The Pulse of Emotions: A Review Paper on the Interaction of Heart Intelligence, Subconscious Mind, and Human Bio-Magnetic Fields

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ABSTRACT

This review explores how heart intelligence, the subconscious mind, and human bio-magnetic fields are connected to emotions, the pulse of life, and the colour language of feelings, highlighting both scientific and experiential perspectives. Starts with a brief overview of emotions, the human bio-magnetic field, heart intelligence, and the role of the subconscious mind, this review offering a foundation for understanding their interconnected dynamics. It then describes how emotions can change bio-magnetic patterns in the body, affecting internal balance, and external expression. This review also explains how emotions are stored and expressed both consciously and subconsciously, particularly through the bio-magnetic field of the body, which is a passive communicator of emotional experiences. Based on existing research, this review looks at how heart intelligence and the subconscious mind shape human experiences, including how these internal systems communicate and regulate responses to emotional stimuli. The findings offer holistic insights into areas such as psychology, health, and emotional well-being, and suggest possible links to emerging fields like energy medicine and epigenetics. Due to the broad and complex nature of these topics, more in-depth studies are recommended to develop effective strategies for building emotional resilience and overall well-being, particularly in response to modern-day stressors and psychosomatic conditions.

Keywords: Emotion, Heart Intelligence, Bio-Magnetic Fields, Human Experience, Subconscious Mind

INTRODUCTION

Emotions are mental states resulting from the way we interpret and assess situations, assign blame, and perceive items in our surroundings. Joy, interest, and contentment are examples of positive emotions that help us expand our short-term thought-action repertoires, gradually accumulating psychological, social, intellectual, and physical resources [1],[2]. Differentiating between emotions is based on their cognitive foundations as opposed to only their physical manifestations. The Ortony, Clore and Collins in 1998 (OCC) model offers a methodical explanation of the various emotion types that result from how events, attributions, and objects are interpreted [3]. Certain emotions, including fear, rage, and disgust, are thought to be basic emotions with distinct signals, physiologies, and antecedent events that evolved to deal with basic life demands [4]. The foundational work by Charles Darwin explores how emotions are expressed in both humans and animals, delving into the principles underlying the expression of joy, pain, hatred, contempt, surprise, and self-attention, among other emotions [5]. Emotions are hence cognitive-evaluative states that are distinguished by their underlying evaluations and fulfilling adaptive roles; certain fundamental emotions have developed to address essential living tasks. Particularly positive emotions support the development of personal resources and the expansion of thought-action repertoires.

Human bio-magnetic fields (aura) are exceptionally subtle and weak magnetic field that naturally arises from the body as a result of ionic currents and electrical activity, mainly from the heart, brain, and muscles. Capturing the electromagnetic fields that the human body emits has long been used to identify and/or track a variety of medical disorders. Nevertheless, the intricate permittivity of biological tissues has a significant influence on these electric fields, degrading their waveforms and reducing their diagnostic potential. As an alternative, new advancements in the measurement of bio-magnetic fields—which result from the body's inherent currents—have been made. The benefit in this instance is that because tissues are non-magnetic, magnetic fields continue to spread unhindered in the direction of the skin's surface, where they ultimately gather. This reveals possibilities for medical diagnostics that could change the game. However, a significant obstacle to detecting these naturally occurring magnetic fields is their tremendous weakness—indeed, they are orders of magnitude weaker than those produced by the Earth. In order to do this, significant efforts have been made to develop sensing equipment that is capable of gathering bio-magnetic fields. Magnetomyography (MMG), Magnetocardiography (MCG), Magnetoencephalography (MEG), and Magnetoneurography (MNG) (which includes magnetospinography (MSG) are a few examples of application disciplines. Magnetic fields have the ability to travel through biological tissues without interruption, unlike electric fields, which makes them useful for medical diagnostics [6].

Human bio-magnetic fields are produced by the body's electrical activity and ionic currents, particularly those coming from the muscles, brain, and heart (cardiac, neural, and muscular fields) [7]. To identify these incredibly weak fields among background noise, specialised tools such as induction coils, SQUID (Superconducting Quantum Interference Device) sensors, and shielding techniques are needed. When precisely identified and measured using specialised sensors and shielding procedures, human bio-magnetic fields—naturally occurring, extremely weak magnetic fields resulting from the electrical activity within the body—have the potential to be used in medical diagnosis and monitoring [8].

The term heart intelligence, also called cardiac intelligence or heart coherence, means the heart can process and send information without needing help from the brain. This concept looks at how the heart, brain, and body systems communicate with each other, and how this communication may affect our thinking, emotions, and overall health. Sometimes people call the heart the “heart brain” because it has its own group of nerve cells that can sense, understand, and respond to things without depending on the brain in the head (cranial brain) [9]. The heart also creates strong electromagnetic fields, which can be measured even a few feet away from the body. This shows the heart might play a role in creating harmony inside the body and also in how we connect with other people. It indicates that the heart may have a part in producing harmony within the body and even also our interactions with other human beings. Heart intelligence can be measured in looking at heart rate variability (HRV), or the tiny fluctuations between each heartbeat. HRV represents functional neural connections between the heart and the brain and how these connections facilitate the bidirectional, flexible, harmonious balance of the autonomic nervous system.

Having a simple, regular HRV pattern is a sign that the heart is coherent, and has been associated with improved emotional regulation, improved cognitive capacity, and improved health [10]. Heart-based breathing and HeartMath techniques are two types of practice designed to build intelligence in your heart through emotional balance and physiological coherence. Researchers are investigating possible applications for heart intelligence in fields including psychology, organisational development and medicine, since heart intelligence might influence decision-making, stress management and social interactions. Thus, heart intelligence highlights the significance of the heart-brain connection in overall well-being and performance. It is the inherent capacity of the heart to receive information, control physiological processes, and potentially impact cognitive and emotional states [11].

The portion of the mind that functions below the level of our consciousness and shapes our emotions, ideas, and actions without conscious effort or control is known as the subconscious mind [12]. It keeps track of all our past encounters, long-term memories, abilities, and ingrained habits, also processes enormous volumes of data and controls vital signs like breathing, heart rate, and digestion while running constantly and automatically. Subconscious mind oversees our ingrained routines, feelings, instincts, and automatic acts that happen without conscious thought. The subconscious mind has a great deal of power over us; frequently

shapes our attitudes, beliefs, and worldviews without our knowledge. It can affect our conscious feelings, ideas, and behaviours by means of unconscious biases, conditioning, and priming.

The subconscious mind has a very large ability to store and process information. It can do many things at the same time, while the conscious mind can only handle a few tasks. Some methods like hypnosis, meditation, and using positive affirmations are believed to help people change their subconscious mind programming. These methods can help remove limiting beliefs, negative emotions, negative thoughts, habits, or behaviours that hinder a person's growth [13], [14], [15], [16].

LITERATURE REVIEW

Electromagnetic Field (EMF) Theory and Heart Resonance

In support of the earlier findings on heart intelligence and bio-magnetic resonance, the Electromagnetic Field (EMF) Theory offers deeper understanding of the heart's energetic role. It has been scientifically shown that the electromagnetic field generated by the heart is more than 5,000 times stronger than the one produced by the brain, and it can extend several feet outside the physical body [69]. This field not only regulates physiological balance but also acts as an energetic medium for communication between individuals and the environment.

First, *interpersonal synchronization* happens when individuals in heart coherence state are able to synchronize their heart rate variability (HRV) and brainwave activity with others, helping in non-verbal emotional understanding and relational bonding [33], [69]. Second, the heart's electromagnetic signals are believed to support *DNA modulation.* In one study, a heart-focused emotional state was shown to increase DNA unwinding by 25%, showing that EMFs might influence biological functioning through emotional and energetic intention [69]. Third, *environmental coupling* has been observed when human HRV rhythms align with the Earth's natural geomagnetic waves, such as Schumann resonances. This suggests that our emotional and physiological states may be affected by planetary electromagnetic patterns [33], [69].

These scientific observations highlight the heart's role not only as a vital organ but as an energetic centre that manages both internal states and external resonance. Through this field, the heart communicates with the brain and body systems while also interacting with other people and planetary frequencies. This reveals that heart intelligence involves complex electromagnetic connections which contribute to emotional coherence, physical health, and even DNA-level regulation.

Emotional Impact on Bio-Magnetic Fields

The connection between emotion and our body's bio-magnetic energy can be traced back to the relationship between the brain, the body's automatic responses, and the magnetic fields associated with body processes. Typically, lust and emotional control are overseen by the intricate circuits of the brain, most prominently the anterior cingulate cortex, amygdala, and insula. These brain regions assist us in experiencing and interpreting what is happening within our physiology and the emotions that follow suit. Functional magnetic resonance imaging (fMRI) studies have demonstrated the functions of these brain areas during emotion regulation and the execution of calming practices such as biofeedback [17], [18]. The automatic responses of our body in relation to the emotional state that we are in are also modified by our emotional state, and this can be observed as a change in skin conductance (electrodermal activity).

The flow of electrical signals through human tissue creates bio-magnetic fields in the human body, from various body activities, including functions of the brain, movement of muscles, and also the beating of the heart. As our body tissues are magnetic: so, these bio-magnetic fields are not obstructed in anyway. Thus, they are helpful in diagnostic tests that are not invasive like MEG (magnetoencephalography) and MCG (magnetocardiography) [6].

Those magnetic fields are created by body processes that will change because of our emotional states. As an example, if someone experiences stress or calm, their heart rate, muscle tension and brain activity changes, and those changes affect the bio-magnetic energy of the body. Note that neurofeedback is a specific term, which

means people can monitor and control their brain activity in real time. Their emotions can also be controlled as such assists in altering the magnetic flow within the signals of the brain [19].

Understanding how emotions correlate with bio-magnetic energy is very crucial for medical treatments and diagnosis. As an example, neuroimaging studies (fMRI) demonstrate that individuals developing emotional disorder following a brain injury more frequently show altered functional connectivity within their functional brain networks. Magnetism signals of the body [20] can sometimes be felt as these changes. Similarly, types of therapies such as biofeedback & neurofeedback, use this connection to help individuals learn how to control their emotions based on feedback they receive about their body condition in real-time. Thus, the interplay that gives rise to the connection between emotions and the bio-magnetic emissions of the body comes from internal constructs and interplay of brain and body systems. These signals can be measured and analyzed to understand emotional states that can enable medical tests [17] and emotional health treatments [19].

Heart Intelligence in Action: Bridging Emotions, Bodily Reactions, and Magnetic Resonance

Heart intelligence is the heart's inborn capacity to process information, reach decisions, and communicate to other parts of the body —including the brain. This concept makes it easier to see that the heart is not merely a pump, but a clever self-regulating system that has implications for both our emotional and physical health. It produces equilibrium between the heart and the brain. Bio-magnetic resonance, by contrast, describes the interplay between the magnetic fields within the body, biological systems and how they can affect cells and our well-being [15, 16]. So, the heart is the strongest and most consistent electromagnetic field generator in the human body, detectable several feet away. But this field is more than a byproduct of the heart's electrical work; it has an integrative function that helps the body work well.

Additionally, cells are swayed by the heart's electromagnetic field, specifically through mechanisms such as ion cyclotron resonance. This process enables ions to move through the membranes of the cells, allowing them to communicate and function well. This is an important process for maintaining homeostasis and a healthy body [21]. The heart also communicates with the brain and various other organs in multiple methods: by means of nerve signals (the nervous system), hormones (chemical signals), and high-energy waves (pressure). This two-way communication indicates that not only heart can influence the function of the brain, but also brain can affect the heart. There is a strong physiological connection between emotions and how the body responds via the autonomic nervous system that regulates automatic body functions including heart rate, digestion, and breathing. This is an important system that the heart is involved in [22].

The time difference between heartbeats is measured using a method called heart rate variability (HRV), represents functioning of the autonomic nervous system. Low HRV is often associated with stress and emotional dysregulation, and high HRV is commonly associated with good emotional regulation and the ability to cope with stress. It demonstrates homeostasis between the two main systems of the body: the sympathetic system (the stress system) and the parasympathetic system (the relax system). The influence of emotions was reflected as heart rate variability (HRV) and then transferred to changes in both heart rate and the pattern of the beats [23].

Positive feelings and amusement can help support the healing process. It was found in a study that when people were amused their heart rates slowed compared with the times, they were mad, worried, or felt nothing. When people were amused, HRV was also higher, indicating stronger parasympathetic activity: This suggests that merely feeling angry may not be enough to describe someone's attitude, for example. In another way interestingly, it turns out to be the case that fear has lower HRV than anger which could mean fear involves a simpler sympathetic nervous system reaction and not just pure strain response [24].

When someone feels positive emotions like love, appreciation, or kindness, the heartbeat becomes more organised—this is known as heart coherence. In this state, the heart’s magnetic field becomes smoother and more stable. This coherence can improve how we think, feel, and stay healthy. From a psychodynamic view, unconscious thoughts and feelings also affect how we react emotionally and physically. If we understand these hidden parts of ourselves, we can better manage emotional stress. Strong emotions—especially deep and personal ones—can change the pattern of the heart’s electromagnetic field. Positive emotions improve the

coherence and help the body work better, while negative emotions can disrupt it and lead to emotional and physical imbalances. Techniques like biofeedback, meditation, and heart-focused breathing can help people reach this balanced state. These methods use the heart's electromagnetic field to support healing and emotional well-being [22].

The heart has its own small brain—often called the "heart brain." This system allows the heart to handle information by itself, without needing direct orders from the main brain. This network helps the heart, brain, and body communicate and plays a role in shaping emotions and thoughts. The heart also produces hormones like atrial natriuretic peptide (ANP), which help control blood pressure, body fluids, and how we react to stress. These hormones show how the heart also supports emotional balance. From a spiritual perspective, especially in Islam, the Quran talks about the heart as a center of both logic and faith. When a person follows their heart intelligence, they may feel more peace, balance, and complete well-being [25].

The heart's electrical signals create a magnetic field that can be measured from several feet away. This happens as ions move across heart cell membranes during each heartbeat. Research shows that low-frequency electromagnetic fields (EMFs) can affect how cells work, especially how ions move and how cells communicate. EMFs may also reduce the production of reactive oxygen species (ROS), which can damage heart cells through a process called oxidative stress [26]. These EMFs are already used in cardiac magnetic resonance imaging (CMR)—a scan that helps doctors see how the heart works without surgery. CMR gives detailed pictures of blood flow, heart chamber size, and tissue condition, helping doctors make accurate diagnoses and choose the best treatments [27].

Practices like heart-focused breathing and biofeedback help people reach a state of emotional coherence. This means the heart's magnetic field becomes more stable and organised. Such coherence can support better thinking, stronger emotional control, and better health overall. Using low-frequency EMFs as a therapy is also seen as a gentle, non-invasive way to protect and improve heart function, especially when the heart is damaged by lack of oxygen and sudden blood return (called ischemia-reperfusion injury) [28].

In summary, heart intelligence and bio-magnetic resonance involve a deep and complex connection between the heart's nerves, hormones, and magnetic signals. These systems help manage our emotions, thoughts, body processes, and even our spiritual well-being. They also have great potential for use in therapy to help people live healthier, happier lives.

The Subtle Connection: Emotions, Heart Intelligence, Bio-Magnetic Fields, and the Subconscious Mind

There is a very complex association between emotions, heart intelligence, bio magnetic fields and subconscious mind. Our emotional state precisely influences our mind and body health, and even more, the heart health. Other studies have demonstrated that negative emotions increase the risk of heart problems such as coronary heart disease and are associated with mortality, including anger, aggression and sadness. The reverse, hope and optimism, are known to decrease that risk [29], [30].

Higher emotional intelligence is linked to improved stress management and emotional regulation which benefits heart health [29], [31]. One of the study confirm that the strongest bio magnetic field generated by human body is magneto cardiogram (MCG) which is due to heart [32]. The best thing about this field is that it is not merely an effect of the electric impulses of the heart, can also be an indicator of a person's mood, and some studies show this magnetic field can be impacted by our emotions—and conversely, it can impact our emotions, too. The heart and brain communicate bidirectionally, [33], [34]. It is this relationship that some researchers refer to as "heart intelligence"—the idea of how the magnetic field of the heart can impact our emotions and thoughts [34].

The brain handles a large quantity of data and controls a substantial part of our actions and emotional reactions [35]. Emotional cues, whether consciously or unconsciously perceived, can impact the processes of learning, decision-making, and behaviour. Subliminal exposure to emotional cues can improve the speed at which we learn and impact our actions, even if we are not consciously aware of the stimulus [36]. Having a high level of

emotional intelligence can result in improved emotional regulation, which in turn lowers the likelihood of developing cardiovascular diseases and enhances general well-being [29, 31 & 32].

The heart's bio-magnetic field has a significant impact on transmitting emotional states to the brain, hence affecting both emotional and cognitive functions. Communication can take place through both direct electromagnetic contacts and physiological mechanisms [33] & [34]. The subconscious mind perpetually processes emotional information, exerting an influence on behaviour and the acquisition of knowledge. The influence of emotions on cognitive functioning is evident in the way subconscious emotional signals can improve learning and decision-making, as shown by research [35] & [36]. The magnetic field produced by the heart contains emotional information that can be recognised and potentially affect the emotional states of other individuals. This implies a type of non-verbal, energy communication physically and subtly [32] & [33].

Therefore, emotions, heart intelligence, bio magnetic fields, and the subconscious mind are intricately linked in a sophisticated system that impacts both mental and physical well-being. Gaining knowledge of these connections can offer valuable understanding on how to improve emotional well-being holistically by using techniques that foster emotional intelligence, heart coherence, and subconscious reprogramming. Hence, relationship between these occurrences and the subconscious mind, providing insight into the subconscious processes that influence emotional experiences, and the bio-magnetic fields imprint associated with them.

METHODOLOGY

A qualitative narrative review was performed in this study, includes the systematic collection and interpretation of secondary data from previously published studies. Eighty-three scholarly sources were examined, including journal articles, academic books, conference papers, and seminar proceedings. The literature was chosen according to the main lines of the research: emotions, bio-magnetic fields, heart intelligence and the subconscious mind. Special attention was paid to work that examines how emotional states can have a bio-magnetic resonance, that in turn affects human experience, and how the heart-brain communication affects our emotional-spiritual balance. This review followed a method of thematic categorization. Relevant information was grouped into key subjects such as how emotions affect and interact with bio-magnetic fields, the regulating role of heart intelligence, the interaction between subconscious mind and how one expresses emotions. With insights drawn from neuroscience, psychology, quantum biology, and holistic health and fitness, it is hoped that this method will end up providing a clearer understanding of how emotional energy, heart-based intelligence, and subconscious processes might impact holistic human health and wellness. Since the nature of the study is qualitative, this review is believed to provide a base for future research to explore these relationships in a more systematic and in-depth ways.

Analysis

Based on the analysis of 83 secondary resources, this article reviews pertinent literature from prior studies, journals, seminar proceedings, conference papers, online resources, and reference books. The analysis is pertaining to emotions and the interaction of human bio-magnetic fields through heart intelligence and subconscious mind that shape human experiences.

The human heart has long been thought of as the central organ with energetic ties to our spiritual essence, as well as the centre of perception and sacred awareness, in both Western and Eastern faiths. It is defined as the seat of consciousness and intuition as well as the centre of a system that supplies life force to the body in ancient medical classics from Babylon, China, Egypt, Greece, Rome, and Islamic civilisations [37] & [38]. Remarkably, thorough research has indicated that the intuitive perception of non-local information does, in fact, involve the heart [39] & [40]. According to Alabdulgader’s Heart Based Resonant Fields (HBRF) Theory of Consciousness, the human heart is at the core of consciousness and higher levels of awareness, as well as its relationships to cosmic and planetary energy fields [41] & [42]. The information carrier that delicately coordinates with the human heart is the electromagnetic field of universal systems and the potential patterns that go along with it. In the end, this indicates that our emotions and awareness are actually throbbing and resonating in The Universe, in a very structured, hierarchical way.

It has been demonstrated that the heart emits the sturdiest electromagnetic energy from the body per person, and that this energy can be felt as loving and shared whether or not there is physical contact between people [43]. The idea that electromagnetic energy generated by the heart is the mechanism for energy healing [43, 44] has been supported by recent scientific evidence, which goes beyond anecdotal accounts of shared "heart energy." Notably, improvements in heart rate variability have been noted, supporting this claim [45, 46 & 47].

According to the findings of another study by McCraty and colleagues, the heart's constant rhythmic field has a significant impact on the whole bodily communication processes [48]. It has been suggested that the heart plays a greater role than previously believed in controlling both attention and emotion-driven reactions to stress, even though the brain is frequently cited as the source of attention regulation [49], [50], [51], [52]. There is now evidence that the heart directly affects brain regions essential to emotion production and regulation, in addition to controlling system-wide bodily functions like digestion and hormone production through afferent neurones [53], [54], [55], [56]. Neurones originating from the heart itself have a role in the formation of emotional experience, in addition to the heart-brain axis. Given the close relationship between spirituality and emotions (and thus cardiac function), this connection is inextricably linked.

In particular, it is widely known that spirituality and spiritual experiences are linked to the production of admirable feelings like wonder, gratitude, and joy [57] & [58] and that these emotions are directly linked to strong patterns of cardiovascular activity [59]. Additionally, it has been noted that people frequently report experiencing feelings of transcendence as well as a strong sense of unity and connection with the Creator when their heart activity is at its peak during biofeedback [60]. Moreover, it has been demonstrated that pre-stimulus perceptions, such as intuition, formulate first in the heart [61, 39 & 62]. This provides biological proof of "heart knowing," a metaphor for spiritual perception and sacred wisdom that goes beyond academic and intellectual forms of knowing [63]. It is highly suggestive that the heart may be the location of the soul's seat because the biological initiation of spiritually associated emotional and transcendent experience, as well as preconscious awareness, has been localised there.

According to earlier biofield research findings, the human biofield is an atmosphere or a canopy that connects a person to their environment which symbolises their physical and psychological state [64]. This canopy includes information and detects information too, subconsciously that aids in human adaptability to their environment. The bioenergy field maintains coherence by radiating from the body, resonating, and interacting with others in a complex radiated communication system.

In his research, Zhang [65] & [66] referred to the biofield as the "electromagnetic body" and explained that it is a dissipative structure of electromagnetic fields that forms the energetic anatomic structures, such as the acupuncture meridians and chakras. It is a complex, ultra-faint field of chaotic standing waves. Subsequent investigations revealed the Superconducting Quantum Interference Device, or SQUID, an incredibly sensitive magnetometer that can detect the bio-magnetic field generated by a single heartbeat, muscle contraction, or pattern of brain neuronal activity. Rolin McCraty released findings from the HeartMath Institute (HMI) in 2004 that examined the heart's magnetic field in comparison to the brains. He says, "... the magnetic field generated by the heart is more than 100 times stronger than the field generated by the brain and can be detected using the SQUID-based magnetometers a number of feet away from the body, in all directions" [67].

Additional studies began aiming for proof that the electrical energy generated by the heart spreads into space from outside the body. The field of the heart is dynamic. Depending on our emotions, it varies. For instance, the frequencies in the field become chaotic and distorted when we experience emotions like rage or irritation. On the other side, the frequencies in the field become more orderly and coherent when we are feeling emotions like love, compassion, caring, or gratitude. In a way, we are literally transmitting our feelings like radio waves through the electromagnetic field that the heart produces [68].

One of the most important conclusions drawn from HMI is that our emotions and feelings play a crucial role in gaining access to "heart intelligence," and that our heart is influenced by our thoughts and feelings on a minute-by-minute, second-by-second basis. The stronger the elevated sensations, the stronger the magnetic field, since feelings and emotions are energies that release strong magnetic fields. The strongest magnetic field in the body is actually created by the heart, which is 5,000 times stronger than the brain's [69]. In "Molecules

of Emotion," Candace Pert describes how a person's internal biochemistry, neuropeptides, and receptors connect as emotions, beliefs, and expectations that affect how they perceive and react to the world. She mentioned that our body is actually our subconscious mind. The biological correlate of emotion is peptides. They offer the most fundamental communication system in the body. Accordingly, emotional memory can be accessed anywhere in the network and is stored throughout the body [70].

The study of illness patterns manifested by psycho-neurological abnormalities has given rise to a new field of study known as psycho-neuro-immunology, which also connects the interactions between heart intelligence, subconscious mind and human bio-magnetic fields. For instance, it has been demonstrated that a stressful upbringing can predict inflammation in later life [71]. Additionally, research has demonstrated that Metabolic Syndrome is independently and additively linked to higher depression scores, higher C-reactive protein levels, and decreased heart rate variability [72]. Epigenetics is the study of heritable changes in gene expression patterns that are not caused by differences in DNA sequence [73]. The main epigenetic signatures studied in the medical sciences include DNA methylation (DNAm), histone modifications (acetylation/methylation), and long non-coding RNAs such as microRNA (miRNA) expressions [74]. A growing body of research has elucidated the significance of aberrant epigenetic processes in the development of metabolic disorders, including oxidative stress, insulin resistance, glucose intolerance, dyslipidaemia, hyperinflammation, and high blood pressure [75]. The field of epigenetics examines how a person's lifestyle choices chemically alter genetic sequences and instructions for gene expression through DNA methylation without altering the genetic coding [76,77]. An illustration of the long-term effects of nutrition on epigenetics is the 1944 Dutch hunger winter. The Dutch ladies and their babies suffered from acute undernutrition during the six months of their pregnancies. Half a century later, children and grandchildren had twice the incidence of cardiovascular, metabolic, and cancer problems [78].

Limitations of the Study

This study explores the connection between heart intelligence, the subconscious mind, and human bio-magnetic fields. However, there are several limitations that should be considered. First, one of the biggest challenges is the difficulty in measuring and observing how these three elements interact with each other. The ideas in this study are still at the initial stage, and current scientific tools and technology are not yet advanced enough to fully study them in a clear and accurate way. Many of the effects discussed, such as the influence of heart energy on emotions or the subconscious mind, happen on a very subtle level and may not be easily detected using normal research methods.

Second, some people in the scientific community may not fully accept these ideas yet. Concepts like heart intelligence and energy fields are still considered new or even controversial in mainstream science. Because of this, it may be hard to get full support or agreement from all researchers. This may also slow down progress in doing deeper research on this topic.

Third, the topic of this study is highly interdisciplinary, which means it involves different fields like neuroscience, psychology, engineering, and alternative medicine. Each of these areas has its own theories, methods, and language. So, combining all this knowledge into one unified research framework is very difficult. It becomes a challenge to find common ground that all researchers can agree on.

Lastly, since there are not many studies yet in this area, especially ones using large numbers of participants or long-term data, it is still hard to make strong conclusions. More research is needed to test the ideas and confirm the findings. These limitations show that while the topic is interesting and important, it is still in an early stage and needs more support from both science and technology to grow further.

RECOMMENDATIONS

To improve future research in this area, several steps can be taken. First, there is a need to create more advanced tools and technology that can help researchers measure the heart’s electromagnetic field and study how it connects with emotions and the subconscious mind. Right now, most tools are made for general medical

use, so they may not be sensitive enough to detect the small changes that happen in heart energy or emotional states.

Second, future studies should involve experts from different fields. For example, bringing together researchers from psychology, neuroscience, physics, and alternative medicine can help build a more complete understanding of how these systems work together. When people from different areas share ideas and methods, it becomes easier to develop stronger research designs and frameworks.

Third, future research should include larger groups of people and take place over longer periods of time. Many existing studies in this area are small or done in a short time. With more participants and long-term observations, the results can be more accurate and useful. This also helps to prove that the theories are reliable.

Lastly, it is important to raise awareness about this topic. Many people, including scientists, may not know much about heart intelligence or bio-magnetic fields. Sharing knowledge through talks, workshops, or public education can help more people understand and accept these ideas. When more people become interested, there will be more support for future studies. These recommendations aim to make future research more effective, more accepted, and more helpful to both science and society.

CONCLUSION

In this review, we presented an overview of human experience through the interconnection of the heart intelligence, subconscious mind and bio-magnetic fields as they connect to the pulse of emotions. By combining these elements, we may better understand the intricate relationships within the human psyche and make novel discoveries that affect every aspect of life, from psychology to overall well-being. Heart rate variability (HRV) is significantly impacted by emotions because they alter the balance between the sympathetic and parasympathetic nervous systems.

When you maintain and sustain elevated emotional states, regardless of the circumstances of your external environment, you have the ability to access the type of high-level intuition that helps you better understand yourself and others, prevent stressful patterns in your life, improve mental clarity, and make better decisions [79]. Church and his colleagues' data from 2022 strongly suggest that continuous heart-centred emotions promote better gene expression, which is in line with the findings of HMI's research [80].

Resilience, defined by HMI as "the capacity to prepare for, recover from, and adapt in the face of stress, adversity, trauma, or challenge," is essential to our ability to manage stress [81]. Both emotional regulation and resilience are essential for many vital physiological functions that organise energy, the body's recovery time from stress, and our capacity to preserve health and equilibrium [82]. Through its influence on the autonomic nervous system, the heart plays a critical role in controlling emotions. An important indicator of this modulation is heart rate variability (HRV), since higher HRV is associated with better emotional stability, resilience, and a happy life path [83].

Amusement and other positive emotions increase HRV and parasympathetic activity, both of which promote general health and wellbeing holistically. On the other hand, negative emotions and insufficient emotion regulation can weaken HRV, an indication of stress and poor cardiovascular health. Understanding these relationships offers helpful insights into how physiological and emotional processes are intertwined. It highlights how important it is to use efficient techniques for managing emotions in order to maintain autonomic health and general wellbeing [83].

This preliminary literature review recommends conducting more in-depth research to develop framework for a contented and holistic well-being. In summary, instead of expanding more research into emotional intelligence, more attention and focus is needed in the area of heart intelligence in connection with emotions per say and subconscious mind and its impact on the shrinking or enlarging of the bio-magnetic field. And how a weakening bio-magnetic field is a broad invitation for a host of unwelcome assaults on one's physical, mental, emotional and spiritual well-being. Some of the most promising research in this area are biological dimensions of transcendent states, the heart coherence, heart intelligence and intuition, and effect of emotions on HRV.

Future research should concurrently concentrate on (1) stress and elevated emotions; (2) heart coherence and health improvement; (3) HRV, heart intelligence, and subconscious mind; (4) elevated emotions and epigenetic marks; (5) heart coherence, subconscious mind, and altering epigenetic marks; (6) enhanced heart intelligence through elevated emotions; and (7) expanding bio-magnetic and impact on HRV. All aspects considered, the identification of bio-magnetic signals emitted by humans create new possibilities for holistic non-contact monitoring, prognostics, and diagnostics in contexts other than clinical healthcare.

REFERENCES

1. Fredrickson, B. L. (1998). What good are positive emotions? Review of general psychology, 2(3), 300-319.
2. Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. American psychologist, 56(3), 218.
3. Ortony, A., Clore, G. L., & Collins, A. (2022). The cognitive structure of emotions. Cambridge University Press.
4. Ekman, P. (1992). An argument for basic emotions. Cognition & emotion, 6(3-4), 169-200.
5. Newmark, C. (2022). Charles Darwin: the expression of the emotions in man and animals. In Schlüsselwerke der Emotionssoziologie (pp. 111-115). Wiesbaden: Springer Fachmedien Wiesbaden.
6. Zhu, K., & Kiourti, A. (2022). A review of magnetic field emissions from the human body: Sources, sensors, and uses. IEEE Open Journal of Antennas and Propagation, 3, 732-744.
7. Seto, A., Kusaka, C., Nakazato, S., Sato, T., Hisamitsu, T., & Takeshige, C. (1992). Detection of extraordinary large bio-magnetic field strength from human hand during external Qi emission. Acupuncture & electro-therapeutics research, 17(2), 75-94.
8. Hyunsook, L. E. E. (2020). Effect of Pulsed Magnetic Field Stimulation of Bio-Conductance Response on The Human Meridian Circulatory System.
9. Duval, A., Nogueira, D., Dissler, N., Maskani Filali, M., Delestro Matos, F., Chansel-Debordeaux, L., ... & Boussommier-Calleja, A. (2023). A hybrid artificial intelligence model leverages multi-centric clinical data to improve fetal heart rate pregnancy prediction across time-lapse systems. Human Reproduction, 38(4), 596-608.
10. Reich, C., & Meder, B. (2023). The Heart and Artificial Intelligence—How Can We Improve Medicine Without Causing Harm. Current Heart Failure Reports, 20(4), 271-279.
11. Soper, G., Walsh, B., & Drendall, D. (2014). Aligning Heart Intelligence for Strategic Impact. Global Advances in Health and Medicine, 3(1_suppl), gahmj-2014.
12. Özata, C. (2021). Psychological Plane: Sigmund Freud's Subconscious Mind In Simon Stephens's "Bluebird". Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi Dergisi, 61(1), 557-582.
13. Kamble, P. (2021). Subconscious Mind & Paradigms. Available at SSRN 4418045.
14. Mulchandani, H. (2020). The Power of your Subconscious Mind. Journal of Development Research.
15. Das, K. K. (2021). Consciousness: And Its Relation with Subconscious Mind.
16. Priya, S. S., & Jain, D. (2021). The potentials of subconscious mind. Int. J. Sci. Res.
17. Critchley, H. D., Melmed, R. N., Featherstone, E., Mathias, C. J., & Dolan, R. J. (2002). Volitional control of autonomic arousal: a functional magnetic resonance study. Neuroimage, 16(4), 909-919.
18. Jacob, Y., Or-Borichev, A., Jackont, G., Lubianiker, N., & Hendler, T. (2018). Network based fMRI neuro-feedback for emotion regulation; proof-of-concept. In Complex Networks & Their Applications VI: Proceedings of Complex Networks 2017 (The Sixth International Conference on Complex Networks and Their Applications) (pp. 1250-1260). Springer International Publishing.
19. Perry, S. (2015). How the Electrical Activity and Synaptogenesis of Neurons Contribute to the Efficacy of Neurofeedback Therapy. Discussions, 11(1).
20. LIU, Y., MA, L., HUANG, F., LIU, Z., & ZHOU, Y. (2020). Progress in functional magnetic resonance imaging of emotion dysregulation due to traumatic brain injury. Chinese Journal of Behavioral Medicine and Brain Science, 189-192.
21. Venter, R. L. (2021). Effects Of Low Intensity Bio-Resonance Focused Ultrasound On Destroying Cancerous Cells: A Literature Review., Indo Am. J. P. Sci. 08(05).

22. Conversano, C. (2021). The psychodynamic approach during COVID-19 emotional crisis. Frontiers in Psychology, 12, 670196.
23. Knepp, M. M., Krafka, E. R., & Druzina, E. M. (2015). The impact of trait worry and emotion regulation on heart rate variability. Cogent Psychology, 2(1), 1038896.
24. Wu, Y., Gu, R., Yang, Q., & Luo, Y. J. (2019). How do amusement, anger and fear influence heart rate and heart rate variability?. Frontiers in neuroscience, 13, 490153.
25. Gillani, I., & Ferdoos, A. (2022). Heart Intelligence from Quran and Science: An Integrated Approach for the Evolution of Enlightened Self in the Society. International Research Journal on Islamic Studies (IRJIS), 4(1), 01-17.
26. Biały, D., Wawrzyńska, M., Bil-Lula, I., Krzywonos-Zawadzka, A., Sapa-Wojciechowska, A., Arkowski, J., ... & Sawicki, G. (2018). Low frequency electromagnetic field decreases ischemia–reperfusion injury of human cardiomyocytes and supports their metabolic function. Experimental Biology and Medicine, 243(10), 809-816.
27. Hofmann, N. P., Steuer, C., Voss, A., Erbel, C., Celik, S., Doesch, A., ... & Korosoglou, G. (2014). Comprehensive bio-imaging using myocardial perfusion reserve index during cardiac magnetic resonance imaging and high-sensitive troponin T for the prediction of outcomes in heart transplant recipients. American Journal of Transplantation, 14(11), 2607-2616.
28. George, I., Geddis, M. S., Lill, Z., Lin, H., Gomez, T., Blank, M., ... & Goodman, R. (2008). Myocardial function improved by electromagnetic field induction of stress protein hsp70. Journal of cellular physiology, 216(3), 816-823.
29. Vlachakis, C., Dragoumani, K., Raftopoulou, S., Mantaiou, M., Papageorgiou, L., Tsaniras, S. C., ... & Vlachakis, D. (2018). Human emotions on the onset of cardiovascular and small vessel related diseases. in vivo, 32(4), 859-870.
30. Fisher, J. (2022). A Cardiologist's Advice: Emotional Intelligence Can Protect Your Heart. CALM. Mindful. https://www.mindful.org/a-cardiologists-advice-emotional-intelligence-can-protect-your-heart/ [Accessed on 31 May 2024]
31. Kumar, D. M. (2016). Heart and Intelligence = Emotional Intelligence. Linkedin. https://www.linkedin.com/pulse/heart-intelligence-emotional-prof-dr-dileep-kumar-m- (Accessed on 31 May 2024)
32. Roth, B. J. (2023). Biomagnetism: the first sixty years. Sensors, 23(9), 4218.
33. McCraty, R. (2016). Exploring the role of the heart in human performance. Science of the Heart, 2, 70.
34. Tawanghar, A. (2023). The Heart's Toroidal Magnetic Field and its Deep Intelligence. LinkedIn. https://www.linkedin.com/pulse/hearts-toroidal-magnetic-field-its-deep-intelligence-art-tawanghar (Accessed on 31 May 2024)
35. Kitko, M. (2021). Understanding The Subconscious Mind. LinkedIn. https://www.linkedin.com/pulse/understanding-subconscious-mind-mike-kitko (Accessed on 31 May 2024)
36. Watanabe, N., & Haruno, M. (2015). Effects of subconscious and conscious emotions on human cue–reward association learning. Scientific reports, 5(1), 8478.
37. Anderson, M. R. (2020). The spiritual heart. Religions, 11(10), 506.
38. Alabdulgader A. The Ancient Wisdom at Intersection with Modern Cardiac Sciences. Cardiol Vasc Res. 2021; 4: 1-13.
39. McCraty, R., Atkinson, M., & Bradley, R. T. (2004). Electrophysiological evidence of intuition: Part 2. A system-wide process?. The Journal of Alternative & Complementary Medicine, 10(2), 325-336.
40. McCraty, R., & Zayas, M. (2014). Intuitive intelligence, self-regulation, and lifting consciousness. Global advances in health and medicine, 3(2), 56-65.
41. Al Abdulgader, A. A. (2020). Human consciousness: the role of cerebral and cerebellar cortex, vagal afferents, and beyond. In Cerebral and Cerebellar Cortex–Interaction and Dynamics in Health and Disease. IntechOpen.
42. Abdullah, A. A. Human Consciousness: The Universal Heart Based Resonant Frequencies and the Massive ecosystems Hierarchy. 9 (2): 2020. ANN. MS. ID, 709.
43. McCraty, R., Barrios-Choplin, B., Rozman, D., Atkinson, M., & Watkins, A. D. (1998). The impact of a new emotional self-management program on stress, emotions, heart rate variability, DHEA and cortisol. Integrative Physiological and Behavioral Science, 33, 151-170.

44. McDonough-Means, S. I., Kreitzer, M. J., & Bell, I. R. (2004). Fostering a healing presence and investigating its mediators. Journal of Alternative & Complementary Medicine, 10(Supplement 1), S-25.
45. Díaz-Rodríguez, L., Arroyo-Morales, M., Fernández-de-Las-Peñas, C., García-Lafuente, F., García-Royo, C., & Tomás-Rojas, I. (2011). Immediate effects of reiki on heart rate variability, cortisol levels, and body temperature in health care professionals with burnout. Biological Research for Nursing, 13(4), 376-382.
46. Edwards, D. J., Young, H., Curtis, A., & Johnston, R. (2018). The immediate effect of therapeutic touch and deep touch pressure on range of motion, interoceptive accuracy and heart rate variability: a randomized controlled trial with moderation analysis. Frontiers in integrative neuroscience, 12, 41.
47. Lee, H., Kim, T. H., & Leem, J. (2016). Acupuncture for heart failure: A systematic review of clinical studies. International Journal of Cardiology, 222, 321-331.
48. McCraty, R., & Rees, R. A. (2009). The central role of the heart in generating and sustaining positive emotions. Oxford handbook of positive psychology, 527-536.
49. Frysinger, R. C., & Harper, R. M. (1990). Cardiac and respiratory correlations with unit discharge in epileptic human temporal lobe. Epilepsia, 31(2), 162-171.
50. Porges, S. W. (2007). The polyvagal perspective. Biological psychology, 74(2), 116-143.
51. Sandman, C. A., B. B.Walker, and C. Berka. 1982. Influence of Afferent Cardiovascular Feedback on Behavior and the Cortical Evoked Potential. In Perspectives in Cardiovascular Psychophysiology. New York: The Guilford Press.
52. Suess, P. E., Porges, S. W., & Plude, D. J. (1994). Cardiac vagal tone and sustained attention in school-age children. Psychophysiology, 31(1), 17-22.
53. Cameron, O. G. (2001). Visceral sensory neuroscience: Interoception. Oxford University Press.
54. Garfinkel, S. N., & Critchley, H. D. (2016). Threat and the body: how the heart supports fear processing. Trends in cognitive sciences, 20(1), 34-46.
55. Gray, M. A., Beacher, F. D., Minati, L., Nagai, Y., Kemp, A. H., Harrison, N. A., & Critchley, H. D. (2012). Emotional appraisal is influenced by cardiac afferent information. Emotion, 12(1), 180.
56. Zhang, J. X., Harper, R. M., & Frysinger, R. C. (1986). Respiratory modulation of neuronal discharge in the central nucleus of the amygdala during sleep and waking states. Experimental Neurology, 91(1), 193-207.
57. Fredrickson, B. L. (2013). Positive emotions broaden and build. In Advances in experimental social psychology (Vol. 47, pp. 1-53). Academic Press.
58. Smith, Bruce W., J. Alexis Ortiz, Kathryn T. Wiggins, Jennifer F. Bernard, and Jeanne Dalen. 2012. Spirituality, Resilience, and Positive Emotions. In The Oxford Hanbook of Psychology and Spirituality. Edited by Lisa J. Miller. New York: Oxford University Press, pp. 437–54.
59. McCraty, R., & Tomasino, D. (2006). Emotional stress, positive emotions, and psychophysiological coherence. Stress in health and disease, 342-365.
60. Childre, D., & McCraty, R. (2001). Psychophysiological correlates of spiritual experience. Biofeedback, 29(4), 13-17.
61. McCraty, R., Atkinson, M., & Bradley, R. T. (2004). Electrophysiological evidence of intuition: Part 1. The surprising role of the heart. The Journal of Alternative & Complementary Medicine, 10(1), 133-143.
62. Thayer, J. F., & Ruiz-Padial, E. (2006, April). Neurovisceral integration, emotions and health: An update. In International Congress Series (Vol. 1287, pp. 122-127). Elsevier.
63. Miller, L. (2015). The Spiritual Child: The New Science on Parenting for Health and Lifelong Thriving. St. Martin's Press.
64. Zahran, S. K. (2019). A Perspective on Human Psychical Ability Nature Part One: Human Sensation and Perception to Invisible Reality. American International Journal of Humanities and Social Science, 5(1), 21-28.
65. Zhang, C.L. Acupuncture system and electromagnetic standing wave inside body (in Chinese). Journal of Nature 17 (1995): 275-281.
66. Zhang, C.L. Standing wave, meridians, and collaterals, coherent electromagnetic field and holistic thinking in Chinese Traditional Medicine (in Chinese). Journal of Yunnan College of Traditional Medicine 19 (1996): 27-30

67. McCraty, R., Atkinson, M., & Bradley, R. T. (2004). Electrophysiological evidence of intuition: Part 1. The surprising role of the heart. Journal of Alternative and Complementary Medicine, 10 (1):133- 143
68. Martin, H. "Discover the Ultimate Power of Your Heart," www.finerminds.com/consciousness (link is external) awareness/power-of-your-heart/.
69. Song, L. Z., Schwartz, G. E., & Russek, L. G. (1998). Heart-focused attention and heart-brain synchronization: energetic and physiological mechanisms. Alternative therapies in health and medicine, 4(5), 44-52.
70. Pert, C. B. (2010). Molecules of emotion: The science behind mind-body medicine. Simon and Schuster.
71. Danese, A., & J Lewis, S. (2017). Psychoneuroimmunology of early-life stress: the hidden wounds of childhood trauma?. Neuropsychopharmacology, 42(1), 99-114.
72. Chen, Y. J., Lin, C. L., Li, C. R., Huang, S. M., Chan, J. Y. H., Fang, W. H., & Chen, W. L. (2016). Associations among integrated psychoneuroimmunological factors and metabolic syndrome. Psychoneuroendocrinology, 74, 342-349.
73. Hamilton, J. P. (2011). Epigenetics: principles and practice. Digestive diseases, 29(2), 130-135.
74. Zhang, L., Lu, Q., & Chang, C. (2020). Epigenetics in health and disease. Epigenetics in allergy and autoimmunity, 3-55.
75. Wu, Y. L., Lin, Z. J., Li, C. C., Lin, X., Shan, S. K., Guo, B., ... & Li, Z. H. (2023). Epigenetic regulation in metabolic diseases: mechanisms and advances in clinical study. Signal Transduction and Targeted Therapy, 8(1), 98.
76. Bird, A. (2007). Perceptions of epigenetics. Nature, 447(7143).
77. Burdge, G. C., & Lillycrop, K. A. (2010). Nutrition, epigenetics, and developmental plasticity: implications for understanding human disease. Annual review of nutrition, 30(1), 315-339.
78. Jang, H., & Serra, C. (2014). Nutrition, epigenetics, and diseases. Clinical nutrition research, 3(1), 1-8..
79. HeartMath Institute, "The Heart's Intuitive Intelligence: A Path to Personal, Social and Global Coherence," https://www.youtube.com/watch?v=QdneZ4fIIHE (April 2024).
80. Church, D., Yang, A., Fannin, J., & Blickheuser, K. (2022). The biological dimensions of transcendent states: A randomized controlled trial. Frontiers in Psychology, 13, 928123.
81. McCraty, R., & Atkinson, M. (2012). Resilience training program reduces physiological and psychological stress in police officers. Global advances in health and medicine, 1(5), 44-66.
82. Dispenza, J. (2019). Becoming supernatural: How common people are doing the uncommon. Hay House, Inc
83. Mather, M., & Thayer, J. F. (2018). How heart rate variability affects emotion regulation brain networks. Current opinion in behavioral sciences, 19, 98-104.