

Review

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The use of biofield energy therapy as complementary and alternative medicine in human health care system: a narrative review and potential mechanisms

<https://doi.org/10.1515/jcim-2024-0027>

Received February 13, 2024; accepted March 4, 2024;

published online April 3, 2024

Abstract

Introduction: There has been accumulating interest in the application of biofield therapy as complementary and alternative medicine (CAM) to treat various diseases. The practices include reiki, qigong, blessing, prayer, distant healing, known as biofield therapies. This paper aims to state scientific knowledge on preclinical and clinical studies to validate its potential use as an alternative medicine in the clinic. It also provides a more in-depth context for understanding the potential role of quantum entanglement in the effect of biofield energy therapy.

Content: A comprehensive literature search was performed using the different databases (PubMed, Scopus, Medline, etc.). The published English articles relevant to the scope of this review were considered. The review gathered 45 papers that were considered suitable for the purpose. Based on the results of these papers, it was concluded that biofield energy therapy was effective in treating different disease symptoms in preclinical and clinical studies.

Summary: Biofield therapies offer therapeutic benefits for different human health disorders, and can be used as alternative medicine in clinics for the medically pluralistic world due to the growing interest in CAM worldwide.

Outlook: The effects of the biofield energy therapies are observed due to the healer's quantum thinking, and

transmission of the quantum energy to the subject leads to the healing that occurs spiritually through instantaneous communication at the quantum level *via* quantum entanglement.

Keywords: biofield energy therapy; pre-clinical; clinical; quantum entanglement; alternative medicine; non-locality

Introduction

Biofields are thought to exist in and around the body and are one of the concepts of scientists. The “energy healers” are often involved in this research in order to investigate biofield effects and their theories on the process. Some authors define energy medicine as an integrative branch of medicine that examines the therapeutic use of latent energy to assess and treat energy deficits and return the body to homeostasis [1]. “Energy Medicine” refers to the various systems that work with the body's energy to help better health. Many of the powerful therapeutic effects of current biofield energy treatments arise from their inability to be explained by traditional biochemical or physiological mechanisms [2]. Quantum physics is better for understanding these treatments. Electrotherapy is generally associated with low (subtle) energy interactions. Living organisms respond to very low levels of non-ionizing electromagnetic fields at every level, from the cellular and subcellular level to the brain, thought and behavior [3]. The term “biofield” refers to the energy and materials that surround and permeate the human body. It has measurable electrical energy and a small quantity of energy like Qi [4]. A possible mechanism for the formation of the biofield is that it directly affects the molecular structure, changing its configuration in a key position. Another potential effect of biofields is that they can transmit biological messages carried by energy signals that directly interact with known energy [5]. Life can be thought of as complex, non-linear, dynamic, and self-regulating conditions of energy and space. At the highest level of

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organization, each life form will have a biofield. This power controls the integrity of all organisms, controlling physical and biochemical reactions. It is necessary for growth, repair and renewal. In this therapy system, we believe that energy flows through the body and diseases are caused by blockages, excesses, or imbalances of this energy. Biofield energy has many names, such as Prana, Qi, Ki, Mana, love, and spirit [6]. It is based on part of the electromagnetic field theory in cutting-edge physics. Additionally, some biofield systems, which include Reiki and Qigong, consider that someone's vital force is related to their life force [7]. This complex, dynamic and weak response may contribute to maintaining the integrity of all organisms, controlling physiological and biochemical reactions, ensuring growth, healing and regeneration [8]. Today, drugs are used to treat diseases and treat our bodies piece by piece rather than as a whole, causing many side effects. Holistic medicine is an overall healing process. In quantum physics, both particle and wave views are necessary to explain the nature of light and matter at the smallest possible level. This dual wave-particle principle is called the "complementarity principle" [9]. As the model explains, it considers many aspects of energy. Quantum healing is a new phenomenon that is beginning to emerge in holistic medicine. Our body regenerates as it oscillates between energy and particles. Healthy cells emit photons from DNA, and disease is linked to a change in photon emission [10]. Human bodies are made up of energy both inside and out. Apparently, photons move around inside and outside of our bodies and bounce off of us, which is related to the concept of quantum entanglement or tunneling [11]. Most diseases begin and end in the mind. The mind is simply consciousness and a canvas for our thoughts. Furthermore, the mind is a holographic representation of our body, while the quantum field encompasses all consciousness. The human body consists of internal and external energy, by using this energy we can treat all diseases such as cancer, pain, arthritis, psychological problems, etc.; this energy healing is also called quantum energy healing. Positive thinking, which has a real healing purpose, is called quantum thinking, which heals spiritually by producing bio-signaling molecules [12]. Biofield therapies have been shown to have potential protective and therapeutic effects against diseases and related pathological conditions. Surprisingly, no articles have been published so far regarding the mechanisms of action of these therapies. Therefore, the authors focused on the current concept of quantum entanglement, which might involve showing the efficacy of these therapies. The present review aims to (1) assess and summarize the evidence for the effectiveness of biofield energy healing in pre-clinical and clinical research areas, and (2) postulate the effects of energy therapies which are explained here using a quantum metaphor theory, involving triadic patient–practitioner (healer)–remedy (quantum energy) (PPR) entanglement.

Methods

The literature data searches were performed from the following databases: Web of Science, PubMed, China National Knowledge Infrastructure (CNKI), Scopus, Medline, Google Scholar, PsycINFO, Cochrane Collaboration, Embase, and SciELO. We have provided the most important English articles with the following keywords: "External Qigong (EQ)", OR "Johrei Therapy", OR "Reiki", OR "Trivedi Effect®", OR Therapeutic Touch (TT)", OR "Biofield energy healing", OR "Quantum energy", OR "Energy medicine", OR "Quantum entanglement", OR "Biofield energy therapy", OR "Reki", OR "Qi", OR "Energy healers", OR "Local and non-local healing", OR "Biophoton emission", OR "Acupuncture", OR "Bioresonance", OR "CAM", OR "CIM", OR "TCM", OR "Body, mind Spirit", OR "Spiritual healing", OR "Distant healing", OR "Blessing", OR "Prayer", OR "Agriculture", OR "Plant" "Rat", OR "Mouse", OR "Tissues", OR "Cell lines", OR "In vitro", OR "Animal studies", OR "Pre-clinical", OR "Clinical studies", "Subtle energy", OR "Psychology", OR "Emotional Health", OR "Pain", OR "Arthritis", OR "Cancer", OR "Stress", OR "Anxiety", OR "Depression", OR "Cortisol", OR "Biomarkers", OR "Immunity", OR "Quality of life". Databases were used as filters to limit results to "full-text" journal articles involving pre-clinical and clinical studies that were available at a price or free of cost. We did not apply any language restrictions in the searches. The research was performed in December 2023; no time limit was set.

The identified studies were screened using their titles and abstracts to assess their relevance to the research topic. The inclusion criteria for the studies were as follows: (i) all *in vitro* and animal studies (pre-clinical), (ii) clinical studies including randomized controlled trials (RCTs) or case studies, (iii) studies that focused on the use of various biofield therapies such as external Qigong (EQ), Johrei Treatment, Reiki Therapy, Trivedi Effect®, Therapeutic Touch (TT), Healing Touch, Okada Purifying Therapy (OPT), Oscillating Biofield Therapy (OBFT), and other biofield energy healing practices, (iv) biofield therapies for psychology, stress, anxiety, depression, emotional disturbances, inflammation, immunity, pain, arthritis, cancer, biomarkers, quality of life (QoL) etc. Studies that met the inclusion criteria were selected for further analysis. Two researchers independently reviewed the articles in full-text.

Results

Literature screening and data extraction

A thorough literature search was conducted, resulting in the identification of 1,120 articles. After removing duplicates, two authors (MKT, SJ) screened all articles for relevance and excluded 915 articles. Following this, the remaining 205 articles were screened for relevance by three authors (AB, DT, SM),

resulting in the exclusion of 160 articles. After critical appraisal by one author (SJ) and a follow-up review by the other two authors (MKT, SM), 45 articles were included for full-text review. Among them, 25 articles were on pre-clinical evidence and 20 articles on clinical evidence of biofield therapies. A flowchart is created to summarize the literature search and reasons for exclusion (Figure 1).

Data synthesis

The extracted data were organized in a tabular format (Tables 1, 2) for a clear presentation of the study findings that was easy to read.

Evidence for the effectiveness of biofield energy therapy

There are many pre/clinical studies across the globe have reported that there were positive and significant effects found after the treatment of complementary and integrative practices (such as biofield energy therapy). However, at a basic level, cell lines, animals (mice/rat), and their tissues, plant tissues and seeds, and other biomolecule are good research models because they are not dependent and are unaffected by mental disorders [13, 14].

Preclinical evidence

The section describes various studies investigating the impact of different types of biofield energy healing

treatment effects in both *in vitro* and *in vivo* models at the preclinical level, which can help us to understand the effects of biofield energy therapies (Figure 2).

The preclinical evidence of biofield energy therapies include External Qigong (EQ) [15–21], Johrei Therapy [22], Reiki [23, 24], Trivedi Effect® [25–28], Therapeutic Touch (TT) [29–32], and other biofield energy healing practices [33–38]. The literature data show that biofield energy therapy inhibited the growth of pancreatic [15, 21], colon [16], lymphoma cancer cells [17, 20], and breast cancer cells [17, 37]. According to the data, brain-controlled Qi treatment increased faster and more rapid growth by increasing the root length several centimeters. Crops grow faster by changing the structure of the seeds with better gene expression [18]. Biofield energy therapy (Trivedi Effect®) has shown significant improvement of bioavailability of poorly bioavailable vitamin D₃ [26]. This energy therapy also effectively reduced various stress-related cytokines in the *Sprague Dawley* rat model caused by unpredictable chronic stress (UCS) [27, 37]. Similarly, several studies have been shown beneficial outcomes on various preclinical models (either in cell lines or disease models in mice/rats) such as pain [19], stem cells [25], stress [17, 38], bone health [29, 31], immunity [36, 37], wound healing [30] etc. Very recently, a miraculous finding was reported with the delivery of 13 healthy puppies in a female Belgian Malinois dog with pyometra after treatment with Trivedi's Biofield photon energy and antibiotic therapy [39]. The detail findings of these studies are shown in Table 1.

Clinical evidence

Apart from pre-clinical experiments, the effects of biofield therapies are also equally evident and proven in a

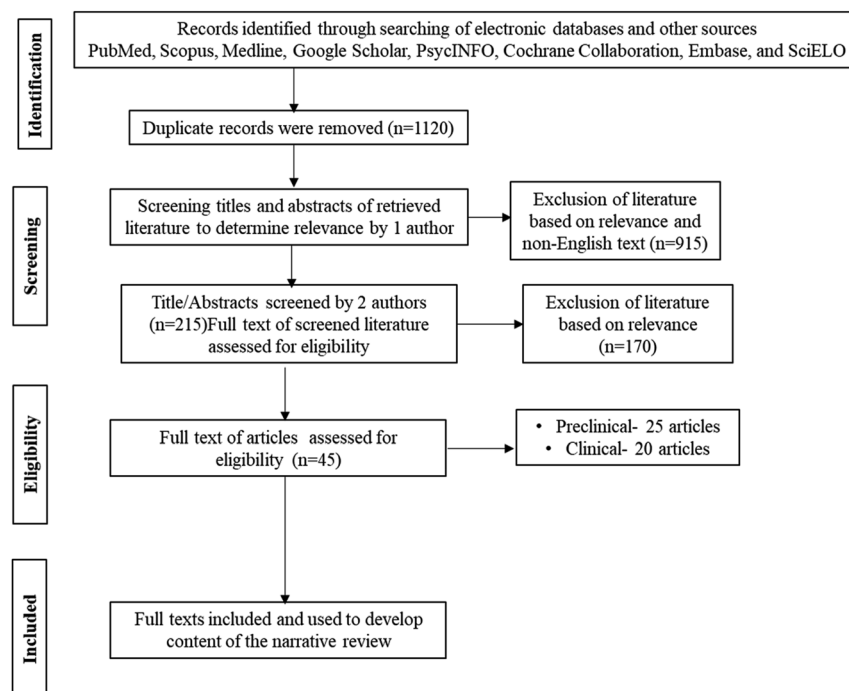


Figure 1: Flowchart of literature search.

Table 1: Presents the main findings of selected articles that explored the effects of biofield energy practices on preclinical models.

Study reference	Animals/cell-lines used	Main finding
Yan et al. [15]	Lung cancer cells (NCI-H82)	External Qi exerted anticancer effect through modulating gene expression.
Yan et al. [16]	Colorectal cancer cells (HT-29)	External Qi exerted anticancer effect through regulating signaling pathways.
Kiang et al. [17]	Cultured human lymphoid Jurkat T cells	External bioenergy (EBE) increased intracellular calcium concentration ($[Ca^{2+}]_i$), and regulate the cellular response to heat stress.
Bai et al. [18]	Agriculture: germination of crop seed	Qi energy changed the structure of a germination-correlated gene site of a seed and speeding up expression.
Mo et al. [19]	<i>In vivo</i> : mice and rats	External Qigong (EQ) therapy reduced withdrawal scores in morphine-dependent rats
Chen et al. [20]	<i>In vivo</i> : 30 SJL/J mice (injected i.v. with lymphoma cells)	Qigong-treated mice showed less tumor growth than sham control group.
Yan et al. [21]	BxPC3 pancreatic cancer cells	External Qi of Yan Xin Qigong differentially regulated the survival pathways in cancer vs. normal cells and exert cytotoxic effects preferentially on cancer cells.
Teixeira et al. [22]	Supersaturated solutions of sucrose	Johrei treatment showed faster rate of crystallization than untreated solutions.
Rubik et al. [23]	Cultures of <i>Escherichia coli</i> K12	Reiki treated cultures significantly exhibited more bacteria than control. Reiki treatment also improved physical, social, and emotional well-being.
Baldwin et al. [24]	Noise-stressed male Sprague–Dawley rats model	Reiki therapy significantly reduced the rise in heart rate (HR) produced by exposure of the rats to loud noise.
Trivedi et al. [25]	Plant, mouse and human stem cells	Significant stem cells (plant, animal, and human) growth observed.
Trivedi et al. [26]	Male Sprague–Dawley (SD) rats	Significant improvement of relative oral bioavailability of both vitamin D ₃ and 25-hydroxy (OH)-vitamin D ₃ .
Trivedi et al. [27]	Systemic inflammatory response syndrome (SIRS) model in Sprague Dawley rats	Significantly improved antioxidant and anti-inflammatory biomarkers in brain tissues.
Trivedi et al. [28]	Analysis of X-ray diffraction crystallography and particle size	Mr. Trivedi through his thought intervention/physical touch changed the atomic and crystal parameters of the transition metal powders.
Jhaveri et al. [29]	<i>In vitro</i> : human osteoblasts (HOBs) and osteosarcoma-derived cell line, SaOs-2	Therapeutic touch (TT) significantly increased DNA synthesis, mineralization, and mRNA expression in HOBs.
Thomaz de Souza et al. [30]	Male Wistar rats	Therapeutic touch (TT) accelerated wound repair, possibly by increasing fibroblast activity.
Gronowicz et al. [31]	Human fibroblasts, tendon cells (tenocytes), and bone cells (osteoblasts)	Therapeutic touch (TT) significantly increased cell proliferation of fibro-blasts, osteoblasts, and tenocytes in culture.
dos Santos et al. [32]	Ten male mice of the C57BL/6 strain	Therapeutic touch (TT) showed significant differences in the nociceptive threshold and in the paw circumference of the animals.
Mager et al. [33]	Cultured human brain cells	Healing treatment showed no significant difference in human brain cell death rates between treatment and control groups.
Radin et al. [34]	Cultured human brain (astrocytes) cells	Healing intention treated cells showed more growth than control cells.
Shiah et al. [35]	Human primary mesenchymal stem cells (MSCs)	Intentionally biofield treated water significantly increased cell growth in treated group than control water group.
Yang et al. [36]	Human NSCLC A549 lung cancer cells	Exposure to purported biofield suppressed tumor growth and enhanced immune function and anti-inflammatory activity.
Gronowicz et al. [37]	Mouse breast cancer cells (66cl4)	Human biofield treatment significantly reduced percentage of CD ⁴⁺ CD44loCD ²⁵⁺ and percentage of CD ⁸⁺ cells.
Running et al. [38]	Female BALB/c mice	Biofield therapy reduced cortisol levels in the treatment group than untreated group.
Patil et al. [39]	Female Belgian Malinois dog with pyometra	Biofield therapy prevented miscarriage and helped to deliver 13 healthy puppies.

number of different clinical conditions with a variety of biofield energy healing approaches (Figure 3) which include External Qigong (EQ) [40–43], Johrei Treatment

[44, 45], Reiki Therapy [46–48], Trivedi Effect[®] [49, 50], Therapeutic Touch (TT) [51, 52], Healing Touch [53], Okada Purifying Therapy (OPT) [54–56], Oscillating

Table 2: Presents the main findings of selected studies and reviews that explored the effects of biofield practices in clinical trials.

Study	Set-up/no. of participant	Main findings
Pórola et al. [40]	Twenty healthy women	Qigong treatment significantly reduced NF- κ B and CCL2 mRNA expression and increased IL-10, HSF-1 and HSPA1A <i>m</i> -RNA expression in peripheral mononuclear blood cells (PMBC). It also reduced inflammatory and intensified anti-inflammatory gene expression, as well as elevated the expression of HSF-1 and HSPA1A.
Chen et al. [41]	Ten women with severe fibromyalgia. Pre and post treatment.	External Qigong therapy (EQT) resulting in complete recovery for some fibromyalgia patients.
Lee et al. [42]	Ten college students participated in crossover sessions	External Qi-therapy (EQT) improved emotions, relaxation, and calmness than placebo. Plasma cortisol concentrations was significantly lower in the EQT group than placebo.
Lee et al. [43]	Ninety-four elderly subjects were randomly assigned	Qi-therapy exerted a positive psychological and physiological effect by reducing anxiety, depression, fatigue, pain level and blood pressure.
Gasiorowska et al. [44]	Twenty-one patients with functional chest pain (FCP) at least 3 months were enrolled	Johrei sessions from a Johrei practitioner significantly reduced chest pain.
Naito et al. [45]	Prospective randomized controlled trial. Forty-eight students were randomly assigned.	Japanese Johrei reduced stress in the students.
Midilli et al. [46]	Ninety patients of post-cesarean delivery pain, anxiety, and hemodynamic parameters	Reiki application reduced the intensity of pain, anxiety, and breathing rate.
Bat et al. [47]	Pilot randomized, double-blinded, and placebo-controlled. Forty-eight subjects, pre and post-treatment.	Reiki therapy did not show any significant difference with respect to heart rate, blood pressure, body temperature, and stress levels.
Baldwin et al. [48]	Forty-six patients undergoing knee replacement surgery	Reiki therapy significantly reduced in pain, blood pressure, respiration rate, and state anxiety than sham control.
Trivedi et al. [49]	Seventy-seven adult subjects (male and female) aged 20–45 years with one or more psychological symptoms. Open-label, single-center, randomized controlled trial, RCT.	The Trivedi Effect [®] significantly reduced psychological and mental health symptoms and simultaneously improved functional physiological biomarkers compared to placebo control group.
Trivedi et al. [50]	Seventy-seven adult subjects (male and female) aged 20–45 years with one or more psychological symptoms. Open-label, single-center, randomized controlled trial, RCT.	Trivedi Effect [®] significantly improved psychological symptoms/scores and simultaneously improved physiological biomarkers: Vitamins (B12, C, and D ₃ metabolites), immune biomarker (CD ⁸⁺ CD ²⁸⁻), neurotransmitters (acetylcholine, noradrenaline, and dopamine), hormones (oxytocin, 17- β -estradiol, and insulin), and antiaging protein (klotho) levels were significantly increased than placebo control group.
Movaffaghi et al. [51]	Volunteers with hemoglobin level less than (<12 g/dL).	Therapeutic touch (TT) significantly increased the levels of hemoglobin and hematocrit.
Wirth et al. [52]	Double-blind, placebo-controlled study.	Non-contact therapeutic touch (NCTT) therapy treated subjects showed a significant acceleration in the rate of wound healing as compared to the control group.
Lutgendorf et al. [53]	Sixty women with stages IB1 to IVA cervical cancer.	Healing touch decreased depression and mood score and may benefit in cervical cancer patients by moderating cellular immunity.
Uchida et al. [54]	Nineteen healthy Japanese adults. Single-blind, randomized design.	Okada Purifying Therapy (OPT) significantly improved power spectral value of α band in brain than placebo control group.
Suzuki et al. [55]	Eleven thousand three hundred and three individuals aged 16 years or older. Pre-post test design.	Okada Purifying Therapy (OPT), was effective and safe across countries with ethnic/cultural differences.
Minga et al. [56]	Twenty participants, age 3–36 years. Prospective, open label, non-randomized, case-control study.	Okada Purifying Therapy (OPT) significantly improvement various hematology parameters than control group.
Nourbakhsh et al. [57]	Randomized, placebo-controlled, double-blind study. Thirty patients with chronic carpal tunnel syndrome.	Oscillating biofield therapy (OBFT) significantly improved symptoms and functional limitations associated with chronic carpal tunnel syndrome.
Suzuki et al. [58]	Pre-post-test design. Four thousand six hundred and eighty-one individuals aged 16 years or older.	Simultaneous practice of diet, art, and biofield therapy is more likely to improve quality of life (QoL).
Jain et al. [59]	Randomized, placebo-controlled trial	Differential outcomes were observed for breast cancer survivors who received biofield healing sessions vs. mock healing. Significant differences between the healing group and mock group on overall scores of fatigue, depression, mood disturbance and reduced cytokine levels.

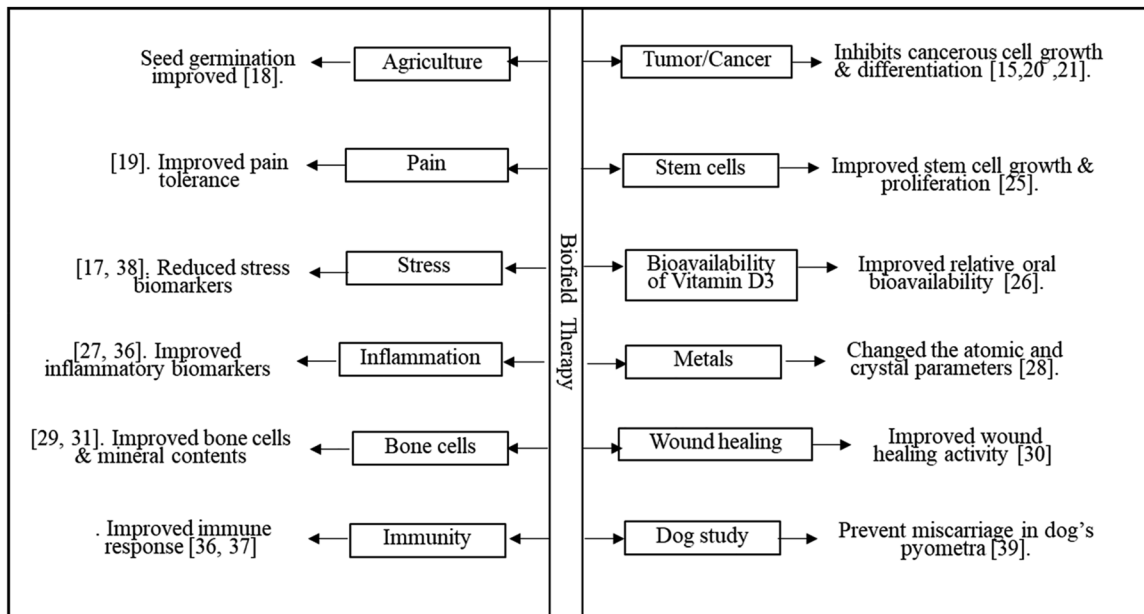


Figure 2: Preclinical evidence of biofield energy therapy.

Biofield Therapy (OBFT) [57], and other biofield energy healing practices [58, 59].

Many general practitioners have integrated psychology, energy therapy, blessing, and spiritual healing into their daily clinical practices or guidance, showing an openness to holistic healthcare. Recent studies from general clinical trials and larger studies suggest that blessing/prayer is beneficial [47–50]. Biofield therapy has been studied extensively in cancer patients. Jain et al. 2012 studied biofield therapy's effects on fatigue and cortisol in breast cancer patients [60]. Qi therapy shows promise in treating late-stage cancer symptoms, but more research is needed to confirm its effectiveness [54]. After treatment, patients experienced significant improvements in fatigue, pain, anorexia, vomiting, insomnia, shortness of breath, routine activities, and mental health. The improvements were still seen even after the two-week follow-up [61]. In another study, Lee et al. 2005, found that after the biofield energy treatment, patients reported improvements in their mood and alertness, and have also noticed a decrease in their pain, anxiety, depression, discomfort, and fatigue [62]. All these findings are summarized in Table 2.

Discussion: potential mechanism for the effects of biofield energy treatment

In this comprehensive narrative review, authors find that there were enough and strong evidence in both pre-clinical and clinical studies for the effectiveness of biofield energy therapies [15–59] for treating various human health disorders. The mechanisms of action in these therapies are

unknown. There are many theories and beliefs surrounding the effectiveness of biofield therapy and spiritual healing. Some people attribute it to metaphysical principles, others to magnetic fields, and still others to spiritual practices. Regardless of the explanation, many individuals have reported positive results from these types of therapies. Biofield energy practitioners/Spiritual healers often argue that there is a divine energy transmitted from the spiritual plane by the healer that has a beneficial effect on the patient's energy. The concept of energy fields is a conflict between orthodox scientists and psychologists; because scientists believe that if these fields exist, they should be measured using some devices in the body. However, its explanatory power has not yet been fully confirmed by scientific research. Some healing practices involve a physical connection between the healer and patient, like the laying on of hands in religious contexts. The second is teletherapy, in which the practitioner/doctor/nursing caregiver or team of doctors prays or thinks about the patient in absentia. Doctors say that this phenomenon should be given special attention. The authors use quantum mechanics to explain how biofield therapy works. They call the relationship between the patient and practitioner PPR entanglement ((patient–practitioner/physician (medical)–remedy relationship) [63, 64]. This approach could help us better understand the non-local effects of energy therapy and its implications for coherence, synchronicity, and non-determinism. The authors suggest that the relationship between the EPR relationship helps to understand the biofield therapy as a unique combination. This means that the biofield energy healing process is not local (i.e., physical and emotional), even though the process obviously occurs over time. Another way to describe this treatment process would be to include the “fit” between the

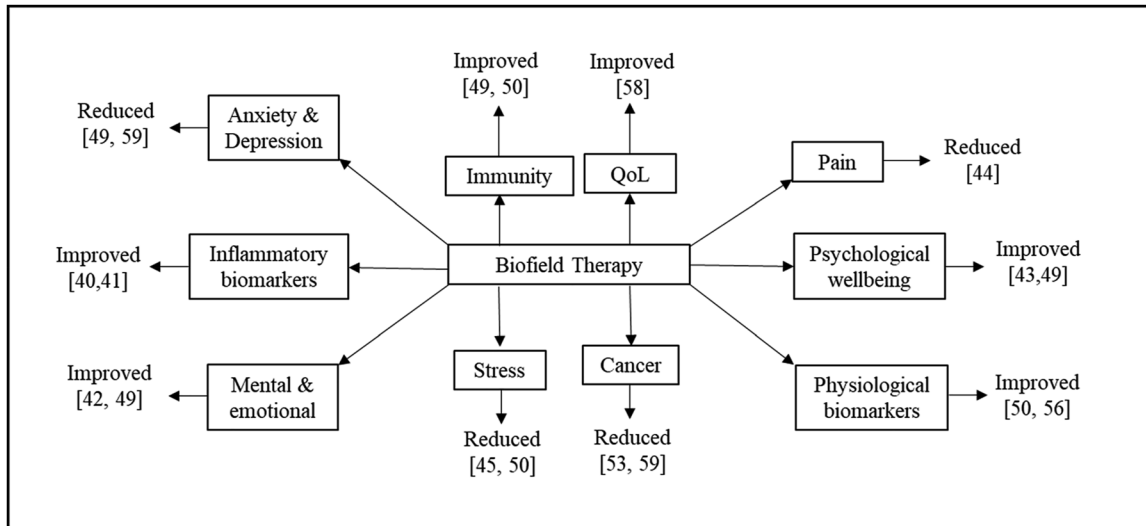


Figure 3: Clinical evidence of biofield energy therapy on various vital symptoms/diseases. QoL, quality of life.

patient and the therapist's goal/state of mind, and thus "ensure" in interpretive words (e.g., the patient's knowledge and pursuit of the treatment). Patient's symptoms and "Recognition" (Doctor's recognition of the problem) are accepted and medical "healing" (understanding of the case and transmission of biofield energy/Quantum Energy Medicine) occurs. Therefore, this type of healing (spiritual power/blessing/prayer) can be said to involve the healing practitioner "fully understanding" the situation. However, causality is the more accepted aspect of the quantum worldview. The "magical" effects of biofield therapy have been confirmed by many pre/clinical experiments [15–59]. Although this method of treatment is not yet widely accepted. It can be explained by a strong state of entanglement (quantum energy) that occurs between the patient, practitioner and remedy (quantum energy treatment). This entangled triplet can be viewed as a coupled quantum-type system operating in terms of non-locality, complementarity, and entanglement, that can be effectively constructed using the interpretation of quantum mechanics. Quantum entanglement allows instantaneous connection between separated elements of a system, which can be used for signaling across vast distances. Healing practitioners transmit biofield energy via faster-than-light communication between quantum-entangled entities in a PPR-entangled therapeutic relationship [65]. Quantum entanglement is a phenomenon where the quantum states of objects are interconnected. Individual consciousness may be connected to an underlying non-local quantum field that exhibits holographic properties. The human brain may tap into this universal information field, identified as the zero-point energy field. Entanglement theory suggests that humans can be connected through electromagnetic signals, even when they are separated by distance or time. It also explains distant healing therapy and is based on the behavior of objects in the quantum world. Objects that

used to interact with each other but are now separated by large distances behave as one and are called entangled states (Figure 4). Communication between them is instantaneous, which could be relevant for biofield energy therapy. Instantaneous communication between interconnected states counters skeptics who deny external communication paths during therapy. Future studies should explore biofield energy therapy's effects on electrophysiology and homeostasis, evaluate physiological and physical changes, test non-locality, and entanglement.

Strengths and limitations

The qualitative and quantitative research data used in the current study is a vital strength that has helped explore the effectiveness of biofield therapies. It is interesting that this study also incorporated both pre-clinical and clinical data. This study is a valuable contribution to the literature on healthcare systems, as it highlights the benefits of different biofield therapies and may help to guide policymakers in reviewing current health policies and guidelines. It is good to know that pre-clinical and clinical study findings support and prove the effectiveness of biofield therapies for treating various human health disorders and disease symptoms. However, the study has some limitations, such as most of the clinical trials being reported in a non-randomized way, smaller sample sizes, and the need for more double-blinded studies with a large number of human subjects. It is also important to note that excluding non-English articles in this review limits the generalizability of the findings across diverse linguistic and cultural groups. Overall, the study's findings showed positive outcomes and beneficial effects of biofield energy therapies against various human diseases.

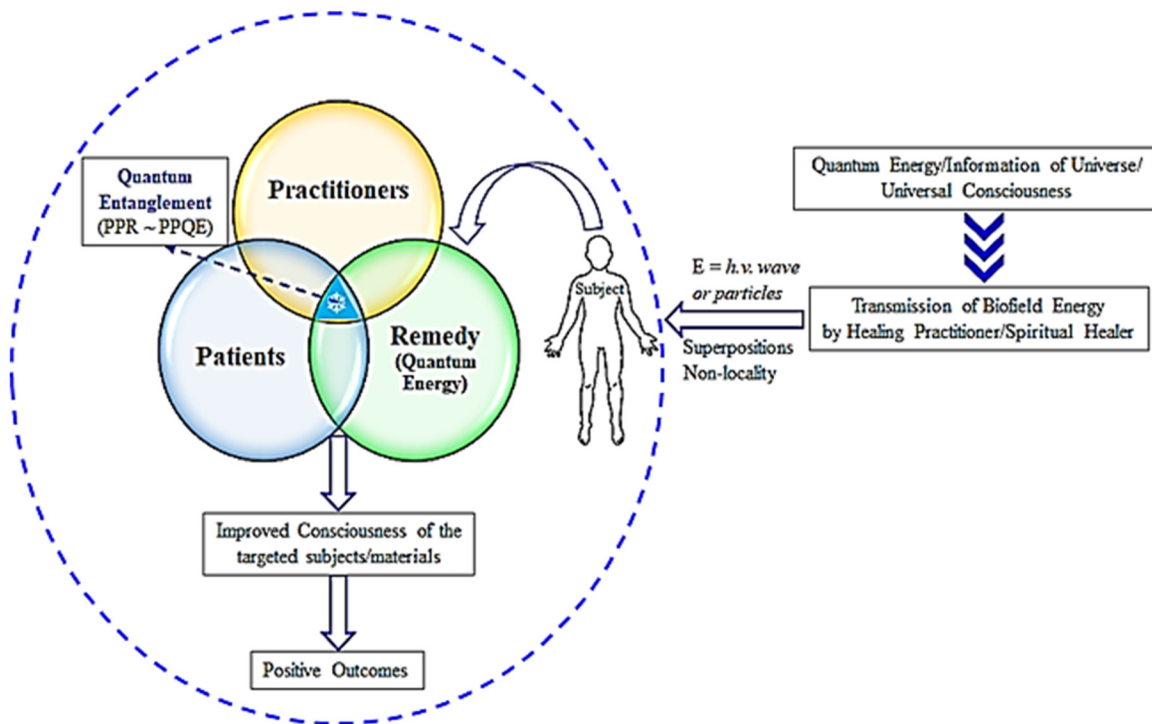


Figure 4: Proposed schematic representation explains how biofield energy transmission forms quantum entanglement that leads to positive outcomes of this therapy. PPR, practitioner-patient relationship; PPQE, practitioner-patient quantum energy entanglement; E, energy; h, Planck's constant; v, frequency.

Future perspectives

It seems that despite some initial resistance, the market for biofields and other complementary and integrative medicine practices has experienced significant growth in the last few decades. This growth can be attributed to the increased research into the effectiveness of various complementary and integrative medicine (CIM) treatments for human health and wellness. While many of these biofield energy therapy approaches have been around for thousands of years, their integration into mainstream medicine has faced several challenges. One of the key challenges is the lack of clearly defined biofield mechanisms and standardized assessment technology. In order to successfully implement interdisciplinary research, education, and collaboration in biofield therapy, there needs to be further development of the existing community of practice along the emerging profession continuum. Biofield researchers should focus on answering the following questions: What does the effective dose and duration of biofield therapy to have therapeutic response? Do multiple biofield treatments improve efficiency? Is the efficiency show in dose-proportionality relationship? Do the short and longer duration doses have equivalent or different effects? Do repeated applications of the biofield provide a cumulative effect? Is the duration of biofield effect long lasting? What are the mechanisms involved for the effectiveness of this therapy? To make progress in this field, researchers should prioritize the

scientific questions mentioned above and work towards developing validated experimental models both *in vitro* and *in vivo*. Furthermore, implementing standardized scientific systems and protocols must be followed crucial for conducting accurate and reliable biofield studies.

Conclusions

Based on the findings of this review, authors recommend that healthcare practitioners should consider biofield energy therapy as an alternative and complementary medicine to treat various diseases such as cancer, pain, arthritis, trauma, anxiety, depression, stress, chronic inflammation-related illness, emotional and psychological health problems, and many others. According to recent evidence, the concept of quantum entanglement suggests that particles separated in space and time can have non-local quantum correlations, which has proven useful in understanding the effects of biofield energy therapy. The treatment outcomes are seen non-locally (instantaneous) and involved the healer's quantum thinking and transmission of energy to the clients through instantaneous communication at the quantum level via quantum entanglement. This treatment is non-invasive, free of side effects, and more affordable than modern medicine, making it an excellent option for a large number of people. Therefore, prescribing this alternative therapy could have a significant impact on population health and the overall cost of treatment.

Highlights

- Biofield energy therapy is used as alternative and integrative medicine to treat various human diseases.
- It is holistic therapy, non-invasive, side-effect-free and less expensive treatment.
- This therapy shows potential protective and therapeutic benefits in human health.
- The proposed mechanisms of action for this therapy are discussed.
- Given the growing interest in CAM worldwide, biofield therapies can be considered alternative medicine in clinics for the medically pluralistic world.

Acknowledgments: Authors would like to acknowledge Vaibhav Parulkar for the facilitation of this manuscript.

Research ethics: Not applicable.

Informed consent: Not applicable.

Author contributions: Conceptualisation, visualisation, supervision, draft writing – MKT and S Jana; Reviewing, editing, and proof reading – AB and DT; Literature search, data extraction, analysis, and original draft preparation, final review – SM and SJ. All authors have accepted responsibility for the entire content of this manuscript and approved its submission.

Competing interests: Authors state no conflict of interest.

Research funding: The authors declare that no funds, grants, or other support were received for this study.

Data availability: The authors confirm that the data supporting the findings of this study are available within the article. Data sharing is not applicable to this article as no new data were created in this study.

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