

## Hope-Based Medicine (1): A Practical Approach

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Hope-Based Medicine is not a substitute for, nor does it stand in opposition to Evidence-Based Medicine; rather, they can seamlessly coexist. To begin with, it is crucial to acknowledge the inherent difficulty in reaching a consensus on the topic of hope. It is accepted that its definition differs significantly between disciplines [1]. Also, while doctors may hold personal opinions about hope, based on their own clinical experience and reported cases in the literature and social media, the term "hope-based medicine" remains relatively unfamiliar among physicians. A 2017 article identified on the PubMed database employs this expression in the context of new drugs for cancer treatments, raising ethical questions about choosing lesser-known medications that might offer some assistance and, in doing so, instill hope in cancer patients [2]. Another article, published in 2020, concludes that there seem to be gaps in the literature regarding specific hope-promoting interventions [3]. In short, this article endeavors to impart a more practical perspective to a subject that has been largely overlooked in the medical approach to health and disease over the past decades.

### HOPE AND FAITH: RELATED CONCEPTS

While hope and faith share similarities, they possess distinct nuances in meaning. Hope embodies an optimistic anticipation of improvement and a positive expectation of a favorable outcome, significantly influencing emotions and behaviors [1]. On the other hand, faith is a conviction that transcends rational or empirical validation [4]. It is associated with a more profound sense of truth, a broader concept that involves a deep-seated trust or belief, often extending beyond immediate circumstances and into a larger framework of personal and spiritual convictions [4]. The context of this article is more about hope.

### RIGHT OF CHOICE

The exploration of hope brings to mind a patient in her eighties suffering from a serious chronic illness. Despite her conviction that diligent efforts, including supplements, physical exercises, meditation, and various healing techniques could potentially ameliorate her condition, she expressed a profound weariness and a desire to depart from this world. Residing in a country where euthanasia was

legal, she made the conscious decision to determine her own time of departure. On a rainy Wednesday morning, she left peacefully. Her situation illustrates a paradox - a belief in the potential improvement of her condition together with a stark absence of hope.

### HOPE FOR EVERYONE

In the domain of Medicine, hope is commonly linked to individuals enduring serious conditions, such as cancer or debilitating diseases, where the expectation lies in the prospect of improved health. Yet, hope can certainly extend beyond the context of illness. It may encompass the desire to sustain good health. Nevertheless, our present reality is marked by complexity, featuring dystopian scenarios and an overall sense that the world is approaching an uncertain future - a sentiment once relegated mostly to the realm of science fiction. In this intricate landscape, hope has transformed into a daily concern for many, overshadowed by the challenges of our contemporary existence.

### LET'S MAKE IT SIMPLE

I have no intention of delving into the theoretical meanings of hope. Instead, let's take a broader perspective and examine the current global landscape. We have witnessed individuals who appear to be notably advanced, whether in matters of science or spirituality, and most likely they look on hope through different angles. Certain scientists are engaged in discussions about the fundamental nature of reality, entertaining the intriguing idea that the universe could potentially be a simulated construct [5]. This concept not only challenges the boundaries of most individuals' cognitive understanding, but prompts profound reflections on the nature of existence. Meanwhile, other scholars pursue

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explanations for sensory consciousness - the awareness and articulation of subjective experiences - contending that it is firmly rooted in the anatomical and physiological substrates of the brain [6]. Additionally, there are those, such as Dr. Joe Dispenza (1962 ...) - who hold the belief that we have the capacity to manifest anything we desire, suggesting that we may possess inherent limitless potential [7]. He is an international speaker, author and researcher who is passionate about the findings from the fields of neuroscience, epigenetics, and quantum physics to explore the science behind spontaneous remissions. He uses this knowledge to help people heal themselves of illness, chronic conditions, and even terminal diseases and enjoy a more fulfilled and happy life. In his turn, George Bernard Shaw (1856 - 1950), an Irish writer who won the Nobel Prize of Literature in 1924, once said: "Imagination is the beginning of creation. You imagine what you desire, you will what you imagine and at last you create what you will" [8]. Indeed, these diverse perspectives underscore the richness of scientific inquiries and the expansive range of contemplation that surrounds our understanding of the world and ourselves. In our case, let's consider hope basically as a motivational positive state [1], and draw correlations between this understanding of hope and the dynamics of the world at present. It's essential to recognize that information has surged into our consciousness at an astounding pace. Its rapid influx into our brains may have left most of us with a sense that our mental hardware is approaching its full capacity. It seems to create a common feeling of "not being able to cope". As humanity seems to be threatened by a mental health pandemic, a foresight predicted by some who contemplate the future of mankind, it's time to make it simple. How can we foster and embrace hope amidst this complexity? Furthermore, how can we, as healthcare providers, guide our patients towards a more hopeful outlook, enhance their health conditions, and promote overall wellness? Let's methodically move forward, considering particular aspects incorporated into the overall approach to health.

### HOPE AND NEUROPLASTICITY

Neuro is for neuron, the nerve cells in our brains and nervous systems. Plastic is for changeable, malleable, modifiable. According to Norman Doidge in the book "The Brain That Changes Itself" [9]: "At first many of the scientists didn't dare use the word neuroplasticity in their publications, and their peers belittled them for promoting a fanciful notion. Yet they persisted, slowly overturning the doctrine of the unchanging brain. They showed that children are not always stuck with the mental abilities they are born with; that the damaged brain can often reorganize itself so that when one part fails, another can often substitute; that if brain cells die, they can at times be replaced; that many "circuits" and even basic reflexes that we think are hardwired are not. One of these scientists even showed that thinking, learning, and acting can turn our genes on or off,

thus shaping our brain anatomy and our behavior - surely one of the most extraordinary discoveries of the twentieth century." Explaining neuroplasticity and gene expression to patients might initially seem complex but, as doctors, we may have the ability to simplify these concepts. I commonly describe neuroplasticity as the actual formation of new neural pathways, or simply put, the creation of "new brain". It's important to realize that our emotions result from the way we think about things [10]. Before we can experience (feel) any event, we must process it with our mind and give it a meaning (thought) [10]. Every time we feel sad or have intense negative emotions about something, we should try to identify the corresponding negative thought that we probably had just prior [10]. By learning to restructure these thoughts, we can change our emotions [10], effectively replacing the old ones linked to negative emotions with new thoughts, rooted in positive emotions, such as hope. This process involves a straightforward exercise where we can encourage our patients to pinpoint a negative thought associated with their illness, like "I am going to die soon," and substitute it with a positive thought such as "I am getting better and better every day." I even suggest that they mentally assign a specific "place" in their brain for the negative thought, then intentionally move it to another mental space. Whenever the negative thought resurfaces, they mentally shift to this alternate place. Remarkably simple, this exercise - that can also be facilitated through the guidance of a cognitive-behavioral therapist - gradually transforms their mindset, motivating them to actively contribute to their own well-being. In this way, hope ignites within them, changing the way they think, feel and behave, and guiding them towards their unique path to recovery or better health.

### HOPE AND MEDITATION & MINDFULNESS

Defining meditation proves challenging as it encompasses a diverse array of practices across various traditions [11]. In colloquial usage, the terms "meditation" and "meditative practice" are often employed loosely to encompass practices found in numerous cultures [11]. These practices can include almost anything claiming to train the mind to focus on a specific object, thought, or activity to cultivate attention, awareness, and attain a state of compassion, mental clarity, and emotional calmness [12]. Mindfulness, a distinct form of meditation often associated with breathing exercises, emphasizes being fully present and engaged in the current moment [13]. Theoretical models of mindfulness meditation conceptualize the development of focused attention and emotional state regulation [13]. They incorporate attitudinal foundations that encourage non-judgment and acceptance, fostering cognitive and affective processing that contributes to enhanced brain health [13]. However, mindfulness can be applied to any activities one finds fulfilling. Personally, I derive immense pleasure from environmental "tidying-up", particularly collecting litter from beaches where it doesn't belong. Gardening, too, has proved to be exceptionally relaxing for many people, redirecting focus away from their

own health concerns to the nurturing of plants and nature. Whether pulling weeds or watering plants, the sense of reward upon witnessing their enhanced beauty is profound. The essence lies in immersing oneself in the present moment, reducing mind-wandering by clearing the mind of thoughts, especially those related to the past or the future that may evoke feelings of depression or anxiety. In this mental space, hope naturally intertwines with other positive emotions.

### HOPE AND HEART COHERENCE TRAINING

Heart Coherence (HC) is a state of cooperative alignment between the heart, mind, emotions and physical systems [14]. Although there are relatively few articles on this subject - a search on PubMed database found only 20 references to "heart coherence" - I believe that the benefits of heart coherence techniques will become more and more known by physicians, therapists and the general population [14]. Not only these techniques can give you the perception of stress management, but also, they are intended to reduce the stress impact on heart physiology. Although there seem to be questions not yet answered regarding heart coherence techniques, the effect of breathing on the Parasympathetic Nervous System is well known. The results of a 2022 review study indicated increases in vagal mediated Heart Rate Variability (HRV) with voluntary slow breathing during/immediately after one training session, and after a multi-session intervention [15]. "Given the involvement of the Parasympathetic Nervous System in a large range of health-related outcomes and conditions, voluntary slow breathing exercises could be advised as a low-tech and low-cost technique to use in prevention and adjunct treatment purposes, with few adverse effects expected" [15] - it concluded. Also, according to the HeartMath Institute [14], "learning to activate qualities of the heart such as care, kindness and acceptance increases our Personal Coherence. This results in less mental and emotional pressure, more effective choices and increased resilience". Because our Personal Coherence is communicated through our energetic field, it has an uplifting impact on others [14]. Therefore, the proven benefits of coherence also extend to our social and global communities. All in all, there are studies that report the use of Heart Rate Variability (HRV) and Heart Coherence (HC) in the management of patients with conditions such as burn-out syndrome, depression, dementia and chronic musculoskeletal pain [16-19]. Just give it a try: breath through the heart, focusing on positive and calming feelings, slowly and deeply. In simple words, the idea is to send positive messages from the heart to the brain that will respond by sending calming messages to the heart through the parasympathetic nervous system, making it function better and improving general health.

### HOPE AND FREQUENCIES

Nikola Tesla (1856 - 1943), a visionary Serbian-American inventor and electrical engineer, imparted timeless wisdom

with his words: "If you want to find the secrets of the Universe, think in terms of energy, frequency and vibration" [20]. In fact, everything in existence vibrates at a certain frequency [21]. This includes physical objects, thoughts, emotions, and even the energy that surrounds us [21,22]. There are many therapies that use the concept of frequencies and, again, it is just a question of time before they (or most of them) will be fully accepted as evidence-based treatments. Bioresonance, for instance, is a type of therapy used in holistic or complementary medicine [23]. It uses a machine to measure the frequency of energy wavelengths coming from the body [23]. Those measures are then used to identify imbalances, such as pain (headache, joint pain, muscle pain, nerve pain) and gastrointestinal complaints [23]. It is based on the idea that unhealthy cells or organs emit altered electromagnetic waves, while changing these waves back to their normal frequency will help recovery from these conditions [23]. It could be compared to traditional acupuncture which is based on the understanding that energy, or "life force", flows through the body in channels called meridians [24]. This life force is known as Qi [24]. Practitioners who use acupuncture in the traditional way believe that when Qi does not flow freely through the body, this can cause illness and that acupuncture can restore the flow of Qi, and, consequently, restore health [24]. In both cases, bioresonance and acupuncture, the diagnosis itself is not as important as in allopathic medicine, because the aim is to restore health at the energy level. In this context, understanding the idea of imbalances (chaos of energy) and health (flow of energy) has helped a lot of patients. If you think about it, neuroplasticity, meditation, and heart coherence, as described above, all revolve around the frequencies of emotions and thoughts. Participating in enjoyable activities, such as dancing, reading, traveling, swimming, sailing and trekking, engaging in craftsmanship, working on intricate jigsaw puzzles, and various other pursuits, can significantly enhance your energy levels and overall vibrational frequency. In fact, some activities, including meditation and floating in the sea [25,26] have undergone examination regarding their effects on brain wave distribution - delta, theta, alpha, beta, and gamma waves - through the use of EEG sensors. The findings are remarkable, illustrating the profound impact that simple activities can have significant influence on brain health. This provides a fascinating insight into the realms of energy, frequency, and vibration and, also, can be correlated with improved hope and well-being.

### HOPE AND BEAUTY

Victor-Marie Hugo (1802 - 1885), the eminent poet, novelist, and dramatist, one of the most important of the French Romantic writers, once expressed that "no external grace is complete if inner beauty doesn't vivify it. The beauty of the soul spreads like a mysterious light on the beauty of the body" [27]. True, beauty is a frequency that comes from within [27]. This notion resonates with me and

explains why perceptions of beauty vary among individuals [28]. Ancient Greece, the progenitor of many beauty concepts, emphasized balance and harmony. Personally, I strongly rely on these principles, and this dependence becomes evident as I struggle within myself with the lack of infrastructure in my country, manifested in the lack of cleanliness, maintenance, and/or sort of "organizational order" in many surroundings. I hold the belief that order is inherently beautiful, although I acknowledge that not everyone shares this perspective. This is because beauty transcends the boundaries of thoughts and is intricately connected to the realm of emotions. It's not merely a product of cognitive evaluation but rather a manifestation of how one feels deep within. Nevertheless, I think that the essence of our choices about what to do regarding beauty lies in aligning our actions with what makes sense to us - what we deem good, fulfilling, and sublime. In doing so, we sow the seeds of happiness, independent of external circumstances beyond our control. That reminds me of a recent encounter with an elderly woman on an airplane. She shared that, wherever she travels, she plants five trees. Her eyes sparkled with the light of her meaningful act, contributing to nature preservation on a personal scale. The Navajo Prayer encapsulates this sentiment: "The beauty I live with, the beauty I live for, the beauty upon which I base my life" [29]. Thus, beauty also intertwines with hope, serving as nourishment for the soul.

### HOPE AND SIMPLICITY

Reflecting on the course of human history, one can observe a progressive increase in complexity across various dimensions. However, it is in the digital age, initiated in the 20<sup>th</sup> century and rapidly advancing in the last few decades, that humanity has found itself confronting with a level of complexity previously unimaginable. The contemporary challenges of lockdowns, economic instability, disrupted daily routines, information overload, excessive screen time and apprehension are among the pressing issues of our time. The repercussions of the Covid-19 pandemic on mental health, encompassing disrupted sleep patterns, heightened anxiety, and increased depression, have become points of extensive research and concern. Startling statistics in my country (Brazil) reveal a staggering 90% surge in obesity among individuals aged 18 to 24 within a single year [29] - a fact that is almost hard to believe. It's crucial to clarify that my advocacy is not at all against the pharmaceutical industry or the so-called "evidence-based medicine". Rather, my predominant focus is on preventive measures, leading me to increasingly introduce alternative treatments and lifestyle approaches to assist my patients in navigating our complex reality. Hope emerges through simplicity - streamlining thoughts, fostering positive ones, minimizing toxin exposure, reducing reliance on processed products, consuming more nourishing organic foods, and prioritizing health over wealth. This involves being present in the moment, connecting with emotions and nature, incorporating

laughter and enjoyment into daily routines, and directing intentions toward life purposes with love and gratitude. Cultivating a simple, mindful lifestyle can pave the way to a fulfilling and hopeful existence. As doctors, success in transitioning to a more nuanced professional mindset than the current one will depend, in part, on sharing our own experiences. I firmly believe that the evidence supporting these approaches is inherently within each individual; awareness is the key. Let us cherish and embrace this knowledge.

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