.066	.994	-.16	.15
	Patient	Physician	.484 *	.098	.000	.25	.71
		Nurse	.007	.066	.994	-.15	.16
Help with wound healing	Physician	Nurse	-.389 *	.116	.002	-.66	-.12
		Patient	-.602 *	.113	.000	-.87	-.34
	Nurse	Physician	.389 *	.116	.002	.12	.66
		Patient	-.213 *	.076	.014	-.39	-.04
	Patient	Physician	.602 *	.113	.000	.34	.87
		Nurse	.213 *	.076	.014	.04	.39
Reduces treatment side effects	Physician	Nurse	-.318 *	.107	.008	-.57	-.07
		Patient	-.726 *	.104	.000	-.97	-.48
	Nurse	Physician	.318 *	.107	.008	.07	.57
		Patient	-.408 *	.070	.000	-.57	-.24
	Patient	Physician	.726 *	.104	.000	.48	.97
		Nurse	.408 *	.070	.000	.24	.57

Note. P*: significance level value; $p < 0.05$ indicates a statistically significant difference between the compared groups

Table 3 shows the statistical significance of the differences in beliefs and attitudes toward CAM expectations among physicians, nurses, and patients. The Tukey post hoc test was used to determine pairwise differences; significant results were indicated by $p < 0.05$. The results indicate that patients generally scored significantly higher than physicians in terms of disease prevention, treatment, improving psychophysical health, strengthening the immune system, wound healing, and reducing treatment side effects. Nurses' responses often fell between the two groups and showed moderate agreement with expectations of alternative medicine, but differed significantly from those of physicians in several areas. Notable differences can be seen in expectations regarding treatment effects, wound healing, and improvement in psychophysical health, where nurses and patients demonstrated a significantly more positive attitude than physicians ($p < 0.01$). However, the difference between nurses and physicians was not statistically significant in some areas, particularly with regard to increasing immunity.

These results illustrate a clear divergence in the perception of CAM between professional and patient groups, with patients consistently showing the highest acceptance and physicians the most cautious attitude.

DISCUSSION

Patients' expectations regarding the use of alternative medicine are generally diverse and strongly reflect their individual needs. The most common reasons for using these therapies include symptom relief, reducing the side effects of conventional treatment, improving quality of life, and boosting overall health and the immune system (Royal London Hospital for Integrated Medicine, 2025; Werneke et al., 2004). In addition, many patients seek greater autonomy in their treatment, a more active role in the decision-making process, and an approach that encompasses the physical, emotional, and spiritual aspects of health (Royal London Hospital for Integrated Medicine, 2025).

Data from a European survey conducted in 2005 show that 50.7% of respondents believe that CAM helps to combat disease, while 40.6% report an improvement in their general well-being. Specific benefits of using CAM were reported by 22.4% of participants ($p < 0.001$), while only 3.2% rated the therapies used as completely useless (Molassiotis, 2005). The results of our study reflect broadly similar patterns: patients most frequently reported an improvement in their psychophysical state (43.9%), a boost in immunity (45.8%), and a reduction in the side effects of oncology

treatment (29.8%) as the main benefits. Only 2.3% of respondents fully agreed with the statement that they felt no improvement, indicating a very low proportion of those who consider CAM to be completely ineffective—a result consistent with European data.

According to the results of a study conducted at the Čakovec Health Centre, which included a sample of 300 patients, 55% of respondents who use CAM believe that these methods help them, while 43% state that they use CAM because they want to try something new (Vitale et al. 2014). These data suggest a significant component of subjective belief in the efficacy of CAM and a particular experimental approach by patients when exploring new therapeutic options. When compared with our findings, similar trends can be observed. Our respondents also show a high level of trust in CAM, with the majority believing that such methods contribute to their overall health or specific therapeutic goals. Although subjective satisfaction with CAM was clearly emphasized in our sample, a key difference is that our respondents were oncology patients. At the same time, the study conducted in Čakovec included GP patients representing a broader and heterogeneous population with different health conditions, including acute and chronic complaints, patients of different age groups and health needs, which differs from our population primarily facing complex challenges related to oncological diseases and their treatment. Other motives may underline the use of CAM, with oncology patients more frequently resorting to additional methods to support treatment. In contrast, family medicine patients may use CAM for preventative purposes or because of an interest in alternative therapeutic approaches.

A study of family medicine patients in Croatia showed that 27% of respondents believe that CAM will help them to treat or alleviate their symptoms (Cizmesija & Bergman-Markovic, 2008). On the other hand, the results of our study, which focused on oncology patients, indicate that their expectations are primarily related to the improvement of general health and the reduction of side effects of treatment, which can also be considered a form of symptom relief. Despite the differences in the context of use, a commonality between these groups is the patients' belief that CAM can have a positive impact on their health. This confirms the broad acceptance of CAM in different patient groups and at the same time underlines the importance of GPs and oncologists in educating patients and setting realistic expectations for the use of CAM.

The interpretation of the results of this study gains additional depth when placed in a broader bioethical and philosophical context. The observed difference in the perception of CAM between oncology patients and medical professionals is not

just a numerical figure, but reflects a deeper epistemological and ethical divide in contemporary medicine.

From a bioethical perspective, patients' high expectations of CAM, particularly in terms of boosting the immune system, alleviating side effects and improving psychophysical well-being can be understood as an authentic expression of their autonomy and life experience (Beauchamp & Childress, 2019). When these needs are not recognized within the biomedical system, patients often turn to alternative medicine as a form of self-determination in the face of the limitations of conventional medicine. Such practices point to the growing importance of narrative medicine and individualized approaches that recognize patients' values, hopes, and search for meaning as integral components of holistic care (Charon, 2006).

On the other hand, health professionals – especially doctors – are often skeptical about alternative medicine. This skepticism stems from a biomedical epistemology in which empirical verifiability and randomized controlled trials are fundamental criteria for therapeutic legitimacy (Goldacre, 2008). However, rejecting a patient's beliefs simply because there is no scientific consensus can undermine the principles of beneficence and respect for the person. This prompts reflection on the importance of developing clinicians' communication skills and empathy so that they can treat patients' views and experiences with respect and understanding even if they do not fit into the usual framework. Ethical care requires more than technical expertise. It requires dialog and a willingness to acknowledge different perspectives.

Ultimately, this divide is not only clinical, but also deeply philosophical. Western medicine, shaped by the rationalism of the Enlightenment, is based on a reductionist and dualistic model that separates body and mind. In contrast, alternative medicine is based on holistic ontologies that emphasize the interconnectedness of body, mind, environment and the spiritual aspect of the human being (Kirmayer, 2011). This form of ontological pluralism challenges the hegemony of biomedical norms and opens a space for epistemological justice, for the recognition of different ways of understanding and healing (Fricker, 2007).

Such epistemological diversity also has important ethical implications. When patients choose alternative treatments, they are often not only seeking physical relief, but are expressing a worldview in which healing is, in other words, existential and meaning-oriented. If healthcare systems do not recognize this dimension, they run the risk of not fully respecting the patient's moral autonomy. In this sense, Pellegrino and Thomasma (1993) remind us that the goal of medicine is more than just treatment it is an act of healing that involves understanding the patient's narrative, their spiritual pain and their search for meaning.

A deeper understanding of CAM can be gained from Ivan Illich's philosophical critique, particularly his analysis of medical power in *The Medical Nemesis* (1976). Illich argues that modern medicine has gone beyond its therapeutic function and has become a form of social control. In this context, the responsible use of alternative medicine can be interpreted as an act of resistance, a reclamation of the individual's right to determine their own path to health. Similarly, Foucault's theory of biopower (1980) points to the way in which institutions, including medicine, discipline the body and mind. Alternative medicine, with its non-hierarchical and relational approach, often provides a space in which these patterns of power are challenged.

However, alternative medicine is not without ethical risks. Its uncritical acceptance, particularly without adequate regulation and verification of efficacy, can lead to harmful consequences, the spread of misinformation or the exploitation of vulnerable patients especially in oncology. The principle of non-harmfulness requires thorough evaluation of therapies and transparent communication of their potential benefits and risks (Ernst, 2004). The balance between respecting patient autonomy and protecting patients requires ethical prudence and responsibility.

Rather than viewing the integration of CAM into cancer care as a conflict between science and faith, it can be seen as an opportunity to develop integrative ethics. The World Health Organisation (2013) emphasizes that integrative models of care must be evidence-based, culturally sensitive and patient-centered. The popularity of alternative medicine is evidence of the need for medicine that listens, individualizes and empowers. Answering this call requires expanding the ethical imagination of healthcare systems and recognizing healing possibilities that go beyond the boundaries of biomedicine.

In this context, the philosophical tradition of virtue ethics, particularly as interpreted by Alasdair MacIntyre (1981), provides a fruitful framework for understanding the role of health professionals. Acting virtuously in medicine involves practical wisdom (*phronesis*), compassion and the ability to understand the moral world of the patient. Respect for alternative medicine, even with a dose of professional skepticism, can be interpreted as an act of ethical sensitivity that preserves the integrity of the patient-physician relationship.

From a bioethical standpoint, the more cautious attitude of physicians toward CAM should not be interpreted merely as professional skepticism, but as an ethical expression of their vocational duty. Physicians are bound by their education, clinical training, and ethical codes – rooted in the Hippocratic Oath and modern principles of biomedical ethics – to act in accordance with evidence-based knowledge, patient safety, and the principle of non-maleficence. This obligation may at times require them to restrain personal beliefs or accommodate patient expectations when scientific

validation is lacking. Such moral prudence reflects the virtue of phronesis – practical wisdom that enables ethical decision-making in situations of uncertainty.

At the same time, this ethical restraint can create a moral and relational tension between professional responsibility and patient autonomy. When patients seek meaning, wholeness, or spiritual coherence through CAM, physicians are called not to reject these aspirations, but to engage them within a framework of honest communication and compassionate understanding. The ethical task, therefore, is not to choose between skepticism and acceptance, but to cultivate reflective dialogue that reconciles professional integrity with respect for patient experience. In this sense, integrative medicine becomes not only a clinical option but a moral practice that seeks harmony between empirical evidence, human dignity, and the art of care.

RESEARCH LIMITATIONS

Although this study provides important insights into perceptions of therapeutic effectiveness and expectations of CAM among oncology patients and healthcare professionals, it is important to note several limitations that may affect the generalizability and interpretation of the results. As a cross-sectional study, it provides insight into respondents' attitudes and expectations at a single point in time. Nevertheless, it is not possible to observe possible changes in attitudes over time. A longitudinal study would help to analyze the dynamics of perceptions of CAM, especially in the context of new scientific findings and changes in health policy. The study was conducted in a single clinical institution (UHC Sestre milosrdnice in Zagreb, Croatia), which may limit the generalizability of the results to a broader population of oncology patients and healthcare professionals in Croatia. Attitudes towards alternative medicine may vary depending on the region, cultural factors, and availability of healthcare services. Data were collected via questionnaires based on the respondents' subjective responses. Response biases, including socially desirable responses or unconscious cognitive biases, are possible. More objective methods, such as clinical studies evaluating the effectiveness of CAM, would help further verify the results. No prior assessment of respondents' knowledge of CAM had been conducted, which could influence the interpretation of the results. Some health professionals may have more knowledge of CAM than others, leading to variations in responses and perceptions of effectiveness. Although physicians and nurses participated in the study, their perceptions of CAM may differ depending on specialization, experience, and personal beliefs. A more detailed analysis of subgroups of healthcare professionals could provide a more accurate insight into the differences within the medical profession. Although the study included a wide range of CAM methods, not all methods are equally researched, and not all respondents

have experience with specific therapies. Future studies should analyze specific CAM methods and their use in more detail, especially in relation to health conditions.

Despite certain limitations, the results of this study provide useful guidance for future research and possible approaches to integrating CAM into clinical practice. To gain deeper insights and more reliable conclusions, future studies should employ longitudinal and experimental methods, expand the sample to different regions and healthcare professions, and analyze individual CAM approaches in more detail within the context of their application in the healthcare system.

Another limitation is the lack of data on health professionals' prior training or familiarity with CAM, which may have influenced their views. This aspect should be included in the design of future research to better understand the factors that shape professionals' attitudes toward complementary medicine.

SUGGESTION FOR FUTURE RESEARCH

Although this study provided valuable insights into perceptions of therapeutic effectiveness and expectations of CAM among oncology patients and healthcare professionals, certain shortcomings and opportunities for further research were identified. This cross-sectional study limits the ability to observe changes in attitudes and expectations over time. Future research should use a longitudinal approach to analyze trends in perceptions of CAM and the potential impact of educational programs on respondents' attitudes. Most existing research, including this one, relies on the respondents' subjective responses. Randomized controlled trials are needed to objectively examine the therapeutic efficacy of specific CAM methods, especially in oncology treatment. The study was conducted at a single clinical institution in Croatia, which may limit the generalizability of the results. Future studies should include respondents from different regions, including rural and urban areas, to capture possible cultural and socioeconomic differences in attitudes towards CAM.

The reasons that motivate patients to seek alternative medicine need to be further explored, including psychological, social, and economic factors. Qualitative approaches, such as in-depth interviews and focus groups, could provide a deeper insight into the subjective reasons for choosing CAM. The results show that healthcare professionals are more sceptical about CAM than patients. Further research should investigate the impact of specific CAM training programs on the attitudes and practices of healthcare professionals to improve communication with patients and integrate CAM into mainstream healthcare. It is crucial to analyze the economic aspect of CAM use, including the costs for patients and healthcare systems.

Regulatory barriers to the integration of certain CAM methods into conventional medicine also need to be investigated.

Conducting future research would allow a deeper understanding of the therapeutic efficacy and perception of CAM and contribute to the formation of scientifically sound guidelines for its use in clinical practice.

CONCLUSION

This study confirms empirically statistically significant differences in perceptions of therapeutic efficacy and expectations of CAM between oncology patients and healthcare professionals. Both null hypotheses were rejected, with patients expressing significantly greater confidence in CAM methods than physicians, while nurses were most likely to hold an intermediate position. The most significant differences ($p < 0.001$) were found in expectations of improved psychophysical health, enhanced immunity and alleviation of side effects of treatment.

Although these findings are clinically relevant, their richness is best understood within a broader bioethical and philosophical framework. Patients' high expectations of CAM reflect more than a mere search for alternative solutions to symptoms – they are a moral expression of autonomy, personal experience, and a desire for holistic, person-centered care. In this light, CAM appears not only as a therapeutic option, but also as a space in which patients affirm their ability to shape their own health stories, often in response to the perceived limitations of the biomedical model.

The different attitudes of patients and doctors can also be interpreted as an expression of an epistemological imbalance: while physicians are trained in a system that emphasizes empirically verified knowledge and standardization, patients often experience their illness through the prism of experience and search for meaning, harmony, and spiritual balance. This tension raises important bioethical questions about the recognition of pluralism in medical knowledge, the role of narrative competence in clinical communication, and the extent to which modern medicine truly respects the patient's moral agency.

From the perspective of virtue ethics, as developed by MacIntyre (1981) and Pellegrino and Thomasma (1993), the role of the physician is not merely technical – it requires moral imagination, empathy and practical wisdom (*phronesis*). A virtuous physician listens to the patient's values, respects his or her worldview and integrates this understanding into care. In this sense, the question of incorporating CAM should not be reduced to a purely technical debate about efficacy, but should be seen

as an ethical task, reconciling the scientific and the personal, the standardized and the individual.

Of course, the other side should not be ignored either – alternative medicine, especially if it is unregulated and scientifically unfounded, harbors potential ethical risks. The principle of harmlessness requires a careful assessment of the safety and scientific basis of these therapies. At the same time, the principle of fairness requires equal access and protection of patients from potential abuse. However, caution towards CAM must not turn into paternalism or lead to the neglect of patients' existential needs. Instead, an approach that involves open dialogue, shared decision-making and building mutual trust is required.

In this way, this research contributes to the growing understanding that health care is not only a technical task, but also a moral practice deeply imbued with values, beliefs, and the search for meaning. The development of ethically sensitive and integrative models of care that reconcile scientific evidence and patient experience can serve as a bridge between clinical standards and the moral complexity of the healing process. Such models recognize the power of science but also take into account the spiritual and existential dimensions of illness that CAM often seeks to address.

It is recommended that the role of educational programs, institutional policies, and cultural narratives in shaping the moral environment in which CAM is evaluated and applied be explored further. By actively considering ethical pluralism in contemporary medicine, it is possible to develop a more just, sensitive, and humane system of care.

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Očekivanja od terapijskih učinaka KAM-a u onkologiji: između autonomije pacijenata i profesionalnog skepticizma

SAŽETAK

Komplementarna i alternativna medicina (KAM) sve je prisutnija u onkologiji, dovodeći u pitanje granice konvencionalne prakse i otvarajući važna bioetička pitanja. Ovim presječnim istraživanjem ispitali su se percepcije terapijske vrijednosti KAM-a među 832 sudionika: 411 onkoloških pacijenata i 421 zdravstvenog djelatnika u jednome hrvatskom kliničkom bolničkom centru. Uz korištenje validiranih instrumenata CHBQ i IMAQ, rezultati su pokazali da su očekivanja pacijenata značajno viša od očekivanja liječnika ($p < 0,001$), osobito u pogledu psihofizičke dobrobiti (72,1 %), potpore imunološkom sustavu (89,8 %) i smanjenja nuspojava (82,9 %). Medicinske sestre zauzele su srednji položaj. Ovi rezultati odražavaju empirijske razlike, ali i dublja etička previranja između kliničkog autoriteta i autonomije pacijenta. KAM predstavlja prostor u kojem pacijenti izražavaju svoju aktivnu ulogu, traže smisao i nastoje postići holističko ozdravljenje izvan biomedicinskog redukcionizma. Dobiveni rezultati upućuju na potrebu za etičkom integracijom na dokazima utemeljene komplementarne i alternativne medicine u onkološkoj skrbi, uz poboljšanu edukaciju i dijalog temeljen na poštovanju. Podrška informiranom donošenju odluka zahtijeva premošćivanje epistemoloških razlika uz istodobno uvažavanje vrijednosti pacijenata.

Ključne riječi: komplementarna i alternativna medicina, zdravstveni djelatnici, onkološki pacijenti, terapijska učinkovitost.