

Attitudes Among Nurses Toward the Integration of Complementary Medicine Into Supportive Cancer Care

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Purpose/Objectives: To explore the attitudes of nurses treating patients with cancer regarding the use of complementary and integrative medicine (CIM) therapies to reduce symptoms and improve quality of life (QOL).

Design: Prospective and descriptive.

Setting: 12 hospital and community care settings in Israel.

Sample: 973 nurses working in oncology and non-oncology departments.

Methods: A 26-item questionnaire was administered to a convenience sample of nurses treating patients with cancer.

Main Research Variables: Interest in CIM integration and training in supportive cancer care.

Findings: Of the 973 nurses who completed the questionnaire, 934 expressed interest in integrating CIM into supportive cancer care. A logistic regression model indicated that nurses with a greater interest in integration tended to be older, believed that CIM improved patients' QOL, and had no structured postgraduate oncology training. Nurses who believed CIM to be beneficial for QOL-related outcomes were more likely to express interest in related training. The goals of such training include improving QOL-related outcomes, such as anxiety, insomnia, gastrointestinal symptoms, and pain.

Conclusions: Most nurses working with patients with cancer are interested in the integration of CIM into supportive cancer care.

Implications for Nursing: Most nurses would like to undergo training in CIM to supplement conventional care. CIM-trained integrative nurses can help promote the integration of patient-centered CIM therapies in supportive cancer care settings.

Oncology centers worldwide are making complementary and integrative medicine (CIM) services available to patients. The stated goal of these treatments is to improve patients' quality of life (QOL) during the various stages of cancer therapies (Ben-Arye et al., 2013). Like palliative care, CIM embraces a patient-centered and patient-tailored approach, which is based on a biologic, psychological, social, cultural, and spiritual model of holistic care, in keeping with patients' health belief models. Research has shown that CIM can reduce cancer-related fatigue; chemotherapy-induced nausea, anxiety, insomnia, pain, and a range of other QOL-related concerns (Greenlee et al., 2014). However, potential safety concerns exist, particularly regarding the use of herbal medicine, which could potentially lead to herb–drug interactions that affect the bioavailability and activity of chemotherapy agents (Zeller et al., 2013).

The prevalence of complementary medicine use among patients with cancer is high, with more than half of those undergoing chemotherapy reporting the concurrent use of CIM-related therapies (Davis, Oh, Butow, Mullan, & Clarke, 2012). Many CIM treatments are unmonitored by an informed healthcare professional,

which has led to the need for consultations with CIM-trained practitioners working in the conventional oncology setting (Ben-Arye et al., 2016). Integrative practitioners are conventional medical professionals who are dually trained in CIM and supportive care. They provide a nonjudgmental environment for patients, reducing the use of unmonitored alternative treatments, which are of questionable effectiveness and safety, while offering comprehensive evidence-based guidance in making informed decisions related to treatment programs. This includes advice pro-

vided by integrative physicians on the effectiveness of herbal medicines and their potential for negative interactions with drugs. Integrative practitioners are now being asked to provide not only guidance but also CIM treatments in an effective and safe environment, with the highest standard of professional care (Ben-Arye et al., 2014).

The impact of the integration of nurses with CIM training in the oncology setting, as well as their interest in promoting the integrative process, is still unclear. The current study explores the attitudes of

TABLE 1. Sample Characteristics by Level of Interest (Greater Versus Lesser) in CIM Integration

Characteristic	Total Cohort (N = 934)		Lesser (n = 368)		Greater (n = 566)		p
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	
Age (years)	42.6	10.5	41	10.1	43.6	10.6	< 0.0001
Characteristic	n	%	n	%	n	%	p
Gender							0.043
Female	780	85	294	82	486	87	
Male	133	15	63	18	70	13	
No response	21	-	11	-	10	-	
Country of origin							0.15
Israel	515	59	201	59	314	60	
Union of Soviet Socialist Republics	248	29	108	32	140	27	
Other	104	12	34	10	70	13	
No response	67	-	25	-	42	-	
Marital status							0.13
Single	111	12	53	15	58	11	
Married	695	77	269	76	426	78	
Other	94	10	30	9	64	12	
No response	34	-	16	-	18	-	
Education							0.06
Bachelor's degree	487	64	210	68	277	61	
Master's degree and PhD	277	36	100	32	177	39	
No response	170	-	58	-	112	-	
Postgraduate training							0.004
Yes	172	34	82	41	90	29	
No	340	66	117	59	223	71	
No response	422	-	169	-	253	-	
Place of employment							0.005
Hospital	767	85	318	89	449	83	
Community	133	15	38	11	95	18	
No response	34	-	12	-	22	-	
Religion							0.03
Jewish	664	76	250	72	414	79	
Muslim	118	14	52	15	66	13	
Druze	11	1	3	1	8	2	
Christian	68	8	38	11	30	6	
Other	16	2	7	2	9	2	
No response	57	-	18	-	39	-	
Religiosity							0.02
Secular	577	66	225	65	352	66	
Traditional	225	26	80	23	145	27	
Religious	76	9	42	12	34	6	
No response	56	-	21	-	35	-	
Present/prior use of CIM	390	42	139	38	251	44	0.055

CIM—complementary and integrative medicine

Note. Because of rounding, percentages may not total 100.

Note. The "no response" values were not used to calculate percentages or p values.

oncology nurses who work in different care settings regarding CIM integration. The role of integrative oncology nurses will be addressed, as will the approach needed for training them in the oncology setting.

Methods

The current study was conducted from August 2014 to November 2015 in 12 medical centers throughout Israel. A convenience sample of nurses who were treating patients with cancer on a regular basis and in a variety of clinical settings was used. The settings included inpatient oncology departments, including hematology/oncology; pediatric oncology; gynecologic oncology; non-oncologic departments, such as surgery and internal medicine wards; home hospice care services; and primary care clinics.

Design

The study protocol was conceptualized and designed by six CIM-trained nurses who had established an integrative medicine forum within the Society for Complementary Medicine of the Israeli Medical Association. A draft questionnaire was developed based on a comprehensive review of the scientific literature, focusing on perspectives among patients and healthcare providers (HCPs) vis-à-vis the integration of CIM into supportive cancer care. Other subjects that were searched in the literature included CIM-related HCP-patient communication, CIM-related medical education for HCPs, and the effectiveness and safety of CIM in supportive cancer care. The draft questionnaire also incorporated questions from published study tools that examined attitudes of patients and HCPs toward the integration of CIM into cancer care (Ben-Arye et al., 2014, 2016).

The first draft of the questionnaire was given to a focus group of 11 nurses with no CIM training. They had diverse personal and professional backgrounds, such as age, training (e.g., postgraduate oncology training), personal CIM use, level of professional exposure to CIM (ranging from no experience to being trained and certified in a CIM-related modality), and intensity of contact with patients with cancer (e.g., inpatient or outpatient oncology setting, non-oncology department, hospice care, primary care clinic). Following the review by the focus group, the questionnaire was revised and sent to a group of five CIM-trained practitioners who head integrative oncology programs in Israel for appraisal. The final version of the questionnaire was translated from Hebrew to English and validated through back translation.

The study questionnaire used a broad definition of complementary medicine: "Therapies often named alternative, complementary, integrative, natural, or folk/traditional medicine." Respondents

were asked to choose from a list of CIM modalities popular among patients with cancer in Israel, which included herbal medicine, dietary supplements, CIM-related nutritional modalities, Chinese medicine and acupuncture, manual and movement therapies, mind-body therapies, and anthroposophic medicine. The final version of the questionnaire consisted of 26 questions: 10 on demographic parameters, 2 on religiosity and spirituality, and 14 on respondents' use of and perspectives on CIM integration and training. The 14 regarding CIM included six limited-choice questions (yes, no, other, or not relevant); five multiple-choice questions; and 3 questions with graded responses, asking respondents to choose a response on a Likert-type scale.

Prior to distribution of the study questionnaires, two authors held an orientation meeting with the research nurses who had consented to distribute and collect the questionnaires in each of the participating medical centers. During this meeting, the research protocol was thoroughly reviewed to standardize the distribution, collection, and monitoring of compliance. The study locations chosen provided medical care to patients with cancer on a regular basis. To prevent a selection bias, the research nurses were instructed to approach all potential respondents working in the designated departments and clinics. Participants were asked to fill out the questionnaires anonymously.

Interest in the Integration of Complementary and Integrative Medicine

In the third section of the study questionnaire (five multiple-choice questions), respondents were asked to describe their interest and willingness to be involved in the integration of CIM into supportive cancer care. Those who responded that they were interested in providing CIM treatments following adequate CIM training were considered to have a greater interest in integration. In contrast, respondents who chose one or more of the options of (a) "refer patients to CIM based on clinical indications," (b) "participate in the construction of a CIM treatment plan," and (c) "complete negation and unwillingness to be involved in anything deviating from conventional medical treatment" were considered to have lesser interest in integration.

The goal of the current study was to include a large cohort of nurses working in an oncology setting. As such, a more flexible definition of CIM training regarding the duration of the training process and the curriculum content was used. The differences between CIM nurses who had undergone extensive training (often requiring years of study, professional certification, and licensure) and those with limited CIM exposure (having little, if any, basic knowledge on the subject and limited skills) were addressed.

Data Analysis

Data were collated on a Microsoft® Excel spreadsheet and analyzed using SPSS®, version 21. Pearson's chi-square test and Fisher's exact test were used to detect differences in the prevalence of categorical variables and demographic data between the participants in various groups. A t test was also performed to identify any differences in the continuous variables when normality was assumed. In cases of non-normal distribution, the Mann-Whitney U test was used. P values lower than 0.05 were considered insignificant. A multivariate logistic regression model examined the following variables: age, gender, postgraduate oncology training, religion, degree of religiosity, belief in the effectiveness of CIM improving QOL, work setting (hospital or community care clinic), and prior use of CIM. The covariates were selected based on previous studies examining perspectives on CIM integration into cancer care (Ben-Arye et al., 2014, 2016).

Sample power calculation was conducted using the Win Episcopes, version 2.0, with a 95% confidence interval [CI] and power of 80%. The sample size was calculated with the assumption that the interest of nurses with postgraduate oncology training in actively providing CIM treatment to patients with cancer likely differed from that of nurses with basic oncology training. Hypothesizing a 10% difference of respondents' perspectives necessitated recruiting at least 470 participants in each study group (i.e., the greater degree of interest and lesser degree of interest groups).

TABLE 2. Knowledge, Attitudes, Skills, and Expectations of CIM Training Between Nurses With Greater and Lesser Interest in CIM Integration

Characteristic ^a	Total (N = 934)		Lesser (n = 368)		Greater (n = 566)		p
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	
CIM research knowledge	1.5	1.04	1.48	1.05	1.52	1.03	0.67
Spiritual quest	4.1	1.6	3.9	1.6	4.2	1.6	0.1
Perceived effectiveness of CIM	5	1.4	4.8	1.4	5.1	1.4	< 0.0001
Perceived risk of CIM	1.8	1.2	1.8	1.2	1.8	1.3	0.98
Characteristic ^b	n	%	n	%	n	%	
Interested in CIM							
supportive cancer care training							< 0.0001
Yes	502	56	162	47	340	62	
No	390	44	183	53	207	38	
Previous CIM training							0.014
Yes	104	11	29	8	75	14	
No	808	89	326	92	75	14	
Characteristic ^c	n	%	n	%	n	%	
Preferred training site							
Nursing school	143	28	42	22	101	31	0.041
Onco-nurse training	336	55	103	46	233	59	0.002
Oncology department	203	35	69	32	134	36	0.42
CIM training programs	460	69	170	68	290	69	0.86
No response	90	10	42	11	48	9	
CIM training goals							
Familiarization with CIM	369	48	122	43	247	52	0.014
Communication skills	254	33	69	24	185	39	< 0.001
Clinical skills	411	54	127	44	284	59	< 0.001
No response	168	18	81	22	87	15	
CIM modalities perceived to help with QOL							
Nutrition	467	51	152	42	315	57	< 0.0001
Herbs	389	43	118	33	271	49	< 0.0001
TCM/acupuncture	474	52	163	45	311	56	0.002
Manual/movement	569	62	192	54	377	68	< 0.0001
Mind-body	725	79	267	74	458	82	0.004
Anthroposophic medicine	251	27	61	17	190	34	< 0.0001
No response	19	2	9	2	10	2	
Important symptoms on which to receive CIM training							
Anxiety/insomnia	605	67	201	57	404	74	< 0.0001
GI concerns	529	59	165	47	364	66	< 0.0001
Pain	721	80	254	72	467	85	< 0.0001
Neuropathy	291	32	80	23	211	39	< 0.0001
Fatigue	353	39	99	28	254	46	< 0.0001
No response	34	4	16	4	18	3	

^a Participants were asked to rate each characteristic on a scale of 1 (very low/negligibly) to 7 (very high/considerably).

^b N values vary, and because of rounding, percentages may not total 100.

^c Participants could select more than one option. Because each question had multiple answers, percentages were calculated independently for each item. The "no response" values were not used to calculate percentages or p values.

CIM—complementary and integrative medicine; GI—gastrointestinal; TCM—traditional Chinese medicine; QOL—quality of life

Ethical Considerations

The study protocol was reviewed and approved by the institutional human research ethics committee for all participating medical centers. In addition, the Clalit Health Service Institutional Review Board granted approval, exempting all participating medical centers affiliated with the Clalit Health Service health maintenance organizations (0043-14-COM) from the requirements of a full admission process for research proposals.

Results

A total of 1,480 questionnaires were distributed among nurses from the 12 participating medical centers, and 973 were completed and returned (66% response rate). Participating centers consisted of nine inpatient departments in general hospitals, two outpatient ambulatory medical centers, and one primary care clinic, all in northern Israel. A total of 934 respondents completed the multiple-choice questions regarding their interest in the integration of CIM into supportive cancer care, with most expressing a greater degree of interest ($n = 566$, 61%) than a lesser one ($n = 368$, 39%). Among nurses with a lesser degree of interest, 18 responded that they opposed any use of CIM with their patients. Nurses with a greater degree of interest in integration were significantly older, predominantly female, less likely to have undergone additional training in oncology nursing, more often self-identified as Jewish and nonreligious, more likely employed in community care settings, and believed more in the effectiveness of CIM than those with a lesser degree of interest (see Table 1). Prior personal experience with CIM and belief that CIM is unlikely to cause adverse effects (risk score of 1.8 points out of 7) did not differ significantly between groups.

The logistic regression model indicated that, compared to nurses with a lesser degree of interest ($n = 368$, 39%), nurses with a greater interest who expected to be actively using CIM in their practice ($n = 566$, 61%) tended to be older ($p = 0.002$), to believe more in the effectiveness of CIM (EXP [B] = 1.243, 95% CI [1.061, 1.456], $p = 0.007$), and to have less training in oncology (EXP [B] = 0.529, 95% CI [0.346, 0.808], $p = 0.003$).

Interest in Complementary and Integrative Training

Most nurses in both groups of interest in integration reported having no CIM training. Those with some CIM training were more likely to express a greater interest in integration (14% versus 8%, $p = 0.014$). Most respondents felt that CIM training should be provided by CIM practitioners working in a hospital

or community care setting. Respondents with a greater interest in integration expressed an interest in specific CIM modalities relevant to reducing pain, anxiety, insomnia, and gastrointestinal symptoms in patients with cancer. Other symptoms, such as fatigue and peripheral neuropathy, were of less interest to these respondents; however, they expressed an interest in acquiring communication skills to learn more about CIM modalities used by their patients (see Table 2).

Both groups' level of knowledge on published clinical research on CIM in supportive cancer care was very low, with a score of 1.5 out of 5. Nevertheless, nurses in both groups rated specific CIM modalities (e.g., mind-body, manual/movement treatments, acupuncture, herbal supplements, and nutrition consultation) as moderate to high in improving QOL among patients undergoing chemotherapy and radiation therapy.

Discussion

The authors of the current study found that most nurses (whether they had frequent or infrequent contact with patients with cancer and whether they worked in oncology departments or primary care) were interested in the integration of CIM into hospital- and community-based supportive cancer care. Only a few nurses (18 of 934 respondents) were opposed to any integration of CIM into supportive cancer care. In addition to expressing an interest in integration, 566 of the nurses (61% of the entire cohort) expressed an interest in undergoing training in CIM to provide treatment for QOL-related issues.

The current findings highlight the importance of enlisting nurses in the integration of evidence-based CIM treatments into supportive and palliative cancer care. Nurses play an important role in the continuum of cancer care, from diagnosis through active treatment and survivorship, as well as in end-of-life care. Therefore, nurses trained in integrative oncology should be part of the oncology medical team, whether in inpatient, outpatient, or community settings. However, lack of knowledge and clinical expertise has made integration difficult for these professionals. As a result, it is essential that healthcare policy makers consider a change in professional education to address this need (Kreitzer, 2015; Kreitzer & Koithan, 2014).

In the current study, the authors found that many of the nurses were in favor of CIM training, which can provide additional tools in the supportive cancer care setting. However, these findings should be interpreted with caution because they do not take into account the multifaceted aspects of CIM therapies and training programs. The latter may vary greatly in duration and content, from extensive integrative nursing training

lasting several years to short and limited training sessions in which little is learned beyond basic CIM concepts. Extensive CIM training programs can help oncology nurses acquire the requisite knowledge and skills for employing evidence-based modalities, which can offer relief when conventional medicine may have limited effectiveness and a variety of safety issues. Incorporating integrative nurses dually trained in CIM and supportive cancer can significantly affect the alleviation of patients' QOL-related symptoms (Ben-Arye, Sibermann, Dagesh, Shulman, & Schiff, 2014). In addition to improving patient well-being, integrative nurses can play an important role in creating and running CIM programs (Schiff et al., 2012), as well as leading CIM research initiatives in supportive cancer care (Klafke et al., 2015).

To advance integrative nursing in supportive cancer care, a two-tiered approach to CIM training should be taken. All oncology nurses, whether interested in CIM integration or not, should complete a basic educational program that increases their awareness and knowledge of the beneficial QOL-related effects and potential risks of CIM treatments. A more comprehensive course should be made available to nurses who express an interest in taking a more active role in the integrative process, providing them with hands-on experience in modalities that have been shown to be effective in treating QOL-related issues.

Integrative nursing in the conventional cancer care setting can also provide guidance to other HCPs working with patients with cancer. Oncology HCPs need to be made aware of the potential risks associated with CIM, as well as the limitations of the evidence on the effectiveness of many of these therapies. A teaching program on integrative nursing would need to address three main aspects: (a) the research on CIM treatments that have been found to be effective in reducing patients' symptom load and improving QOL, as well as the limitations of the research (e.g., defining control group); (b) the need to provide non-judgmental and open communication with patients while establishing awareness of the benefits and risks of specific CIM treatments; and (c) specific CIM-based skills (e.g., gentle massage with acupressure points) that can be implemented in daily clinical practice and taught to patients (Zick et al., 2016). Ideally CIM nursing should be a recognized specialty with a standardized training and licensing process, as in other subspecialties.

Limitations

The current study has several limitations that need to be addressed in future research. Although the sample was large, the response rate was moderate, with wide variance between participating hospitals

Knowledge Translation

- Nurses without postgraduate oncology training expressed greater interest in the integration of complementary and integrative medicine (CIM) into supportive cancer care.
- The achievement of clinical skills in the integration of complementary medicine was very important to nurses.
- Nurses wanted to receive CIM training on pain, anxiety, and gastrointestinal symptoms.

and clinics. The inclusion of diverse medical settings in Israel (i.e., cancer wards solely focused on oncology versus primary care clinics) enabled the authors to reach out to a wide range of participants. However, this may have made the findings less generalizable to other oncology clinical settings or clinics in other countries or regions around the world. Future research needs to explore other settings of oncology care to gain a better understanding of the integration of CIM within the multifaceted settings of supportive cancer care.

The study is also limited by its focus on nurses' expectations regarding CIM training rather than the implications of the integration of CIM within clinical practice. Future research should examine this aspect of nursing care, specifically the role of CIM-trained nurses working within multidisciplinary teams, including integrative physicians, pharmacists, and psycho-oncologists. Such research also needs to explore the many challenges presented by gaps in communication between oncologists and other HCPs, including non-CIM nurses, and the CIM team working within the supportive care setting. Future research should use qualitative methodologies, which would identify themes addressing the difficulties in communication, as well as barriers to the integrative process. Additional research may help HCPs better understand the role of CIM-trained nurses in supportive cancer care.

Implications for Nursing

The current study revealed that most nurses who are actively treating patients with cancer in hospitals or community care settings are interested in actively participating in the integration of CIM to alleviate patients' symptoms and improve QOL.

Conclusion

A large subgroup of nurses expressed an interest in receiving training on CIM to enhance their knowledge of the evidence supporting the effectiveness of CIM in cancer care and safety-related issues. These nurses are also interested in improving communication with

patients who currently use CIM, as well as in acquiring skills in this field to reduce symptoms like pain, anxiety, insomnia, and gastrointestinal issues. Integrative nurses who are dually trained in CIM and supportive cancer care should become an integral part of the team of HCPs, providing patient-centered supportive cancer care.

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