



The Promise and Challenges of Energy Medicine: A Review of the Current Landscape

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Abstract

Energy medicine (EM), is a type of complementary and alternative medicine, which encompasses a range of practices aimed at promoting holistic well-being through the manipulation of energy fields within the body. EM has immense potential in delivering valuable support in a wide range of health conditions. It is imperative for healthcare professionals to be aware of EM, its safety and efficacy in the management of various conditions. Despite its growing popularity, EM remains controversial and encounters several barriers to its recognition and acceptance by the medical fraternity. This paper provides a comprehensive overview of the concept and practice of EM including its history, various types, mechanism of action, applications, driving factors for its practice, current status and future prospects. Putative types of EM modalities are the focus of this paper. Additionally, we examine the challenges to its widespread recognition and acceptance and discuss the importance of further rigorous scientific research to establish its efficacy and safety and bridge the gap between conventional and energy medicine.

Keywords: Complementary therapies; Therapeutic touch; Reiki

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Introduction

The aspiration to alleviate pain and suffering is central to our human experience. Healing practices have been utilized throughout the world for centuries as a means of resolving physical, mental and spiritual discomfort, long before the emergence of Allopathic medicine [1]. The current medical practice of viewing patients purely as faulty human machines needs a radical shift [2]. Medicine is in transition, the mainstream biomedicine is being replaced by an extended, integrated medical paradigm that prioritises healthcare, treats the complete person rather than just their ailment and combines a variety of therapeutic modalities, both new and old, to provide patients with greater choices. This emerging model challenges the prevailing molecular reductionism paradigm in biomedicine, which is predicated on the notion that complex systems can only be comprehended by identifying their constituent parts [3]. Conventional biology is founded on biochemical processes that eventually reduce to macromolecules. Despite being effective in explaining many scientific and medical applications, this molecular reductionist approach fails to address phenomena that are holistic by nature [4]. The vital force at the core of many complementary and alternative medicine (CAM) modalities is regarded as a metaphysical concept by conventional science. Both these viewpoints of molecular reductionism and a *holistic approach* that encompasses a field concept of life are essential [3].

Complementary medicine are modalities that are used in combination; whereas Alternative medicine are used in place of conventional medicine. When CAM modalities are used in partnership with conventional medicine it is termed Integrative Medicine [5]. Energy medicine (EM) is a complementary medicine modality whose methods include working with the body's natural energy field to stimulate its own healing mechanism [6]. The body's energy field is frequently referred to as the biofield, and these modalities may also be called biofield or energy healing therapies [7]. EM is one of the five domains of CAM recognized by the United States National Centre for Complementary and Alternative Medicine (NCCAM) [8,9]. The domains are 1. Mind-body medicine 2. Biologically based practices 3. Manipulative and body-based practices 4. Energy medicine and 5. Whole medical systems [10-12]. The NCCAM defines energy healing therapy as "the channeling of healing energy through the hands of a practitioner into the client's body to restore a normal energy balance and, therefore, health" [13,14].

In western countries, individuals utilizing healing therapies are estimated to vary between 0.7% and 24.4% [15,16]. The American National Health Information Survey 2007, which included 23,300 people estimated that about 0.5% have utilized some EM form

in the past year [7]. Another survey by the National Center of Health Statistics observed that more than 5% of participants had used Qigong, Reiki or other healing modalities. In the clinical populations, energy and spiritual healing as a complementary therapy is remarkably utilized by pain, cancer and palliative care patients [17]. A study of the urban Indian population found that a sizable percentage of those with chronic illnesses use alternative medicine. Given the limited accessibility of Allopathic healthcare, the use of alternative modalities is perhaps even more prevalent in rural India [18,19]. Despite the dearth of scientific support for EM therapies, many patients actively use them with or without their physician's knowledge [17]. In spite of its popularity, EM still operates outside of the established framework and encounters several challenges in gaining recognition and approval from the medical fraternity [17,20]. With the exception of a few papers that offer illustrative proof of its therapeutic potential, rigorous scientific studies of its effects are scarce [21]. The aim of this paper is to provide a comprehensive overview of the concept and practice of EM, including its history, various types, mechanism of action, applications, driving factors and challenges for its practice, the current state of scientific evidence and future prospects. This article mainly focuses on the Putative types of EM modalities [7].

History of Energy medicine

The subtle energy or life force and its utilization for healing have been known by many cultures for thousands of years [17]. Life force is known by many names such as prana in Hindu and Tibetan cultures; chi in China, ki in Japan; mana in Polynesia and baraka in North Africa [1]. Similar concept has a parallel in the west in the form of the holy spirit and can be traced back to both Old Testament passages and the custom of laying on of hands [17].

The International Society for the Study of Subtle Energy and Energy Medicine coined the term Energy medicine in 1989. In 1992, EM came under NCCAM which was established by the American National Institutes of Health (NIH) [22]. An ad hoc committee of CAM practitioners and researchers convened by the Office of Alternative Medicine (OAM) at the NIH proposed the term "biofield" in 1992. Biofield is defined by the committee as "a massless field, not necessarily electromagnetic, that surrounds and permeates living bodies and affects the body" [23]. Furthermore, the committee sought to combine the diverse energy healing modalities under the umbrella of biofield therapies [3].

Types of Energy medicine

The NCCAM divides EM modalities into two main

categories. Veritable and putative energy modalities.

a) *Veritable energy modalities*: These employ energy forms that are measurable using conventional technology [7]. They involve the use of specific, measurable frequencies and wavelengths to treat patients. Examples of *veritable energy modalities* include Lasers, magnet therapy, light therapy and radiation therapy [8]. Many of the human body's electrical and electromagnetic fields are well known and veritable EM forms are currently employed in well-established models for diagnoses such as computerized tomography scans, magnetic resonance imaging, electrocardiogram, electroencephalogram and ultrasound scan [22].

b) *Putative (or subtle) energy modalities*: These claim to manipulate energy forms that have not been measurable scientifically [7]. They are based on the notion that humans are pervaded with a subtle energy form that the EM practitioners can control and normalize with their hands, intentions or meditation to affect healing [8,22]. These modalities can be further subclassified as non-touch and touch healing. i) *Non-touch healing*: These techniques do not require physical contact between the practitioner and the recipient, e.g., Pranic healing, [24] Reiki, Johrei, and Qi gong. ii) *Touch healing*: These involve the healer's hands coming in contact with the subject's body in some way, e.g., Massage therapy, Acupuncture, Acupressure, Chiropractic, Craniosacral therapy, Reflexology, laying on of hands, Therapeutic touch, and Healing touch [6,8,21,22]. Putative energy modalities are the focus of this paper.

Fundamental concepts common to many Energy medicine modalities

a) *Holistic approach*: EM modalities often take a *holistic approach* to health, considering the person as a whole, rather than just focusing on specific physical symptoms or conditions [25] b) *Biofield/ energy field/ aura/ energy body*: It is proposed that a person has a biofield that surrounds and penetrates their physical body and can be manipulated to promote healing and balance. Both physical and energy bodies are interrelated and problems with the energy body can precede problems in the physical body. Correspondingly, a positive change at the energetic level can result in healing at the physical level. c) *Energy centers/ Chakra system*: The description of the energy body is in terms of its own anatomy which includes the concept of the chakra system. This system refers to a series of energy centers at various body locations that are believed to govern many physical and emotional functions [7]. d) *Subtle energy/ Prana/ Chi/ Qi*: Many EM modalities are based on the idea that subtle energy flows through the body in channels called meridians/ energy pathways/ *naadis* and that imbalances in this

flow can lead to physical or emotional symptoms. e) *Manipulation and channeling of energy*: It is held that the healer can manipulate the energy field and healing energy can be channeled by the healer into a client through touch or intention, to promote balance and heal the client's energy field [8]. f) *Concept of energy following intentions*: It is believed that energy follows the intentions of both the healer and the person receiving the healing intervention [7].

Mechanism of action

EM modalities are perhaps the most controversial and enigmatic among CAM therapies. Scientific investigations are still in their infancy [7]. The mechanism of action remains obscure [14] and there are no scientifically supported theories on how putative energy modalities operate. Many believe that biofield energy lies somewhere on the electromagnetic spectrum and many also draw extensively from quantum physics theories [7].

According to Hippocrates (460-356 BC), "Natural forces within us are the true healers of disease" [26]. In alignment with the above quote, proponents of EM believe that the physical body is permeated by an energy system [14] which consists of energy centers, energy pathways [1], through which the subtle energy flows [22,23]. This subtle energy seems to sustain and promote life processes in the biological system [10]. Illness is supposed to be due to an imbalance in the energy field and the healing intervention balances it [27]. When the energy field is optimal, the physical body will also become optimized [1,14,22,23,27].

Other proposed hypotheses are: a) *Placebo response*: Biofield healing may provide an apparent efficacy by activating patients' powers of imagination, spiritual meaning, optimism, personal responsibility, persuasion and romantic visions of beneficent and intentional forces [28]. b) *The biofield hypothesis*: This explanatory model employs physics to explain the origin and behavior of subtle energy. The biofield is described as the endogenous, complex, dynamic electromagnetic field that results from the superposition of the organism's component electromagnetic fields. According to standard physics principles, the components of the biofield are the electromagnetic fields contributed by each individual oscillator or electrically charged, moving particle or ensembles of particles of the organism (ion, molecule, cell, tissue, and so on). The resultant biofield can be conceptualized as a complex dynamic standing wave. It has a wide spectral bandwidth as it is made up of different electromagnetic frequencies, much like a musical symphony with numerous harmonics that fluctuate over time [7]. c) *Subtle energies hypothesis*: In EM therapies, measurable physical energy is not involved in the interaction between the therapist and the patient, but positive outcomes are ob-

tained. The nature of the energy and thus the mode of action can only be inferred from this interaction [10]. Hence some energy that is even more subtle than electromagnetism but is yet to be scientifically discovered may be involved in healing [29]. d) *Quantum information flow and causality of consciousness*: This hypothesizes that biofields involve quantum information flow [3] and that consciousness is causal, i.e., the therapist's conscious healing intention may physically improve the patient's health and well-being. According to standard physics, acceptance of this hypothesis would require extending Bell's theorem of nonlocality in quantum physics and the concept of causality to consciousness. Many investigations which studied the effects of conscious intention, some of which are pertinent to healing, have revealed physical effects, providing precedent for expanding Bell's theorem and the principle of causality [29].

Currently, we can only assess some of the effects of subtle energy on the body. In this context, it is wise to remember the quote by Albert Einstein that says, "Not everything that can be counted counts, and not everything that counts can be counted." [30].

Measurement of biofields

Direct measurement of subtle energies is currently not possible due to a lack of understanding of these energies in contemporary terminology. Yet, indirect measurement of subtle energy in the body is achievable via emerging physiological indicators. The two main presently available instruments for monitoring subtle energies are acupuncture activity measuring instruments and electrical discharge photography, also called Gas Discharge Visualization (GDV) or Kirlian photography.

Acupuncture instruments are founded on the observation that acupuncture sites have particular electrical characteristics i.e., the points have lower resistance to the flow of electrical current in comparison to the neighboring tissues. Because each meridian corresponds to one or more organs within the body, the electrical activity of the acupoint appears to be related to the organ function [10]. The Kirlian photography captures photographs of biofields using a high-voltage, low-current discharge. Equipment and techniques utilized in biofield research are promising but require more validation before they can be embraced [27].

Application of Energy medicine in health-care

EM is practiced in diverse medical settings such as hospice, rehabilitation, cancer care, palliative care, preoperative, postoperative and home care [13]. It has shown encouraging results in cancer care in the realms of quality of life, mental attitude, pain and fatigue [1,17,31-33]. Also, positive benefits are observed in

Pain management by reducing pain and discomfort associated with various medical conditions [17,34]; mental disorders such as post-traumatic stress disorder [35], anxiety, depression [13], dementia [17]; and various non-communicable diseases where it is known to favorably impact the quality of life [14,36]. EM is found to be helpful in boosting the immune system, accelerating wound healing and reducing its complications and also in the management of stress and insomnia.

Application in Dentistry

EM has found its dentistry application in the management of pain disorders such as chronic orofacial pain, atypical facial pain, trigeminal neuralgia, myofascial pain dysfunction syndrome, Horton's syndrome (cluster headache), inflammatory conditions, Temporomandibular joint and muscle disorders (TMJ) disorders, fractures [6,8,11,37], alleviation of dental anxiety and pain during and after dental procedures and in promoting faster healing of oral infections and wounds with reduced risk of their complications.

Pre-considerations for selection of Energy medicine

While choosing an EM modality, practitioners must assess the pros and cons and personalize the intervention to the patient's needs. Also, other considerations include additional time and resources required, the need for trained personnel, potential side effects, safety in combining EM and other modalities, client acceptance and long-term compliance [6]. In addition, it is pertinent to consult with a licensed healthcare professional and to choose a qualified EM practitioner. It is equally important to keep in mind that EM should be employed as complementary to conventional medical treatment and not as a replacement.

Advantages of Energy medicine therapies

a) *Complementary approach*: These therapies may be especially appealing as a complement to conventional therapies in cases where the ailment is refractory to allopathic techniques or reflects a chronic condition in which a switch in well-being can be as valuable as actual biological change [14]. b) *Holistic approach*: EM often takes a *holistic approach* to healthcare, treating the person as a whole and addressing physical, emotional, mental and spiritual well-being [14,22]. c) *Non-invasiveness*: Most EM techniques do not require surgical interventions or medications. They also help prevent drug misuse or abuse [8]. d) *Gentle and calming effect*: EM techniques are designed to be gentle and calming, promoting relaxation and reducing stress. e) *Safety*: These modalities are relatively safe as there are no reports of morbidity or mortality [6,7]. f) *Improved psychological well-being*: EM has the po-

tential to induce a change in physiological state and present-moment consciousness, which could be the first step towards changing the perspectives that contribute to symptom load. It may also promote personal growth through a stronger connection to the spiritual aspects of life, lowering stress and easing sickness symptoms. Additionally, it boosts emotional balance, inner strength, self-esteem, acceptance of health status and interpersonal relationships. g) *Pain management*: In cases of chronic pain, when pain is often disproportionate to the extent of tissue damage and the underlying reasons are difficult to diagnose, EM has the potential to induce a profound relaxing effect and alter the patient's perspective away from their symptoms [38] h) *Cost-effectiveness*: Non-communicable diseases have substantial financial implications on the healthcare system. EM interventions have potential benefits as an adjunct self-management strategy [14]. i) *Self-administrable*: Some EM techniques, such as Reiki, Pranic healing and Qi Gong, can be learned and self-administered by the patient, empowering individuals to take control of their own health and wellness.

Disadvantages of Energy medicine therapies

a) *Lack of scientific evidence*: The disputes surrounding EM therapies are due to a lack of understanding of the underlying principles; credibility of an actual biofield; good-quality research and large randomized clinical trials [13]. Currently available studies are usually of medium quality and meet minimum standards for inferences validity [17]. b) *Lack of regulation and standardization*: There is a dearth of regulation and standardization in the field of EM, leading to variability in the training, quality and effectiveness. c) *Education and training*: EM practices require specialized training and education and there is often a scarcity of qualified practitioners, which can limit access to care. d) *Cost*: there is limited insurance coverage for such treatments, which can make them more difficult and expensive for patients to access. e) *Potential for harm*: Some techniques, such as acupuncture, carry a risk of harm if performed improperly. f) *Ineffective in emergency or serious medical conditions*: EM should not be used as a substitute for conventional medical treatment, as it may not be effective in emergency and serious medical conditions [7]. g) *Not suitable for all*: EM is a highly personal form of self-management that is not likely to have universal appeal. The requirement for informed consent is thus a critical consideration in both EM research and clinical practice [14]. Also, it is quite common for intense emotions to develop during therapy sessions and many practitioners advise using these therapies with care in patients with psychoses. h) *Side effects*: Patients may experience exhaustion or dizziness following a session, and many practitioners report that symptoms may temporarily deteriorate be-

fore improving. Also, patients are frequently required to confront difficult previous experiences [7].

Driving factors behind Energy medicine

Overall, these practices have become increasingly popular in recent years as people seek more individualized and *holistic approaches* to healthcare. The impetus for EM includes:

a) *Patient demand*: The patients' interest in and desire for clinical outcomes over conformity to prevailing scientific theory is a significant proponent of EM modalities. b) *Ineffectiveness of conventional treatment*: When conventional treatments are unable to address their health issues, some individuals resort to these techniques. Among the medical outcomes where EM has shown definite impact are the quality of life and pain management [20]. c) *Safety concerns*: Some people prefer these practices as they believe they are safer, non-invasive and have fewer side effects. d) *Economical*: many believe these practices are cost-effective [11]. e) *Cultural and spiritual beliefs*: For some individuals, these practices are connected to their cultural or spiritual beliefs and they find comfort in these Approaches to healthcare.

Challenges to the practice of Energy medicine

Several challenges hinder the acceptance and integration of EM into mainstream healthcare. Some of the main barriers include

a) *Biofield Healing as an emerging paradigm*: As is frequently observed with new paradigms, opposition to change and support for the old paradigm rise in some quarters as more evidence mounts. EM defies biological mechanisms that are conventionally accepted, and these mechanisms are essential to the definition of the present scientific medical paradigm [20]. Because they need a new framework, EM therapies pose significant challenges to the dominant biomedical paradigm of mechanical reductionism [29]. b) *Allegations of Pseudoscience*: Biofield healing is frequently criticized for not using empirical evidence, which is a characteristic that defines science. The anomalous characteristics of biofield therapy point to the "paranormal," suggesting a link to parapsychology, which critics have long scoffed at as a "pseudoscience". Conventional medicine frequently uses a standard set of accepted medical explanations, such as placebo, to account for anomalous healing observations. c) *Cultural differences*: EM practices often originate from different cultural and spiritual traditions, which can make it difficult for them to be accepted. d) *A fundamentally different lexicon*: Overlapping between scientific lexicons, such as the term "energy", makes it extremely difficult for paradigms to understand one another. This helps explain the in-

commensurability between competing paradigms. e) *Lack of academic infrastructure and research funding*: The biofield domain lacks academic infrastructure and research funding which is enjoyed by mainstream medicine [20]. Biofield research has thus made few scientific strides, and it is a frontier ripe for investigation [27]. f) *Rationality*: EM appears to function outside of standard physics at the moment, and thus suffers from the "not rational" assumption [20]. Moreover, many EM techniques offer noncontact variations in which the physical proximity of the practitioner and patient is viewed as unimportant. These perplexing aspects are among the key reasons why it is not accepted as a mainstream medical therapy [39-41]. g) *Objectivity*: Mechanical instruments that objectively record the biofields and eliminate the subjective human observer are lacking. As a result, opponents have dismissed the topic as entirely "subjective" [20].

State of current research and future prospects

In recent years, there has been some interest in employing scientific approaches to explore the biological effects of EM modalities. The findings of these investigations, however, have been mixed. Several systematic reviews on various EM modalities conclude that, despite many of those studies having flawed study designs, promising outcomes have been reported which warrants further research with sounder methodologies to determine their efficacy [14,42-46].

The future prospect of EM is a topic of ongoing research and debate. While some EM proponents believe that it has the potential to revolutionize healthcare, others are more skeptical and believe that more research is required before its efficacy can be established. Hence, the future of EM will likely be shaped by the outcomes of continuing research and the evolution of healthcare policies and practices.

Conclusion

Healing of an individual must not be limited to the healing of the physical body but must encompass healing at all the levels of a human being including the mental, emotional and spiritual aspects. EM, in collaboration with conventional medicine, can address these neglected aspects and bring about holistic healing of an individual. EM has immense potential in delivering valuable support in a wide range of health conditions. It is imperative for healthcare professionals to be aware of EM, its safety and efficacy in the management of various conditions. Further scientific investigation in the domain of EM, particularly those involving multidisciplinary collaborations may lead to the development of novel preventive or therapeutic strategies paving the way for a new paradigm in med-

icine and ushering in an era of Integrative Medicine which will amalgamate the best practices from both the traditional and modern systems.

Conflict of Interests

None.

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