

Complementary and Alternative Medicine: Oncology Nurses' Knowledge and Attitudes

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According to the National Center for Complementary and Alternative Medicine (NCCAM, 2009), complementary and alternative medicine (CAM) "is a group of diverse medical and healthcare systems, practices, and products that are not presently considered to be part of conventional medicine." Although common to many patients with cancer, CAM use often is not discussed by healthcare providers. Issues arise when patients do not disclose CAM use to healthcare providers and rely on family and friends as primary sources of information. NCCAM (2009) suggests that nurses can be the members of the healthcare team who "initiate the conversation" about CAM. As a result, this article will explore oncology nurses' CAM knowledge and attitudes in the treatment of patients with cancer.

Background Literature

Ernst and Cassileth (1998) reported that the prevalence of CAM use in people with cancer is 31%; later studies found an increase in prevalence ranging from 34%–88% (Dy et al., 2004; Hlubocky, Ratain, Wen, & Daugherty, 2007; Hyodo et al., 2005; Swisher et al., 2002). However, CAM communication between healthcare providers and patients remains inconsistent (Barnes, Powell-Griner, McFann, & Nahin, 2004; Edgar, Remmer, Rosberger, & Fournier, 2000; Eisenberg et al., 2001; Richardson, Sanders, Palmer, Greisinger, & Singletary, 2000; Sparber et al., 2000). Irregular communication about CAM use results from patients' lack of disclosure and healthcare professionals' lack of assessment (Ashikaga, Bosompra, O'Brien, & Nelson, 2002; Eisenberg et al.; Navo et al., 2004). Patients reported that a primary reason for not disclosing CAM use was fear of physician disapproval (Eisenberg et al.), and most attained information from family and friends (Boon et al., 2000; Edgar et al.; Kelly et al., 2000; Ohlen, Balneaves, Bottorff, & Brazier, 2006). The trend of "not asking and not telling" about CAM can lead to unintentional and unanticipated issues when patients

Purpose/Objectives: To describe oncology nurses' complementary and alternative medicine (CAM) knowledge and attitudes.

Design: Descriptive, cross-sectional.

Setting: A national medical center and research institute.

Sample: A random sample of 850 Oncology Nursing Society members who are RNs involved in direct care.

Methods: Respondents completed a demographic questionnaire and the Nurse Complementary and Alternative Medicine Knowledge and Attitude survey. Descriptive analysis was used to describe the participants' CAM knowledge and attitudes. In addition, participants' comments were transcribed and content analysis was conducted.

Main Research Variables: CAM knowledge and attitudes.

Findings: The participants' mean CAM knowledge score was 70%. Attitudes varied according to beliefs, practice, and role, but were positive overall.

Conclusions: Assessing oncology nurses' CAM knowledge is important for developing appropriate educational programs that will help nurses support and advocate for patients. In addition, assessing CAM attitudes will provide insight for realizing and sustaining robust changes to health care.

Implications for Nursing: Oncology nurses should be prepared with insightful CAM knowledge and attitudes to provide prudent and unbiased information to patients.

combine CAM with conventional therapies (NCCAM, 2009); for example, herb use can interfere with conventional treatment by altering electrolytes, increasing bleeding times, and prolonging anesthesia (Ang-Lee, Moss, & Yuan, 2001; Norred, 2002; Tsen, Segal, Pothier, & Bader, 2000).

To date, few studies have asked nurses whether they discuss CAM with patients, and only one study asked patients whether they reported CAM interest or use to their nurses. Fitch et al. (1999) found that patients were honest about CAM use only if oncology nurses conveyed openness and support. In a study of oncology nurses providing direct care by Rojas-Cooley and Grant (2006), patients disclosed the use of prayer, massage, relaxation, and megavitamins. Tovey and Broom

(2007) found that patients used a two-tiered system of communication depending on nurses' specialties: CAM communication was informal and topics were nonspecific for general nurses, but CAM communication was formal and topics were specific for oncology nurse specialists. In addition, patients perceived that CAM was a "natural progression" of cancer treatment for nurses to integrate into professional practice (Tovey & Broom).

Some professional organizations and federal commissions have promoted CAM education for healthcare professionals (American Holistic Nurses Association, 2008; Hospice and Palliative Nurses Association, 2002; Institute of Medicine of the National Academies, 2005; Oncology Nursing Society [ONS], 2006; White House Commission on Complementary and Alternative Medicine Policy, 2002). However, no literature was found that assessed nurses' CAM knowledge and attitudes. As a result, this article will present the findings of a survey of oncology nurses' CAM knowledge and attitudes and discuss implications for education.

Study Framework

The present study's framework has three components for integrating CAM into the oncology nursing role: CAM knowledge and attitudes, change theory, and principles of adult education (see Figure 1). CAM knowledge and attitude assessment identifies areas of CAM in which oncology nurses' lack knowledge and attitudes that may be resistant or supportive to change. The change theory (Lippitt, Watson, & Westley, 1958) assists in modifying nursing practice with three phases: unfreezing, movement, and refreezing. In the unfreezing phase, data are collected and used with specific objectives to evaluate areas of support and resistance to change; in the movement phase, tailored educational programs are created and educational sessions are

conducted; and in the refreezing phase, assistance is provided to support the complete integration of CAM into practice (Lippitt et al.). Knowles's (1980) principles of adult education correspond with the learning style of oncology nurses. Knowles assumed that adults are self-directed learners who are aware of specific learning needs, are problem solvers, and need immediate real-life situations to retain knowledge. The present study addresses the principles of adult education by obtaining CAM knowledge and attitude scores from American nurses in direct patient care. The knowledge and attitude data will assist in the unfreezing and movement phases of change theory.

Methods

Design

A descriptive, cross-sectional survey design was used to describe oncology nurses' knowledge, attitudes, resources used, experiences, and educational interest involving CAM. The present study focuses on knowledge and attitudes; results and information about oncology nurses' experiences, educational interests, and resources in CAM have been published separately (Rojas-Cooley & Grant, 2006).

Sample

The national sample was composed of ONS members who were registered nurses (RNs) involved in direct patient care ($N = 15,289$ in 2002). A randomized sample of 5% of total ONS membership was determined to be representative of the population (Burns & Groves, 1993). In addition, at least five respondents per question (764 total) were required to conduct psychometric evaluations (Ferketich, 1991).

Procedure

Mailing labels for the randomized national sample were purchased from ONS. After institutional review board approval was obtained, 3,637 packets were mailed between August and December of 2003. Each packet included an invitation to participate, study instruments, and a self-addressed stamped envelope for anonymous return of completed data.

Instruments

The **Nurse Complementary and Alternative Medicine Knowledge and Attitude (NrCAMK&A)** survey was developed by the first author as a nurse-specific tool for assessing knowledge, attitudes, experiences, resources, and educational interests regarding CAM therapies. The content and design for the NrCAMK&A instrument came from the NCCAM (2001) Web site, a textbook (Decker, 1999), and a published article (Hayes

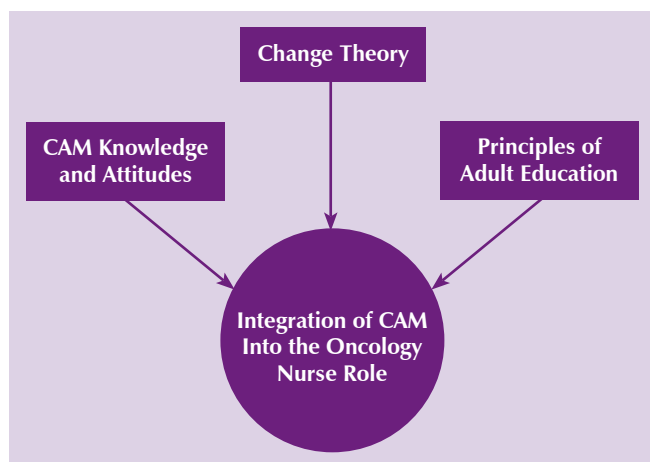


Figure 1. Complementary and Alternative Medicine (CAM) Integration Theoretical Framework

& Alexander, 2000). Content validity of the questionnaire was verified by a panel of nurse researchers, community-based hospital nurses, a psychologist, nurse research scientists, and a CAM adult nurse practitioner. The panel's comments were compiled and evaluated. The survey then was revised and finalized for use in the present study.

The first section of the NrCAMK&A survey assesses CAM knowledge, attitudes, and resources. The knowledge segment contains 19 items (14 multiple choice and 5 true or false) that assess CAM vocabulary, specific alternative medical practices, NCCAM domains, and specific CAM therapies. The attitudes segment contains 11 scaled items that assess beliefs, practice, and nursing roles. The resources portion of the survey contains 16 items that can be circled and 2 open-ended items.

The second section measures nurses' experiences with patients who asked about or disclosed use of CAM therapies as well as nurses' educational interests. The experiences segment is divided into five parts: alternative medical systems, mind-body interventions, biologically based therapies, manipulative and body-based methods, and energy therapies. The five parts contain 68 specific items and 1 open-ended item about topics that patients may mention or disclose using. The educational interest part lists 34 specific items and 5 open-ended items for nurses to answer if they want to learn about a specific CAM therapy.

Data Analysis

The response rate was 24% with 865 surveys returned; 850 surveys were eligible, coded, and conducive to descriptive analyses. The selected demographic variables of ONS total membership and the sample were compared to verify that the sample was representative. In addition, participants' spontaneous written remarks were transcribed and content analysis was conducted. The authors coded the qualitative descriptions separately for common themes, then compared and resolved when discrepancies occurred (Sandelowski, 2000). Inter-rater reliability in comments coded was high, with less than 10% disagreement for initial coding.

Results

Demographic Data

The survey respondents primarily were baccalaureate-prepared Caucasian women (see Table 1). Nurses' mean age was 45 years; the mean years in nursing were 19 and the mean years in oncology nursing were 12. The most common position held was staff nurse, the predominant patient population was adults, and the most frequent setting was inpatient. A nonparametric one-sample chi square test was used to compare sample frequencies

Table 1. Demographic Characteristics

Characteristic	\bar{X}	Range
Age (years)	45	22–70
Years in nursing	19	1–46
Years in oncology	12	0–38
Characteristic	n	%
Gender		
Female	814	96
Male	32	4
No response	4	1
Ethnicity		
Caucasian	767	90
Asian	31	4
African American	19	2
Hispanic	14	2
Native American	3	1
Other	9	1
No response	7	1
Educational degree		
Bachelor's	418	49
Associate's	180	21
Master's	128	15
Diploma	106	12
Doctorate	1	1
No response	17	2
Primary position		
Staff nurse	667	79
Clinical nurse specialist	57	6
Nurse practitioner	15	2
Nurse manager or coordinator	13	2
Educator	5	1
Researcher	5	1
Case manager	3	1
Multiple positions	80	8
No response	5	1
Patient population		
Adult	741	87
Adult and pediatric	92	11
Pediatric	12	1
None	–	–
No response	5	1
Primary work setting		
Inpatient oncology specialty	638	75
Multiple work setting	152	18
Inpatient medical-surgical unit	35	4
Inpatient intensive care	9	1
Outpatient home care	8	1
Corporate or industry	3	1
No response	5	1
Primary specialty		
Multiple	519	61
Medical oncology	201	24
Radiation oncology	66	8
Bone marrow transplantation	31	4
Surgical oncology	21	3
No response	12	1

N = 850

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

Note. From "Complementary and Alternative Medicine: Oncology Nurses' Experiences, Educational Interest, and Resources," by M.T. Rojas-Cooley and M. Grant, 2006, *Oncology Nursing Forum*, 33(3), p. 584. Copyright 2006 by the Oncology Nursing Society. Reprinted with permission.

with expected frequencies derived from total ONS membership. Staff nurses were compared to all other positions to simplify analysis for the sample and total ONS membership. No differences were observed in age, gender, years in nursing, work setting, specialty area, or patient population. However, total ONS membership had more master's-prepared nurses, more members with one year or less in the specialty, fewer members with 11 or more years in the specialty, and fewer staff nurses ($p < 0.001$).

Knowledge

The NrCAMK&A survey had a Cronbach alpha of 0.65 for knowledge and 0.81 for attitudes. The total CAM knowledge group mean score was 70%. Individual scores ranged from 0 ($n = 1$) to 100 ($n = 23$). Knowledge was measured with four subscales that corresponded to sections of the NrCAMK&A survey (see Table 2).

Most respondents ($n = 816$) correctly identified *conventional medicine*, but only 438 correctly identified the combined term *complementary and alternative medicine*.

Table 2. Complementary and Alternative Medicine (CAM) Knowledge Scores			
Content	N	Correct Response	
		\bar{X}	Range
Knowledge	850	70%	0–100
Content	N	n	%
CAM terms			
Conventional medicine	842	816	97
Alternative medicine	843	678	80
Complementary medicine	841	584	69
Integrative medicine	844	579	68
CAM	837	438	52
Specific alternative medical practices			
Traditional Chinese medicine	840	792	94
Naturopathic medicine	834	536	64
Homeopathic medicine	838	252	30
Ayurvedic medicine	832	206	25
NCCAM domains ^a			
Energy therapy	832	807	97
Mind-body interventions	836	779	94
Alternative medical systems	829	731	88
Biologically based therapies	814	627	77
Manipulative and body-based methods	793	562	71
Specific CAM therapies			
Aromatherapy	837	824	98
Reiki	811	669	82
Therapeutic touch	823	660	80
Qigong	781	594	76
Dietary supplements	831	195	23
^a NCCAM (2001) NCCAM—National Center for Complementary and Alternative Medicine			

For alternative medical system practice, 792 accurately identified traditional Chinese medicine, but fewer than 536 identified naturopathic medicine, homeopathic medicine, or ayurvedic medicine. For NCCAM domains, most respondents correctly selected energy therapy ($n = 807$) and mind-body interventions ($n = 779$), but only 562 selected manipulative and body-based methods. In addition, most respondents had difficulty identifying dietary supplements.

Attitudes

Mean scores for respondents' CAM attitudes were assessed within three subscales: beliefs, practice, and role (see Table 3). In the beliefs subgroup, means scores varied from a high of 7.66 for "How important do you believe CAM education is for oncology nurses?" to a middle score of 5.47 for "How strongly do you believe that CAM therapies have a role in your nursing practice?" In the practice subgroup, all mean scores were low, ranging from 3.95 for "How comfortable are you in assessing your patients for CAM use?" to 3.10 for "Do you assess your patients for CAM use on a daily basis?" The lowest scores were found in the role subgroup, ranging from 1.28 for "How familiar are you with ONS's CAM position statement?" to an extreme low of 0.63 for "How familiar are you with your board of registered nursing CAM advisory statement?"

Respondents' wrote comments on the surveys near related questions (see Figure 2). Four main themes that motivated participants to write comments were issues with communication, knowledge, practice, and interests. All comments illustrated the overarching issue of barriers to integrating CAM into the nursing role.

Discussion

CAM-term assessment evaluated nurses' ability to distinguish different categories of medicine, which allows nurses to systematically discuss the pros and cons of each CAM category with patients, families, and healthcare teams (Lindquist, Tracy, & Savik, 2003). The most difficult terms for respondents to identify in the first subscale were *complementary medicine*, *integrative medicine*, and the combined term *complementary and alternative medicine*. Understanding nurses' fluency with CAM terms was a main benefit of assessment; many respondents confirmed that communication with patients is inhibited by a lack of proficiency in CAM vocabulary (Geller, Studee, & Chandra, 2005). Many nurses also confirmed that their lack of CAM knowledge was a barrier to communication with patients.

The second knowledge subscale assessed nurses' ability to identify the individual healing paradigms of specific alternative medical practices. Respondents were least knowledgeable in naturopathic, homeopathic,

Table 3. Complementary and Alternative Medicine (CAM) Attitude Scores

Attitudes	\bar{X}	SD
Belief-related		
• How important do you believe CAM education is for oncology nurses?	7.66	2.3
• How strongly do you believe that patients have a right to CAM integration in their conventional therapy?	7.44	2.4
• How accountable do you believe patients are for disclosing use of CAM therapies?	6.6	2.8
• How accountable do you believe you are for assessing patients for use of CAM therapies?	5.6	3
• How strongly do you believe that CAM therapies have a role in your nursing practice?	5.47	2.8
Practice-related		
• How comfortable are you in assessing your patients for CAM use?	3.95	3.2
• How easily can you find reputable CAM resources for your patients?	3.31	3
• How comfortable are you in answering your patients' questions about CAM?	3.13	2.7
• Do you assess your patients for CAM use on a daily basis?	3.1	3
Role-related		
• How familiar are you with the Oncology Nursing Society's CAM position statement?	1.28	2.2
• How familiar are you with your board of registered nursing's CAM advisory statement?	0.63	1.6
N = 802		
Note. Scores ranged from 0 (worst score) to 10 (best score).		

and ayurvedic medicine. Nurses should understand the philosophical basis for major alternative medical practices before discussing them with patients, families, and healthcare team members. In addition, knowing different healing paradigms can help nurses find alternative medical practices that complement patients' health beliefs and safely integrate them into conventional treatment. As a result, patients and families may not hide CAM use from healthcare teams, which can harm patients inadvertently (Eisenberg et al., 2001; Norred, 2002).

The third knowledge subscale involved the five NCCAM domains, which have similar approaches for obtaining and maintaining good health outcomes. The domains most nurses had difficulty identifying were biologically based therapies and manipulative and body-based methods. The knowledge deficit limits nurses' ability to identify and discuss healing methods of specific therapies, such as herbs or yoga. Nurses familiar with the NCCAM domains can help patients safely choose a CAM therapy that corresponds with their healing beliefs (Geller et al., 2005). Nurses can use that knowledge to search the literature for CAM modalities with the most data supporting their use (Lindquist et al., 2003).

Appraisal of specific CAM knowledge demonstrated that nurses may have difficulty discussing the benefits of qigong and safety measures for dietary supplements with patients. Meghani, Lindquist, and Tracy (2003) noted that nurses wanted to improve the accessibility of CAM therapies to their patients and families; therefore, knowledge of specific CAM therapies can provide nurses with options for patients when pharmacologic treatments are not enough to alleviate discomfort or distress.

CAM attitude assessment pressed respondents to think about how their attitudes related to direct patient care. The respondents' CAM attitudes were measured in three areas: beliefs, practice, and role. Belief-related CAM questions uncovered nurses' opinions on the importance of education, professional role, patients' rights, and nurse and patient accountability. Practice-related CAM questions identified comfort levels with assessing or answering question and ease in finding reputable resources. The role-related CAM questions revealed nurses' familiarity with professional nursing organizations and their state board of registered nursing CAM position statements. All attitudes influenced each other and reflected nurses' ambivalent responses.

Respondents' answers on the five belief-related questions overwhelmingly reflected positive attitudes. Nurses scored highest on CAM education, suggesting that education is profoundly important to oncology nurses. For CAM to be incorporated into nursing practice, education must be provided (Geller et al., 2005; Halcon, Chlan, Kreitzer, & Leonard, 2003; Hessig, Arcand, & Frost, 2004; Tracy et al., 2005). In addition, ONS (2006) issued a position stating that nurses should increase their CAM knowledge. Nurses in the present study believed that patients have a right to CAM integration in their conventional treatments, stressing the importance of patient-centered care to oncology nurses.

Respondents' scores on accountability and nursing practice were not as robust as their scores on education and patients' rights, suggesting that the nurses were uncertain about the role of CAM in their practice. Of note was respondents' belief that patients are more accountable for CAM disclosure than nurses are for

Knowledge

- "I don't know."
- "[I] have no idea."
- "Knowledge of CAM [complementary and alternative medicine] is very limited."
- "Most of the therapies mentioned I have never heard of, never mind what practices are involved."
- "It is clear after answering these questions that I know almost nothing about alternative medicine."

Communication

- "The more comfortable I am with a particular therapy or intervention, the more likely I am to ask or discuss with patients."
- "[Patients] usually ask, 'Should I be taking any of these?'"
- "[I don't ask patients about CAM use] only because I lack knowledge."
- "I ask patients once and then again only if they have been using [CAM]. We don't always encourage this level of honesty, unfortunately."
- "[I don't ask patients about CAM use] due to lack of knowledge in the area."

Practice

- "[I am] not sure what patients use, they bring bottles and labels and we have the doctor review. He will say if it is okay or if he feels they don't need it."
- "In the stem cell transplant setting, most patients are part of clinical trials and inpatients, so they are forbidden from using CAM that are ingested or that will manipulate their body in any way."
- "[You] can't assess what you don't know or understand."
- "Nursing practice for CAM is somewhat 'steered' by the tolerance of medical doctors—sadly. Certainly, making physicians aware of patient requests should be the initiating factor. Patient advocacy is number one, not all medical doctors are receptive or willing."
- "My focus, however, as an inpatient oncology nurse rarely gives me any opportunities to ask or use these therapies."

Educational Interest

- "I am interested in knowing about any therapy that reduces suffering caused by cancer."
- "[I] would like specifically to learn about research in the positive benefits of [CAM] to patients' quality of life, survival, etc."
- "I am interested in learning everything that is available to help my patients cope with cancer."

Note. Comments are illustrative of overall study themes.

Figure 2. Respondents' Spontaneous Comments

CAM assessment; however, many patients will not inform healthcare teams about CAM use unless asked directly (Richardson et al., 2000).

Low scores on the four practice-related belief questions suggest that oncology nurses have difficulty in assessment, finding reputable resources, and answering questions involving CAM. If direct-care nurses cannot find reputable resources, they probably will not be comfortable answering questions and may avoid assessing for CAM use (Geller et al., 2005). Many nurses reported challenges in finding reputable CAM resources for their patients (Geller et al.); literature shows that nurses find information about CAM from patients, peers (Rojas-Cooley & Grant, 2006), lay and

professional journals, workshops, seminars (Sohn & Loveland Cook, 2002), general mass media, inservice education, and the Internet (Brolinson, Price, Ditmyer, & Reis, 2001). Knowing how to locate reputable CAM resources can improve nurses' willingness to assess and answer patients' questions, thus benefiting patients as well as nurses.

Role-related attitude questions had the lowest scores. Most respondents were not informed on their state board CAM position or the ONS position statement, demonstrating a clear need for CAM role clarification in oncology nursing. In a 2001 report of 53 boards of nursing, 47% permitted CAM practices, 21% took no formal position, and 13% planned to hold discussions (Sparber, 2001). Education on the positions will help nurses incorporate professional and legal aspects of CAM into practice, further benefiting nurses and patients.

Limitations

The present study was limited by the use of a new survey tool, reliance on respondents' self-reported knowledge, and a low response rate. Strengths were a large sample size, use of a nurse-specific survey instrument, and a randomized national sample.

Implications for Nursing

Oncology nurses should be prepared with insightful CAM knowledge and attitudes to provide prudent and unbiased information to patients. Educators, nurse managers, and administrators should offer CAM education, leadership, and support to alleviate nurses' concerns about role uncertainty and knowledge deficits and promote a supportive environment. In addition, nurses should know their professional role description, federal and state regulations, and professional organization policy related to CAM to fully advocate for patients.

Conclusion

Assessing CAM knowledge and attitudes can help develop educational programs that improve nursing practice. Assessing nurses' learning needs (DeSilets, 2007) and attitudes identified potential barriers and facilitators to education and provided insight for sustaining robust changes to health care (Dixon, 1978). Direct patient care nurses need core CAM content to provide competent, ethical, and moral care. In addition, nurses should know about implications of CAM to their professional role description, federal and state regulations, professional organizational policy, and communication skills. By assessing CAM knowledge and attitudes, the present study has provided the foundation for a CAM education curriculum and certification program.

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