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Paradigms of Health and Disease: A Framework for Classifying and Understanding Complementary and Alternative Medicine

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ABSTRACT

The number of complementary and alternative medicines (CAMs) being utilized by North America health care consumers is growing at an astounding rate. There is a need by both health care providers and consumers to categorize CAM in order to make meaningful comparisons and informed decisions on their use. Four paradigms of health and illness are proposed that classify medicines according to the basic assumptions of health and disease associated with each medicine. CAMs classified in the body paradigm are those that work through biologic mechanisms, or in other words, target biologic factors as the primary determinants of health. The mind–body paradigm extends the body paradigm to include factors such as stress, psychologic coping styles, and social supports as primary determinants of health and disease. The body–energy paradigm assumes health and disease are functions of the flow and balances of life energies. The body–spirit paradigm assumes that one or more transcendental aspects or personalities existing outside the limitations of the material universe can influence health and disease. It is postulated that there is a hierarchical relation among the four paradigms, such that each paradigm essentially subsumes the assumptions of the previous ones, but adds additional assumptions that qualify the previous ones. Implications of this framework for clarifying many contemporary issues in health care are discussed.

INTRODUCTION

> The majority of alternative medicine users appear to be doing so not so much as a result of being dissatisfied with conventional medicine but largely because they find these health care alternatives to be more congruent with their own values, beliefs, and philosophical orientations toward health and life. (Astin, 1998)

The acceptance and integration of complementary and alternative medicines (CAM) into health care is a growing reality of contemporary North American life. In a random sample of the American population, Eisenberg and colleagues (Eisenberg et al., 1998) found health care visits for CAM in 1990 outnumbered visits for conventional biomedical services and that use of these unconventional methods has continued to increase from 1990, from 34% of the population, to 42% in 1997. An

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even greater proportion of people use CAM in the context of coping with or treating a chronic disease (Eisenberg et al., 1998). For example, Fernandez and colleagues (1998) reported CAM use of 42% in a pediatric oncology population while Montbriand (1993a, 1993b) reported that 81% of adult oncology patients use CAM. Balneaves and coworkers (1999) indicated that, for women with breast cancer, CAM use is not limited to a distinct demographic profile of consumers but is ubiquitous throughout the population. Driven by the marketing pressures of consumer choice and the potential for large cost savings (Luskin et al., 1998), many U.S. health maintenance organizations and private insurance companies are piloting or offering expansion packages with full coverage of many CAM modalities (Malik, 1995). In addition, teaching institutions such as Harvard, Stanford, and Columbia Universities, considered by many people to be the bastions of conventional biomedicine, now offer a range of courses in CAM, from educational to integrative exposure and training (Ruedy et al., 1999; Wetzel, 1998).

In the global context of our "shrinking world," Krippner (1995) agreed with World Health Organization estimates that "more than 70% of the world's population relies on nonallopathic systems of healing." In contrasting North American allopathic medicine with three other healing traditions, Krippner concluded:

> This move toward awareness of the cultural factors in health and healing necessitates education and training for practitioners whose focus has been Western medicine and psychotherapy, a worldview that is, in part, inappropriate for many patients and their disorders.

Taking this position further, the blending of different world and cultural views into North American society puts an additional onus on physicians and conventional health care workers. Care providers must understand that the issues involved in the treatment of persons with different cultural and belief systems are no longer confined to contact with persons of different ethnic or cultural origins. For example, many Western families of European descent now fully embrace vegetarian diets and non-Judeo–Christian belief systems such as Buddhism, Taoism, and different forms of yoga. Conversely, many North American First Nations people and people of Japanese and Chinese descent are second- and third-generation Christians who now live what was once the "typical" North American philosophy and lifestyle.

For many physicians, other health care professionals, and consumers, the increased societal acceptance and heightened exposure to CAM is accompanied by a daunting sense of bewilderment and intimidation. Perusal of a single lay magazine on alternative medicine might include articles denouncing the biomedical monopoly on health care to articles on the dangers of eating hydrogenated oils; advertisements for herbal, dietary, and phytonutrient supplements; brand-name "advertorials" on nutritional supplements, light, magnetic, color, and aromatherapies; and discussions about the benefits of juicing, fasting, biomagnetics, acupuncture, reflexology, copper wristbands, tea-tree oil, colloidal silver, regression therapy, visualization, yoga, massage, *qigong*, *t'ai chi*, rebirthing, Sufi dancing, the power of prayer, and so on, apparently *ad infinitum*. Clearly, CAM constitutes a large body of information for any health care consumer to review, let alone comprehend well enough to make an informed decision about its use. The ability to make sense of this massive amount of material is not a trivial issue. The integration of CAM into standard treatment involves critical financial (i.e., many CAM modalities are expensive and not currently covered by insurance), social (e.g., conflicting opinions of friends, relatives, health care providers, and cultural norms), efficacy ("does this CAM really work?"), and psychologic decisions (e.g., "will this CAM help *me*?"). Many potential and actual CAM consumers are coping with life-threatening illnesses and already feel vulnerable, overwhelmed, and exhausted (Kaasa et al., 1993; Maunsell et al., 1996). Similarly, many health care providers are increasingly being asked to step outside their areas of competence and provide input regarding the appropriateness of a given CAM modality for treatment (Lerner and Kennedy, 1992).

One method for managing large amounts of material is to reduce them into a more comprehensible format by using typologies or a classification system. While a typological system, which groups instances by a single set of underlying principles (e.g., the periodic table) appears premature at this time, a robust classification system would prove to be useful. Classification systems group instances by common characteristics. Such groupings allow generalization from one instance to another, facilitate inferential processes across instances, and present the opportunity to discover underlying laws governing all classes. A comprehensive classification system would also help to understand and integrate the new CAM modalities being introduced each year.

FRAMEWORKS FOR CLASSIFYING CAM

The initial categorical frameworks used to classify CAM are quite varied and did little to summarize the wealth of CAM modalities available coherently. Table 1 provides examples of four different classification systems that have been used by various agencies or individuals to reduce the numbers of CAM modalities into a manageable set of classes. These classification systems illustrate the broad array of frameworks that can be applied to CAM, the elements of which are not readily comparable to each other. Initial classification systems were based on perceived similarities of the most prominent or distinguishing features of the medicine. However, inconsistency in choosing the most salient or discriminating features led to CAM classification systems that had little reliability. For example, some categories within a framework reflect the origin of the medicine (e.g., traditional, from earth and sea, herbs), others classify according to the targeted body system (e.g., immune boosters, physical and psychophysiologic), while others reflect the theoretical underpinnings of the intervention (e.g., energy life force therapies, mind–body control). There are several problems related to the previous classification systems. First, the categories used within a single system generally lack the conceptual coherence that arises from a unifying conceptual framework. Another related problem is the issue of nonexclusivity of categories. A particular intervention can be classed into several categories: is shark cartilage a "dietary intervention" or is it "from earth to sea"? Should relaxation training or social support be a "psychologic" intervention or an "immune booster?" (Pert et al., 1998).

In apparent response to these problems, theoretically based classification frameworks have recently emerged. Gray (1998) suggested four perspectives on CAM: biomedical; alternative; progressive; and postmodern. This system provides an insightful means of classifying the beliefs of people toward health and illness and the treatment of disease. This system does not, however, transfer readily as a framework for classifying CAM modalities per se. Engebretson (1998) presented a heterodox model of healing in which both conventional medicine and CAM are classified in accordance to an epistemologic conventional perspective (positivist approaches to metaphysical approaches) and the type of healing activity used (material to nonmaterial modalities). This approach categorizes the myriad of CAM modalities into 20 classes, which is still a considerable number. Also, in Engebretson's framework, the construct validity of the classes is questionable. For instance while magnetic healing and Polarity Therapy are classified as physical manipulation/balance, it is not clear how they are different from healing touch, which is classed under energy/supranormal. Similarly drumming or dervish (Sufi) dancing is classed as a physical manipulation/supranormal modality although many people would perceive them to be spiritual activities. Other examples include prayer, which, in many cultures is enacted via fixed or repetitive postures or speech, not being classed as a physical manipulation, and mind–body interventions, such as hypnosis, imagery, psychotherapy, et cetera, being classed as mechanical interventions. Thus, this framework suffers from the same flaw of earlier classification systems in not delineating the criteria by which to chose the characteristic of the medicine used to classify it; for example, classification by either the physical concomitants of the method or the intent of the method. Another confusing aspect of this classification system is the terminology. The word "energy" has

Table 1. Examples of Initial Classifications Schemes for Complementary and Alternative Medicines

Office of Alternative Medicine—Version 1	*National Center for Complementary and Alternative Medicine (NCCAM)*	*Ontario Cancer Institutes Guide to Alternative Therapies*	*Lerner's "Choices in Healing" (1994)*
Diet/nutrition/lifestyle change	Alternative medical systems	Dietary	Nutritional and dietary
Mind/body control	Mind–body interventions	To and from the body	Psychologic
Pharmacologic and biologic treatments	Biologically based treatments	Psychologic	Physical and psychophysiologic
Structural and energetic therapies	Manipulative and body-based methods	Physical therapies	Spiritual
Biomagnetic applications	Energy therapies	Herbal therapies	Pharmacologic
Traditional and ethno-medicine		Vitamins	Herbal
		Minerals	Electromagnetic
		Oxygen	Unconventional use of conventional
		Drugs	Esoteric and psychic
		Immune boosters	Unconventional instruments
		From earth to sea	Apparatuses, diagnostic tests, humane approaches
		Natural health practices	Traditional
		Energy life-force therapies	
		Movement therapies	
		Expressive arts	

different meaning in the context of laser/radiation therapy compared to therapies such as bioenergetics, *t'ai chi*, *qigong*, and healing touch.

The framework proposed by the author for understanding and classifying CAM modalities as well as biomedical (also known as allopathic or "conventional" in North American culture) interventions is based on classification into four main categories, according to the basic assumptions of health and disease associated with each (Table 2). The four paradigms are referred to as (1) body paradigm; (2) mind–body paradigm; (3) body–energy paradigm, and (4) body–spirit paradigm. It is postulated that there is a hierarchical relation among the four paradigms, such that each paradigm essentially subsumes the assumptions of the previous but adds an additional assumption, qualifying the previous assumptions. The term "body" in each of the paradigm labels could be eliminated, but its use reflects the inherent disposition of our Western culture to see the body as fundamental or foundational to any notions of health and illness. Other cultures have different dispositions and might perceive the "person" or "spirit" as being healthy or becoming sick (Krippner, 1995). The proposed paradigm framework has parallels to Dossey's (1993) delineation of three eras of medicine, but has many differences. The similarities and differences to his framework are discussed throughout this paper.

This framework of paradigms categorizes CAM modalities according to underlying assumptions regarding health and illness. In general, complex medicines (i.e., those that utilize the assumptions of two or more paradigms) are classed into the "highest" category in which they belong. For example, reflexology, which involves physical massage (i.e., a body intervention), is categorized as a body–energy medicine because the assumption of manipulating energy flow is intrinsic to its practice. Some CAM modalities, however, particularly those with long traditions, such as Yoga, Ayurveda, and First Nations Traditions, are particularly complex and often have multiple, but lesser-known, interventions within each of the four paradigms outlined. In these cases, interven-

Table 2. Four Paradigms of Health and Disease: Classifying Common Therapies

Body	*Body–mind*	*Body–energy*	*Body–spirit*
Synthetic ← Natural			
1) Physical substances	Affirmations/suggestion	Acupressure	Ceremonies and rituals
a) *Diets and supplements*	Counseling	Acupuncture	Dervish dancing
Aromatherapy	Dream interpretation	Ayurvedic medicine	Exorcism
Gerson diet	Expressive art therapies	Chinese medicine	Faith healing
Herbal remedies	Hypnosis	Crystal therapy	First Nations traditions
Macrobiotic diet	Imagery/visualisation	Homeopathy	Laying-on-of-hands
Vitamin and mineral therapies	Meditation	Magnetic therapy	Magic/occult practices
b) *Extracts and concentrates*	Psychotherapy	Polarity Therapy	Prayer
Antineoplastons	Stress reduction	*Qigong*	Psychic diagnosis
Live-cell therapies	Support groups	Reflexology	Psychic interventions
Laetrile		*Reiki*	Sacraments/rites
Ozone therapy		Therapeutic Touch	Shamanic healing
Shark cartilage		*T'ai chi*	
c) *Chemicals/synthetics*		Yoga	
Chemotherapy			
714-X			
Chelation therapy			
Invasive ← Natural			
2) Physical manipulation			
Massage			
Physiotherapy			
Chiropractic			
Enemas			
Colonic irrigation			
Hypo/hyperthermic therapy			
Radiotherapy			
Surgery			

tions were classified according to the author's perception of the most prevalent underlying assumptions accepted by (North American) consumers of that CAM modality. For example, *Hatha* yoga and Buddhist chanting are said to stimulate and massage the internal organs physically (body paradigm), increasing health and vitality. *Kundalini* yoga and Buddhist tantric practices are each said to cultivate and manipulate the life energy of the body to attain extraordinary health (body–energy) and provide access to paranormal states of consciousness (body–spirit paradigm). *Bhakti*, *Raja* yoga, and many Buddhist meditations also prescribe strictly spiritual practices that are believed to lead to states of consciousness and peak experiences that are transcendental to the very notions of health or illness (body–spirit paradigm). In this example, the placement of yoga under the body–energy system reflected the author's perception that Western society is beginning to appreciate that yoga is more than a set of physical exercises and is designed to increase the energetic and vital aspects of a person's existence. Another option for classifying these complex CAM modalities is to delineate all the submedicines of that CAM modality and place each in the appropriate category (e.g., *Hatha* yoga under body medicines, *Kundalini* yoga under body–energy, *Bhakti* and *Raja* yoga under body–spirit, etc.) or to create a fifth category that might be thought of as truly holistic or integrative (i.e., explicit therapeutic interventions in each paradigm). The categorizations chosen in the present context is to simply introduce and illustrate the utility of the framework. Other contexts might be served better by solutions. For example, classification could be done empirically, based on surveys of practitioners or consumers of the medicines.

BODY-BASED PARADIGM OF HEALTH AND ILLNESS

Body paradigm therapies are materially reductionist or exclusionist (Engel, 1977) in essence. These therapies are based on the assumption that physically caused alterations in the biochemistry or structures of the physical body are ultimately causal in the development and maintenance of disease (reductionism).

Any conditions of human experience that do not meet this criterion are not true diseases (exclusionism). The body paradigm encompasses Western medicine's biomedical or allopathic perspective on health and illness.

The essence of this paradigm is that disease follows an essentially linear, cause–effect relationship that is limited to physical mechanisms and principles: influenza is caused by a virus; mental illnesses are brought about by biochemical imbalances; gastro–duodenal ulcers result from bacterial infections. Eliminating or counteracting the imbalance/pathogen will cure the disease.

While the essence of the body paradigm is the causal relationship between contact with disease-causing agents (e.g., viruses, cigarette smoke) and illness, there is a mechanism within this paradigm to explain variations in pathology, because not all people in contact with a disease-causing agent will succumb to a disease process. For infectious diseases, this mechanism is exemplified by the epidemiologic triad model and chain of infection models (Castle and Ajemian, 1987) taught in most medical training institutes. The three primary factors for disease causation are the host, agent, and the environment. For an infectious disease to develop in a person/population the following must be present: (1) a potentially infectious microbe (agent) in an environment that supports its survival; (2) a portal of entry into the host; (3) host susceptibility; (4) a portal of exit from the infected host; and (5) a mode of transmission through the environment. Host susceptibility is modified by both natural means, such as antibodies ingested through infant nursing, previous infections, etc, and artificial means, such as vaccinations. Chronic physical stresses, such as malnutrition, sleep deprivation, and comorbid diseases modify host susceptibility.

The body paradigm consists of two main types or modalities of intervention: (1) physical substances (e.g., herbs, pills, vitamins, concentrates) and (2) physical manipulation (e.g., massage, chiropractic, surgery). Both sets of interventions assume the biochemical foundations of health; the interventions simply attempt to intervene with or manipulate the biochemistry in different ways.

Another important dimension to consider, in the body paradigm particularly, is "naturalness." If one orders either set of interventions within a modality according to how natural an intervention is, the dimension separates CAM from biomedical health care interventions quite robustly. The main groupings of this dimension in the substances modality are: (1) natural; (2) extracts and concentrates, and (3) synthetics and chemicals.

Natural dietary and supplement products are among the most popular CAM modalities within the body paradigm and include herbal remedies, natural-source vitamins and minerals, and the macrobiotic and Gerson diets (Montbriand, 1993a, 1993b). This category is most popular with those people who believe that natural products are superior to synthetics and have fewer side-effects. CAM modalities in this category tend to be used prophylactically by healthy people and reactively by individuals with disease conditions who hope to increase their bodies' natural immunity and vigor.

Extracts and concentrates medicines begin to blur the natural/synthetic distinction. Components of natural products are extracted and often concentrated to the extent that the "natural" aspect of the product is less, if at all, present. Many of the medicines in this category might be conceptualized as "using natural products in unnatural ways" and includes shark cartilage, pine-bark extract, ozone therapy, and laetrile, as well as alleged immune enhancers such as Bestatin (AG Scientific, Inc., San Diego, CA), chondriana, and Coley's toxins. Medicines in this category tend to be used in a reactive manner, often in response to a specific disease condition.

On the "naturalness" continuum, chemical and synthetic substances, are the antithesis of the natural products. Not surprisingly, this group of medicines is generally perceived by the populace as being intrinsically less safe than natural products. This category includes the interventions of standard allopathic medicine—pharmaceuticals and chemotherapeutic agents. It also includes synthetic vitamins.

As with all interventions that adhere to the body paradigm, physical manipulation therapies are targeted at eliminating the underlying

biologic cause of the disease process or reducing host susceptibility to the disease. Surgery and radiotherapy for cancer, two common biomedical therapies of this type, aim for eradication of the cancer cells. CAM modalities in this category generally target modification of host susceptibility and include chiropractic manipulation, colonic irrigation, enemas, and massage. Medicines within this category can also be ordered along a "naturalness/invasiveness" continuum, with physiotherapy and massage defining one end and radiotherapy and surgery the other.

Many of the most popular CAM modalities, those first investigated by official agencies, such as National Center for Complementary and Alternative Medicine (NCCAM) and the National Cancer Institute of Canada, share the same underlying assumptions of health and illness as allopathic/Western medicine. This philosophical overlap with the assumptions of biomedicine may be the reason for both the high utilization by the populace and their top rankings in the order hierarchy of scientific investigation

The body paradigm of health and illness parallels Dossey's (1993) description of "Era I" medicine—physicalistic medicine—as emerging and completely dominating Western culture between 1860 and the 1950s. This era of medicine attempted to integrate the "laws" of the physical universe into the practice of medicine, outlining clear deterministic and causal relationships between external, physical factors and disease. The mind and notions such as spirit were, at best, superfluous to notions of health and disease and had no real place in medicine. Dossey included CAM modalities such as acupuncture in Era I medicine, because our culture's original embrace with it was very physical, causal, and deterministic.

MIND–BODY PARADIGM

The mind–body paradigm assumes that the mind plays a critical role in health and illness. CAM modalities within this general paradigm can be further classified into two types according to the philosophy of mind that is assumed in each, either the dualism or unity assumption. Under the dualistic assumption of mind–body, the mind merely plays a reactive and interpretative role in the symptoms manifesting within the body. The mind affects quality of life but plays no causal role in the formation of either health or disease. The duality assumption can be referred to as the weak assumption of mind. In contrast, those people who assume or believe that the mind and body are intimately and ultimately connected, opposite sides of the same entity, believe that the mind can have a direct and causal role in the formation of health and disease. This is the strong assumption of mind.

The mind–body paradigm contains many examples of how a given CAM modality can be implemented into the health care of two different people, each of whom hold completely different expectations of the CAM modality's potential impact and outcome. For example, informal surveys of the people attending the "Introduction to Relaxation and Mind–Body Approaches" cancer support group sponsored by Cancer Care Manitoba, Winnepeg, indicated that most attendees believed that attending improved their quality of life (Cunningham et al., 1991; Meyer and Mark, 1995). Approximately half of the attendees also revealed that they believed their attendance has had or may yet have a positive impact on their physical recovery from the disease (here the research is promising but awaits further replications; Fawzy et al., 1993; Maunsell et al., 1995; Shrook et al., 1999; Spiegel et al., 1989).

MIND–BODY DUALISM ASSUMPTION

Under the dualism or weak assumption of mind in the mind–body paradigm, the mind plays any of three roles in maintaining health and illness: (1) interpretative; (2) reactive; (3) indirectly causative. With mind as an interpretative organ, the symptoms of the illness are augmented or attenuated by the degree to which the person pays attention to or interprets those symptoms. For example, one person with lower back pain may be completely disabled, while another, with apparently the same degree of physical trauma and limitation, lives a relatively active and normal personal and work

life. The second role of mind in health and illness is as a reactive agent. For example, one individual who is diagnosed with a potentially terminal disease might become quite despondent and remain this way for months, while another person might react quite stoically or with a fighting spirit, never flinching in the battle to overcome the disease (Greer, 1991; Greer et al., 1979). As evidenced by the recent increase in quantity of quality-of-life literature in cancer and palliative care (Cohen et al., 1997; Cohen and Mount, 1992; Maunsell et al., 1995; Spiegel et al., 1989), the role of psychiatric comorbidity in chronic and other disease conditions is an area of growing clinical and research interest.

The underlying assumption of these two roles of mind in the dualist mind–body paradigm, is that the illness experience consists of both a physical disease and psychologic components (Reading, 1977). Any changes in the mind state, in terms of interpretation or reaction, are limited to influencing the psychologic component of the illness and leads to changes in the illness experience. In essence, mind can influence the illness, but not the disease.

The third role of mind in the dualist paradigm of mind–body is that of mind having indirect causality on health and disease. In other words, the mind can influence the actual morphology and physical health of the body, but only via indirect channels such as diet and lifestyle choices. Once unappreciated, this assertion is now an empirically documented and commonly accepted fact of our culture. For example, most of society is aware that smoking increases the risk of developing cancer and heart disease (Andersen et al., 1994) and that there are many indirect health risks associated with obesity, improper nutrition, and inadequate exercise (Bland, 1995). This role of mind begins to blur into the unity assumption or strong assumption of mind in the mind–body paradigm in that mind has an impact on the physical or disease processes of the body. This position however is not based on the inherent unity of mind and, thus, rests within the dualist position.

MIND–BODY UNITY ASSUMPTION

The strong assumption of the role of mind in health and illness asserts that the mind can have a direct and causal role on the morphology of the body. This assumption falls from the notion that the mind and body are not two separate entities but rather that each exists as a separate facet of an underlying entity, intimately and ultimately connected in their core. While this viewpoint and its implications have been the cause of inordinate speculation for centuries, it has only been recently that modern science and scientists have begun unraveling the intricate mechanisms by which mind and body are united.

Appropriately, some of the strongest support for this perspective comes from a recent amalgam of biologic and psychologic research perspectives: psychoneuroimmunology (PNI) and psychneuroendocrinology (PNE). The PNI and PNE literatures focus on documenting the short-term detrimental effects of stress on the immune and endocrine systems (Andersen et al., 1994; Glaser and Kiecolt-Glaser, 1998). Congruent with PNI and PNE research, is the body of literature asserting that psychosocial factors, such as social support, personality, and coping styles, and psychotherapeutic interventions can have a marked impact on the etiology and progression of chronic disease, including cancer (Cunningham et al., 1991; Fawzy et al., 1993; Maunsell et al., 1995; Spiegel et al., 1989; Shrook et al., 1999) and cardiovascular disease (Ornish et al., 1990).

When one refers back to the epidemiologic triad model of infection of the body paradigm, it is clear that, while host factors are acknowledged in the biomedical paradigm, the agent is perceived as having the causal role in health and disease. Hence, the presence of a virus, given the right conditions, results in an illness. Furthermore, the biologic reductionist philosophy of the body paradigm limits factors that modify host susceptibility to biologic factors. In the strong version of the mind–body paradigm, this limitation is transcended, allowing psychologic or "mind factors" to modify host susceptibility directly (e.g., stress compromises the immune system). The burgeoning research literature on the relation between health and life expectancy with psychologic factors such as stress (Merz et al., 1993; O'Leary, 1990), and the PNI and psychosocial literature cited earlier make this model of mind–body increasingly more plausible and acceptable within conventional biomedical communities.

In the strong version of the mind–body paradigm, causality of health is often placed within the host organism and not the external agent. The logic that, because a potential host organism is routinely subjected to potentially infectious agents to which it does not succumb, it must be host susceptibility that is critical and causal in determining health and disease and not the presence of the pathogen. Furthermore, longitudinal variation in a given organism's susceptibility is largely determined by mind–body factors (i.e., via indirect health-related behaviors, or via unitary direct, causal pathways, or both). Thus, the mind is the central and causal factor of both health and illness.

A contemporary example of the struggle between the body paradigm and the mind–body paradigm for dominance in Western society is revealed in the controversy regarding the relationships among stress, bacteria, and ulcers. The discovery of the presence of *Helicobacter pylori* bacteria in people with gastro–duodenal ulcers, as well as the subsequent ability to cure most cases of ulcers via proper antibiotic regimes, caused many researchers, clinicians, and laypersons to infer a necessary and sufficient causal relationship between the two (Lewin and Lewis, 1995). However, subsequent research clearly indicated that the presence of bacteria was not a sufficient condition to develop the disease and that the widespread belief to the contrary is likely to be fallacious. Melmed and Gelpin (1996) concluded:

> The epidemiological, clinical and genetic evidence strongly suggests that host factors, especially the effects of stress (in the broadest psychosocial sense) may be decisive in determining who develops a duodenal ulcer.

BODY AND ENERGY

CAM that share the assumptions of the energy paradigm toward health and illness presuppose that all life, indeed, the entire universe, exists via the balance, flow, and interplay of subtle energies. These energies are known by different names in different traditions (e.g., *qi*, *chi*, *prana*, and life force) and refer to several different energies that are often not differentiated each other, although, within their respective traditions, the energies are quite distinct.

Within the body, any disruptions of *chi* or life-force energy, either in terms of flow or in terms of over-abundance or underabundance will create an imbalance in the body and eventually lead to physical illness. Conversely, the presence of physical pathogens and injury will manifest as disruptions or imbalance in energy flow. Interventions are directed at reestablishing the energetic balance, which facilitates the body's ability to heal itself (Saucier, 1996).

Therapeutic Touch is a common energy intervention only recently available in Western society, that is practiced, researched, and debated (Bullough and Bullough, 1998) primarily by nurses, in many hospitals throughout North America (Olson et al., 1997). Therapeutic Touch was brought to the attention and practice of nurses by Krieger (1979), a nurse–practitioner who studied the healing methods of other cultures. This intervention has been subject to considerable controversy and continues to grow as both a clinical intervention and research topic. A search of MEDLINE® from 1960 to present for "Therapeutic Touch," revealed 0, 8, 39, and 200 plus matches in each of the last four decades, respectively. Seven of the first eight papers published in the 1970s appeared in nursing journals. In the present decade, while nursing journals continue to lead in the proportion of publications, many Therapeutic Touch studies now appear in biomedical and alternative medicine journals. A similar pattern emerges with research on other body–energy medicines. For the example of reflexology, 30 of the 33 matches occurred in the last decade, with approximately half being published in nursing journals.

Homeopathy stands out in the body–energy paradigm as being the only energy-based medicine to have emerged completely within a European context (approximately 200 years ago). While initially dismissed by biomedicine for its lack of a viable (biologic) mechanism of action (see Reilly et al., 1986, 1994; Reilly, 1995 for what may prove an interesting case example of the history of medicine), the accumulation of outcome research regarding efficacy and effectiveness is attracting larger numbers of patients and practitioners (Merrel and Shalts, 2002; Reilly, 2001). The independent discovery of life

force and evolution of homeopathic interventions to correct lifeforce imbalances adds a kind of convergent construct validity to the general body–energy paradigm.

T'ai chi, a series of slowly executed physical movements, has been available in the West for more than five decades and is perceived by most people as an excellent exercise for the physical body. The exercises, however, as the name denotes, are actually designed to increase the quantity and flow of *chi* energy throughout the body. Until recently, this latter aspect has largely been overlooked or undervalued in Western society, perhaps because the underlying assumption of life energy has not been a familiar concept. The recent emergence and proliferation of organizations practicing energy exercises and meditations such as *qigong,* Master Mantak Chia's Taoist energy meditations (Chia, 1983), *Tantric* yoga (Feuerstein, 1998), and Master Choa Kok Sui's Pranic Healing (Sui, 1999, 2000) reflects the increasing acceptance of the energy construct. This acceptance is paralleled by the growing body of research on the efficacy of acupuncture (Peterson, 1996) and reimbursement by the government in Canadian health care and by many insurance companies for acupuncture treatments.

With the exception of homeopathy, the integration of body–energy therapies into Western society is essentially an integration of Eastern thought and practices. The majority of therapies in the body–energy paradigm having originated in Asian culture. These cultures and traditions do not appear to value individuality and emotional experience in the same way that contemporary Euro-Western culture does. The Asian culture's apparent acuity and sophisticated perception of subtle energies may represent the parallel evolution of a different perspective on the same underlying psychophysiologic phenomena that Westerners interpret/experience as emotional activity. Certainly this conceptualization supports and parallels the recent emergence of "integrative practices" in health and spirituality that Wilber (1998) referred to as the marriage of Freud and Buddha. In this case, "Freud" represents Western cultures' predisposition to facilitate self-growth via personalizing, processing, and attempting to resolve long-standing emotional and psychologic issues. In contrast, "Buddha" represents the Eastern predisposition to facilitate transcendental states via spiritual practices that cultivate nonidentification with personal emotional–energetic–and psychologic issues. The integration of these two perspectives may prove more efficacious in facilitating health and well-being than either would separately (Peterson, 1996).

Perhaps the largest problem concerning acceptance of energy interventions into conventional medicine and health care in North America has not been scientific proof of efficacy but rather the lack of a plausible mechanism for its effects within the paradigm of biomedical reductionism (Kuhn, 1970). As with mind–body medicine, speculation, theory, and research in this area continue to accumulate. New research and writing by theorists from a number of different disciplines (Malmivuo and Plonsey, 1995; Peterson, 1996; Syldona and Rein, 1999; Wirth and Cram, 1997) represent innovative and scientifically informed attempts to translate and understand the construct of "energy" and its biologic concomitants within the body.

BODY AND SPIRIT

The final of the four paradigms assumes the existence of nonlocal, nonphysical being or beings or states of consciousness, that is/are transcendental to but able to act on the material universe. Names include God, Jehovah, Tao, Buddha, Atma, the Source, angels, spirits, nonlocal mind, et cetera. Because these beings or states of consciousness are considered to be transcendental yet capable of interaction with the physical world, various means of intercessory prayer or ritual can be used to seek intervention on behalf of the sick person. Because of the nature of this belief system, complete cures of any physical condition (i.e., miracles) are considered to be possible. This paradigm is perhaps the oldest belief system of health and illness and is ubiquitous across history and culture. Many popular New Age philosophies offer a slight variation of this belief system, in which the personal "higher self" or soul has these transcendental attributes and various

meditations and visualizations are used to access healing states of consciousness. The relative decline of the body–spirit paradigm in Western society corresponded to the rise of scientific thought and materialism in the early 1800s (Wilber, 1998).

The use of prayer in health care has received increasing attention in recent years, stimulated particularly by strong positive results of a large prospective double-blinded randomized clinical trial first conducted in a coronary care setting (Byrd, 1988) and subsequently replicated (e.g., Harris et al., 1999; Sicher et al., 1998). Dossey's (1993) initial response as a physician investigating the scientific literature on the efficacy of prayer in healing is revealing (and exemplifies a thesis made years earlier by Kuhn [1970]:

> I was astonished. . . . I came to realize the truth of what many historians of science had described: A body of knowledge that does not fit with the prevailing ideas can be ignored as if it does not exist, no matter how scientifically valid it may be.

The search for a mechanism of action reducible to the material confines of the biomedical paradigm is more unlikely and more problematic than for the body–energy paradigm. The transcendental nature of spirit, unbound by the laws of space and time, defies the basic assumptions of body paradigm reality (Byrd, 1988; Engleking, 1994). Nevertheless, the physical correlates of health and healing and intercessory prayer can be subjected to scientific rigor. Researchers embracing the mind–body paradigm of health and illness are also investigating a domain of this paradigm, attempting to explain the increasingly documented relation between health and religion/spirituality (Ellison and Levin, 1998) as a function of mind–body constructs. The assumption of this perspective is that people with religious affiliations are healthier and live longer because of mediating mind–body variables that are intrinsic to "being religious." These include extensive social support systems; reduced cigarette smoking and alcohol consumption; and the physical and psychologic relaxation-related benefits of fasting, prolonged prayer, meditation, et cetera. Note that this approach parallels the weak paradigmatic assumption of mind–body, limiting the impact of spirit to the indirect effects of the social and behavioral concomitants of religious behavior.

It was the rise of science that led to the gradual dissolution and apparent death of religion and spirituality in society (Wilber, 1998). Science has replaced religion in several dimensions. At a societal level, most people now turn to science for solutions that were once sought from God, with many people believing that science will eventually solve the social, economic, and environmental problems of our age. The parallel continues at even more abstract levels. Physics, the epitome of the material sciences, now contains within its theory of reality (i.e., quantum theory) transcendental principles and paradoxes (Herbert, 1987) that defy material constraints and parallel attributes that are generally associated with God or spirit. Recent works by philosophers such as Wilber (1998) propose that science and religion/spirituality need not be antithetical and antagonistic belief systems. Wilber illustrates the core similarities in their methodologies for acquiring knowledge in different domains and proposes a framework in which each might inform and nurture the other. The growing body of scientific research and theory in spirit/God research is exciting to many and terrifying to others (Dossey, 1993). Given the history of Western culture and the enduring antagonism between science and God, it is ironic that perhaps, one day, via the rigorous application of the scientific method, God or spirit might unequivocally be pronounced to be alive and well and operating on the material universe.

DISCUSSION

The need for a standardized framework for classifying CAM is critical for comparable research and knowledge to accumulate. For example, a recent review of the effectiveness of mind–body interventions on cardiovascular disease is misleading and confusing. The researchers classed all nonmedical (i.e., nonbody) therapies as mind–body, including *t'ai chi*, *qigong*, faith healing, and spiritual healing

(Luskin et al., 1998). The present framework classifies interventions by a single underlying principle—the assumptions each makes about health and disease and, by extension, treatment. This allows both CAM and biomedical therapies to be classified into appropriate and meaningful categories that simultaneously clarify each therapy's relation to all other therapies. Knowing which assumptions (or worldview/paradigm) is associated with each CAM modality in its approach to health and illness allows one to understand the basic premises of the intervention without knowing its particulars. If one agrees with, or is willing to suspend negative judgement about, the primary assumptions of one of the paradigms, then any of the interventions within that paradigm is a potential therapeutic intervention for that person. For instance, a person who has found Therapeutic Touch to be a useful health care intervention, may be more inclined to utilize acupuncture, or vice versa, upon realizing that each share similar assumptions regarding health, illness, and treatment. Finally, as research evidence accumulates for various interventions, then the basic tenet of other instances within that class is also supported. For instance, the growing body of research support for the efficacy of acupuncture as a medical intervention (Feuerstein, 1998) suggests that related interventions such as *qigong*, *t'ai chi*, and acupressure, which are based on the same premises, may also be plausible and effective interventions. Further research might be more productive for testing the specific modality or any additional assumptions related to that intervention. Indeed, the emphasis in researching the efficacy of herbal and dietary supplements in the first wave of nationally funded research on CAM, shows both the disposition of health care consumers and the researchers toward CAM that share the primary assumptions of conventional medicine.

Each of the four major paradigms outlined in this framework appears to be affiliated with or "claimed" by a specific health care or related profession of Western culture. The most commonly accepted and practiced paradigm in Western medicine—the body paradigm—is embraced and practiced by physicians and psychiatrists, and more recently, by chiropractors, physiotherapists, and occupational therapists. The mind–body paradigm falls largely under the purview of academic psychologists and therapists in general. Health psychology emerged in the 1970s with biofeedback and relaxation therapies and has slowly grown to become behavioral medicine. The interactions of psychology with biomedicine were critical in stimulating the emergence of the potent and hybrid fields of PNI and PNE. While psychologists tend to focus on the individual and more cognitive/behavioral aspects of health, social workers have been instrumental in integrating support and related groups into health care. Most recent to appear in the mind–body domain of therapeutic interventions are the expressive or nonverbal therapies. These include music, movement, dance, art, and sound therapies, as well as the breathwork therapies (Knill et al., 1995). Several prominent researchers and theorists believe that the nonverbal therapies have privileged access to "the unconscious" (e.g., repressed psychologic material) as well as greater efficacy for facilitating physical healing (Bakal, 1999; McNiff, 1992; Pert, 1997).*

Nursing introduced the notion of Therapeutic Touch (body–energy paradigm) into contemporary health care in the 1980s and appears to be the only health care profession to incorporate its practice explicitly into professional training, although this is not without debate (Bullough and Bullough, 1998). The adoption of Therapeutic Touch by nursing as a profession is intriguing. Of all the body–energy therapies, Therapeutic Touch in particular has considerable manifest overlap with overt "caring" behaviors. People are literally caressed (albeit from a distance, because no physical touch actually occurs in Therapeutic Touch) and consoled during the session. Patients report feeling more relaxed, more present, and centered, and develop a strong sense of well-being and connection with the practitioner (Ott and Mulloney, 1998). In many ways, Therapeutic Touch both symbolizes the dilemma of the nursing profession—there is less time for unstructured close personal contact with patients on the

* Tataryn ND. Expressive Therapy: A Developmental Perspective [dissertation]. National Institute of Expressive Therapy, Hawaii; 1997.

wards (Cugelman, 1998)—and provides a vehicle for this caring. Its adoption by nursing in this context also supports the notion that the body–energy therapies represent an alternative structure for interpreting and interacting with the emotional dimension of existence.

Spiritual care emerged in health care in the 1960s and has been a growing component of health care teams across North America (Speck, 1993). This growth is spurred in part, by the increasing awareness of the need for explicit palliative care in medicine. Acknowledging and respecting the process of death, instead of simply attempting to prolong life, has introduced the need for better care of the spiritual dimension of a person's life and death (Speck, 1993).

In reviewing the history of medicine, Dossey (1993) denotes three eras. As noted in this paper, his first two correspond closely to the body and mind–body paradigms of the present framework. His third era of nonlocal or transpersonal medicine does not differentiate body–energy and body–spirit paradigms. The separation of these two paradigms, however, clarifies the different assumptions of the two groups of interventions and, thus, avoids some of the controversy that has recently emerged in this area (Dossey, 1997). Body–energy medicines, such as acupuncture, *t'ai chi*, Therapeutic Touch, and magnetic therapy are "local" phenomena, functioning within the confines of time and space. Progress is being made by proponents of this paradigm in elucidating and testing viable mechanisms of action (Malmivuo and Plonsey, 1995; Syldona and Rein, 1999; Wirth and Cram, 1997). Body–spirit interventions, such as prayer, faith healing, Shamanic healing, and Therapeutic Touch practiced from a distance, are nonlocal phenomena, transcendental of the confines of time, space, or energy.

When researching medicine and healing processes within the context of different paradigms, the application of "Occam's razor"—elimination of superfluous explanatory variables—is a necessary condition of the scientific method and accumulation of scientific knowledge. Phenomena that are wholly reducible to factors and interactions of a simpler paradigm can be claimed by that paradigm. However, phenomena that continue to elude such explanatory processes warrant consideration of the veracity of the higher order paradigm. Alleged applications of paradigmatic reductionism, however, can also mask the activities of "scientism" (i.e., an irrational faith in an idiosyncratic version of science, often associated with material reductionism), which is a considerable hindrance to the progress of science (see Wilber, 1998; Kuhn, 1970). In this misapplication of Occam's razor, "inexplicable" phenomena of another paradigm are discarded or explained away via often convoluted interactions of factors accepted within the other paradigm but that do not actually explain the phenomena (e.g., the "endorphin" theory of acupuncture, the "water" theory of Kirlian energy photography). A less severe but similar manifestation of such attitudes is found when whole paradigms of therapy are either unacknowledged or reduced to their lower-paradigm impact, such as body–spirit interventions being classed as mind–body interventions (e.g., Luskin et al., 1998; NCCAM's classification system—See Table 1)).

Many people have equated the growth of alternative medicines with the need and desire of North Americans for more holistic health care (Brown, 1986). Tataryn and Verhoef (2001) proposed a definition of holistic or integrative health care based on the four paradigms (e.g., physical, psychologic, emotional/energetic, and spiritual), in an attempt to make explicit the implicit model used by most holistically oriented health care practitioners. In this model, each of the four dimensions of a person's existence interact directly or indirectly via other dimensions and each dimension has its own set of symptoms of imbalance/dysfunction/disease that must be explicated treated and monitored. (see Astin and Astin, 2002 for an attempt to operationalize "holistic" medicine using Wilber's quadrant analyses). It is unlikely that any single profession can attend to all dimensions of a person's needs adequately in health and illness. The previous discussion of professional specialties indicates that the potential to provide institutionally holistic or integrative care exists in the present health care system. The structural formation of multidisciplinary health care teams—physicians, occupational therapists, physiotherapists, psychologists, social workers, nurses, and pastoral care, et cetera—is a first step toward such holistic care. However, for institutional holistic care to man-

ifest, each profession must also become holistic in attitude—acknowledging and respecting (although not necessarily working with) the symptoms of each of the dimensions of health and illness in their interactions with patients. Each profession must then also explicitly integrate the care and training of other health care professions, who work with those dimensions, into the care of the patient.

It is important to note that the four paradigms categorize different CAM modalities and biomedical interventions according to the treatment system's essential and often implicit assumptions of health and disease. The framework proposed in this paper does not classify practitioners or their adherents because different individuals who practice a particular healing systems will often hold additional paradigmatic beliefs about health and illness. These additional assumptions, however, are not intrinsic to the CAM modalities they actually practice. For instance, an allopathic physician may bring a spiritual dimension into his or her practice, just as a herbalist may address issues regarding stress and cultivating a state of serenity and peace of mind. The important distinction, however, is that, rarely, will either practitioner actually teach or use the other paradigmatic interventions (e.g., prayer, meditation, relaxation training) in their daily practices.

Most CAM modalities can be either an alternative or a complementary medicine. It is the intent of the consumer and the practitioner that determines its categorization in this domain. A body–spirit intervention conducted in exclusion of, or prior to, a biomedical therapy is an alternative therapy. That same therapy done in conjunction with biomedicine is a complementary therapy. Similarly, as mentioned earlier in this paper, many people attending mind–body groups do so with very different intentions, attempting to affect either quality (i.e., complementary medicine) and/or quantity (i.e., potential alternative medicine) of life.

Biomedicine has often been criticized for being too mechanistic for dealing with the disease and not the person (Engel, 1977; Gray, 1998). Clearly, this mechanistic perspective readily evolved out of the basic paradigmatic assumptions of the body paradigm. The growing use of CAM in Western societies may be the manifest echoes of a plea to biomedical practitioners to meet patients in their own worlds: to go "beyond disease to include illness, beyond pain to include suffering, and beyond curing to include healing" (Gray, 1998). To operationalize this in the language of the present framework, the people of North America are asking that conventional health care transcend the limitations of the body paradigm and integrate the more natural and holistic medicines of body, mind, energy/emotion and spirit.

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REFERENCES

Andersen BL, Kiecolt-Glaser JK Glaser R. A biobehavioral model of cancer stress and disease course. Am Psychol 1994;49:389–404.

Astin JA, Astin AW. An integral approach to medicine. Altern Ther Health Med 2002;8:70–75.

Astin JA. Why patients use alternative medicine: Results of a national study. JAMA 1998;279:1548–1553.

Bakal D. Minding the body: Clinical Uses of Somatic Awareness. New York, NY: Guilford, 1999.

Balneaves L, Kristjanson L, Tataryn DJ. Beliefs and treatment practices of women living with breast cancer using alternative/complementary therapies. Patient Educ Counsel 1999;38:143–153.

Bland JS. Psychoneuro-nutritional medicine: An advancing paradigm. Altern Ther Health Med 1995;1:22–27.

Brown HG. The deadliest delusion: Unproven methods in the management of cancer care. Women Health 1986;11:165–178.

Bullough VL, Bullough B. Should nurses practice therapeutic touch? Should nursing schools teach therapeutic touch? J Prof Nurs 1998;14:254–257.

Byrd RC. Positive therapeutic effects of intercessory

prayer in a coronary care unit population. South Med J 1988;81:826–829.
Castle M, Ajemian E. Hospital Infection Control: Principles and Practice. 2nd ed. New York: John Wiley & Sons, 1987.
Chia M. Awaken Healing Energy Through the Tao: The Taoist Secret of Circulating Internal Power. New York: Aurora Press, 1983.
Cohen SR, Bultz BD, Clarke J, Kuhl DR, Powlson MJ, Baldwin MK, Mount BM. Well-being at the end of life. Part 1. A research agenda for psychosocial and spiritual aspects of care from the patient's perspective. Cancer Prev Control 1997;1:334–342.
Cohen SR, Mount BM. Quality of life in terminal illness: Defining and measuring subjective well-being in the dying. J Palliat Care 1992;8:40–45.
Cugelman A. Theraputic touch: An extension of professional skills. J CANNT 1998;8:30–32.
Cunningham AJ, Edmonds CVI, Hampson AW, Hanson H, Hovanec M, Jenkins G, Tocco EK. Helping cancer patients cope with and combat their disease: A group psychoeducational program. Advances 1991;7: 41–56.
Dossey L. The Power of Prayer and the Practice of Medicine. New York: Harper Collins, 1993.
Dossey L. The forces of healing: Reflections on energy, consciousness, and the beef stroganoff principle. Altern Ther Health Med 1997;3:8–14.
Eisenberg DM, Davis RB, Ettner SL, Appel S. Wilkey S, Van Rompay M, Kessler RC. Trends in alternative medicine use in the United States, 1990–1997: Results of a follow-up national survey. JAMA 1998;280:1569–1575.
Ellison CG, Levin JS. The religion-health connection: Evidence, theory, and future directions. Health Educ Behav 1998;25:700–720.
Engbretson J. A heterodox model of healing. Altern Ther Health Med 1998;4:37–43.
Engel GL. The Need for a New Medical Model: A Challenge for Biomedicine. Science 1977;196:129–136.
Engleking C. New approaches: Innovations in cancer prevention, diagnosis, treatment, and support. Oncol Nurs Forum 1994;21:62–71.
Fernandez CV, Stutzer CA, MacWilliam L, Fryer C. Alternative and complementary therapy use in pediatric oncology patients in British Columbia: Prevalence and reasons for use and nonuse. J Clin Oncol 1998;16:1279–1286.
Feuerstein G. Tantric: The Path of Ecstasy. Boston: Shambhala Publishers, 1998.
Glaser R, Kiecolt-Glaser JK. Stress-associated immune modulation: Relevance to viral infections and chronic fatigue syndrome. Am J Med 1998;105:35S–42S.
Gray RE. Four perspectives on unconventional therapies. Health 1998;2:55–74.
Greer S, Morris T, Pettingale KW. Psychological response to breast cancer: Effect on outcome. Lancet 1979;2:785–787.
Greer S. Psychological response to cancer and survival. Psychol Med 1991;21:43–49.
Harris WS, Gowda M, Kolb JW, Strychacz CP, Vacek JL, Jones PG, Forker A, O'Keefe JH, McCallister BD. A randomized, controlled trial of the effects of remote, intercessory prayer on outcomes in patients admitted to the coronary care unit. Arch Intern Med 1999;159:2273–2278.
Herbert N. Quantum Reality: Beyond the New Physics. New York, NY: Anchor Books, 1987.
Kaasa S, Malt U, Hagen S, Wist E, Moum T, Kvikstad A. Psychological distress in cancer patients with advanced disease. Radiother Oncol 1993;27:193–197.
Knill PJ, Barba HN, Fuchs, MN. Minstrels of Soul: Intermodal Expressive Therapy. Toronto: Palmerston Press, 1995.
Krieger D. The Therapeutic Touch: How to use Hands to Help or Heal. Englewood Cliffs, NJ: Princeton Hall, 1979.
Krippner S. A cross-cultural comparison of four healing models. Altern Ther Health Med 1995;1:21–29.
Kuhn, TS. The Structure of Scientific Revolution. 2nd ed, enlarged. Chicago: The University of Chicago Press, 1970.
Lerner IJ, Kennedy BJ. The prevalence of questionable methods of cancer treatment in the United States. CA Cancer J Clin 1992;42:181–191.
Lewin JS, Lewis S. Organic and psychosocial risk factors for duodenal ulcer. J Psychosom Res 1995;39:531–548.
Luskin FM, Newell KA, Griffith M, Holmes M, Telles S, Marvasti FF, Pelletier KR, Hashell WL. A review of body-mind therapies in the treatment of cardiovascular disease. Part 1: Implications for the elderly. Altern Ther Health Med 1998;4:46–61.
Malik T. Healthcare insurers opening up to alternatives. Altern Ther Health Med 1995;1:12–13.
Malmivuo J, Plonsey R. Bioelectromagnetics. New York: Oxford University Press, 1995.
Maunsell E, Brisson J, Deschenes L. Social support and survival among women with breast cancer. Cancer 1995;76:631–637.
Maunsell E, Brisson J, Deschenes L, Frasure-Smith N. Randomized trial of a psycholgic distress screening program after breast cancer: Effects of quality of life. J Clin Oncol 1996;14:2747–2755.
Mc Niff S Art as Medicine: Creating a Therapy of the Imagination. Boston, MA; Shambhala Publishers, 1992.
Melmed RN, Gelpin Y. Duodenal ulcer: The helicobacterization of a psychosomatic disease? Isr J Med Sci 1996;32:211–216.
Merrel WC, Shaltz E. Homeopathy. Med Clin North Am 2002;86:47–62.
Merz CN, Krantz DS, Rozanski A. Mental stress and myocardial ischemia: Correlates and potential interventions. Tex Heart Inst J 1993;20:152–157.
Meyer TJ, Mark MM. Effects of psychosocial interventions with adult cancer patients: A meta-analysis of randomized experiments. Health Psychol 1995;14:101–108.
Montbriand MJ. An overview of alternate therapies chosen by patients with cancer. Oncol Nurs Forum 1993a; 21:1547–1554.
Montbriand MJ. Freedom of choice: An issue concerning

alternative therapies chosen by patients with cancer. Oncol Nurs Forum 1993b;20:1195–1201.
O'Leary A. Stress, emotion, and human immune function. Psychol Bull 1990; 108: 363–382.
Olson M, Sneed N, LaVia M, Virella G, Bonadonna R, Michel Y. Stress-induced immunosuppression and therapeutic touch. Altern Ther Health Med 1997;3:68–74.
Ornish D, Brown SE, Scherwitz LW, Billings JH, Armstrong WT, Ports TA, McLanahan SM, Kirkeelde RL, Brand RJ, Gould KL. Can lifestyle changes reverse coronary heart disease? Lancet 1990;226:129–133.
Ott MJ, Mulloney SS. Therapeutic touch. Nurturing the nurse leader. Nurs Manage 1998;29:46–48.
Pert C. Molecules of Emotion: Why You Feel the Way You Feel. New York: Simon & Schuster, 1997.
Pert CB, Dreher HE, Ruff MR. The psychosomatic network: Foundations of mind-body medicine, Altern Ther Health Med 1998;4:30–40.
Peterson JR. Acupuncture in the 1990s: A review for the primary care physician. Arch Fam Med 1996;5:237–240.
Reading A. Illness and disease. Med Clin North Am 1977; 61:703–710.
Reilly D, Taylor MA, Beattie NG, Campbell JH, McSharry C, Aitchison TC, Carter R, Stevenson RD. Is evidence for homoeopathy reproducible? Lancet 1994;344:1601–1606.
Reilly DT, Taylor MA, McSharry C, Aitchison T. Is homoeopathy a placebo response? Controlled trial of homoeopathic potency, with pollen in hayfever as model. Lancet 1986;2:881–886.
Reilly D. David Reilly, FRCP, MRCGP, FFHom: Research, homeopathy, and therapeutic consultation. Interview by Bonnie Horrigan. Altern Ther Health Med 1995;1:64–73.
Reilly D. The puzzle of homeopathy. J Altern Complement Med 2001;7(Suppl 1):S103–S109.
Ruedy J, KaufmanDM, MacLeod H. Alternative and complementary medicine in Canadian medical schools: A survey. CMAJ 1999;160:816–817.
Saucier KM. Medical applications of qigong. Altern Ther Health Med 1996;2:40–46.
Shrook D, Palmer RF, Taylor B. Effects of a psychosocial intervention on survival among patients with stage I breast and prostrate cancer: A matched case-control study. Altern Ther Health Med 1999;5:49–55.
Sicher F, Targ E, Moore D, Smith HS. A randomized double-blind study of the effect of distant healing in a population with advanced AIDS: Report of a small scale study. West J Med 1998;169:356–363.
Speck PW. Spiritual issues in palliative care. In: Doyle D, Hanks GWC, MacDonald N, eds. Oxford Textbook of Palliative Medicine. New York: Oxford University Press, 1993.
Spiegel D, Bloom JR, Kraemer, HC, Gottheil E. Effect of psychosocial treatment on survival of patients with metastatic breast cancer. Lancet 1989;2:888–891.
Sui CK. Advanced Pranic Healing: Practical Handbook for Healing with Color Energies. Chino, CA: Institute for Inner Studies Publishing, 2000.
Sui CK. Miracles Through Pranic Healing, Nevada City, CA: Blue Dolphin Publishing, Inc., 1999.
Syldona M, Rein G. The use of DC electrodermal potential measurements and healer's felt sense to assess the energetic nature of *Qi*. J Altern Complement Med 1999; 5:329–347.
Tataryn DJ, Verhoef MJ. Combining conventional and complementary and alternative health care: A vision of integration. In: Perspectives on Complementary and Alternative Health Care, Health Canada, 2001:VII.a–VII.109. Online document at: www.hc-sc.gc.ca/hppb/healthcare/cahc/index.html
Wetzel MS. Courses involving complementary and alternative medicine at US medical schools. JAMA 1998;280: 784–787.
Wilber K. The Marriage of Sense and Soul: Integrating Science and Religion. Toronto: Random House of Canada, 1998.
Wirth DP, Cram JR. Multisite surface electromyography and complementary healing intervention: A comparative analysis. J Altern Complement Med 1997;3:355–364.

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