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Variations in provider conceptions of integrative medicine

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Abstract

Consumers often turn to complementary and alternative medicine (CAM) and use it concurrently with conventional medicine to treat illnesses and promote wellness. However, prior studies demonstrate that these two paradigms are often not combined effectively. Consumers often do not tell physicians about CAM treatments or CAM practitioners about conventional treatments that they are using. This can lead to inefficient care and/or adverse interactions. There is also a lack of consensus about the structure and practice of integrative medicine among the various types of practitioners. This qualitative study aimed to identify key domains and develop a conceptual model of integrative medicine at the provider level, using a grounded theory approach.

Purposive sampling was used to select 50 practitioners, including acupuncturists, chiropractors, internists/family practitioners, and physician acupuncturists in private practice and at academic medical centers in Los Angeles. We conducted semi-structured, in-depth interviews with practitioners and then identified core statements that describe practitioners' attitudes and behaviors toward integrative medicine. Core statements were free pile sorted to ascertain key domains of integrative medicine.

Four key domains of integrative medicine were identified at the provider level: attitudes, knowledge, referral, and practice. Provider age, training, and practice setting also emerged as important factors in determining clinicians' ''orientation'' toward integrative medicine. ''Dual-trained'' practitioners, such as physician acupuncturists, exemplified clinicians with a greater orientation toward integrative medicine. They advocated an open-minded perspective about other healing traditions, promoting co-management with and making referrals to practitioners of other paradigms, and treating patients with both CAM and conventional healing modalities.

Keywords: Integrative medicine; Complementary and alternative medicine; CAM providers; Qualitative; Interview; USA

Introduction

Conventional medicine has shifted from viewing complementary and alternative medicine (CAM) with hostility to gradual incorporation of CAM (Coulter, 2004). CAM is increasingly included in

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conventional medical care and medical education (Wetzel, Kaptchuk, Haramati, & Eisenberg, 2003). Consumer demand and political pressure have contributed to recent interest in combining CAM and conventional medical paradigms, termed *integrative medicine* (Pelletier, Astin, & Haskell, 1999; Trachtman, 1994). Integrative medicine can occur at six levels: (1) consumer, (2) health care provider, (3) clinic, (4) institution, (5) professional/regulatory, and (6) health policy or system (Tataryn & Verhoef, 2001). We focus on integration at the provider level because providers play a pivotal role in the clinical encounter. Patients commonly combine CAM modalities with conventional medical treatments outside the purview of their physicians and CAM providers, yet the clinical effect of such patient-initiated "integrative medicine" may be hampered by the lack of provider supervision and even may be unsafe (Fugh-Berman, 2000). Integrative medicine without input from providers also may result in poor quality of care due to poor coordination between clinician-initiated and patient-initiated therapies (Weeks, 1996). Therapeutic benefits may be most likely to emanate from skilled providers of divergent clinical paradigms treating an interested patient according to a shared, coherent conceptual framework (Bell et al., 2002).

Yet, it is unclear what "integrative medicine" means to providers and to different provider groups. Proponents of integrative medicine, such as Andrew Weil, view it as a paradigm shift, replacing the biomedical paradigm (Weil, 2000). On the contrary, some CAM practitioners have viewed integrative medicine as conventional medicine's "co-optation" of CAM (Coulter, 2004). Still others view integrative medicine as a component of the patient-centered care movement. Although some claim that integrative medicine is more cost-effective and safe than conventional medicine or CAM alone (Pelletier et al., 1999; Weil, 2000), lack of clarity and consensus about what constitutes integrative medicine has impeded evaluation of these hypotheses. Thus, the development of a conceptual framework of integrative medicine at the provider level is necessary to understand the practice, structure, and quality of integrative medical care.

The conventional and CAM literatures do not suggest a unifying conceptual framework to operationalize integrative medicine at the provider level. We endeavored to identify the key domains and develop a conceptual model of integrative medicine at the provider level. This study also aimed to contribute to the development of a survey instrument to measure clinicians' "orientation" toward integrative medicine.

Methods

Study design and sample

Due to the exploratory nature of our investigation, we employed a qualitative design, using the grounded-theory approach (Glaser & Strauss, 1967). This is a set of techniques used to identify themes or concepts that emerge from text and to link the concepts into a theory or model about basic social processes. This approach was selected rather than other qualitative approaches because our goals were to discover key domains of integrative medicine and to develop a conceptual model of integrative medicine at the provider level.

We conducted in-depth interviews with conventional and CAM practitioners from May to July 2003. This technique was chosen for two reasons. Semi-structured interviews were used instead of focus groups in order to maximize participant response variance (Bauman & Adair, 1992). Second, focus groups suffer from lack of independence among participants and unequal participation. In contrast, the semi-structured interview is able to elicit complete and independent data from all participants.

We chose practitioners using purposive sampling to ensure that we included a diverse range of conventional and CAM practitioners (Crabbtree & Miller, 1999). Practitioners were selected to reflect a range of age (<40, 40–60, and >60 years), attitudes toward integrative medicine (positive, neutral, and negative), and practice setting (academic, private practice, and integrative medicine center). We chose acupuncturists, physicians, chiropractors, and physician acupuncturists because they reflect the main types of providers who practice integrative medicine. Although we recognized that other types of providers might practice integrative medicine, such as naturopaths, massage therapists, and medical specialists, we restricted our sampling to the above four major groups for practical reasons.

Participants for the semi-structured interviews were sampled from lists provided by community leaders in the Medical Acupuncture Research Foundation, the California Society of Oriental Medical Association, the California Chiropractors Association, and the UCLA Primary Care Network. Since

our sampling frame required that interviews be conducted with practitioners who span from positive to negative attitudes toward integration, a two-step approach was used. First, we obtained lists of practitioners for primary care physicians, physician acupuncturists, chiropractors, and acupuncturists. Collaborators reviewed these lists to identify clinicians perceived to be positive, neutral, and negative toward integration, based on direct or indirect knowledge of practice style as well as age and practice setting. To ensure we covered the spectrum of areas of interest by each type of provider, each participant was asked to identify others who might have additional information about integrative medicine with an emphasis on colleagues who would have more extreme positive and negative views. These additional informants were then contacted and invited to participate. Additional practitioners were identified and interviewed until no new concepts were revealed by the additional interviews. The UCLA Institutional Review Board approved this study.

Data collection

Development of a semi-structured interview guide

We developed a semi-structured interview guide based on a review of the conventional medical and CAM literature (Faass, 2001; Goldstein, Jaffe, Sutherland, & Wilson, 1987; Schneider, Meek, & Bell, 2003) and review of 2 surveys. The Integrative Medicine Attitude Questionnaire was designed to measure a physician's attitudes toward integrative medicine. This instrument covers the areas of provider openness toward new paradigms and value of patient–provider relationship, but does not address the CAM practitioners' perspective (Schneider et al, 2003). The second was a survey developed by Long to measure a practitioner's attitude toward holism (Long, Mercer, & Hughes, 2000). Our interview guide consisted of a list of questions that assessed perceptions of health care practitioners about the (1) meaning of integrative medicine, (2) practice of integrative medicine, (3) main stakeholders of integrative medicine, (4) advantages and disadvantages of integrative medicine, and (5) training and credentialing of practitioners within integrative medicine. Table 1 lists sample questions from the semi-structured interview guide. We used the same interview guide for all interviews in order to consistently elicit responses from all types of providers (Bauman & Adair, 1992).

Semi-structured interviews

We conducted interviews with 50 health care practitioners: 13 physicians, 13 physician acupuncturists (physicians who have also completed acupuncture training), 12 chiropractors, and 12 acupuncturists. Theoretical saturation occurred after 50 interviews. Equal distribution across clinician groups aimed to yield maximal variance of provider attitudes and behaviors concerning integrative medicine. Demographic data, including providers' training and practice setting, were collected at the end of the interview using a brief self-administered survey. All interviews were audiotaped and transcribed by independent transcriptionists. The mean duration of each interview was 30 min (range 20–55 min). A research assistant audited the transcription process by reviewing the match of audiotape to transcript.

Interviews were conducted using a standard interview guide (Bauman & Adair, 1992), consisting of open-ended questions with probes for clarification and additional detail. Following the layout of a "funnel" interview, the conversation opened with broad topics and then probed each response. The interview began with the standard "grand tour" question (Bernard, 2002) by asking: "What does integrative medicine mean to you?" If, for example, the respondent answered that integrative medicine is defined by using the best of traditional Chinese medicine and western medicine, then the subject was asked more focused questions, such as "What types of practitioners would provide this care? How would these two types of medicine be mixed?" The interviewer continued to ask narrower questions until the informant exhausted all responses or the topic changed.

Data analysis

To identify key dimensions of integrative medicine, we used an exploratory technique described by Lincoln and Guba (1985). This technique is similar to free pile sorting methods used by cognitive anthropologists (Weller & Romney, 1988) and affinity grouping methods used by psychologists (Lepley, 1999; Rao et al., 2000). These methods involve grouping similar ideas or items into piles based on their mutual affinity and then identifying and labeling the overarching themes or domains of the piles.

First, we read each transcript to uncover "core statements" that represented key constructs of a

Table 1
Examples of questions from semi-structured interview guide

Topics	Sample questions
Perceptions of health care practitioners about the meaning of integrative medicine	Can you describe in your own words what complementary and alternative medicine is? Can you describe in your own words what integrative medicine means to you? We are interested to know how to measure a practitioner's level of integrativeness. If you can imagine a scale of integrativeness, where 0 is no integration and 10 is complete integration, where would you fit on this scale and why?
What is the practice of integrative medicine?	To what degree do you practice integrative medicine? What do you do that is considered integrative medicine? X percent of your practice is integrative medicine, how did you come that conclusion? If you refer patients to other practitioners, how do you decide to whom to refer?
The stakeholders of integrative medicine	Who are the main players in integrative medicine? So, how do these players or pieces fit together? Which (if any) is more central? What is your or your own profession's role in providing integrative medical care?
Advantages and disadvantages of integrative medicine	What sort of problems do you think integrative medicine is good for? Why? What sort of problems do you think integrative medicine is not good for? Why? In your view, what are some of the advantages of integrative medicine? What are some of the disadvantages of integrative medicine?
Training and credentialing of practitioners of integrative medicine	How should we train integrative medicine practitioners? How is the training for integrative medicine different from the training of (your own profession)? How have you tried to learn more about integrative medicine?

practitioner's orientation toward integrative medicine. We extracted what appeared to be the most salient ideas from the 1200pp of the 50 interview transcripts. We then distilled the important points from the interview into key ideas. We continued to sort out these ideas until we had 400 core statements, which were selected to reflect the diversity of opinions expressed by the various types of practitioners.

Next, we printed these "core statements" onto small slips of paper and labeled the informant identification number on the back of each statement. All core statements were laid on a large table. First, two investigators (AH and GR) free pile sorted core statement cards into broad general categories. During this process, we identified four key domains: attitude, knowledge, referral, and practice. For each, we then further sorted the statements into more specific piles and labeled them as sub-domains. Subsequently, AH and NW reviewed all of the statements in the four piles and their respective sub-domains and decided whether they belonged in the existing piles or a new pile, representing a new "theme" or domain of integrative medicine. After multiple iterations of free pile sorting with these pairs of researchers, the investigators came together as a group and reached a consensus. We found four key domains and 10 sub-domains, which represented key dimensions of clinicians' orientation toward integrative medicine.

To further assess the reliability of our dimensions of integrative medicine, we calculated the intercoder agreement or κ between two coders. First, we devised a detailed codebook. Second, AH coded the core statements by assigning each core statement to one of the 10 sub-domains of integrative

medicine. We then asked a second coder, who was not involved in the free pile sorting, to recode the core statements. The intercoder agreement was good ($\kappa = 0.80$) (Krippendorf, 1980).

Results

Practitioners had a mean age of 43 years, and 66% were men. Fifty-six percent of participants were non-Latino White and 34% were Asian. About half worked in a private practice and one-fourth in an integrative medicine center or clinic. Twenty-two percent were "dual-trained": physicians with training in acupuncture or CAM practitioners who were trained in both acupuncture and chiropractic. The characteristics of the study participants are shown in Table 2.

We developed a conceptual model of integrative medicine at the provider level based on the interview results (Fig. 1). Four key domains of integrative medicine emerged from our interviews: *provider attitudes toward integrative medicine, knowledge of integrative medicine, referral to other practitioners, and practice of integrative medicine*. These key dimensions and their respective sub-domains represent how providers think about and practice CAM and conventional medicine and the merging of these two paradigms. Table 3 outlines the four key domains and 10 sub-domains, containing brief descriptions of each sub-domain. We also found that clinicians' "orientation" toward integrative medicine was associated with provider age, training, and practice setting. Below, we describe each of the key domains of integrative medicine.

Provider attitude toward integrative medicine

Some practitioners expressed blanket faith in the value of conventional medicine and CAM while others expressed blanket disbelief in these modalities. They also made statements approving or disapproving of integrative medicine as well as practitioner groups and broad types of treatment modalities. Respondents described four types of attitudes toward integrative medicine: practitioners' openness, philosophical scope, confidence in CAM and conventional medicine, and faith in integrative medicine. Each sub-domain represents a spectrum with two opposing views: open-mindedness/close-mindedness, holism/reductionism, effectiveness/ineffectiveness, and faith/skepticism toward the integrative medicine paradigm. Although respondents within each provider group spanned the full range from approval to disapproval of integrative medicine, physician acupuncturist, chiropractor, and acupuncturist provider groups were more likely to be open-minded, holistic, and have faith in integrative medicine compared with the physician provider group.

Table 2
Characteristics of the interview sample ($n = 50$)

	Number of practitioners	Percent
Demographics		
Age		
(Mean age = 43, SD = 10)		
<40 years	37	74
40–60 years	10	20
>60 years	3	6
Gender		
Male	33	66
Female	17	34
Ethnicity		
White	28	56
Asian	17	34
Latino	3	6
Other	2	4
Nativity		
US-born	35	70
Foreign-born	15	30
Practice Setting		
Integrative clinic	12	24
Non-integrative, Academic	10	20
Non-integrative, Private	28	56
Providers' Training		
Type of practitioner		
Physician acupuncturists	13	26
Physicians	13	26
Chiropractors	12	24
Acupuncturists	12	24
Credential		
Dual-trained[a]	11	22
Single-trained	39	78
Providers' Attitude		
Self-perceived integrativeness[b]		
(Mean 6.0, SD = 3.0)		
Lowest (0–4)	15	30
Middle (5–7)	15	30
Highest (8–10)	20	40

[a]Dual-trained practitioners include physicians (MD/DO) with training in acupuncture (L.Ac.—licensed acupuncturist or acupuncture certificate) or CAM practitioners who are trained in both acupuncture and chiropractic.

[b]Provider was asked to self-rate his/her orientation toward integration of complementary and alternative medicine with conventional medicine on a scale, where "0" indicates "not at all integrative" and "10" indicates "completely integrative."

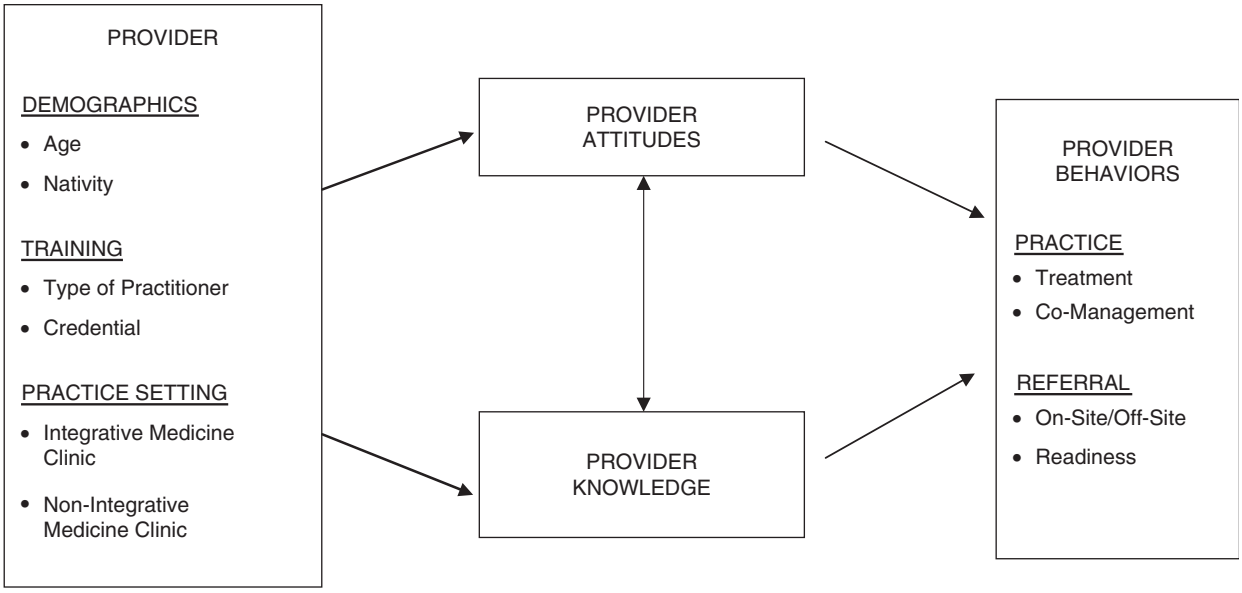

Fig. 1. A model of integrative medical care at the provider level.

Practitioners' openness

Openness refers to practitioners' ability to see advantages of both CAM and conventional medicine from their own medical paradigms and the potential benefits of combining them. Physician acupuncturists and physicians who are open-minded toward integrative medicine are willing to accept the limitations of the biomedical paradigm. They acknowledge the potential benefits of CAM and integrative medicine and are willing to work with CAM practitioners. One physician acupuncturist described his reason for wanting to learn acupuncture, "Given the number of patients I see that are difficult to treat with Western medicine, I became open-minded to the idea that maybe there is a different way to treat my patients." Similarly, many chiropractors and acupuncturists who are open-minded toward integrative medicine were willing to accept conventional medicine's role as the "first-line" treatment in acute care, such as infections, trauma, and myocardial infarction.

In contrast, some close-minded practitioners believed that medicine ought to be practiced "their way or no way at all." They tended to stereotype practitioners who were outside their own medical paradigms. For instance, physicians who were close-minded toward integrative medicine often stereotyped CAM practitioners as quacks. One physician felt that "all of alternative medicine and integrative medicine is mumbo jumbo" and "all alternative medicine practitioners are out to get people's money." Meanwhile, some CAM practitioners were antagonistic toward Western or allopathic medicine. One acupuncturist, who felt that Chinese medicine was "the answer to everything," stated that he would not even send a patient with appendicitis to the emergency room because Western medicine was too "toxic."

Many respondents, however, felt that openness to both conventional and CAM paradigms was the key to successful integration. One physician described an ideal integrative practice setting as caring for patients as a series of "case reports" where both physicians and CAM practitioners jointly discussed the "strengths and weaknesses of the different healing modalities" in order to arrive at "shared treatment plans and goals." Respondents frequently cited provider age as a major determinant of practitioners' open-mindedness toward integrative medicine. Younger practitioners were perceived to be more open-minded toward integration compared with older practitioners. A 35-year old physician commented:

> I think the younger practitioners are probably more open to CAM or integrative medicine because they are more likely to have some exposure during their medical school and residency…older practitioners, on the other hand, are less likely to accept CAM or integrative medicine because they did not have much exposure during their training.

Table 3
Key domains and sub-domains of integrative medicine

Domain	Sub-domain	Description
Provider attitude toward integrative medicine		
	Practitioners' openness	Conventional practitioners' open-mindedness or close-mindedness to CAM practitioners and vice versa.
	Philosophical scope	Health is defined by wellness of the whole person from the bio-psycho-social-spiritual dimensions, not merely the absence of disease. Health has various dimensions, not just physical health. Healing is defined by wellness and is very different from cure.
	Confidence in CAM and conventional medicine	Practitioner belief in the effectiveness/ineffectiveness of a treatment paradigm, practitioner group, or medical tradition. Practitioner belief that a treatment paradigm, practitioner group, or medical tradition is safe/unsafe.
	Faith in integrative medicine	Practitioners question whether it is possible to integrate conventional and CAM paradigms into one unified paradigm because of conflicting theories and paradigms.
Knowledge of integrative medicine		
	Methods of acquiring knowledge	Formal knowledge is acquired through school and leads to professional credential. Informal knowledge is acquired on one's own, such as reading journal articles, learning from the internet, attending continuing medical education, working with other practitioners, or undergoing a formal apprenticeship. Informal education does not lead to credentialing.
	Knowledge proficiency	Conventional practitioners' proficiency or competence in knowing how to practice CAM or refer to CAM practitioners. CAM practitioners' proficiency or competence in knowing how to practice conventional medicine or refer to conventional practitioners. Proficiency or competence is based on professional standards established by practitioner groups.
Referral to other practitioners		
	Referral location: on-site and off-site	Multiple practitioners working in one location and referral is made onsite. Practitioners may work within the same network or an integrative medicine center. Geography is the main determinant.
	Readiness to refer outside one's own medical paradigm	CAM practitioners' readiness to refer to conventional practitioners. Conventional practitioners' readiness to refer to CAM practitioners. Quick to refer out indicates readiness to refer as opposed to late referrals which indicate reluctance to refer.
Practice of integrative medicine		
	Treatment with CAM and conventional healing modalities	A practitioner who uses or practices at least one modality from both CAM and conventional traditions.
	Co-management with practitioners outside one's own medical paradigm	A patient's care is coordinated between CAM and conventional practitioners. There is communication between them to develop and carry out the treatment plan.

Philosophical scope

The interviews revealed holism as a central concept in integrative medicine. The CAM paradigm of health centers on holism, which dictates that a person's wellness is obtained by balancing the body, mind, and spirit. Holism postulates that health is a concept in which disease and its absence is only one component. In addition, the whole

person is different from, and greater than, the sum of the body parts. For instance, traditional Chinese medicine believes that wellness is achieved through the harmony of the physical, mental, and spiritual dimensions of health. In contrast, the biomedical paradigm of health tends to be reductionistic, postulating that illness is caused by physical, external factors. Health is defined as the absence of disease and is explained in solely biological and physical terms. For example, one respondent felt that some physicians find it very difficult to diagnose and treat irritable bowel syndrome because the "colonoscopy as well as the laboratory tests appear to be normal."

Traditional Chinese medicine and chiropractic both embrace the notion of holism. In the words of one chiropractor, who had practiced for 20 years in the community, "One key concept of integrative medicine is the understanding that a human being is more than his physical body…the whole human being contained physical, emotional, as well as spiritual dimensions." Similarly, an acupuncturist expressed her strong belief in the importance of emotions and spirituality in one's overall health, "If we do not acknowledge that a human being is a being of spirit, we already have not a clue who our patients are."

Although some physicians also believed in the bio-psycho-social model of health, other physicians often dismissed the spiritual aspects of health as "lacking scientific merits" and "New Age hocus pocus." One physician recalled her experience during gross anatomy class as follows:

"When you come to medical school, the first thing they give you is a dead body to dissect. So right off the bat, in medical school, they are telling you that the only thing that matters is the body and that the emotional or spiritual aspects are not important." However, many physicians also consider their patient's emotional and social states when developing a treatment plan.

Acupuncturists, chiropractors, and physician acupuncturists in general were more likely to embrace holism than physicians. They attributed this to their education and training experience. Practitioners who were holistic were more likely to refer patients to CAM practitioners (e.g., reiki practitioners, native American healers, and curanderos). "I had an end-stage cancer patient with terrible pain who was not responding to morphine and acupuncture," described one physician acupuncturist. "The patient and I decided to consult a reiki practitioner who was able to rebalance her aura, which then restored her inner peace and alleviated her pain and suffering."

Confidence in CAM and conventional medicine

Confidence refers to practitioners' state of feeling certain about the effectiveness and safety of their own medical paradigm. Physicians tended to believe that practice should be based on scientific evidence. Some physicians believed that most CAM modalities failed the evidence-based standard and were "no more effective than placebos," thereby undermining their confidence in integrative medicine. However, randomized controlled trials, the gold standard of evidence-based medicine, also suffer from many limitations because of the effect of interpretive bias on research evidence (Kaptchuk, 2003). One physician acupuncturist expressed doubts about the scientific basis of conventional medicine because "80–90% of conventional medicine is not based on randomized controlled trials" but on "clinical experiences and intuitions."

Many physicians and physician-acupuncturists were reluctant to prescribe herbs and supplements because of concerns about their safety and quality. One physician explained, "I am reluctant to advise my patients to use herbs or supplements because I don't know what kind of stuff is in the bottles." The rising trend of adverse herb–drug interactions was another important issue raised regarding the safety of integrative medicine. "I always review my patient medication list and try to look up possible herb–drug interactions before I recommend herbs and supplements… I am very careful because I don't want to cause any harm to my patients or be liable for any lawsuit," one physician acupuncturist explained.

On the other hand, many CAM practitioners strongly believed that their healing modalities and traditions are effective and safe because they have stood "the test of time." Since acupuncture, herbs, and chiropractic have been practiced for hundreds of years, many CAM practitioners cited the long tradition of use as evidence of its effectiveness and safety. Many chiropractors and acupuncturists perceived acupuncture, herbs, and manipulation to be "natural and safe remedies." Acupuncturist and chiropractor provider groups often lacked confidence in conventional medicine because of its "high-tech" approach and severe side effects. One acupuncturist explained:

> Most of my patients prefer to be treated with acupuncture, manipulation, or herbs because they believe that these treatments are natural and safer than Western drugs. These treatments are safe and effective because they have stood the test of time. Western medicine, on the other hand, has only been around about 50 years, since WWII.

Although support of CAM's effectiveness is largely based on traditions and anecdotal case reports, CAM practitioners at times also pointed to scientifically-based studies. For example, one acupuncturist noted data supporting the use of acupuncture to relieve chemotherapy-induced nausea and vomiting. Many chiropractors and acupuncturists acknowledged the effectiveness of Western medicine in treating acute illnesses, but maintained that CAM and integrative medicine approaches might be more cost-effective and safer in treating chronic illnesses. "If I have a patient with spinal cord compression, I am going to refer him to an orthopedic surgeon for emergent back surgery," one chiropractor explained. "On the other hand, if a patient has chronic low back pain without any evidence of disc herniation, then I feel that spinal manipulation may be more cost-effective and safer than back surgery for this patient."

Practitioners who held strong beliefs about their own medical traditions but acknowledged the limitations of these paradigms were more likely to endorse integrative medicine.

Faith in integrative medicine

Faith refers to the strength of a provider's convictions about integrative medicine. Since CAM and conventional treatments are based on different, contradictory theories and paradigms, some practitioners expressed skepticism about whether it would be possible to merge the two paradigms into a single, unified care plan. A physician acupuncturist explained why he predominantly chose traditional Chinese medicine over Western medicine, "I think integrative medicine can create quite a schism within the personality or practice style of the person if they're trying to practice Western medicine and Oriental medicine at the same time… For me, the way to deal with the schism was to practice what I believed in most." Another acupuncturist echoed this sentiment: "A certain amount of integrative medicine is healthy, and to a certain degree when it's too integrated, then you lose the essence and beauty of each."

On the other hand, some practitioners strongly believed that it was possible to "harmonize" the biomedical and CAM paradigms into a single, unified paradigm. An example of such integration was found in a physician acupuncturist who believed that traditional Chinese medicine could be integrated successfully with Western medicine. He viewed Western medicine and traditional Chinese medicine as two different languages and himself as a "bilingual" provider. He felt integrative medicine was superior to conventional medicine or traditional Chinese medicine because he was able to "take the best of both worlds and fuse them into a more powerful kind of medicine." He described his own "East–West" approach in diagnosing and treating patients:

> When I see patients, I always take into consideration the tongue/pulse diagnosis along with the appropriate laboratory and imaging results …I'm shifting back and forth so frequently and so it's hard for me to tease out which part of me is making the decision to combine a Western medication with acupuncture. I'm coming at that decision ultimately by using both aspects of my Western medicine and Chinese medicine training.

Many physicians cited lack of knowledge and exposure as the reasons they were skeptical toward integrative medicine. Some chiropractors and acupuncturists also distrusted integrative medicine because they were afraid that CAM might be "co-opted" by conventional medicine. This skepticism contributed to the lack of a shared understanding of the meaning of integrative medicine across provider groups.

Knowledge of integrative medicine

Practitioners viewed knowledge as a prerequisite for referral and practice. They mentioned two key aspects of knowledge: (1) how providers obtained the knowledge that permitted the practice of integrative medicine; and (2) how proficient or knowledgeable they were. Participants differentiated informal methods of acquiring knowledge from formal methods that have an organized curriculum with the goal of obtaining a professional degree or certificate. Clinicians with formal, dual training in CAM and conventional medicine were perceived as being more integrated compared with

clinicians who are trained in either CAM or conventional medicine.

Methods of acquiring knowledge

Practitioners viewed formal methods of acquiring knowledge as receiving education and training through school with a formal curriculum. Examples included medical school, acupuncture school, and chiropractic school. To practice both conventional medicine and CAM, some participants felt that a provider would need to receive formal training and to be credentialed in both. An acupuncture training certificate course for physicians and osteopaths represented another example of formal knowledge. For example, most physician acupuncturists elected to complete an acupuncture training certificate course in order to practice acupuncture. Such a course has approximately 300 h of training and focuses mainly on acupuncture, which is significantly less than the 2300–3000 h of training for acupuncture school (Eisenberg et al., 2000).

In contrast, acupuncturists only can be credentialed to prescribe medications if they complete 4 years of medical or osteopathic school training. Many acupuncturists perceived the "lower" credentialing standards for physicians to practice acupuncture and the "higher" credentialing standards for acupuncturists to prescribe medications as resulting from the political clout of physician professional organizations. Many acupuncturists were critical of physician acupuncturists because of their "inadequate training" in traditional Chinese medicine and viewed them as "2nd-tier" acupuncturists. One acupuncturist considered this to be a lower level of integration: "Many physician acupuncturists lack the ability to really diagnose Chinese disease patterns...They can use simple acupuncture points to treat simple problems, but I don't think they can treat complex problems very well."

Many physician acupuncturists accepted the limitations of their shorter formal training and referred patients to licensed acupuncturists for more advanced acupuncture treatment and herbal regimens. Some justified their limited formal training because of prior knowledge in anatomy and pathophysiology. These dual-trained practitioners often cited "busy private practice and lack of time" as the major barrier to formal schooling in traditional Chinese medicine.

Practitioners defined informal knowledge as not having a structured curriculum. Practitioners seeking informal knowledge often did not expect to receive a professional degree or certificate. For instance, one practitioner suggested that:

> Practitioners who are interested to learn more about integrative medicine should interview or visit practitioners outside of their own field. Go to some conferences where alternative medicine practitioners held workshops, to see what those practices are about. Get exposure! This is how I began my exploration of integrative medicine.

Practitioners acquiring informal knowledge learned from the following sources: journal articles, textbooks, websites, apprenticeships, conferences, co-workers and patients.

Knowledge proficiency

Practitioners and provider groups varied in their expectations of how much integrative medicine providers should know in order to successfully blend conventional medicine with CAM. Many practitioners believed that a "fully integrative" practitioner ought to have "complete knowledge of both conventional medicine and CAM." In the words of one physician, a highly integrative provider ought to be "a master" of both paradigms and "be as good in either realm as the next best guy." In contrast, a "less integrative" practitioner was perceived as a "dabbler," someone who did not practice integrative medicine on a regular basis and had a lower skill level compared with a fully integrative practitioner.

When asked to give an example of a highly integrative medicine practitioner, two physicians, one acupuncturist, and two chiropractors mentioned the same physician acupuncturist. This practitioner has been practicing integrative medicine in the local area for 20 years and has an excellent reputation in both the conventional and CAM communities. This practitioner was described as knowing "all the inner workings" of Western and Eastern medicine and understanding how to use the "best of both systems." In contrast, most practitioners agreed that someone who was unwilling to dedicate effort to learn about alternate medical paradigms would be less integrative.

Referral to other practitioners

Respondents viewed referral to other practitioners as a key component of integrative medicine. Practitioners without sufficient knowledge about

modalities outside their own paradigm were more likely to refer to outside practitioners. The referral behavior was further divided into two key elements: location and timeliness of referral. Referrals to consultants in the same practice setting were classified as "on-site" referrals, in contrast to referrals to consultants at other practice sites, classified as "off-site" referrals. A key issue was whether providers referred outside one's own medical paradigm, and if so whether this was early or late in a patient's course. Referral outside one's own medical paradigm is defined as referrals from CAM practitioners to conventional practitioners and vice versa.

Referral location: on-site and off-site

For some providers, "on-site" referral marked one end of the integrative/non-integrative continuum. When asked the question "What is an ideal setting for integrative medicine," one physician replied that "physicians and alternative practitioners would work together under one roof…they would have ongoing back and forth knowledge about the different medical traditions. They would be constantly referring patients to each other." Although our respondents made both on-site and off-site referrals, they felt a greater sense of "partnership" when they were able to refer to practitioners who share the same practice setting. Another advantage of making on-site referrals was sharing one common patient chart with other practitioners, which may "open lines of communication" and "promote collaboration" between CAM and conventional practitioners. An integrative medicine practitioner, who had first worked in an integrative medicine center and then later in a solo practice, compared her experience of making on-site and off-site referrals:

> I used to work in an integrative medicine center with an acupuncturist, osteopath, and naturopath. It was very easy to refer patients to my colleagues and get their feedback because we all worked together in the same center. Since I started to work in a solo practice …I feel that I am less integrative than before because I do not have the contiguous arrangements with other practitioners. It is not as rich.

Yet, few respondents worked in an "integrative medicine" setting, where conventional and CAM practitioners share the same chart or office. Most respondents made off-site referrals. This was largely because few shared the same practice setting with practitioners of another paradigm. Many chiropractors found it very difficult to share the same office with physicians because "MDs have large egos." On the other hand, physicians were reluctant to share the same office with acupuncturists or chiropractors because of lack of exposure to CAM practitioners and their divergent credentialing standards. One physician noted that the key to building a successful integrative medicine center was to find the "right mix" of clinicians who are willing to work under one roof, thereby facilitating making on-site referrals and expanding one's knowledge base about other medical traditions.

Readiness to refer outside one's own medical paradigm

Practitioners consistently mentioned the importance of referring outside of their own medical paradigm. Some practitioners "had no qualms" and were "faster" to refer out to other practitioners when patients were not getting better. Other practitioners would refer to outside practitioners only after exhausting all options within their own medical paradigm. There were still other practitioners who wanted to treat all their patients "in-house" and refused to refer patients to practitioners outside of their medical paradigm. One physician acupuncturist explained:

> A patient may need to be rolfed [a kind of physical manipulation] for his low back pain. Well, I am not a trained rolfer. Neither is a chiropractor or an internist. It is important that I refer this patient to a rolfer… I think it is impractical for an integrative practitioner to do it all. …We need to know our limitation and serve our patients' needs by referring to the right people.

Chiropractors, in general, felt they were better prepared to refer patients to practitioners outside their own medical paradigm compared with acupuncturists and physicians. This could be attributed to their education and training during chiropractic school, which emphasized the need for multidisciplinary care and the importance of teamwork. In contrast, many physicians would consider referring to acupuncturists and chiropractors only after exhausting all options within conventional medicine. They were described as "stuck in one model of care" and were close-minded about other medical traditions. To enhance practitioners'

readiness to refer, conventional and CAM practitioners agreed that they needed to develop "strong working relationships" or "connections" with each other. However, "turf wars" and "big egos" often limited referral and communication between CAM and conventional practitioners, which might drive patients to "mix conventional and CAM treatments" outside the purview of their providers.

Many respondents noted that their willingness to refer patients to consultants outside their own medical paradigm largely stemmed from their belief in "patient-centered" care. "I am always asking my patients to help come up with a treatment plan for themselves because this gives them some control over their treatment…This type of patient-centered approach, the key to integrative medicine, is the main reason why I am financially successful," one chiropractor said. Many practitioners frequently viewed this type of referral as a valuable service to improve patient satisfaction and their financial success.

Practice of integrative medicine

The final aspect of integrative medicine was the ability to practice. Practice was defined as what practitioners could do or use to treat patients including the following: prescriptions, ordering laboratory tests, surgery, manipulation, acupuncture, preventive services, co-management, and treatment recommendation. Treatment using CAM and conventional healing modalities and co-management with practitioners outside one's own medical paradigm were critical parts of practice. Co-management often required the cooperation of both conventional and CAM practitioners to develop a unified treatment plan. Co-management differed from referral because practitioners communicated with each other to devise a coordinated care plan, whereas referral usually lacked the coordination component.

Treatment with Both CAM and conventional healing modalities

Dual-trained practitioners were able to treat their patients with at least two healing modalities: one from conventional medicine and the other from CAM. For example, a physician acupuncturist who combined acupuncture with prescriptions of a muscle relaxant would be classified as treating with both CAM and conventional modalities. Practitioners viewed someone who was able to provide both CAM and conventional treatments as more integrative than practitioners who could provide only one type of treatment. One physician explained why a physician acupuncturist would be more integrative than himself: "He would be very high on the integrative medicine scale because he not only understands acupuncture in theory, but is able to practice acupuncture himself."

Since acupuncturists may not prescribe western drugs under California state licensure, many acupuncturists who were trained in China as physicians felt incapable of fully practicing integrative medicine because they could not prescribe drugs. One acupuncturist explained:

> When I was in China, I learned 12 years of Western medicine and Chinese medicine all together. I practiced both. So I was a "10" on the integrative medicine scale. Here in US, I am a "4" because I cannot prescribe Western medications.

Practice setting appeared to play a role in determining whether a dual-trained practitioner used conventional or CAM treatment. One physician acupuncturist who worked in an academic medical center explained, "I frequently used Chinese herbs in my private practice…I don't use Chinese herbs in the inpatient setting because of my fear of being sued." Practitioners were more likely to use conventional medicine when they were in a hospital setting, whereas they were more likely to use CAM or integrative medicine when they were in an outpatient setting.

Co-management with practitioners outside one's own medical paradigm

Practitioners who communicated and coordinated their patient's care with practitioners outside their medical paradigm defined their actions as co-management. Since many patients seek care from both physicians and CAM practitioners, co-management among practitioners was considered to be an important aspect of the practice of integrative medicine. One physician explained:

> I think an excellent integrative medicine practitioner would be a physician who actually had a working relationship with different types of practitioners outside of conventional medicine and who coordinated care between his patients and those practitioners…He would get letters

back and forth about what was going on with his patients.

When asked to describe a "fully integrative medicine model," many respondents emphasized the importance of physicians and CAM practitioners working together as a "team" in order to develop a coordinated treatment plan for patients. "I worked together with an orthopedic surgeon on patients whose back pain that did not respond to surgery… Or we might feel that a patient will benefit from surgery first, but will come back to me later for manipulation to enhance the healing process," one chiropractor described. An acupuncturist explained that she enjoyed co-managing cancer patients with an oncologist:

> I feel we worked well as a team because the oncologist respected my expertise in acupuncture and herbs, and I respected his expertise in chemotherapy. He did not make me feel like ancillary help or physician helper.

Many chiropractors and acupuncturists expressed willingness to co-manage patients with physicians, but found obstacles to this type of multi-disciplinary care because physicians did not treat them as "equal." Many physicians pointed out the lack of a working relationship with acupuncturists and chiropractors as a barrier to co-management. They also felt that there were inadequate "scientific data" to support the effectiveness and safety of integrative medicine treatments. Interestingly, one CAM practitioner noted that a large number of medical treatments in biomedical treatments are also not based on randomized controlled trials.

Discussion

Our study shows that integrative medicine is a multi-dimensional construct, including provider attitudes, knowledge, referral, and practice. The conceptual model explains the linkage between provider characteristics and provider behaviors, as mediated by provider attitudes and knowledge. Our results coincided with many of the key domains used in Canadian surveys of physicians' attitudes toward CAM (Goldszmidt, Levitt, Duarte-Franco, & Kaczorowski, 1995; Verhoef & Sutherland, 1995), as well as other studies of integrative medicine (Bell et al., 2002; Maizes & Caspi, 1999; Shuval, Mizrachi, & Smetannikov, 2002; Thomas, 2003).Variations of provider behaviors were linked to provider knowledge of alternate paradigms, which were strongly influenced by their education and post-graduate training. Interestingly, our sample of physician acupuncturists shared similar practice patterns compared to German homeopathic physicians (Frank, 2002). Most physician acupuncturists also viewed traditional Chinese medicine as "complementary" to biomedicine, whereas most physicians viewed traditional Chinese medicine as "alternative" to biomedicine.

Both "Referral Outside One's Own Medical Paradigm" and "Co-Management with Practitioners Outside One's Own Medical Paradigm" emerged as key sub-domains in our model. Dual-trained practitioners emphasized the practice domain more than the referral domain because they could practice both conventional medicine and acupuncture. On the other hand, uni-trained practitioners emphasized the referral domain more than the practice domain.

However, many more providers endorsed referral compared with co-management. Most respondents cited the lack of strong working relationships with practitioners from alternate paradigms as a main barrier to co-management. Other barriers included inadequate knowledge proficiency and lack of confidence in integrative medicine.

The "Faith in Integrative Medicine" sub-domain described the range of provider faith in developing a unifying paradigm of integrative medicine, spanning from disbelief to fully embracing integrative medicine. This debate over the feasibility of merging the biomedical and CAM paradigms is consistent with Kuhn's theory of scientific revolution, which postulated that two paradigms were "incommensurable" if they are based on contradictory principles or dogma (Coulter, 1999; Kuhn, 1962). However, Boon and colleagues recognize this dilemma, and have proposed a conceptual framework of integrative health care at the system level, which represents one possible way to resolve the incompatibility between the biomedical and CAM paradigms (Boon, Verhoef, O'Hara, & Findlay, 2004; Boon, Verhoef, O'Hara, Findlay, & Majid, 2004).

Based on this conceptual model, hypotheses can be generated and tested to assess the impact of integrative medical care on health care outcomes. Another use—the main purpose of this project—is the development of a survey instrument to measure clinicians' "orientation" toward integrative medicine, including provider attitudes, knowledge, and behaviors. The items of this survey are developed

from the four key domains of integrative medicine. A pilot test of this survey provided strong support for its reliability and validity (Hsiao et al., 2005). This instrument may permit the rigorous evaluation of the impact of integration on health care processes and outcomes, such as cost-effectiveness, health-related quality of life, and patient satisfaction. For instance, this instrument may facilitate evaluation of health care outcomes of low back pain care delivered by physician acupuncturists with higher versus lower orientation toward integrative medicine.

A limitation of this study pertains to the sampling frame. Participants represented a purposive sample recruited from a particular geographic region, thereby limiting the external validity of our results. Another limitation is the exclusion of other practitioners of integrative medicine, such as naturopaths and massage therapists, and of medical specialists, such as anesthesiologists. Additional interviews with these providers may uncover new domains of integrative medicine at the provider level. Future studies should evaluate how well our conceptual model fits these provider groups.

We believe that this is the first attempt to develop a conceptual model of integrative medicine at the provider level. We used a qualitative, grounded approach to uncover key domains of integrative medicine, thereby elucidating how different providers view and practice integrative medicine. Since provider groups varied in their conceptualizations of integrative medicine, clinicians' orientation toward integrative medicine may be an important factor to measure in evaluating the effectiveness, safety, and quality of integrative medical care.

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