



## Commentary

## Traditional, complementary, and alternative medicine in cancer care: Challenges and opportunities

Hadis Ashrafizadeh<sup>a</sup>, Maryam Rassouli<sup>b,\*</sup>

<sup>a</sup> School of Nursing, Student Research Committee, Dezful University of Medical Sciences, Dezful, Iran

<sup>b</sup> Cancer Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Cancer treatment and care remain challenging in countries with limited resources, often leading to delays in accessing essential medical services.<sup>1</sup> In such circumstances, many patients and their families turn to Traditional, Complementary, and Alternative Medicine (TCAM), either as a standalone approach or in conjunction with standard treatments. Their hope is to enhance disease outcomes and mitigate the complications associated with medical interventions.<sup>2</sup>

The World Health Organization (WHO) defines TCAM as a reservoir of knowledge, skills, and practices rooted in the theories, beliefs, and traditional experiences of diverse cultures. These practices are employed for the purpose of preserving health, preventing, diagnosing, ameliorating, or treating physical and mental illnesses.<sup>3</sup> Over the last few decades, there has been a notable surge in the utilization of TCAM among cancer patients. The prevalence of TCAM usage in cancer survivors exhibits significant variability, ranging from 16.5% in Italy to a staggering 93.4% in China.<sup>4,5</sup>

The prevalence of TCAM can be attributed to several factors: the multitude of unmet patient needs,<sup>6</sup> rising costs of conventional treatments, their ineffectiveness, and associated complications, as well as the public's perception that traditional and natural remedies are safer and more cost-effective.<sup>7</sup> Despite the numerous advantages, many of these treatments carry the potential for serious side effects, drug interactions, and are associated with various challenges.

### Challenges of TCAM use in cancer care

The decision to incorporate TCAM into cancer care is a complex one, influenced by various factors, including attitudes and beliefs,<sup>8</sup> gender,<sup>9</sup> disease status,<sup>10</sup> social and economic status,<sup>9</sup> and cultural contexts.<sup>11</sup> The proliferation of unverified anecdotes and false claims associated with TCAM can easily lead vulnerable individuals to make ill-advised decisions and potentially result in drug interactions.<sup>12</sup>

### Interactions of cancer treatments with TCAM

Approximately half of cancer patients combine TCAM with conventional cancer treatments without informing their health care providers,

which constitutes one of the most significant challenges in this field.<sup>13</sup> Evidence indicates that concurrent use of TCAM and anticancer medications may lead to severe side effects and a reduced quality of life in cancer patients.<sup>14</sup>

Despite the common belief that herbs, being natural products, are inherently devoid of side effects and safe,<sup>15</sup> TCAM is not universally free from risks, and its purported advantages such as cost-effectiveness, increased life expectancy, and enhanced quality of life have yet to be conclusively substantiated.<sup>16</sup> Numerous studies have identified side effects associated with TCAM, either independently or when used in conjunction with allopathic medicines. Some of the most prevalent side effects include gastrointestinal issues (such as nausea, vomiting, diarrhea, and abdominal pain), followed by symptoms like dizziness, headaches, and fatigue.<sup>17,18</sup>

### Insufficient TCAM service delivery units

An additional hurdle in the utilization of TCAM is the limited availability of services, often restricted to a handful of centers and innovative delivery methods. Consequently, if patients question the quality of services, they may find it challenging to seek alternative treatments elsewhere. As TCAM gains popularity among cancer patients, certain countries have witnessed the introduction of evidence-based TCAM counseling and treatments, including herbal remedies, in many leading cancer centers.<sup>19</sup> Nonetheless, only a few of these centers have fully integrated these services into their conventional oncology settings as part of standard care.<sup>20</sup>

### Non-disclosure of TCAM use

Non-disclosure of TCAM usage represents another challenge, often stemming from a communication gap between physicians and patients. Patients' beliefs and narratives are frequently dismissed as superstitions, and during routine medical interviews, physicians seldom inquire about TCAM usage.<sup>21</sup> Many patients opt to keep their TCAM usage concealed due to apprehension of judgment or disapproval from their health care

\* Corresponding author.

E-mail address: [rassouli.m@gmail.com](mailto:rassouli.m@gmail.com) (M. Rassouli).

providers.<sup>22</sup> As referral systems have not been universally established in various countries, cancer patients may feel abandoned and, in many instances, perceive TCAM as a safer, more accessible, and cost-effective choice, leading them to choose this alternative.<sup>23</sup>

Other factors contributing to non-disclosure include the fear of blame and stigmatization by caregivers, caregivers failing to inquire about TCAM use from the patients,<sup>24</sup> a lack of structured TCAM training within health care systems of different countries,<sup>25</sup> health care specialists' limited understanding of TCAM mechanisms and herb–drug interactions, and a dearth of expertise and comprehensive knowledge of medicinal plants among many oncology care providers.<sup>26</sup> Consequently, numerous patients seek advice from family members, friends, or non-traditional health care practitioners.<sup>27</sup>

Engaging in discussions with patients regarding TCAM usage can assist them in making informed decisions and minimizing potential side effects when using these therapies concurrently with conventional cancer medications.<sup>28</sup> Physicians should therefore be well-informed about TCAM-induced side effects or interactions, recognize the associated risks, and advise patients against indiscriminate TCAM usage. Furthermore, patients should be encouraged to disclose their TCAM usage to their health care providers.<sup>29</sup>

#### *Lack of treatment protocols in TCAM*

A significant challenge within TCAM is the absence of treatment protocols, standardization, and policy guidelines. Some TCAM methods concentrate on physical aspects of care, while others emphasize spiritual and mental aspects.<sup>30</sup> Despite TCAM's implementation in over 100 countries worldwide, as per the WHO Traditional Medicine Strategy 2014–2023,<sup>31</sup> the lack of treatment standards has hindered its progress and had a detrimental impact.<sup>32</sup> Additionally, contradictory findings and potential herbal–drug interactions have impeded the establishment of universally accepted guidelines. Consequently, health care professionals often recommend abstaining from herbal products entirely during active anti-cancer treatments, a stance deemed by some as lacking principles.<sup>33</sup> However, this perspective may not be well-received by patients, their families, or society and may disrupt the physician-patient relationship.<sup>34</sup> Furthermore, it may be considered an unethical approach that disregards patient autonomy.<sup>35</sup> Although specific TCAM regulations and directives have been instituted in some countries to streamline the procedures, there remains a need for the development and approval of further regulations regarding the authorities responsible for addressing related complaints and how non-specialists practicing TCAM are to be treated.<sup>36</sup>

#### *Challenges in TCAM-related research*

Challenges related to TCAM studies represent another significant obstacle. All TCAM treatment approaches share common features, including the use of complex interventions such as herbal remedies, individualized diagnosis and treatment, emphasis on the body's inherent healing capacity, and treating patients holistically, considering their physical and mental characteristics. Validating the effectiveness of TCAM methods requires the conduct of scientific research and the generation of sound evidence using appropriate methodologies. However, in many instances, conducting clinical trials poses considerable challenges. TCAM is not seamlessly integrated into the mainstream health care system, and the expenses associated with its treatments are added to the overall research costs. Comparing conventional treatments with TCAM methods often yields incomparable results, as many patient responses, particularly those related to spiritual changes following these treatments, are challenging to quantify. Ethical dilemmas in clinical trials, as well as issues with randomization and blinding methods, alongside the absence of long-term patient follow-ups, present additional hurdles.<sup>37</sup> Uncertainty regarding research costs in TCAM medicine, challenges within research centers, the lack of support and incentive packages for traditional

medicine research in certain countries, and the abundance of keywords linked to TCAM represent further research challenges in this field.<sup>38</sup>

#### *Safety, efficacy, and quality of TCAM products*

In numerous countries, herbal medicines and related products are introduced to the market without undergoing proper safety or toxicological evaluations. There is a lack of effective regulations governing production methods and quality standards. Herbal products, medications, and supplements suffer from imprecise classification, allowing unregistered and non-standard items to easily infiltrate the market.<sup>39</sup> Some herbal products available on the market may be of subpar quality and exhibit questionable efficacy, yet they are sold over-the-counter, often without the identification of potential risks associated with their use.<sup>40</sup> Challenges in this realm include exploiting the popularity of natural remedies for profit, marketing herbal products as anticancer remedies despite a lack of supporting evidence, and leveraging religious beliefs to attract customers.<sup>41</sup> Given that in many countries, TCAM operates independently from national health care systems, it often escapes monitoring by the safety mechanisms and reporting systems established within the primary regulatory and legal frameworks.<sup>15</sup>

#### **Opportunities presented by traditional, complementary, and alternative medicine in cancer care**

While modern medicine has greatly shaped the field of health care, traditional medicine retains its significance in many countries and has experienced substantial growth in recent years. It is only natural that, with the growing interest in traditional medicine among the populace, centers offering traditional medicine services should assume a more prominent role in disease analysis, diagnosis, and treatment, accompanied by an enhanced sense of responsibility. To address and navigate the challenges associated with the use and integration of traditional medicine into the health care system, it is imperative to leverage the available opportunities. Several of these opportunities will be explored below.

#### *Integrating TCAM with national health care systems for Universal Health Coverage*

In various regions worldwide, particularly in African, Asian, and Pacific countries, TCAM serves as a primary form of health care.<sup>42</sup> For many individuals, this medical approach is deeply ingrained in their daily health-seeking behaviors and constitutes a crucial component of health care.<sup>43</sup> In certain instances, it may be the sole available or affordable health care option, especially in remote and underserved areas.<sup>44</sup> The 1978 Declaration of Alma Ata endorsed the strengthening of primary health care, including the involvement of traditional medicine practitioners, in the pursuit of equitable health levels for all.<sup>45</sup> Subsequently, numerous commitments, resolutions, and strategies have been established to facilitate the integration of traditional medicine into national health care systems, partly as a means to attain Universal Health Coverage (UHC).<sup>46</sup>

The integration of TCAM within health care systems has emerged as a widely recognized and adopted model.<sup>47</sup> The WHO outlines three distinct forms of integration: Integrative, Inclusive, and Tolerant health care systems. In the integrative model, TCAM is officially acknowledged and incorporated into all aspects of health care delivery, as observed in countries like China, the Republic of Korea, and Vietnam. The inclusive health care system designates TCAM as an officially recognized form of medical practice, even though it may not be fully integrated into all aspects of health care and education. Countries following this approach include England, Germany, Canada, Australia, Ghana, Nigeria, Mali, and Guinea. Finally, in the tolerant health care system, certain TCAM methods are legally accepted.<sup>31,48</sup>

### Initiating formal TCAM training

Embarking on formal training in the field of TCAM represents one of the most significant opportunities currently available. TCAM is gaining prominence on the global stage, with the WHO giving it due attention. According to WHO reports, university-level training is now offered in 41 countries worldwide, while 36 countries have instituted formal training programs to educate specialists in complementary medicine and other medical personnel.<sup>49</sup> In Iran, this sector is overseen through the establishment of Iranian medical schools, research centers, and new national health centers. Additionally, the Secretariat of the Traditional and Complementary Medicine Education Council has been established within the Ministry of Health, operating in conjunction with existing institutions and medical centers operating within the extensive domain of complementary medicine, whether licensed or not.<sup>50</sup>

### Advancing integrative modalities in TCAM

Integrative oncology, as both a science and a philosophy, centers on the multifaceted health of cancer patients. It proposes multiple approaches to complement conventional treatments such as surgery, chemotherapy, molecular treatments, and radiotherapy. The aim is to establish principles and methodologies for complementary medicine interventions that are understandable and sustainable for patients, health care professionals, and oncologists at large.<sup>51</sup>

### Conclusions

TCAM encompasses complementary methods that have the potential to enhance patients' quality of life, augment their capabilities, and prevent or mitigate side effects, provided it is effectively integrated with conventional cancer treatment. The challenges associated with TCAM usage in cancer care should not compel proponents of conventional medicine to overlook TCAM as a valuable resource in cancer care, particularly within the realms of supportive and palliative care. In many instances, the merits of these services are undervalued, including their cost-effectiveness, alignment with cultural belief systems, patient satisfaction with past experiences, and discontent with the current health care system. By capitalizing on available opportunities, it is feasible to surmount these challenges and address the existing gaps.

Health system policymakers should collaborate with TCAM policy-making to initiate systemic reforms. Moreover, a focus on integrative oncology to enhance service delivery, provision of insurance coverage for evidence-based TCAM practices, bolstering the national cancer referral network, actively promoting the acknowledgment of TCAM as an integral component of the official medical system through the development of comprehensive medical curricula, facilitating TCAM-related research, and, ultimately, engaging patients in meaningful dialogues and recognizing them as partners, serve as the pillars of a coherent, culturally sensitive, and patient-centered approach to cancer care.

### CRedit author statement

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

### Declaration of competing interest

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