

## **Complementary and Alternative Healthcare: Is It Evidence-based?**

Complementary and alternative healthcare and medical practices (CAM) is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine. The list of practices that are considered as CAM changes continually as CAM practices and therapies that are proven safe and effective become accepted as the “mainstream” healthcare practices. Today, CAM practices may be grouped within five major domains: alternative medical systems, mind-body interventions, biologically-based treatments, manipulative and body-based methods and energy therapies.

TCM is a system of healing that dates back to 200 B.C. in written form. China, Korea, Japan, India and Vietnam have all developed their own unique versions of traditional medicine. Alternative medicine is commonly categorized together with complementary medicine under the umbrella term “complementary and alternative medicine”. Complementary medicine refers to therapies that complement traditional western (or allopathic) medicine and is used together with conventional medicine, and alternative medicine is used in place of conventional medicine. Alternative medicine refers to therapeutic approaches taken in place of traditional medicine and used to treat or ameliorate disease. Integrative medicine refers to combining complementary treatments with conventional care. The basic philosophy of complementary and alternative medicine include holistic care, which focuses on treating a human being as a whole person.

Examples of complementary and alternative medicine healing systems include Ayurveda, which originated in India more than 5,000 years ago, emphasizes a unique cure per individual circumstances. It incorporates treatments including yoga, meditation, massage, diet and herbs; Homeopathy uses minute doses of a substance that causes symptoms to stimulate the body's self-healing response. Naturopathy focuses on non-invasive treatments to help your body do its own healing. Ancient medicines (complementary and alternative medicine treatments) include Chinese, Asian, Pacific Islander, American Indian and Tibetan practices.

Conventional medicine relies on methods proved to be safe and effective with carefully designed trials and research. But, many complementary and alternative treatments lack solid research on which to base sound decisions. The dangers and possible benefits of many complementary and alternative treatments remain unproved.

While the whole medical systems differ in their philosophical approaches to the prevention and treatment of disease, they share a number of common elements. These systems are based on the belief that one's body has the power to heal itself. Healing often involves marshalling multiple techniques that involve the mind, body and spirit. Treatment is often individualized and dependent on the presenting symptoms.

Basic principles of integrative medicine include a partnership between the patient and the practitioner in the healing process, the appropriate use of conventional and alternative methods to facilitate the body's innate healing response, the consideration of all factors that influence health, wellness and disease, including mind, spirit and community as well as body, a philosophy that neither rejects conventional medicine nor accepts alternative medicine uncritically, recognition that good medicine should be based in good science, inquiry driven and open to new paradigms, the use of natural, less invasive interventions whenever possible, the broader concepts of promotion of health and the prevention of illness as well as the treatment of disease. Studies are underway to determine the safety and usefulness of many CAM practices. As research continues, many of the answers about whether these treatments are safe or effective will become clearer.

The use of alternative medicine appears to be increasing. A 1998 study showed that the use of alternative medicine in the USA had risen from 33.8% in 1990 to 42.1% in 1997<sup>[1]</sup>. The most common CAM therapies used in the USA in 2002 were prayer (45.2%), herbalism (18.9%), breathing meditation (11.6%), meditation (7.6%), chiropractic medicine (7.5%), yoga (5.1%), body work (5.0%), diet-based therapy (3.5%), progressive relaxation (3.0%), mega-vitamin therapy (2.8%) and visualization (2.1%)<sup>[2, 3]</sup>. In the United Kingdom, limited data seem to support the idea that CAM use in the United Kingdom is high and is increasing.

Increasing numbers of medical colleges have started offering courses in alternative medicine. Accredited Naturopathic colleges and universities are increasing in number and popularity in the USA. They offer the most complete medical training in complimentary medicines that is available today<sup>[4, 5]</sup>. In Britain, no conventional medical schools offer courses that teach the clinical practice of alternative medicine. However, alternative medicine is taught in several unconventional schools as part of their curriculum. Teaching is based mostly on theory and understanding of alternative medicine, with emphasis on being able to communicate with alternative medicine specialists.

Naturopathy (naturopathic medicine) is a whole medical system that has its roots in Germany. It was developed further in the late 19th and early 20th centuries in the United States, where today it is part of CAM. Naturopathy aims to support the body's ability to heal itself through the use of dietary and lifestyle changes together with CAM therapies such as herbs, massage and joint manipulation. Naturopathy is a whole medical system. It views disease as a manifestation of alterations in the processes by which the body naturally heals itself and emphasizes health restoration rather than disease treatment. Naturopathic physicians employ an array of healing practices, including diet and clinical nutrition, homeopathy, acupuncture, herbal medicine, hydrotherapy, spinal and soft-tissue manipulation, physical therapies involving electric currents, ultrasound and light therapy, therapeutic counseling and pharmacology. Today, naturopathy is practiced in a number of countries, including the United States, Canada, Great Britain, Australia and New Zealand.

The acupuncture is being practiced for relief or the prevention of pain and for various other health conditions. Preclinical studies have documented acupuncture's effects, but they have not been able to fully explain how acupuncture works within the framework of the western system of medicine.

Ayurveda, which literally means "the science of life", is a natural healing system developed in India. It is a comprehensive system of medicine that places equal emphasis on the body, mind and spirit, and strives to restore the innate harmony of the individual. Some of the primary Ayurvedic treatments include diet, exercise, meditation, herbs, massage, exposure to sunlight, and controlled breathing. Ayurvedic medications have the potential to be toxic. Most Ayurvedic medications consist of combinations of herbs and other medicines, so it can be challenging to know which ones are having an effect and why.

Other traditional medical systems have been developed by Native American, Aboriginal, African, Middle-Eastern, Tibetan, Central and South American cultures.

Homeopathy is a system of medical theory and practice. Its founder, German physician Samuel Christian Hahnemann (1755-1843), hypothesized that one can select therapies on the basis of how closely symptoms produced by a remedy match the symptoms of the patient's disease. He called this the "principle of similars". Since homeopathy is administered in minute or potentially non-existent material dosages, there is an a priori skepticism in the scientific community about its efficacy<sup>[6-9]</sup>.

Traditional oriental medicine emphasizes the proper balance or disturbances of qi (pronounced chi), or vital energy, in health and disease, respectively. Traditional oriental medicine consists of a group of techniques and methods, including acupuncture, herbal medicine, oriental massage and qi gong (a form of energy therapy described more fully below).

Naturopathy (naturopathic medicine) is a whole medical system that has its roots in Germany. It was affect bodily function and symptoms. Only a subset of mind-body interventions is considered CAM. Many that have a well-documented theoretical basis, for example, patient education and cognitive-behavioral approaches are now considered "mainstream". On the other hand, meditation, certain uses of hypnosis, dance, music and art therapy and prayer and mental healing are categorized as complementary and alternative.

Biofeedback is a type of mind-body therapy. Using feedback from a variety of monitoring procedures and equipment, a biofeedback specialist will try to teach you to control certain involuntary body responses, such as: brain activity, blood pressure, muscle tension and heart rate. Biofeedback has been shown to be helpful in treating several medical conditions, including asthma, Raynaud's disease, irritable bowel syndrome, incontinence, headaches, cardiac arrhythmias, high blood pressure, epilepsy, etc.

The term meditation refers to a variety of techniques or practices intended to focus or control attention. Most of them are rooted in Eastern religious or spiritual traditions. These techniques have been used by many different cultures throughout the world for thousands of years.

People have used prayer and other spiritual practices for their own and others' health concerns for thousands of years. Scientific investigation of these practices has begun quite recently, however, to better understand whether they work; if so, how; and for what diseases/conditions and populations. Many Americans are using prayer and other spiritual practices. Prayer is the therapy most commonly used among all the CAM therapies.

Manipulative and body-based practices include methods that are based on manipulation and/or the movement of the body. For example, chiropractors focus on the relationship between structure (primarily the spine) and function, and how that relationship affects the preservation and restoration of health, using manipulative therapy as an integral treatment tool. Massage therapists manipulate the soft tissues of the body to normalize those tissues.

Energy therapies focus either on energy fields originating within the body (biofields) or those from other sources (electromagnetic fields). Biofield therapies are intended to affect the energy fields, whose existence is not yet experimentally proven, that surround and penetrate the human body. Some forms of energy therapy manipulate biofields by applying pressure and/or manipulating the body by placing the hands in, or through, these fields. Examples include Qi gong, Reiki, Prana and Therapeutic Touch. Bioelectromagnetic-based therapies involve the unconventional use of electromagnetic fields, such as pulsed fields, magnetic fields or alternating current or direct current fields, to, for example, treat asthma or cancer, or manage pain and migraine headaches.

Hypnosis is an altered state of consciousness. Hypnotherapy has the potential to help relieve the symptoms of a wide variety of diseases and conditions. It can be used independently or along with other treatments.

Natural and biologically-based practices, interventions and products refer to the use of dietary supplements and include herbal, special dietary, orthomolecular and individual biological therapies. Examples include botanicals, animal-derived extracts, vitamins, minerals, fatty acids, amino acids, proteins and prebiotics. Thousands of studies of various dietary supplements have been performed. However, no single supplement has been proven effective in a compelling way.

In India, which is the home of several alternative systems of medicines, Ayurveda, Siddha, Unani and Homeopathy are licenced by the government, despite the lack of reputable scientific evidence. Naturopathy will also be licensed soon because several universities now offer bachelors degrees in it. Other activities such as Panchakarma and massage therapy related to Ayurveda are also licensed by the government now <sup>[10]</sup>.

About half the general population in developed countries uses CAM <sup>[10]</sup>. A survey released in May 2004 by the National Center for Complementary and Alternative Medicine, part of the National Institutes of Health in the United States, found that in 2002, 36% of Americans used some form of alternative therapy in the past 12 months, 50% in a lifetime—a category that included yoga, meditation, herbal treatments and the Atkins diet. The majority of individuals (54.9%) used CAM in conjunction with conventional medicine. Most people use CAM to treat and/or prevent musculoskeletal conditions or other conditions associated with chronic or recurring pain. Women were more likely than men to use CAM. The largest sex differential is seen in the use of mind-body therapies including prayer specifically for health reasons <sup>[2, 3]</sup>. If prayer was counted as an alternative therapy, the figure rose to 62.1%. 25% of people who use CAM do so because a medical professional suggested it <sup>[11]</sup>. A British telephone survey by the BBC of 1,209 adults in 1998 shows that around 20% of adults in Britain had used alternative medicine in the past 12 months.

Advocates of alternative medicine hold that the various alternative treatment methods are effective in treating a wide range of major and minor medical conditions, and contend that recently published research (Michalsen, 2003; Gonsalkorale, 2003; Berga, 2003) proves the effectiveness of specific alternative treatments <sup>[6-9]</sup>.

Evidence-based medicine (EBM) applies the scientific method to medical practice, and aims for the ideal that healthcare professionals should make “conscientious, explicit, and judicious use of current best evidence” in their everyday practice. Although advocates of alternative medicine acknowledge that the placebo effect may play a role in the benefits that some receive from alternative therapies, they point

out that this does not diminish their validity. They believe that alternative medicine may provide health benefits through patient empowerment, by offering more choices to the public. Researchers who judge treatments using the scientific method are concerned by this viewpoint, since it fails to address the possible inefficacy of alternative treatments.

As long as alternative treatments are used alongside conventional treatments, the majority of medical doctors find most forms of complementary medicine acceptable. Consistent with previous studies, the CDC recently reported that the majority of individuals in the United States (i.e., 54.9%) used CAM in conjunction with conventional medicine.

The issue of alternative medicine interfering with conventional medical practices is minimized when it is turned to only after conventional treatments have been exhausted. Many patients feel that alternative medicine may help in coping with chronic illnesses for which conventional medicine offers no cure, only management. Classifying treatments need to be based on the objectively verifiable criteria of the scientific method evidence-based medicine, i.e. scientifically proven evidence of efficacy (or lack thereof), and not on the changing curricula of various medical schools or social sphere of usage <sup>[12]</sup>.

Since many alternative remedies have recently found their way into the medical mainstream, there cannot be two kinds of medicine - conventional and alternative. There is only medicine that has been adequately tested and medicine that has not, medicine that works and medicine that may or may not work. Once a treatment has been tested rigorously, it no longer matters whether it was considered alternative at the outset. If it is found to be reasonably safe and effective, it will be accepted <sup>[13]</sup>.

It is argued that there is no alternative medicine. There is only scientifically proven, evidence-based medicine supported by solid data or unproven medicine, for which scientific evidence is lacking. Whether a therapeutic practice is “Eastern” or “Western”, is unconventional or mainstream, or involves mind-body techniques or molecular genetics is largely irrelevant except for historical purposes and cultural interest. As believers in science and evidence, we must focus on fundamental issues—namely, the patient, the target disease or condition, the proposed or practiced treatment, and the need for convincing data on safety and therapeutic efficacy <sup>[14]</sup>. The Cochrane Collaboration <sup>[15]</sup> and Edzard Ernst <sup>[16]</sup> agree that all treatments, whether “mainstream” or “alternative”, ought to be held to standards of the scientific method.

Many forms of alternative medicine are rejected by conventional medicine because the efficacy of the treatments has not been demonstrated through double-blind randomized controlled trials; in contrast, conventional drugs reach the market only after such trials have proved their efficacy. A person may attribute symptomatic relief to an otherwise ineffective therapy due to the placebo effect, the natural recovery from or the cyclical nature of an illness (the regression fallacy), or the possibility that the person never originally had a true illness <sup>[17]</sup>. CAM proponents point out this may also apply in cases where conventional treatments have been used. To this, CAM critics point out that this does not account for conventional medical success in double blind clinical trials.

People should be free to choose whatever method of healthcare they want, but stipulate that people must be informed as to the safety and efficacy of whatever method they choose. People who choose alternative medicine may think they are choosing a safe, effective medicine, while they may only be getting quack remedies. Grapefruit seed extract is an example of quackery when multiple studies demonstrate its universal antimicrobial effect is due to synthetic antimicrobial contamination <sup>[18,19]</sup>.

Those who have had success with one alternative therapy for a minor ailment may be convinced of its efficacy and persuaded to extrapolate that success to some other alternative therapy for a more serious, possibly life-threatening illness. For this reason, critics contend that therapies that rely on the placebo effect to define success are very dangerous. Scientifically unsupported health practices can lead individuals to forgo effective treatments and this can be referred to as “opportunity cost”. Individuals who spend large amounts of time and money on ineffective treatments may be left with precious little of either, and may forfeit the opportunity to obtain treatments that could be more helpful. More research must be undertaken to prove the effectiveness of complimentary therapies before they can be incorporated in formal medical practice. Sufficient evidence is required for biological or clinical plausibility in order to justify the investment of time and energy in exploring the merits of alternative medicine. After all, human life is precious and no chances can be taken to comprise the health of any individual.

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