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Integration of Complementary Medicine in Supportive Cancer Care: Survey of Healthcare Providers' Perspectives

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ABSTRACT

Background: In recent years, it has been discovered that complementary and traditional medicine (CTM) use among cancer patients has increased. In order to successfully integrate these treatments into cancer care, it is critical to assess the viewpoints, foreseen obstacles and recommendations for CTM use in cancer patients from the perspective of healthcare practitioners (HCPs). **Purpose:** This study aimed to explore the perspectives of HCPs on CTM integration in cancer care, as well as perceived barriers and suggested recommendations to CTM use in oncology settings. **Methods:** A descriptive cross-sectional design was used to collect data from a sample of 240 healthcare providers (HCPs) using the Complementary and Traditional Medicine in Supportive Cancer Care Questionnaire. **Results:** Findings revealed that 49.6% of the participating HCPs reported that 50% of cancer patients had used CTM in the past year. Approximately 75% of HCPs perceived that the greatest motives for cancer patients to use CTM are to improve their well-being and QoL, in addition to have lower chemotherapy side effects. According to HCPs, patients resorted to diet/nutrition therapy and herbs the most during chemotherapy or advanced cancer and they would first consult a folk healer (48.8%), then an oncologist (31.7%) about CTM used modalities. The findings also revealed that HCPs perceived inadequate communication between CTM and conventional practitioners and oncologist skepticism and rejection of CTM as barriers to CTM integration. **Conclusion:** HCPs saw a need to improve communication between integrative physicians and cancer patients by focusing on the patients' lifestyle and outlook, their well-being and their ability to function. **Implications for Nursing:** The findings showed that the majority of HCPs considered oncology nurses to have a crucial role in "participating in building CTM treatment plan". Therefore, nurses need to take a leading role towards reducing the barriers of CTM integration in cancer care settings and involve in planning educational training programs focusing on the benefits and risks of using CTM and the best methods towards integrating CTM modalities for cancer patients.

Keywords: Complementary and traditional medicine (CTM), Cancer patients, Integration.

What does this paper add?

1. Understanding the perspectives of healthcare providers and the barriers to CTM use among patients with cancer is an important step in building an evidence base of the potential benefits and risks

of using these therapies and procedures, given that many Jordanian patients with cancer refer to CTM treatments.

2. About a half of HCPs reported that 50% of patients with cancer use CTM modalities with cancer

conventional treatments, with diet/nutrition and herbs being the most commonly used CTM modalities among those patients.

3. Although HCPs perceived a high percentage of CTM usage among cancer patients, they acknowledged the existence of barriers towards CTM integration in cancer care. The main barriers included the suboptimal communication between CTM and conventional practitioners and the skepticism of oncologists to such use.
4. Interestingly, nurses were referred as the leaders towards implementing CTM treatment plan. Accordingly, nurses have a major role in bringing HCPs together to implement successful CTM integration to cancer care. This involves researching the benefits and risks of CTM modalities and conducting educational training programs to improve the communication about CTM use among HCPs and cancer patients and reduce oncologists' rejection towards CTM integration.

Introduction

Cancer is still one of the world's leading causes of mortality (Buckner et al., 2018). In Jordan, cancer is considered the second leading cause of death (Abdel-Razeq et al., 2015). Many patients who have been diagnosed with cancer choose to use complementary and traditional medicine (CTM) in addition to medical cancer treatments to decrease the negative effects of cancer therapies and improve their quality of life (QoL) (Jermini et al., 2019).

CTM is defined as "a broad domain of resources that encompasses health systems, modalities and practices and their accompanying theories and beliefs, other than those intrinsic to the dominant health system of a particular society or culture in a given historical period. CAM includes such resources perceived by their users as associated with positive health outcomes." (Institute of Medicine, 2005: 19). It refers to a group of treatments and products that are not formally used by healthcare professionals, but rather used alongside conventional medical treatment (Gaboury et al., 2012). CTM includes various treatment modalities; mostly known are herbal and other dietary supplements, manual therapies (including acupuncture, massage, etc.) and mind-body practices. Natural products include substances, such as herbs, vitamins, minerals and probiotics, while mind-body practices are procedures or techniques sometimes

administered by a practitioner, such as hypnotherapy, movement therapies, meditation, spiritual and healing touch (Ng et al., 2016).

One-third to a half of the patients with cancer in developed countries reported the use of complementary medicine (Al-Ghamdi et al., 2017). This prevalence may vary among patients in terms of clinical settings (i.e., cancer types, localized/advanced cancer) and phases of cancer treatment (i.e., after diagnosis, during active cancer treatment, palliative and hospice care) (Farahani et al., 2019). The use of CTM among patients with cancer in the Middle East is highly prevalent, ranging from 46% in Morocco (Brahmi et al., 2011) to 60.9 % in Palestine (Ali-Shtayeh et al., 2011) and nearly 70% in Saudi Arabia (Abuelgasim et al., 2018). In Jordan, in a study that included 200 cancer patients from two hospitals, 56.6% of those patients reported the use of CTM regardless of the type or stage of their cancer. Herbal medicine was the most used method, followed by food and vitamin supplements, dietary adjustment and spiritual practice (Al-Momani & Al-Tawalbeh, 2015). This is in congruence with Akhu-Zaheya and Alkhasawneh (2012) study, in which folk therapies including nutritional supplements (i.e., honey, olive oil, black seeds) and spiritual practices (i.e., reading the Holy Quran, prayer and Ruqys) were frequently used among Jordanian Muslim patients diagnosed with cancer. Another study on 1138 Jordanian cancer patients revealed that 35.5% of those patients used botanicals-based CTM (Afifi et al., 2010). The widespread use of CTM poses a challenge to healthcare providers (HCPs), who are increasingly being called upon by their patients to provide advice on the efficacy and safety of using various forms of CTM.

Cancer patients who are receiving treatment in major integrative oncology centers in the USA usually meet with an integrative medicine physician for an initial consultation that covers diet, lifestyle and natural products. Together, the doctor and patient create an individualized integrative medicine prescription that makes the best use of appropriate modalities during and after cancer treatment. Acupuncture and massage therapy are frequently recommended for pain relief. Patients are encouraged to experience meditation, music therapy and other mind-body approaches for anxiety and stress reduction. Exercise is typically recommended to all cancer patients and survivors due to strong evidence that it improves their QoL (Grant et al., 2019).

Furthermore, many cancer centers in Australia and around the world are developing Integrative Oncology (IO), where evidence-based CTM is offered within the cancer center by a multidisciplinary team, with the goal to improve well-being of patients from the time of diagnosis, throughout the cancer journey and after cancer therapies (Grant et al., 2019).

Over the last two decades, healthcare providers (HCPs), oncologists and healthcare policymakers have begun recognizing the substantial impact of CTM use on doctor/patient interaction, as well as its potential interference with cancer treatment effectiveness through dietary/herbal supplement-drug interactions (Ben-Arye et al., 2015). Greater communications about the use of complementary therapies between cancer patients and their conventional providers are needed for improved patient quality of care. Additionally, more communication between TCM and oncology healthcare providers is required. Nurses may play an important role in facilitating communication about CTM, because they are often supportive of complementary therapies and have more direct communication with patients about their treatment preferences (Stub et al., 2017).

Healthcare providers tend not to initiate a conversation with their patients about the use of CTM. More than a half of the patients using CTM do not inform their doctors about this use, because they expect that the doctors will disapprove it. However, this may be a dangerous option, as the patient may be unaware of possible drug interactions with CTM (Berretta et al., 2020). The patients' reluctance to share the fact that they are using CTM modalities limits the communication between patient and physician about the possible risks and benefits of CTM use as an adjunct therapy with conventional cancer treatments.

Understanding the perspectives of healthcare providers and the barriers to CTM use among patients with cancer from HCP perspective is an important step in building an evidence base of the potential benefits and risks of using these therapies and procedures. Therefore, the aim of this study is to explore healthcare providers' perspectives (including nurses) and the barriers related to CTM integration in cancer care in Jordan. Indeed, exploring the possible barriers to integrating complementary medicine in supportive cancer care will help in creating strategies to overcome these barriers and ultimately improve quality of care for patients with cancer. More specifically, the study seeks to answer the

following questions: (1) What are the perspectives of healthcare providers regarding CTM usage among patients with cancer in Jordan? (2) What are the barriers related to CTM usage among patients with cancer from HCP perspective?

Methods

Design and Setting

The study was conducted using a descriptive cross-sectional design to meet the purpose and specific questions of the current study. A convenient sample of HCPs was recruited from three of the region's largest hospitals. These hospitals are located within two geographical areas. Al Bashir Hospital and the Oncology Center at Queen Alia Hospital are located in central Jordan, in the capital Amman, while King Abdullah University Hospital (KAUH) is in the northern region. The majority of participants were nurses (70%), followed by physicians (19.6%) and pharmacists (10.4%). About a half of the sample was recruited from the Royal Medical services. These hospitals provide therapeutic and palliative care for cancer patients.

Sampling

Non-probability convenience sampling technique was used to recruit a total sample size of 240 healthcare providers (oncologists, surgeons, oncology nurses and pharmacists) who met the eligibility criteria. This study is part of a larger study that looked at differences in HCP perspective regarding the use of CTM among patients with cancer. For that study, the sample size was calculated using the G Power software program. The following parameters were entered into the software to attain the required sample size; moderate effect size of 0.3, power of 80% and $\alpha=0.05$. The required sample size was 180 healthcare providers. The total sample size was 240 healthcare providers.

The healthcare provider was considered eligible if he/she (a) deals directly with patients diagnosed with cancer; (b) has at least six months' experience in the oncology department. However, healthcare providers with managerial positions or those not directly dealing with patients diagnosed with cancer during the conduct of this study were excluded.

Instrument

A questionnaire on the Integration of

Complementary and Traditional Medicine as a Supportive Cancer Care Tool was used to collect study data (Ben-Arye et al., 2015). The questionnaire consists of 16 items. Five questions address demographic data (age, gender, religion, professional status and institution). Other questions are related to perspectives of HCPs on CTM integration in cancer care, as well as perceived barriers or obstacles to its integration in a hospital setting. These include four multiple-choice questions, four structured questions with responses ranging from one (very low) to four or seven (very high) and three open-ended questions. The first open-ended question asked about the most common herbs used by cancer patients, the second about three areas of CTM treatment that cancer patients would be most interested in or would like to see provided in an oncology setting from the perspective of HCPs, while the third was about recommendations of HCPs to improve integration of CTM within oncology centers. The subscale of patients' expectations from CTM therapies was scored from 1 (very low) to 7 (very high), while the barriers and recommendations for integration subscales were scored from 0 (not agree) to 4 (agree) (Ben-Arye et al., 2015). Reliability and validity of the questionnaire were established in the literature. Reliability was reported with Cronbach's alpha coefficient of 0.48 and interclass correlation coefficient (ICC) of 0.86. Validity of the measure was performed using in-person and focus groups of HCPs and cancer patients (Farahani et al., 2019). The total Cronbach's alpha for the instrument used in the current study was 0.77, showing the instrument's good reliability. Furthermore, the content validity and face validity were evaluated by experts in the field of oncology, including physicians, nurses and pharmacists from oncology care settings. Pilot testing of the measure was also carried out, where the instrument was administered to a sample of HCPs in oncology care to ensure the clarity, comprehensibility and cultural relevancy of the tool.

Data Collection Procedure

The first step in conducting this study was obtaining approval from the Institutional Review Board at Jordan University of Science and Technology and from each participating hospital, prior to beginning data collection. The study aims, procedure, risks and benefits were explained to the administrative staff of each selected hospital. After that, all healthcare providers working in

oncology departments of the selected hospitals were approached in-person and screened for participation eligibility. Those who were eligible were invited to take part in the study in a quiet area within their setting. On the first contact, the participants were given a brief description of the study's purpose, procedure and associated benefits and risks. Those who agreed to take part in the study signed the informed consent and completed the questionnaire. The copies of the questionnaire were numerically coded before being completed by the healthcare providers. The anonymity of the participants and the confidentiality of the information were assured.

Data Analysis

The Statistical Package for Social Sciences (SPSS), version 24.0, was used for data entry and analysis. Descriptive statistics used included means, standard deviations, frequencies and percentages for categorical variables, whereas means and standard deviations were used for continuous variables.

Results

A total of 250 questionnaires were distributed to eligible participants. Of those, 245 questionnaires were returned, giving a response rate of 98 %. Furthermore, five copies of the questionnaire were returned with incomplete data and were thus excluded from the analysis, meaning that 240 was the final number of completed questionnaires submitted for the analysis.

The mean and standard deviation of the age of the participants in the study was 33.53 years (SD=5.8) with a range of 23-62 years. The mean years of oncological experience was 9.03 (SD=5.4) with a range of 1-26 years. The sample consisted predominantly of females and Muslims. Table 1 includes data on demographic characteristics of the study sample.

CTM Use in Oncology Care Settings

Rating of HCPs on their patients' use of CTM therapy ranged mainly between 25% and 75%. According to HCPs, the majority of their patients (49.6%) had used CTM during the past year and patients' possible motives for seeking CTM modalities included "to improve well-being and quality of life" and "to reduce side effects of chemotherapy treatment", which were the two highest rated answers (73.8% and 73.3%, respectively), followed by "to cure cancer" (37.1%).

HCPs reported that dietary/nutritional therapy (92.9%) and herbal medicine (91.3%) were regarded as the leading CTM modalities used by patients during chemotherapy or advanced cancer, as compared to

manual healing/massage therapy (54.2%) or “Chinese medicine/acupuncture” (22.5%). There was particular interest in herbal remedies; sinica (*Ephedra foeminea*) 63.3% and ginger (61.7%).

Table 1. Demographic characteristics of study sample (N=240)

Characteristics	N	%
Gender:		
Male	110	45.8
Female	130	54.2
Religion		
Muslim	234	97.5
Christian	6	2.5
Profession		
Physician	47	19.6
Nurse	168	70
Pharmacist	25	10.4
Institution		
KAUH	45	18.8
Al-Bashir Hospital	80	33.3
Royal Medical Services	115	47.9

Participants reported that oncology patients in their institutions would consult a folk healer (48.8%), followed by an oncologist (31.7%) and only 5% would consult a qualified CTM practitioner. Moreover, their oncology patients would like to take advantage of these integrative care consultations to learn more about herbal medicine (64.6%), diet (53.8%) and traditional Arab medicine (45%). On the contrary, music, homeopathy and group therapy were rated the lowest among other preferences. Among the CTM modalities, their patients would like to see provided in their oncology center mind-body spiritual modalities (38.3%) and Chinese medicine (21.7%), which were rated the highest, while energy and healing therapies, group therapy and music were the lowest scoring modalities.

Respondents were asked to assess on a 7-point scale, ranging from 1 (very low) to 7 (very high), their patients' main expectations of CTM consultation and treatment, if CTM were to be integrated within the oncology centers or the institutions where they work. Analysis of the entire sample, based on the descriptive analysis tests (central tendency and dispersion measures), revealed that the expectations for the

integration of CTM include the following: “to support the patient emotionally” ($M= 5.48$, $SD = 1.503$), “to support the patient spiritually” ($M= 5.36$, $SD = 1.457$) and “to strengthen general ability to cope with disease” ($M= 5.11$, $SD = 1.457$). These points were rated the highest, compared with other expectations. On the other hand, the CTM expectation “to cure the disease completely” was rated the lowest ($M=3.48$, $SD= 1.62$). See Figure 1 for further details.

We aimed to assess the participants' perceptions of patients' main expectations of each staff member (oncologist, oncology nurse, social worker, family doctor) regarding CTM treatment if CTM was to be integrated in their cancer care settings. Results revealed that patients perceived their oncologist as having the greatest role to play in “updating patients with CTM modalities' results (77.9%)”. Eighty percent of participants considered that the oncology nurse has a crucial role in “participating in building CTM treatment plan”. Interestingly, 75.4% of the participants considered it to be the role of the “patient's family doctor” to “refer patients to CTM treatment”. See Table 2.

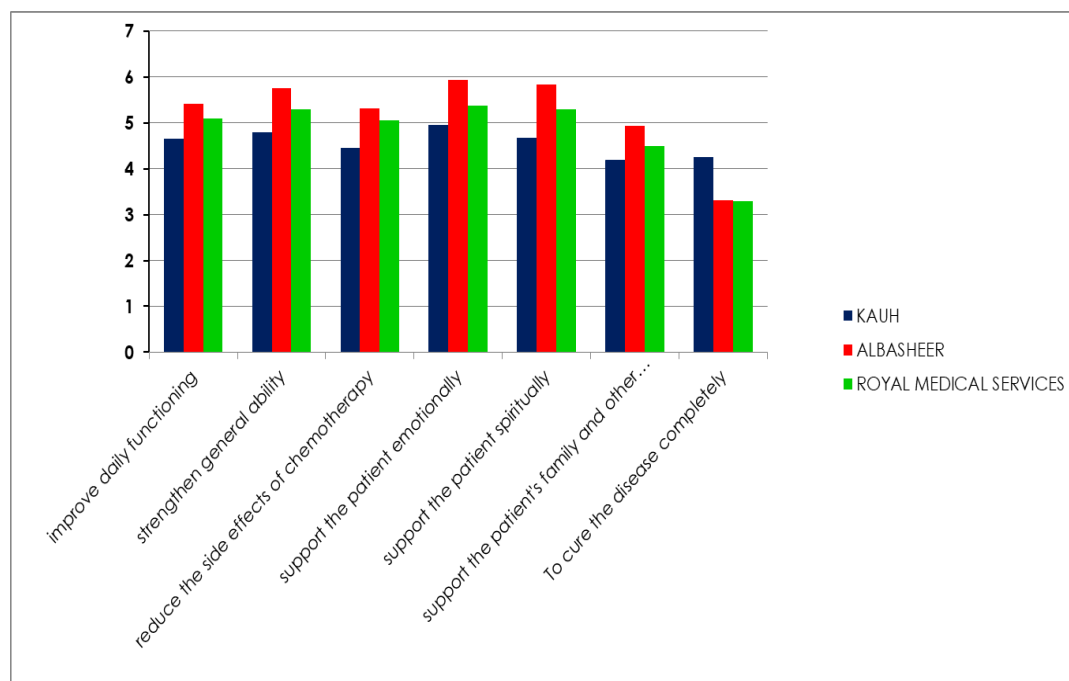


Figure 1. Patients' expectations from CTM modalities

Table 2. Perception of HCPs of their patients' main expectations of each staff member regarding CTM (N = 240)

Patients' main expectation of each staff member regarding CTM treatment if it was integrated in your institution	To refer patients to CTM treatment				To participate in building CTM treatment plan				To be updated with CTM treatment results			
	Yes		No		Yes		No		Yes		No	
	N	%	N	%	N	%	N	%	N	%	N	%
Patient's oncologist	158	65.8	82	34.2	138	57.5	102	42.5	187	77.9	53	22.1
Patient's oncology nurse	75	31.3	165	68.8	192	80	48	20	85	35.4	155	64.6
Patient's social worker	146	60.8	94	39.2	99	41.3	141	58.8	71	29.6	169	70.4
Patient's family doctor	181	75.4	59	24.6	138	57.5	102	42.5	176	73.3	64	26.7

Barriers to CTM Integration in Cancer Care

Participants were asked to respond on a 5-point scale ranging from 0 - 4 to the potential barriers to CTM integration into supportive cancer care within the oncology center. Results showed that the oncologist's "suboptimal communication between the CTM and conventional practitioners" (M=3.20, SD=0.953), followed by the "skepticism and objection of the oncologist to CTM" (M=3.18, SD=0.987), were the highest obstacles. On the other hand, "patient's unfamiliarity with the concept of CTM integration" was

perceived as the lowest potential barrier (M=2.77, SD=1.201). See Table 3 for more details.

Participants were also asked to rate recommendations on a five-point scale (ranging from 0 to 4), which might potentially promote successful interaction between patients and integrative physicians if CTM clinic was integrated within their oncology center. "Patient's lifestyle and outlook" (M=3.37, SD= 0.901) and "patient's well-being and ability to function" (M=3.35, SD= 0.879) received the highest scores. See Table 4.

Table 3. Potential obstacles/barriers to integration of CTM (n=240)

Barriers to CTM integration	M	SD
Patient's unfamiliarity with the concept of CTM integration	2.77	1.201
Geographical factor (distance and accessibility)	2.86	1.042
Gap between patient's expectation and the integrative program objectives	3.03	0.879
Suboptimal matching of CTM modalities to patient's cultural and religious codes and beliefs (e.g. appropriateness of massage, unfamiliar acupuncture treatment, gender issues)	2.86	1.025
Suboptimal communication between the CTM and conventional practitioners	3.20	0.953
Skepticism and objection of the oncologist	3.18	0.987

Table 4. Recommendations that may advance successful interaction between patients and the integrative physician (n=240)

Recommendations that may advance successful interaction between patients and the integrative physician	M	SD
Focus on patient's well-being and ability to function	3.35	0.8 79
Focus on patient's lifestyle and outlook	3.37	0.9 01
Providing patients with practical and tangible treatment	3.05	0.9 02
Emphasizing flexible session scheduling and duration	3.20	0.7 86
Involving patients' relatives in treatment	3.07	1.0 16
Using medical status symbols	3.24	1.0 02
Reducing oncologists' skepticism of CTM	3.17	0.9 70

Moreover, more than one third of the participants (42.5%) (n=102) scored training and educational programs and courses for the HCPs as the main

recommendations to be offered to facilitate the integration of a CTM clinic within the oncology care centers in their institutions. See Table 5.

Table 5. Recommendations to facilitate integration of CTM clinic within oncology

Recommendations	Yes		No	
	N	%	N	%
Further research to support CTM integration	69	28.7	171	71.3
Training and educational courses for HCPs	102	42.5	138	57.5
Specialized clinic within the hospital that offers CTM consultations	50	20.8	190	79.2
Patient education about benefits and risks	30	12.5	210	87.5
Initiation of protocol-driven clinical pathways	24	10	216	90
Monitoring laboratory results	15	6.3	225	93.8
Assessing patients' knowledge of CTM, encouraging them to inform physicians as necessary	23	9.6	217	90.4

Discussion

This study was initiated with the goal to explore healthcare providers' perspectives and the potential barriers that could hinder the integration of CTM in the treatment of cancer patients in Jordan. Our findings revealed a significant percentage of CTM usage, similar to other published studies (ranging from 25% to 50% among cancer patients) (Ben-Arye et al., 2015; Horneber et al., 2012). According to HCPs, dietary/nutritional therapy and herbal medicine were the leading CTM modalities used by patients during chemotherapy or at the advanced cancer stage. Since there are potential risks of herb/drug interactions impacting the efficacy of chemotherapy and other cancer treatments, this would pose a major concern for positive health outcomes. Yet, there is a paucity of evidence on how CTM can aid in the permanent cure of cancer (Stub et al., 2016). In fact, some complementary treatments may impose significant risks (Attwell et al., 2018). People may find themselves paying a high price for an item that has not been thoroughly investigated in clinical trials. This safety issue is one of the major reasons for integrating skilled CTM consultants (integrative physicians) into traditional oncology settings, where they would be well placed to recognize the use of dietary/herbal supplements and monitor any hazards and interactions with cancer therapy (Ben-Arye et al., 2010).

Our data showed that HCPs perceived that the main reason for patients' use of CTM modalities was to improve patients' quality of life and well-being. This result is particularly consistent with the findings of Ben-Arye et al. (2015), which revealed that the second most common reason for using CTM was to improve one's well-being and quality of life. Jermini et al. (2019) found that Swiss cancer patients reported using complementary and alternative medicine to enhance their overall well-being. However, this was not the case for Malaysian cancer patients, with just 26.7% citing that the reason for use was to improve their quality of life (Razali et al., 2020). Surprisingly, another study revealed that the most often cited motivation for electing to use CTM among cancer patients was the desire to try everything that may help in overcoming cancer (Bahall, 2017). In contrast, the majority of German cancer patients said that the reason for their non-use was their perception that CTM was superfluous (Paepke et al., 2020). Among several other explanations, several Swiss

cancer patients claimed that they had always been in excellent condition prior to being diagnosed with the illness, while stating their faith in conventional medicine and their oncologist (Jermini et al., 2019).

According to our findings, HCPs cited that diet/nutrition treatment, herbs and manual healing/massage therapy were identified as the most commonly utilized CTM modalities by patients undergoing chemotherapy or having terminal cancer. This finding emphasizes the deep connection of patients to a triad of integrative modalities (diet, herb and manual therapies). These three modalities are highly relevant to the professional role of nurses (such as lifestyle modification, counseling and touching patients). This finding contradicts with the findings of other studies (Ben-Arye et al., 2015; Sanford et al., 2019), which identified herbal medicine as being the main modality, which may be substantiated by the general public's belief that it is safe, causes fewer negative effects and is less likely to induce reliance (Olaku & White, 2011). It is worth noting that a wide range of herbs and multivitamins are seen to be attractive options among Asian and European patients (Razali et al., 2020). More specifically, our findings revealed that sinica (*Ephedra foeminea*) and ginger were the two herbs most commonly taken by cancer patients. Sinica, commonly known as (*Ephedra*), is a herb used in traditional Chinese medicine for over 5,000 years to alleviate asthma, bronchitis and hay fever. *Ephedra* is additionally used to treat cold and flu-like symptoms, such as nasal congestion, cough, fever and chills (Kim et al., 2014). Ginger has been utilized for several thousand years to cure a variety of diseases including colds, nausea, arthritis, migraines and hypertension (Bode & Dong, 2011). Some research suggests that ginger can help with chemotherapy-related nausea and vomiting, as well as motion sickness. Nonetheless, due to their blood-thinning properties, ginger supplements should not be used at the time of surgery (Prasad & Tyagi, 2015). According to Jermini et al. (2019), Swiss patients used green tea and herbal tea, while in Turkey, the majority of those questioned were using nettle (*Urtica dioica*) or seeds (Kucukoner et al., 2013), which opposes our results.

Both in popular and professional consciousness, one of most popular theories of folk medicine is that it symbolizes a body of beliefs and practices that is secluded in different ways from the social and cultural

"public consciousness" and fascinatingly undeterred by "contemporary" awareness. Furthermore, "folk" and "modern" medicine are frequently compared on the apparent assumption that they are reciprocally unique designations (O'Connor & Hufford, 2001). Folk medicine refers to the unofficial health beliefs and practices for a specific culture or ethnic group and relies heavily on oral transmission. In many cultures, it encompasses herbal and dietary therapies in addition to spiritual practices (Hufford, 1997). In a study on 123 of Jordanian Muslim patients diagnosed with cancer, folk therapy was highly used in terms of herbal and dietary supplements, such as honey, olive oil, black seeds and dates. Furthermore, religious practices were also prevalent exemplified in reading Qura'an, prayer and Ruqya among those patients (Akhu-Zaheya & Alkhasawneh, 2012). The outcomes of our study revealed that oncology patients were more likely to consult a folk healer before consulting an oncologist. This is a significant point, highlighting the need to include integrative oncology consultation within the oncology center. Currently, in the alternative medicine setting, folk healers provide consultation for about a half of the patients who are receiving treatment at a medical center. This alternative setting, if not supported in a modern medicine setting, may endanger patients' safety. This is in contrast to the findings of Savas et al. (2016), who found that medical oncologists, nursing staff and related alternative clinicians were judged suitable for consultation and advice. Our results might be supported by the fact that, in some countries, folk healers are much more geographically approachable and deliver a culturally recognized remedy (Peltzer & Mngqundaniso, 2008).

Furthermore, our findings emphasize the leading expectations that integrative care should focus on diet, herb modalities and traditional Arab medicine consultations. It is highly interesting to see that the most important integrative modalities expected to be provided are mind-body/spiritual modalities and Chinese medicine, rather than herbs and diet modalities. It seems that the HCPs suggest here a need to reframe patients' expectations. While patients primarily seek herbs and nutrition consultations, the HCPs suggest that modalities that have received greater research attention, such as acupuncture and mind-body therapies, should be prioritized. In Saudi Arabia, where Islam is the dominant religion (Fahmy, 2018), a cross-sectional

analysis found that Islamic religious beliefs enhanced the psychological well-being of cancer sufferers (Hamdan et al., 2020). An earlier study established that religion provides optimism to individuals diagnosed with cancer and it has been proven to improve cancer patients' life quality (Weaver & Flannelly, 2004). Prior literature established a link between religion and general physical health; this link was not affected by socio-demographic or clinical characteristics (Jim et al., 2015). Researchers studying the role of faith and spirituality in assisting cancer patients have proposed sub-dimensional regions that might assist clinically unhealthy persons to deal with their life-seeking responsibilities (Canada et al., 2007).

The consultation should be offered as a standard part of the oncology service and patients should be directly asked about their usage of CTM treatment, in addition to their expectations of these therapies (Jermini et al., 2019). Such expectations seem to be the primary determinants of cancer patients' utilization of CTM (Latte-Naor, 2019). In contrast to a recent study by Latte-Naor et al., which found cancer patients anticipating complementary medicine to cure their disease and lengthen their life, our findings revealed that the most important expectations of those turning to CTM modalities involved emotional, spiritual, QoL and functional aspects. The patients of our study participants (HCPs) were not necessarily looking for CTM to cure the disease, which is a very "integrative" and realistic statement. A wide range of complementary cancer "cures" are being sold to vulnerable people, but none of them was scientifically proven to have positive outcomes (Ernst, 2009). On the other hand, a recent study in South Korea (Jang et al., 2017) demonstrated that cancer patients who used CTM modalities reported decreased anxiety and depression when compared to non-CTM users, which validates our findings.

The potential barriers to CTM incorporation were also addressed by this study. The main barriers to CTM integration were regarded to be poor communication between CTM and conventional practitioners, as well as oncologists' skepticism and objection to CTM. These barriers were partially congruent with the results of Ben-Arye et al. (2015), who found oncologists' skepticism and objection to the integration of CTM within the oncology care system to be the leading barrier to integration. An earlier study by Ben-Arye et al. (2012), on the other hand, found that geographical factors have

played a significant role as a barrier to integrating CTM from the perspective of Arab oncology patients. These findings imply that the subject of CTM integration in cancer practice is more nuanced than merely evidence-based facts on CTM effectiveness and safety. Overcoming these barriers is crucial, so that CTM professionals may create a saturation point and a well-organized academic effort to aid in the integration of evidence-based practice in CTM (Veziari et al., 2017).

The outcomes of our study revealed that nurses are not perceived as an important source for referral. It is quite surprising how significant the perceived roles of social workers and family doctors in referral are, as their roles reach similar levels to that of the oncologists. However, most interestingly, nurses are by far regarded as the leading professionals to participate in building the CTM treatment plan. This means that the most 'active' role of sharing the treatment plan design is attributed to the nurses, who are naturally in most frequent and direct contact with patients. This is in contrast to the perceived role of nurses in referral, which may be regarded as less 'active' and the most passive role.

Another significant finding of our study is that medical education and training for the HCPs are perceived as the most important recommendations to facilitate integration of CTM clinics within oncology care centers, even more than research and educating patients. Congruent to these findings, those of a study examining the challenges encountered by oncology HCPs in discussing complementary medicine revealed that inadequate training, concerns regarding effectiveness and safety, institutional obstacles to obtaining CTM details and a lack of confidence in answering CTM questions were also significant barriers (Hayward et al., 2021).

Limitations

Some limitations should be mentioned. To begin, because this study used a cross-sectional design, the variables were only measured over a short period of time. Thus, the responses relied heavily on the participants' perceptions of CTM usage at the time of data collection only, which may lead to selection bias. Furthermore, we had some limitations in terms of sample selection, because our sample only included HCPs from 3 health institutions in Jordan. Therefore, we may have overlooked a considerable proportion of other HCPs who work in specialized oncology centers,

resulting in sampling bias. Furthermore, it is crucial to note that data was collected *via* self-reported questionnaires, which may have influenced the participants' desirability and resulted in response bias.

Recommendations

In general, this study obtained basic data on the perspectives held by Jordanian HCPs regarding CTM prevalence, top modalities, recommendations and perceived barriers to integration.

There have been very few studies conducted on the main concepts of this research globally and Jordan is no exception. The lack of literature makes the results of this study a reference for HCPs and researchers to develop and implement strategies and induction programs to clarify CTM's role in improving QoL, coping and well-being among oncology patients in Jordan. HCPs of all professions need to increase their knowledge of CTM and communication between all parties needs to be improved if there is to be an effective and successful integration of these types of treatment in supportive cancer care. Our findings show that cancer patients from HCP perspective are generally interested in CTM. HCPs ought to be conscious of this in order to better satisfy the requirements of their patients. It is critical to investigate the utilization of CTM with cancer patients, teach them about potentially helpful treatments despite the little current data. This is especially important for folk therapy in which diet/nutrition (i.e., one of folk therapy remedies) was rated to be the commonly used CTM modality. Furthermore, HCPs in oncology settings need to work and collaborate towards integrating CTM therapies. As a result, we propose developing specialized counseling clinics for integrative medicine concepts and evidence-based complementary therapies at various cancer centers and selected organizations in order to constructively investigate integrative health initiatives with cancer patients. Furthermore, the researchers seem to agree that active surveillance or measuring actual harm from CTM should be the emphasis for CTM investigation. The second objective is to conduct a study on practitioners' and public and professional organizations' opinions and attitudes, as well as on the factors that impact those opinions. The development of simplified measuring tools to investigate HCP perspective on the use of CTM treatments is deemed necessary due to the complexity of the data collection instrument used in this study.

Implications for Nursing

According to our findings, nurses were regarded by healthcare professionals as leaders in developing CTM treatment plan. In order to be able to play this role, nurses need to educate themselves about CTM modalities first and inquire about patients' usage of them and the reasons that lead patients to incorporate CTM in their cancer care. Nurses are also required to assess the types of CMT modalities used by patients, their cost, patient knowledge and benefits and risks of using, including those related to drug-drug interaction. Such assessment needs to be carried on to patient's oncologist and other healthcare professionals to allow them to make an informed decision regarding patient care. Reducing the barriers towards CTM integration is another avenue that nurses need to work on. Educating healthcare professionals and cancer patients about different types of CTM modalities in addition to their benefits and risks paves the way towards evidence-based CTM integration.

The outcomes of our study revealed that nurses are not perceived as an important source for referral. It is quite surprising how significant the perceived roles of social workers and family doctors in referral are, as these roles reach similar levels to that of the oncologists. However, most interestingly, nurses are by far regarded as the leading professionals to participate in building the CTM treatment plan. This means that the most 'active' role of sharing the treatment plan design is attributed to the nurses, who are naturally in most frequent and direct contact with the patients. This is in contrast to the perceived role of nurses in referral, which may be regarded as less 'active' and the most passive role.

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Conclusion

According to the findings of the study, the reported prevalence of CTM use among cancer patients was high and Jordanian healthcare providers are moderately interested in the issue of CTM usage among patients with cancer. HCPs believed that the primary reason for complementary and traditional medicine (CTM) usage among cancer patients was to improve well-being and quality of life. When compared to other modalities, the diet/nutrition modality was rated the highest, while ginger and sinica were both perceived to be the most commonly used supplements by cancer patients. Participants reported inadequate communication between CTM and conventional practitioners, as well as oncologists' skepticism and rejection of CTM as barriers to CTM integration. Finally, the study participants were highly supportive of concentrating on patients' lifestyle and outlook as a technique for building a strong patient-integrative physician interaction.

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Conflict of Interest

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