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Justifying Biofield (Aura) Studies as Complementary and Alternative Medicine (Cam)

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ABSTRACT

Human biofield refers to the Electromagnetic (EM) field emitted by the human body. This radiation is a very faint one. This paper studies the various instruments used for its detection, i.e., Dipole Antenna, Lecher Antenna and Frequency Wave Detector (FWD). After establishing FWD as better method of EM radiation measurement, the best configuration of measurement using a FWD is studied. The study is concluded by reviewing EM distribution throughout the human body and previous studies in the Biofield domain is carried out. Reviewing all these factors highlight the capabilities of using human biofield as a complementary and alternative medicine (CAM).

Keywords
Biofield, Aura, Electromagnetic, Frequency

INTRODUCTION

Human body involves physiological and biological interactions within itself and with its surroundings. This leads to exchange in energies amidst environment and humans. This biochemical exchange of energies is termed as 'biofield' [1][2][3]. Further analysis shows the presence of Electromagnetic (EM) field. This radiation is also called aura [4]. These EM radiations are present in different characteristic frequencies and independent intensities [5][6]. Such EM radiations show the presence of electric currents in our bodies. There is a huge scope of use cases for biofield in various medical fields which have been studied in the subsequent sections. It enables us to perceive humans' spiritual, mental and physical states in a more visual manner [7].

ELECTROMAGNETIC ASPECT OF BIOFIELD

The generation of EM fields by the human body requires detailed study of the EM field. There are two categories of EM fields, the first one is high frequency oscillating and coherent EM field and the other one has two aspects: the Frolich field, and the Popp photon field. The Frolich field is a microwave to MHz to a lower frequency range coherence. The second one is visible/near ultra-violet/infrared diffuse fields. The Frolich field has been observed but at lesser frequencies than predicted. The pop field is supported by observations of the statistical coherence of biophotons. Our current examination of biofields proves the need to go beyond classical physics and biology. EMFs or quantum and quantum-like processes [8] and other coherent states may be the carriers of biofields.

INSTRUMENTS USED FOR MEASURING BIOFEILD

The EM field consists of two components, namely the electrical and magnetic parts. It is accompanied by a self-propagating wave. The wave is periodic in fashion and thus has its own

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characteristic frequency, amplitude and wavelength. For the purposes of this study, we need to measure most importantly the frequency of EM wave. The three most common devices used for measuring EM frequencies of biofield radiation are, Dipole Antenna, Lecher Antenna and Frequency Wave Detector.

Dipole Antenna

A dipole antenna is the most widely used antenna class. They can be used on their own, and as a part of some other antenna class as well. They can be used in broadcasting, radio communication and in many similar fields.

In ultra-high field MRI, dipole antenna has many advantages over conventional designs. The fractionated dipole antenna is now being used; it is a new device that is used for body imaging at 7 Tesla. In this antenna, the legs of the dipole are split into segments, interconnected by inductors or capacitors [9].

A study has been done on the length of dipole antenna using numerical simulations. In this study, an optimal design has been developed and compared with the previous design, the single side adapted dipole (SSAD).

Lecher Antenna

The lecher antenna is an advanced electronic instrument used for manual measurements in the biofield domain. It allows the use of the biological sensitivity of a man to measure even the most subtle electromagnetic biofields.

During the last forty years, the antenna enabled to discover both the presence of biologically interesting natural electromagnetic fields and the specific vital frequencies nourishing and spread by each human organ [10]. A skilled operator with the antenna can measure accurately their intensity on each polarity separately, obtaining in this way the best information about the biological effects of electromagnetism on the vital processes. With this instrument, electromagnetic field surrounding the human body could be detected.

Frequency Wave Detector

The frequency wave detector is commonly used for the purposes of EM radiation detection of human aura. The human body releases EM radiation which can be easily picked up by the detector [5]. It is a hand-held device which is equipped with a specially tuned antenna and is used as a frequency meter [11].

The tuning is done such that an accurate reading as well as a real-time reading of the aura frequencies at the testing points. Due to the weak nature of aura signals, the frequency wave detector is retrofitted with a highly sensitive synchronous detector and a filter module which is able to block out random noise [11]. It operates in the Gigahertz and Megahertz frequency range. Several studies were conducted using the above-mentioned instrument where the study was conducted in the Gigahertz range for the purposes of frequency measurement [12].

One of the first studies that is reviewed was conducted by Kadir, R. S. S. A., et al. It involved a total of 115 patients who were a part of the National Stroke Association of Malaysia (NASAM) [13]. A total of 16 measurements is taken from the left and right side of the body. The second study reviewed which uses a frequency wave detector involved 41 participants. Out of the forty-one participants, there were a total of thirty-one patients ailing from kidney diseases and the rest were non-kidney disease patients. For the patients with kidney diseases, the measurements were taken twice, before and after the hemo-dialysis. For maintaining accuracy, three readings were taken at each point [14]. The third study which was reviewed, involved taking measurements on

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16 points around the human body. There are eight points of measurement, each on the left-side and right-side. Data is also collected from the seven points of the chakra system [15].

Configuration of frequency wave detector

To obtain the proper configuration for measurement of biofield frequencies from an electromagnetic detector, A. Jalil et Al. conducted a study [12]. 10 healthy participants (5 male and 5 female volunteers) in the age group of 26-38 years took part in this study. The participants were placed in an air-conditioned room where they were made to stand in a comfortable spot. To avoid any discrepancies, background frequencies in ambient conditions were noted both after and before the measurements [16] and all the measurements taken from the participants were done at the same place. Measurements were taken from all the seven chakras.

The frequencies were noted at distances ranging from a centimeter to 10 centimeters at each point of measurement. Lengths of the antenna were adjusted from the first to the seventh segment. This selection was shortened to the length of the antenna being in the third, fifth and seventh segment, and a distance of 1 cm, 5 cm and 10 cm was chosen as they signify the lower, center and upper position of the setup. Boxplot analysis was done for the measurements satisfying these parameters.

From the measurements taken, males and females yielded 37 and 22 outliers respectively. Most of them were from distance of 10 cm and the antenna adjusted for the third and fifth segment. Though readings at 1 cm and 5 cm and antenna segments 5 and 7 provide more stable and reliable frequency reading. The lowest frequency standard deviation occurs at 1 cm and the highest occurs at 10 cm. In conclusion, measurements are best performed at distances of 1 cm and 5 cm with the antenna adjusted for the fifth and seventh segment. Thus, making body radiation wave detector a suitable option for detecting human biofield frequencies.

FREQUENCY DISTRIBUTION OF BIOFIELD IN HUMAN BODY

Based on a study conducted by A. Jalil et Al., where a total of 33 participants (17 male and 16 female participants) in the age group of 19-26 years took part. The measurements were taken at the seven chakra points sixteen other points on both the left and right side of the body. The experimental setup involved an anechoic chamber which was temperature-controlled chamber at 23 ± 2°C where the floor had a stationary ferrite stand. Movement of subject was limited. Background frequencies were measured prior to and after [16] the experiments were conducted for the purposes of generating usable data. All this was done for the purposes of reducing the effect of environmental frequencies.

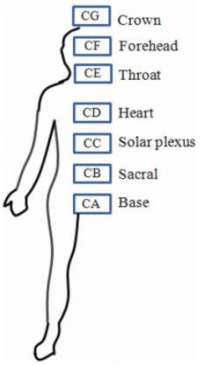

Fig. 1 Chakra positions

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The chakra positions of the human body are represented using Fig. 1. The first part of the study [11] involved analyzing human radiation frequency at the seven Chakra points and the abovementioned sixteen points. Boxplot analysis was made use of for this study. Fig. 2,3 and 4 displays distributions of biofield frequencies. Individual analysis of the data shows the frequency distribution of radiation at chakra, left and right side of the bodies of females and males differ. Males have higher frequency ranges than females in the left and right-side boxplot distributions. The maximum difference frequency distribution was observed at R6 and L6 for males and females with a difference of 33.58 MHz and 31.41 MHz respectively. The left side generates a 48% mean frequency distinction while the left side generated 52%.

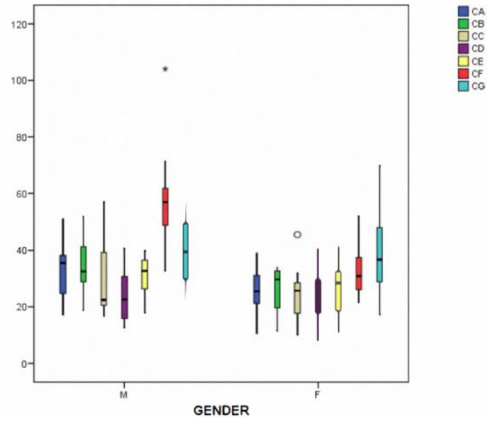

Fig. 2 Chakr a

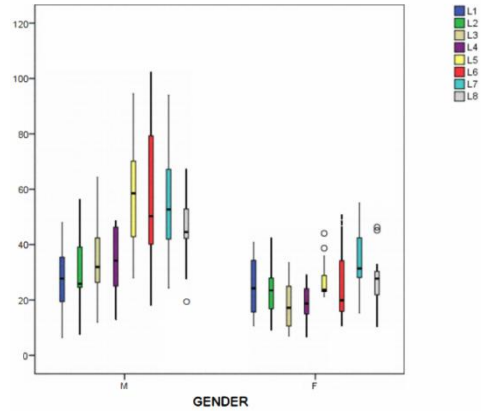

Fig. 3 Left side

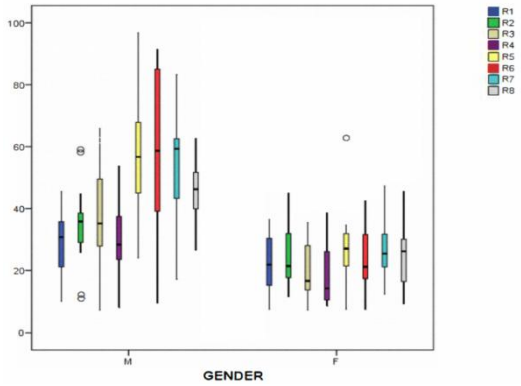

Fig. 4 Right side

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Furthermore, a scatterplot analysis was used to analyze the relationship of frequency distribution between females and males. Fig. 5,6 and 7 shows the non-overlapping data for all points of measurement between males and females. For almost all groups on the left and right side has moderate positive correlation, but the CG chakra group displays a curvilinear relationship. Fig. 8 and 9 displays for chakra groups its individual scatterplots for both males and females, this is done to establish the strength of relationship between the variables. Males as whole participant has moderate relationship, meanwhile for females it was a blob-type arrangement (weak linear relationship). The relationship between the chakra groups was found using the Pearson product moment correlation coefficient, which establishes linear correlation. An example of this in this study is the correlation factor between CD and CC for males and females which was r = 0.63 and ρ=0.007, and r = 0.15 and ρ=0.58 respectively.

Fig. 5 Chakra

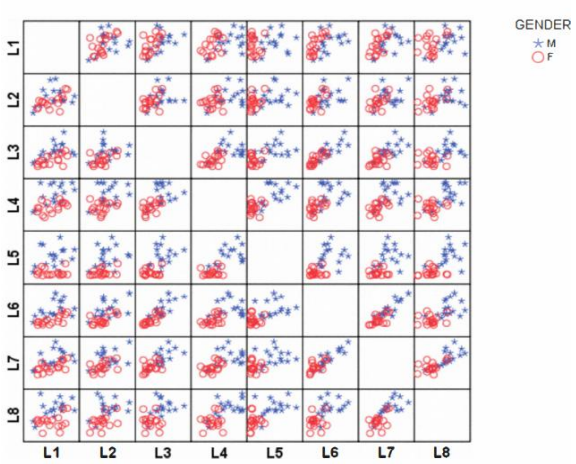

Fig. 6 Left side

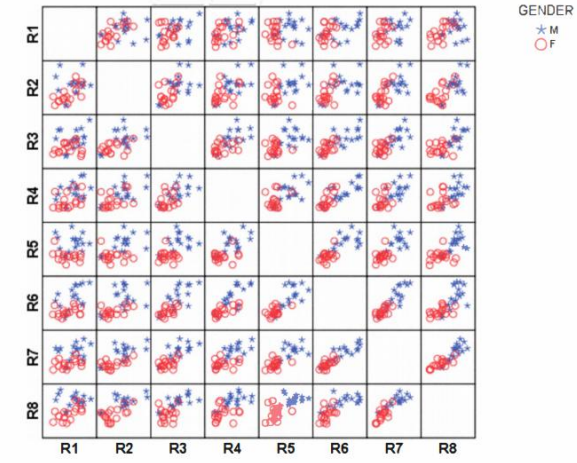

Fig. 7 Right side

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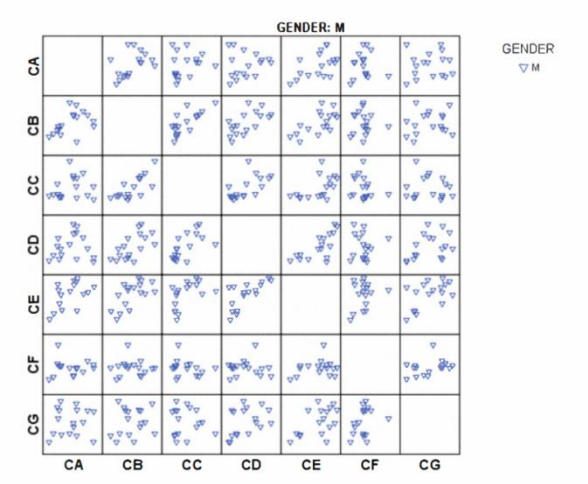

Fig. 8 Male

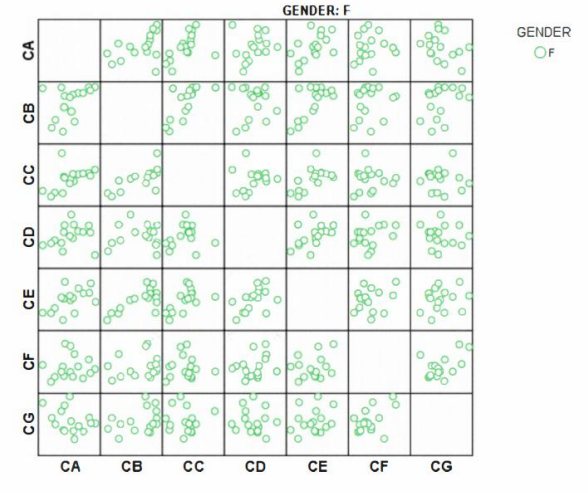

Fig. 9 Female

Thus, males are seen having higher frequencies ranges of biofield than females and, males and females have a difference relationship of frequency emission.

TABLE 1: prior studies on biofeild

References	Number of Applicants	Medical Studies
Alexandrova et al. (2003a) [17]	247 out of the 303 total participants were observed to suffer from bronchial asthma, the remaining 56 patients were healthy.	Bronchial asthma patients participated in experimental analysis.
Gimbut et al. (2004) [18]	The number of applicants in this analysis was 20.	Experimental analysis was done on factors responsible for uterus imbalance.
Alexandrova et al. (2003c) [19]	The number of applicants in this analysis was 43. 23 out of 43 were seen to be having allergic reactions and the remaining 20 were healthy.	Allergic reaction risk was calculated using experimental analysis.

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References	Number of Applicants	Medical Studies
Gedevanishvili et al. (2004) [20]	The number of applicants in this analysis was 57. 22 out of the 57 were suffering from lung cancer and the remaining 35 are suffering from breast cancer.	Patients suffering from breast and lung cancer undergoing radiotherapy treatment participated in experimental analysis for their optimal assessment.
Alexandrova et al. (2003b) [21]	The number of applicants in this analysis was 87. 30 out of the 87 were suffering from chronic viral hepatitis while 25 out of 87 were ailing from chole-lithiasis and the remaining 32 out of 87 are ailing with primary Biliary dyskinesia.	Patients suffering from Chronic viral hepatitis undergoes experimental analysis.
Gagua et al. (2004) [22]	The number of applicants in this analysis was 347. 249 out of 347 were cancer patients and rest were in the control group.	The state of a cancer patient is determined using experimental analysis.
Krashenuk et al. (2006) [23]	The number of applicants in this analysis was 21.	Experimental analysis of monitoring the therapeutic effect.
Gagua et al. (2004) [22]	The number of applicants in this analysis was 347. 109 out of the 347 were suffering from lung cancer while 140 out of 347 were ailing from breast cancer and the remaining 98 were in the control group.	Statistical analysis is done on patients suffering from breast and lung cancer and healthy people by analyzing their biofield.

Table I lists the various studies that have been carried out in the domain of biofield analysis.

METHODS FOR BIOFEILD ANALYSIS

Based on the research efforts that have already been conducted in the Biofield domain, there are multiple methods to measure and analyze the biofield of a human or any living object for that matter:

- BiopulsarReflexograph.
- Aura color space visualizer algorithm.
- Quantum resonance magnetic (QRM) analyzer.

BiopulsarReflexograph

It is one of the most accurate ways of identifying problems with bodily functions and organs using aura/biofield as the method of measurement. Its main function is that of energy measurement of the human body which is done by generating results in the form of activities of chakras and various graphs of the organs. It also generates the aura image of the entire body.
Different organs of our body, consciousness, subtle energy centers, and meridians have a connection to the different reflex-zones (certain parts of hands). The Biopulsarreflexograph method makes use of this concept and then takes energy readings from each reflex zone. The

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frequencies of the energy readings are then represented using various color codes. This helps in visualizing the human biofield/aura.
The instruments involved in this method are useful for giving an overall preview of a human's health on the basis of its built-in software. These readings provide the energy readings of the chakras along with a list of organs that are associated with each chakra. Graphical representation of every organ's energy level is provided by the built-in software functionality. These are then compared to threshold values already mentioned in the software. If the result is lower than the threshold value, it is an indication of present or is a future prediction of illness that might occur within that region (organ).
Comparing these results to already available traditional medical reports one can observe high accuracy of about 85% [24].

Aura color space visualizer algorithm

The electromagnetic radiation emitted from the human aura lies outside the visible range, hence to observe such results we need to method to represent aura in a human interpretable form which will help in analyzing results and also to observe patterns [25].
One way of doing this is by using the aura color space visualizer algorithm which is an image-processing method used for the purposes of human bio-field detection.
Since aura isn't visible to the naked eye, we have to define a new color model. To satisfy this requirement, this algorithm maps the dominating pixel values with visible RGB values which makes it visible. This method is formally known as the pixel manipulation method.
The measurement setup to execute the given method is relatively cheaper as its major components of expenditure are only the camera, software, and a light source. The accuracy of this method has been calculated as a percentage of the number of correct results to total records. After studies carried out by [24]they received 63% accuracy based on their study carried out in static laboratory environments.
Barring the advantages of using this method, we have a few disadvantages too, one is a limitation of being incapable of providing precise results and the lack of a standard scale of measurement [24].
The future scope of improvements lies in applying several image processing techniques such as image enhancement and transformation techniques for obtaining better results.

Quantum Resonance Magnetic Analyzer

The health condition of a person can be also determined through the emission of the EM waves of the human body using a QRM analyzer.
QRM analyzer analyses the health condition of a human body by measuring the EM radiations from the human body. It both measures and analyses the radiations. These radiations are emitted during cell regeneration.
The QRM analyzer used by Chhabra et al. in their studies [24], analyses 36 parameters in 60 seconds. It also has amplification techniques that are built-in along with a microprocessor that calculates input signals to a standard quantum spectrum. The microprocessor makes use of the Fourier series and can thus identify over 30 different functionalities of the human body such as liver, kidney, brain, etc.
The level of condition is represented by a color scale where; red - very low, yellow – low, blue – tolerated and green – well.

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CONCLUSION

This paper has successfully studied the various methods of biofield detection, and also established the best configuration for human biofield using FWD based on previous studies. These involved boxplot analyses based on several sets of measurements. Future studies can be done in the field of biofield making use machine learning, such that greater datasets can be analysed at ease and more conclusive studies can be done such that we can use biofield as a complementary and alternative medicine.

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