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T-Consciousness Fields and their Effect on the Brain and Nervous System

Mohammad Ali Taheri
Originator of T-Consciousness Theory

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Editorial

T-Consciousness Fields and their Effect on the Brain and Nervous System

Mohammad Ali Taheri
Founder of T-Consciousness Theory



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Numerous efforts have been made across various scientific fields to gain an understanding of the nature of consciousness, its place, and its function in human beings. Nevertheless, arriving at a single, universally accepted definition remains difficult.

According to the T-Consciousness[1] viewpoint, in addition to matter and energy, the cosmos consists of a third element called *T-Consciousness*, which has a non-frequency-based nature. It is also proposed that there are T-Consciousness Fields with various functions that are subsets of the Cosmic Consciousness Network, and that their effects are initiated through a brief, instantaneous attention through the mind of the Announcer (*Faradarmangar*[2]).

It is possible to design a variety of experiments to record the effects of T-Consciousness Fields. Therefore, although T-Consciousness cannot be measured directly with quantitative instruments because of its non-physical nature, the testability of these fields has provided a valuable opportunity for research in this area. This approach, which investigates and records the effects of T-Consciousness Fields through scientific testing, was named *Sciencefact* in 2020.

One type of T-Consciousness Field is known as *Faradarmani*, which has been introduced as a complementary medicine. In this issue, the effects of Faradarmani on Alzheimer's disease were examined using animal and cellular models. In addition, three studies focusing on the human brain were conducted using EEG and fMRI methods, and finally, changes in human heart rate variability under the influence of the Faradarmani Consciousness Field were recorded and reported.

According to the results obtained, the application of this field produced changes in comparison with the control samples. Based on the T-Consciousness theory, since no material or energy intervention is involved in the application of T-Consciousness Fields, the changes observed are attributed to the information transmitted through these fields.

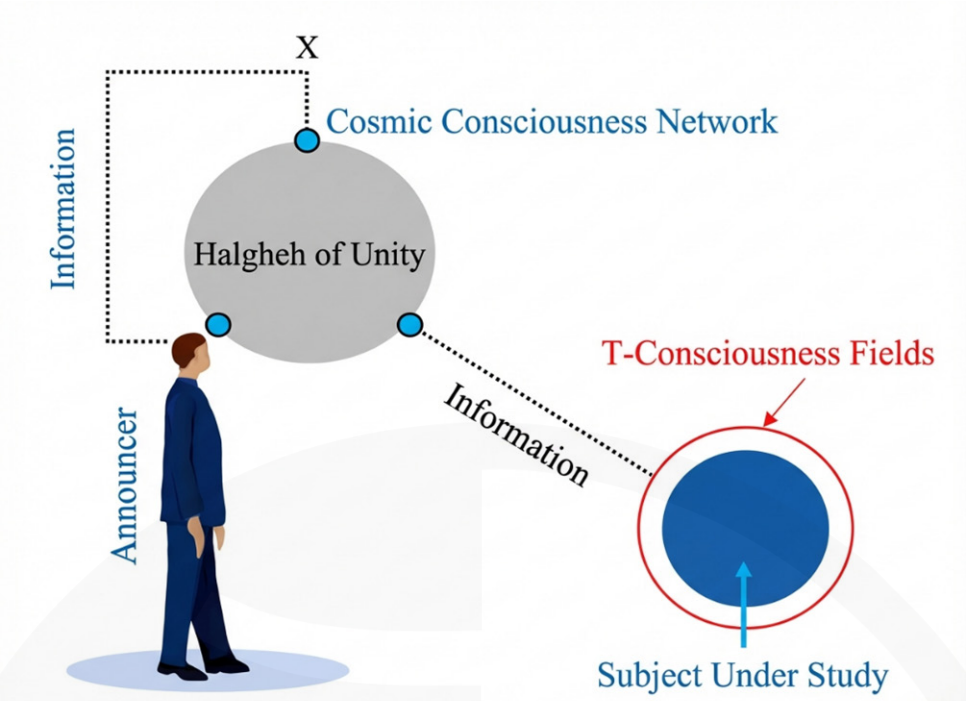
To explain further, the brain and the structure of nerve cells can be compared to the hardware of a computer, which requires specific software programs in order to function properly. This software component and its associated programs are regarded as the *mind*. Accordingly, it is proposed that

1 *T-Consciousness* is named after its founder, Mohammad Ali Taheri. The 'T' in T-Consciousness directly stands for Taheri, the theorist who introduced this concept. T-Consciousness is one of the three fundamental constituent components of the Cosmos, existing alongside matter and energy. It is defined as 'non-material and non-energy.' 'T-Consciousness' differs sharply from the conventional notion of consciousness.

2 Faradarmani Practitioner

upon receiving information from T-Consciousness Fields, the mind may process this information and influence the activity of nerve cells.

The studies presented in this issue provide evidence of such an effect. It should be noted that the researchers at Cosmointel plan to continue these investigations with larger population groups and to examine changes in brain metabolites as part of their future research agenda.



A schematic on applying T-Consciousness Fields (TCFs). The effect of TCFs begins with connecting to the Cosmic Consciousness Network (CCN) and through the Faradarmangar (announcer). Variable T-Consciousness Fields are a subset of CCN, and by applying each TCF, specific information is transmitted. In this way, the subject of study, which can be living or non-living creatures, is exposed to this information. It should be noted that TCFs and the information do not have a material or energetic nature; therefore, they cannot be measured directly and quantitatively. However, it is possible to record and examine their effects by designing different experiments. For this purpose, the behavior or indicators measured by the researchers in the subject under study after being exposed to the TCFs are compared with the control samples (without the effect of TCFs), and the results are reported after statistical analysis.

1. Considerations of this issue

1. Common introduction

1.1 T-Consciousness and the New Science of Sciencefact

In the past few decades, the nature of Consciousness and its place in science has received much attention. Many philosophical and scientific theories have been presented in this field. In the 1980s, Mohammad Ali Taheri introduced new fields of non-material and non-energy nature, which are called T-Consciousness Fields (TCFs). In this view, T-Consciousness along with matter and energy are the three main elements of the universe and it is different from the other two elements. According to this theory, there are various TCFs with different functions that are a subset of the Cosmic Internet Network called the Cosmic Consciousness Network (CCN).

The main difference between the theory of T-Consciousness Fields and other theoretical concepts presented in relation to consciousness is the application and practical use of TCFs. These fields can be applied to all living and non-living organisms, such as plants, animals, microorganisms, materials, etc. The new science of Sciencefact was introduced in 2020 by Mohammad Ali Taheri, the founder of the Erfan-e-Keyhani-e-Halgheh school, as one of the subgroups of this school. The name "Sciencefact" was chosen because it uses scientific research to confirm the existence of T-Consciousness as a "fact". Although common science only considers the study of matter and energy, Sciencefact investigates the effects of T-Consciousness Fields (non-material and non-energetic) on matter and energy and all their manifestations (such as humans, animals, plants, microorganisms, cells, materials, etc.). By conducting repeatable laboratory research in various fields of science, Sciencefact has emerged as a common ground between them and uses this capability to investigate "T-Consciousness" and "T-Consciousness Fields" resulting from it.

The influence of the T-Consciousness Fields begins with the connection (Etesal) between the Cosmic Consciousness Network as the Whole Consciousness and the studied subject as a component. The connection is established by the mind of the Faradarmangar (a person who has been trained and assigned the T-Consciousness Fields). The human mind has the role of an intermediary (announcer) that acts with short and immediate attention to the subject of study, and the main achievement is achieved as a result of the effects of the T-Consciousness Fields. These fields cannot be directly measured by science, but their effects on various subjects can be investigated through repeatable experiments.

1-2 Methodology of T-Consciousness Fields Research

The research methodology in the study of T-Consciousness has been founded on the process of *Assumption, Argument, and Proof*, in which the basic Assumption is: The Cosmos was formed by a third element called T-Consciousness that is different from matter and energy.

The Argument: The existence of TCFs can be demonstrated by their effects on matter and energy (e.g., humans, animals, plants, microorganisms, cells, materials, etc.)

The Proof is the scientific verification of the effects of TCFs on matter and energy (according to the Argument) through various reproducible scientific experiments.

1-3 Study phases in Sciencefact

Accordingly, to investigate and verify the existence, effects and mechanisms of TCFs, the following five research phases (Phases

0 through 4), and the aims of each phase are outlined below.

Phase-0 studies aim to prove the existence of TCFs by observing their effects. The nature of T-Consciousness and what it is will not be addressed in this phase. Phase-1 explores the varied effects of different TCFs. Phase-2 examines the reason behind the varied effects of these fields. Phase-3 investigates the mechanism of TCFs effects on matter and energy. Finally, Phase-4 draws significant conclusions, particularly with regard to the *mind and memory of matter* and their relation to the T-Consciousness, etc.

1-4 Using T-Consciousness Fields

The samples under study were subjected to T-Consciousness Fields (TCF) according to the specified protocol on the website of Research Management on Consciousness Fields (www.cosmointel.com). The request for *Etesal* (connection) to the cosmic consciousness network to use TCF can be submitted through the Cosmointel website in the "Assign Announcement" section. This access is freely available to everyone. Researchers can register on this website anytime to experience TCFs and conduct research in this area. Detailed information about the experiment needs to be provided to the research center; for example, the number and name of samples and controls must be specified. These studies were conducted in a double-blind manner, where lab technicians were completely unaware of TCFs theory, and the Faradarmangar at the COSMOintel research center who established the consciousness bond was unaware of the details of the study. Double-blindness is a gold standard that is common in science experiments in the field of medicine and psychology, involving theoretical and practical testing.

Faradarmani Consciousness Field Suppresses Alzheimer's Disease Development in both *In Vitro* and *In Vivo* Models of the Disease

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Abstract

Alzheimer's disease is one of the most common causes of memory loss and imposes a substantial psychological and financial burden on societies worldwide. Therefore, there is a clear need for therapeutic strategies or treatments for this disease. The aim of this study was to investigate the effects of a novel non-pharmacological approach for the treatment of Alzheimer's disease based on the T-Consciousness Fields introduced by Mohammad Ali Taheri. This approach is proposed to act at the cellular and molecular levels. In this study, the effects of the Faradarmani Consciousness Field were evaluated in both an Alzheimer's disease mouse model (*in vivo*) and human neuronal cells (*in vitro*). For this purpose, human neuronal cell cultures and a traumatic brain injury (TBI) mouse model were used. Changes in amyloidopathy, tau protein content, microtubule aggregation, neuronal cell viability, and, finally, the behavior of TBI mice in the Elevated Plus Maze were assessed following Faradarmani treatment. According to the results obtained, treatment of human neuronal cells and the Alzheimer's disease mouse model with Faradarmani resulted in near-complete neuronal cell survival, elimination of amyloidopathy and tau protein accumulation, and significant behavioral improvement in TBI mice in the Elevated Plus Maze. Based on these findings, treatment with the Faradarmani Consciousness Field suppressed the progression of Alzheimer's disease in experimental models. Therefore, a human clinical study is proposed with the aim of introducing a new complementary medicine approach for the treatment of Alzheimer's disease.

Keywords: Alzheimer's disease, Faradarmani Consciousness Field, TBI, mouse model, neuronal cell model

Introduction

Memory loss associated with Alzheimer's disease is a major global health challenge in both industrialized and developing countries [1]. According to the World Health Organization, Alzheimer's disease and other forms of dementia were the seventh leading cause of death worldwide in 2019, and women accounted for 65% of these deaths [2]. Although various diseases can lead to dementia, Alzheimer's disease is the most common form among older adults and is estimated to account for 60–70% of all cases [3].

The disease begins years before the onset of clinical symptoms. Therefore, studies of preclinical Alzheimer's disease (AD) may provide valuable opportunities for therapeutic intervention [4]. Impairment of recent memory is typically the first symptom of AD and is sometimes accompanied by cognitive deficits such as changes in attention and problem-solving ability. As dementia progresses, other cognitive impairments, including language dysfunction, visuospatial difficulties, and loss of insight, frequently emerge [5]. These cognitive impairments are often accompanied by changes in personality and behavior, as well as mood disturbances such as irritability, impaired motivation and initiative, apathy, social withdrawal, and other related symptoms [6]. To manage these behavioral symptoms, psychological interventions, alternative therapies, and antidepressant treatments are commonly employed [7].

From a pathological perspective, AD is characterized by the progressive accumulation of amyloid-beta (Aβ) plaques and intracellular neurofibrillary tangles composed of hyperphosphorylated tau protein [8, 9, 10]. The accumulation of Aβ in the brain is considered a primary factor in the development of Alzheimer's disease [11]; therefore, the clearance of amyloid-beta peptides has become a potential target for Alzheimer's drug development [12].

Various enzymes are capable of degrading Aβ, including neprilysin and insulin-degrading enzymes. Moreover, reduced activity of Aβ-degrading enzymes can itself contribute to the development of Alzheimer's disease [13, 14]. The cysteine protease cathepsin B (Cat B) reduces the levels of amyloid-beta peptides, particularly Aβ1–42, through proteolytic cleavage [15]. In addition, it has been reported that the peripheral system has the potential to clear amyloid-beta from the brain and help prevent Alzheimer's disease [16].

As mentioned earlier, tau accumulation within senile plaques is another hallmark of Alzheimer's disease. Under healthy conditions, tau proteins are abundantly associated with microtubules and are responsible for maintaining their stability in axons [17]. Microtubules provide structural support for the axons of growing and developing neurons [18, 19]. However, hyperphosphorylated tau can dissociate from microtubules and lead to the formation of intracellular neurofibrillary tangles (NFTs) [20, 21].

The risk of dementia is higher in individuals with a history of traumatic brain injury (TBI) [22]. One study has shown that a history of TBI is associated with an earlier onset of Alzheimer's disease-related cognitive decline [23, 24]. The authors reported that cis p-tau increases in TBI patients following sports-related injuries and military combat, as well as in stressed mice and neurons, prior to the development of tauopathy. In that study, treatment of TBI mice with a cis antibody prevented the progression of tauopathy. Therefore, cis p-tau may serve as an early biomarker for diagnosis and treatment. Furthermore, the cis pT231-tau isoform has been identified as a central mediator of TBI and neurodegeneration. Accordingly, targeting cis pT231-tau may represent a promising candidate for immunotherapy in tau-related disorders, including Alzheimer's disease (AD) [25].

The loss of cholinergic function in the central nervous system contributes to dementia and cognitive decline, and has therefore been a major target of anti-Alzheimer’s medications. [26, 27]. Although drug therapies may temporarily improve symptoms, they are unable to slow or halt neuronal degeneration [28]. In the present study, the effects of the Faradarmani Consciousness Field (FCF) on cellular and animal models of Alzheimer’s disease were investigated. According to Taheri’s theory, T-Consciousness is a fundamental constituent of the Universe with a non-material and non-energy nature. This theory also introduces various T-Consciousness Fields (TCFs),

which are non-frequency-based fields whose effects are initiated through a brief and instantaneous attention directed toward the subject under study. It is hypothesized that the information transmitted through these fields may produce changes in treated samples compared with controls. It should be noted that the FCF has been proposed as a complementary medicine approach [29].

Previous studies have reported the effects of the FCF on spatial memory and avoidance behavior in rat models of Alzheimer's disease [30]. The findings showed that the FCF improved scopolamine-induced impairments in memory and learning in rats. In addition, significant 'improving-enhancing' effects were observed in their passive avoidance behavior. Other studies that have used this approach include investigations of changes in cancer cell growth [31], the examination of brain electrical activity during Faradarmani connection in Faradarmangars (Faradarmani practitioners)[32] ,and the ameliorative effects of the FCF on wheat plants exposed to salt stress [33].

Materials and Methods

Application of the Faradarmani Consciousness Field

Faradarmani Consciousness Field was applied to the samples in accordance with the protocol established by the Cosmointel Research Center[1]. Further details are provided in the Common Considerations section of this issue. In this study, the Faradarmani Consciousness Field was applied daily to the AD animal and cellular models throughout the duration of the respective assessments. All animal experiments were approved by the Institutional Animal Care and Use Committee of the Royan Institute (Tehran, Iran) and were in accordance with the NIH Guide for the Care and Use of Laboratory Animals.

Antibodies

The primary antibodies used in this study were cis pT231-tau mAbs (kindly provided by KPL, Harvard), β-actin mAb (Sigma, St. Louis, MO), Caspase-3 (Abcam, Cambridge, MA), Tau5 (Biosource, Camarillo, CA), and tau T22 oligomeric polyclonal antibodies (EMD Millipore, Billerica, MA).

Generation of Human Embryonic Neural Progenitor Cells (hESC-NPCs)

Induced pluripotent stem cells (iPSCs) derived from two late-onset Alzheimer's disease patients and two age-matched healthy controls were obtained from the Royan Cell Bank. These iPSCs had originally been generated from fibroblasts using Yamanaka factors. The iPSCs were subsequently differentiated into neural progenitor cells (NPCs). The neuronal induction medium consisted of DMEM/F12 medium (21331020 Gibco) supplemented with 5% knockout serum replacement (Gibco, 10828028), Glutamax (25030081 Gibco), MEM-NEAA (11140050 Gibco), 1% N2 supplement (17502048 Gibco), 3 µM SB431242 (13031 Cayman), 5 µM Dorsomorphin (04-0024 Stemgent), 3 µM CHIR99021 (04-0004-10 Stemgent), and 0.5 µM SAG (912545-86-9 Cayman).

Rosette-like structures were manually isolated seven days after induction. The NPCs were then replated onto tissue culture dishes coated with 1 mg/mL laminin and 15 mg/mL poly-L-ornithine (Sigma-Aldrich) and cultured in a neural expansion medium consisting of DMEM/F12 supplemented with 5% knockout serum replacement (KOSR), 1% non-essential amino acids, 2 mM L-glutamine, and 2% supplement (all from Invitrogen), 0.1 mM β-mercaptoethanol, 20 ng/mL basic fibroblast growth factor (bFGF; Royan Institute), 20 ng/mL epidermal growth factor (EGF; Sigma-Aldrich), and 0.2 mM ascorbic acid (Sigma-Aldrich). The culture medium was replaced every other day for seven days. Following neuronal differentiation, the expansion medium was replaced with a differentiation medium by removing bFGF and supplementing with hBDNF (PR-1113), hGDNF (PR-1107), and cAMP (Sigma, D0627) for 35 days. The differentiation process was monitored and confirmed by SOX2, PAX6, NESTIN, NCAM, GFAP, MAP2, GAD65, GABA, and S100 staining.

1. www.cosmointel.com

Nutrient Deprivation Stress

Under standard conditions, the culture medium was changed every four days according to the differentiation protocol. To induce starvation or nutrient deprivation stress, the medium was not replaced for 96 hours. Tauopathy was initially observed in the cell culture during this period, and after 96 hours of nutrient deprivation, sustained tauopathy was detected, consistent with previous findings [24].

Live/Dead Cell Assay

Cell viability was assessed using fluorescein diacetate (FDA) and propidium iodide (PI) double staining. Stock solutions of 20 µL FDA and 50 µL PI were diluted in 10 mL PBS [34]. Cells were first washed with cold PBS, then incubated with the FDA/PI solution. After 5 minutes of incubation at room temperature, samples were examined using a fluorescence microscope.

Cell Staining

Cells were collected at different time points and fixed with 4% paraformaldehyde (PFA) for 20 minutes in the dark. Samples were either observed directly under a microscope or processed for immunostaining. For further processing, cells were permeabilized with 0.2% Triton X-100 for 20 minutes and incubated overnight at 4°C with primary antibodies. Subsequently, samples were incubated for One hour at room temperature with Alexa Fluor 488- or 568-conjugated secondary antibodies. Imaging was performed using a Zeiss LSM 800 confocal microscope.

Traumatic Brain Injury (TBI)

Based on previous studies in this field, a mouse model of TBI was used [24]. A total of 18 male C57BL/6 mice (2–3 months of age) were obtained from the Royan Animal Facility and randomly assigned to injury or sham groups. Mice were anesthetized for 45 seconds using 4% isoflurane in a 70:30 air/oxygen mixture. The anesthetized animals were placed on a Kimwipe (Kimberly-Clark, Irving, TX) and positioned so that the head was directly under a hollow guide tube. The tail was gently restrained. A 45 g metal weight was used to deliver a blow to the posterior skull, inducing rapid rotation. This procedure resulted in a single severe traumatic brain injury (ssTBI, 60-inch height). Sham-injured mice were anesthetized but did not receive any brain injury. All mice recovered in room air conditions. Each animal remained under anesthesia for 45 seconds. Subsequent behavioral and histological assessments were performed in a blinded manner.

Immunohistochemistry

Following injury, mice were perfused with 4% PFA at different time points, and brains were collected for further analysis. Serial 8 µm coronal sections of both sham and injured brains were cut using a cryostat (Leica) and mounted onto slides.

Immunoblotting Analysis

Immunoblotting was performed as previously described [24]. Brain tissues or cultured cells were lysed in RIPA buffer (50 mM Tris-HCl, pH 7.4, 150 mM NaCl, 2 mM EDTA, 1% NP-40, 0.1% SDS, 0.5% sodium deoxycholate, 50 mM NaF) supplemented with protease and phosphatase inhibitors. Samples were mixed with SDS sample buffer, boiled, and loaded onto gels. Proteins were separated by polyacrylamide gel electrophoresis and transferred to PVDF membranes. Membranes were blocked with 5% milk in TBST (10 mM Tris-HCl, pH 7.6, 150 mM NaCl, 0.1% Tween 20) for 1 hour. Subsequently, membranes were incubated overnight at 4°C with primary antibodies diluted in 5% milk/TBST. After washing, membranes were incubated with HRP-conjugated secondary antibodies in 5% milk/TBST. Signals were detected using chemiluminescence (PerkinElmer, San Jose, CA). Membranes were washed six times with TBST between steps. Quantification of immunoblotting results was performed using Quantity One software (Bio-Rad).

Immunostaining Analysis

Immunofluorescent staining of mouse brain sections was performed as previously described [24]. Slides were treated with 0.3% hydrogen peroxide in 10

mM sodium citrate buffer (pH 6.0) and subjected to antigen retrieval by boiling. Sections were then incubated overnight at 4°C with primary antibodies. After washing, samples were incubated for 1 hour at room temperature with Alexa Fluor 488- or Alexa Fluor 568-conjugated secondary antibodies (Jackson ImmunoResearch, West Grove, PA). Slides were washed three times with TBS after each step and imaged using a Zeiss LSM 800 confocal microscope. Confocal laser settings were adjusted to eliminate fluorescence signals arising from secondary antibody–based autofluorescence in sections processed without primary antibodies.

Elevated Plus Maze

The elevated plus maze (EPM) test was used to assess anxiety-like behavior two months after injury. The maze consisted of two open arms and two closed arms (30 × 50 cm) arranged perpendicular to each other around a central platform (decision zone). The entire apparatus was elevated 100 cm above the floor. Mice were placed in the center of the maze facing a closed arm and allowed to explore freely for 5 minutes. The apparatus was cleaned with a diluted ethanol solution between trials. Time spent in the center zone, open arms, and closed arms was recorded. The percentage of time spent in open arms was used as an index of risk-taking behavior.

Statistical Analysis

All experiments were repeated at least three times. No samples or animals were excluded from the analyses. Heatmap data were collected using Python and OpenCV. Data are presented as mean ± standard deviation (SD). Statistical significance was assessed using two-way analysis of variance (ANOVA), followed by multiple-comparison tests with a 95% confidence interval. A p-value of less than 0.05 was considered statistically significant. All other statistical analyses were performed using GraphPad Prism version 8.

Results

***In Vitro* Assessments**

At this stage, the effects of the FCF on tauopathy, amyloidopathy, neuronal viability, and microtubule organization in neurons subjected to aging-related stress were evaluated. Three experiment groups were included: A, B, and C. Group A served as the control (without any treatment), Group B was the sham group (positive control; neurons exposed to aging stress without Faradarmani treatment), and Group C was the experiment group in which the effects of the FCF on parameters associated with the cellular model of Alzheimer's disease were evaluated and compared with the other groups.

The immunofluorescence intensity of cis p-tau protein in the three study groups is shown in Figure 1. As illustrated in Figure 1, cultured neurons exposed to stress exhibited a marked increase in cis p-tau levels, whereas Faradarmani treatment eliminated p-tau from the cells.

In addition, as shown in Figure 2, aging-related stress induced significant amyloidopathy in cultured neurons, while FCF treatment halted the progression of this pathological process.

Changes in neuronal viability and microtubule structural integrity under aging stress in the various cell groups of this study are presented in Figure 3. As shown, FCF treatment markedly suppressed neuronal degeneration in cultured cells exposed to aging stress. Furthermore, microtubule degradation was observed in stressed neurons, whereas FCF reversed this condition, which was confirmed by immunofluorescent staining of the cells.

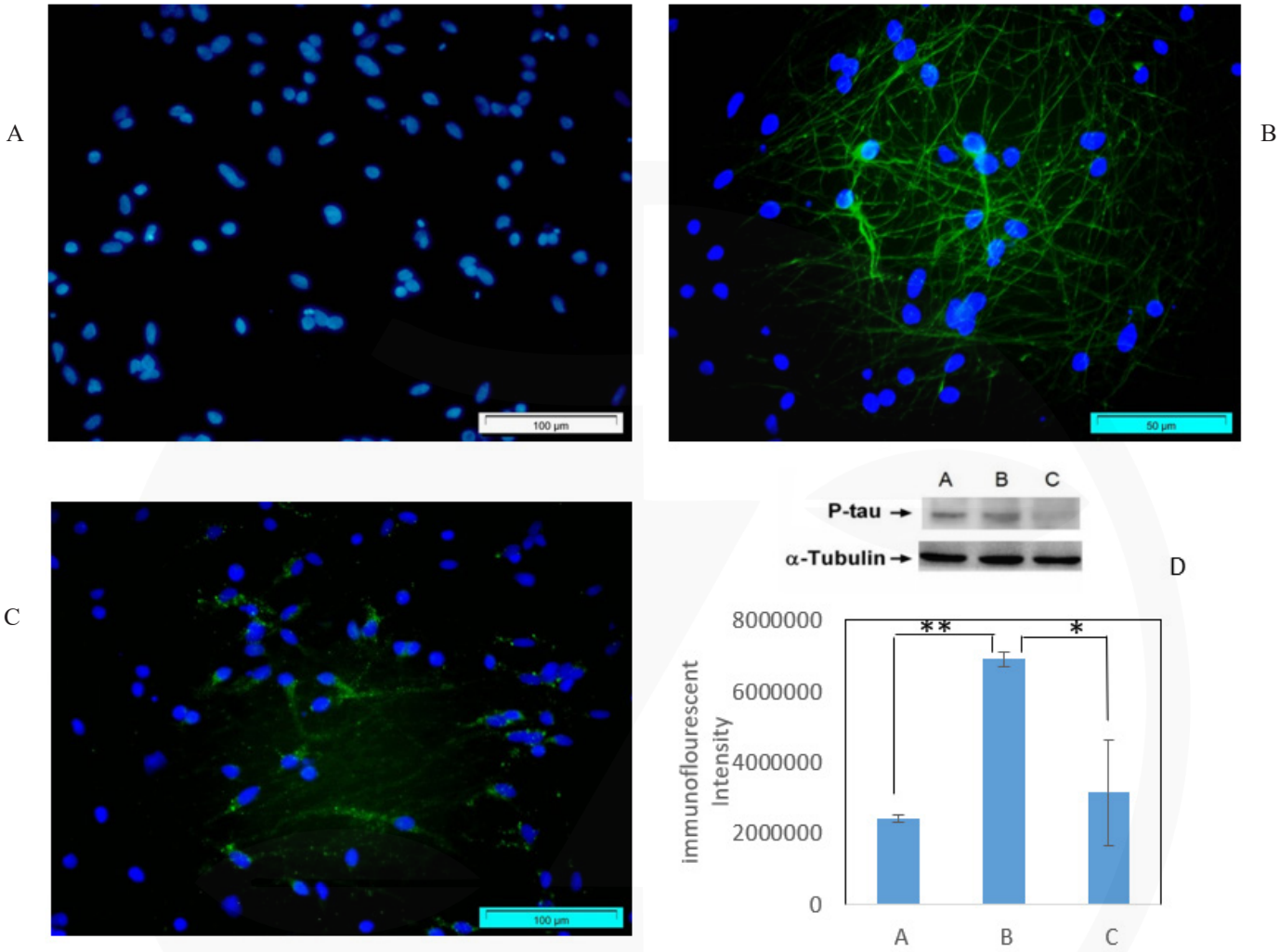


Figure 1. p-tau immunostaining in cultured neurons.
A: Control group. B: Nutrient-deprived group. C: Stressed neurons treated with the Faradarmani Consciousness Field. D: Quantification of immunofluorescence intensity for groups A, B, and C. *: $p < 0.01$; **: $p < 0.001$. The difference between groups A and C was not statistically significant.

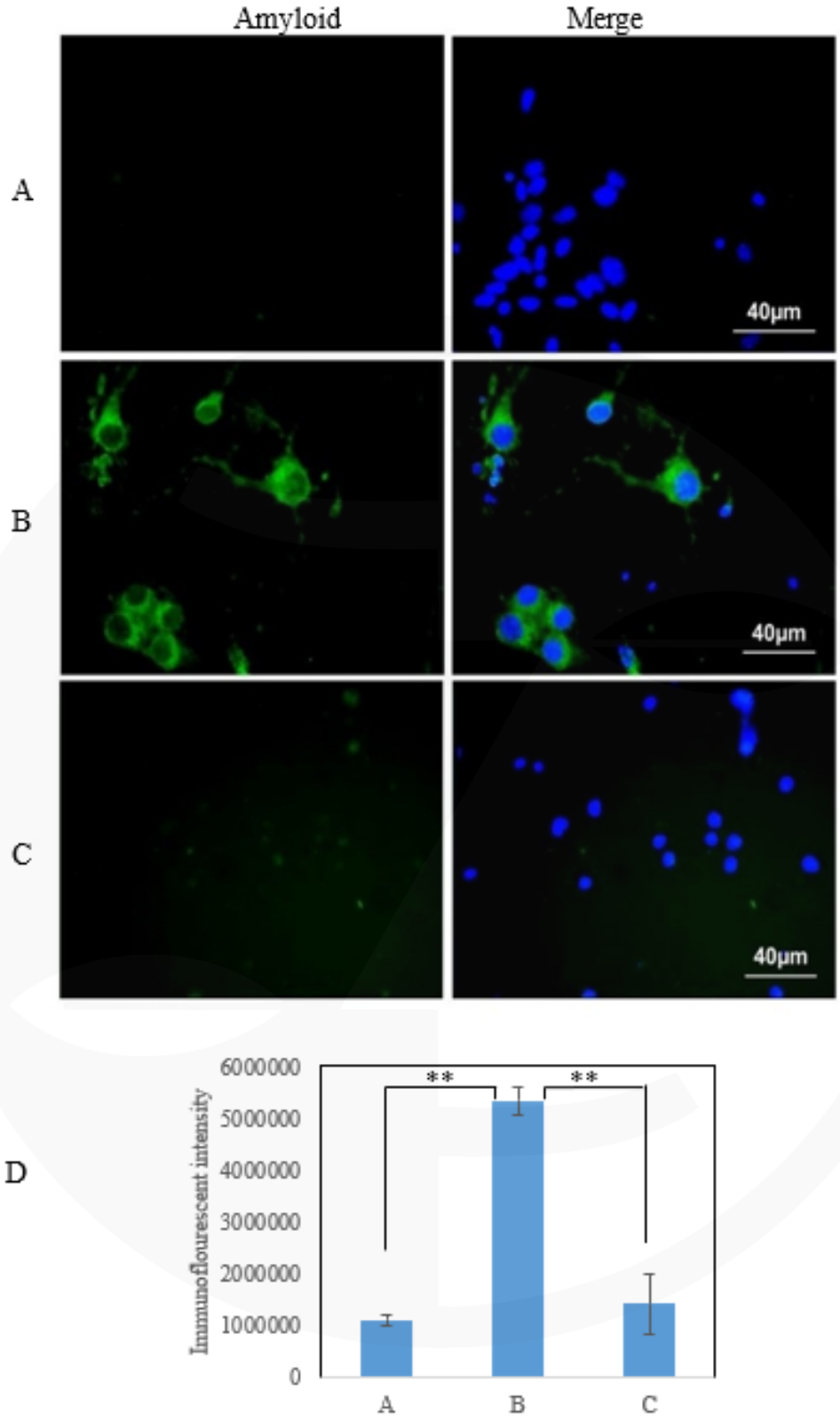


Figure 2. Neurons stained with anti-amyloid antibody. A: Control group. B: Nutrient-deprived group. C: Sample exposed to the Faradarmani Consciousness Field. D: Quantitative analysis of groups A, B, and C. **: $p < 0.001$. The difference between groups A and C was not statistically significant.

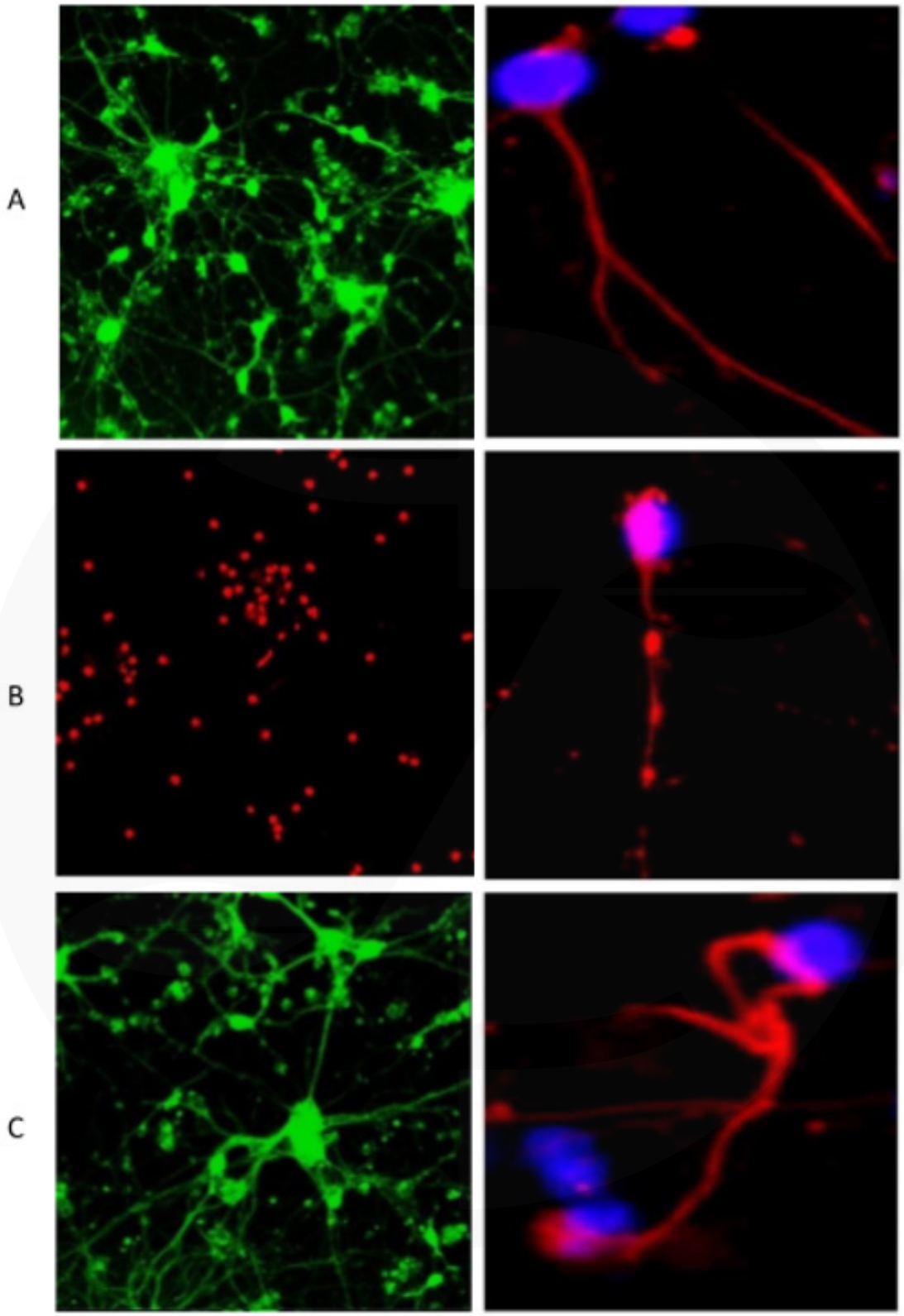


Figure 3. Live/dead cell assay and immunoblotting analysis (left), and immunofluorescence staining of neuronal microtubules (right) under stress conditions in culture. A: Control group. B: Sham group. C: Samples treated with the Faradarmani Consciousness Field.

***In vivo* Evaluations**

In the *in vivo* Alzheimer's disease (AD) mouse model, production of p-tau protein (tauopathy) was evaluated in different samples, as shown in Figures 4 and 5. As illustrated in these figures, while traumatic brain injury (TBI) induced neurotoxic accumulation of p-tau in the brain, treatment with the FCF prevented p-tau aggregation.

Cognitive decline in the TBI mouse model was also assessed using the elevated plus maze. As shown in Figure 6, a complete behavioral recovery was observed in the FCF-treated mice, which, compared to the control group, demonstrated optimal brain performance in memory-related functions, particularly in the decision-making arm.

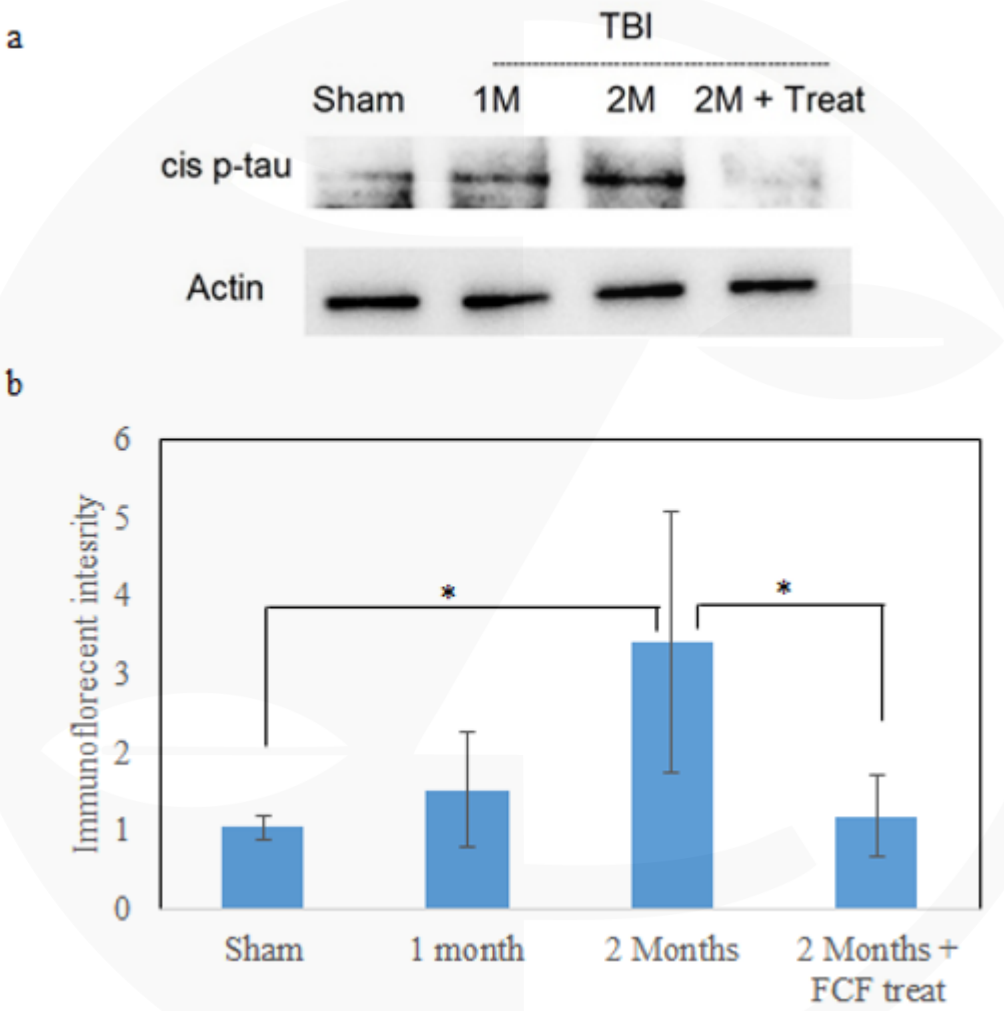


Figure 4. Immunoblotting (a) and immunofluorescence (b) analyses of mouse brain sections stained with anti–p-tau antibodies under different conditions. *: $p < 0.01$.

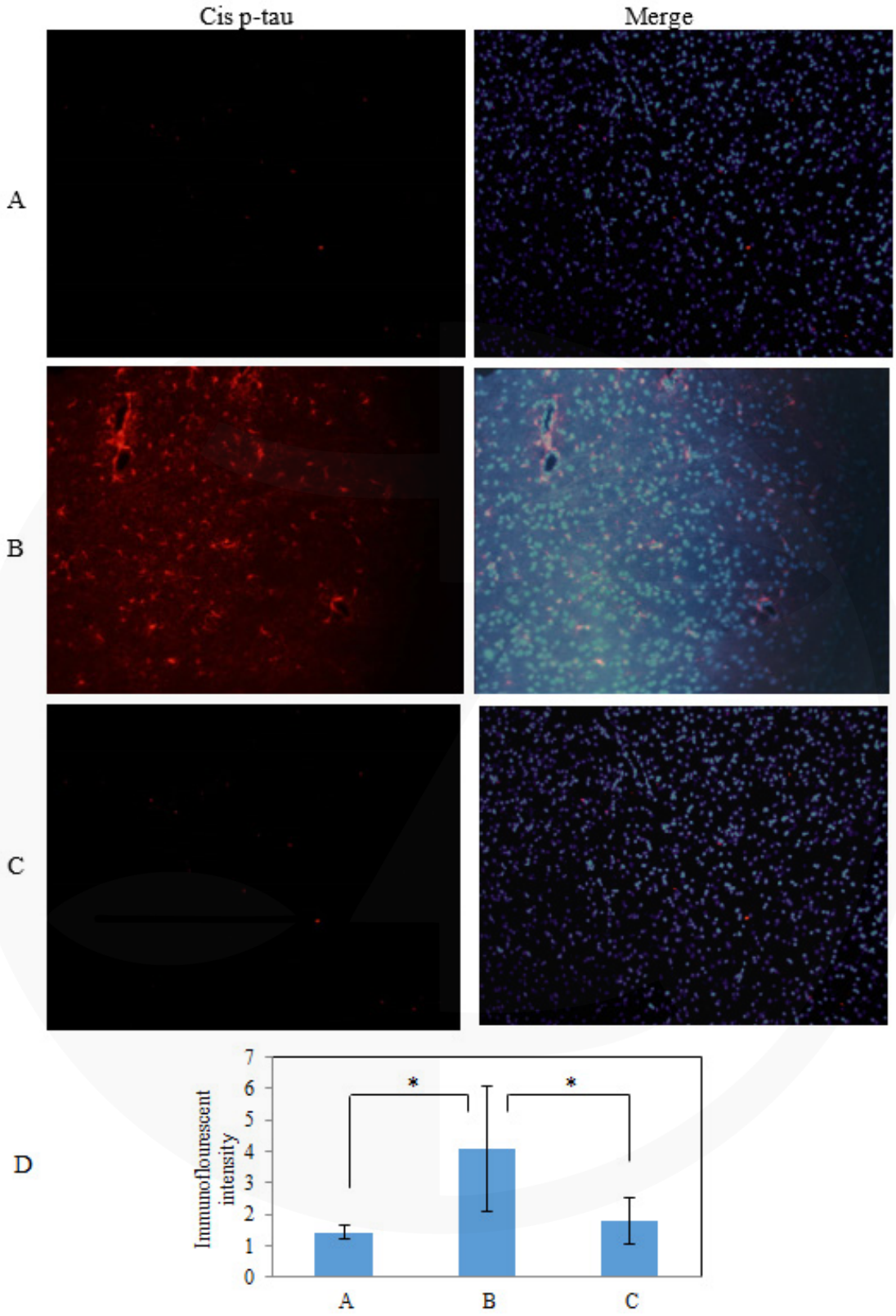


Figure 5. Immunofluorescence staining of TBI mouse brain sections using anti–p-tau antibody.
A: Sham; B: TBI; C: Faradarmani Consciousness Field–treated group; D: Quantitative analysis of the above conditions. * p-value < 0.01.

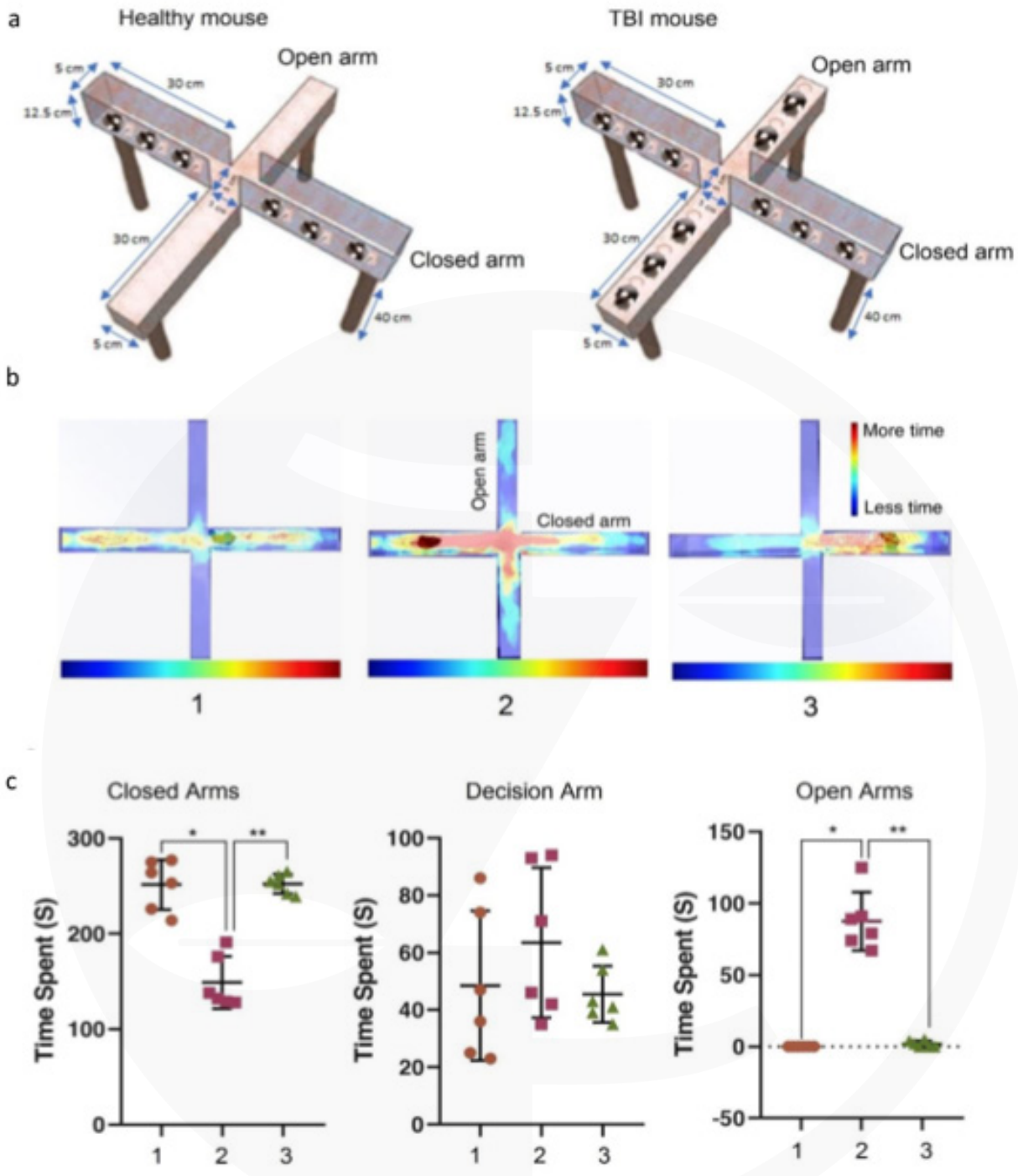


Figure 6. Behavioral analysis of TBI mouse models using the elevated plus maze. a: Schematic representation of healthy and TBI mice. b: Movement trajectories of mice in different arms of the elevated plus maze. c: Quantitative analysis based on time spent in different zones of the elevated plus maze. 1: Healthy mouse (control); 2: Mouse two months after TBI induction; 3: Mouse two months after TBI treated with Faradarmani Consciousness Field. * p-value < 0.05; ** p-value < 0.001

Discussion

This study examined the effect of the Faradarmani Consciousness Field (FCF) on cellular and animal models of Alzheimer's disease. As noted in the introduction, this 'field' has a non-frequency nature, and its effect is initiated without any physical intervention, through a brief and instantaneous attention directed by the 'Announcer' (*Faradarmangar*). A key distinction between this theory and other mind–body approaches, such as meditation and mindfulness, is that here the mind functions only as a mediator in initiating the influence of the T-Consciousness Fields. This feature makes it possible to design various experimental models, including animal and cellular systems, to record the effects of these fields.

Tau protein plays a key role in stabilizing microtubules, and it has been shown that neuronal degeneration and cognitive decline are often associated with the accumulation of tau proteins [35]. Accordingly, extensive research has focused on reducing tau accumulation and stabilizing microtubules in order to control and halt disease progression [36, 37]. In the present study, a reduction in p-tau accumulation was observed both in cells subjected to nutritional deprivation-induced tauopathy and in the brain injury mouse model. Behavioral assessment of mice in the elevated plus maze also indicated improved performance in the group exposed to the FCF.

Given that no material or energy intervention was applied to the experiment groups, the observed changes are attributed to the effects of this field. Although the exact mechanism of action remains unclear, it is hypothesized that information transmitted from T-Consciousness Fields may induce changes in treated samples compared with the control group. Further studies in this area, including evaluation of the effect of the FCF on a scopolamine-induced mouse model of Alzheimer's disease, as well as assessment of brain electrical activity in humans, are planned by the authors of this study.

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References

1. Yiannopoulou, K. G., & Papageorgiou, S. G. (2013). Current and future treatments for Alzheimer's disease. *Therapeutic advances in neurological disorders*, *6*(1), 19-33.

2. World Health Organization (WHO), The top 10 causes of death, 2020. https://www.who.int/news-room/fact-sheets/detail/the-top-10-causes-of-death

3. Barker, W. W., Luis, C. A., Kashuba, A., Luis, M., Harwood, D. G., Loewenstein, D., ... & Duara, R. (2002). Relative frequencies of Alzheimer disease, Lewy body, vascular and frontotemporal dementia, and hippocampal sclerosis in the State of Florida Brain Bank. *Alzheimer Disease & Associated Disorders*, *16*(4), 203-212.

4. S Sperling, R. A., Aisen, P. S., Beckett, L. A., Bennett, D. A., Craft, S., Fagan, A. M., ... & Phelps, C. H. (2011). Toward defining the preclinical stages of Alzheimer's disease: Recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimer's & dementia*, *7*(3), 280-292.

5. Holtzman, D. M., Morris, J. C., & Goate, A. M. (2011). Alzheimer's disease: the challenge of the second century. *Science translational medicine*, *3*(77), 77sr1-77sr1.

6. McKhann, G. M., Knopman, D. S., Chertkow, H., Hyman, B. T., Jack Jr, C. R., Kawas, C. H., ... & Phelps, C. H. (2011). The diagnosis of dementia due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. *Alzheimer's & dementia*, *7*(3), 263-269.

7. Ballard, C. G., Gauthier, S., Cummings, J. L., Brodaty, H., Grossberg, G. T., Robert, P., & Lyketsos, C. G. (2009). Management of agitation and aggression associated with Alzheimer disease. *Nature Reviews Neurology*, *5*(5), 245-255.

8. Crews, L., & Masliah, E. (2010). Molecular mechanisms of neurodegeneration in Alzheimer's disease. *Human molecular genetics*, *19*(R1), R12-R20.

9. Trojanowski, J. Q., & LEE, V. M. Y. (2000). "Fatal attractions" of proteins: a comprehensive hypothetical mechanism underlying Alzheimer's disease and other neurodegenerative disorders. *Annals of the New York Academy of Sciences*, *924*(1), 62-67.

10. Guénette, S. Y. (2003). Mechanisms of Aβ clearance and catabolism. *Neuromolecular medicine*, *4*(3), 147-160.

11. Hardy, J., & Selkoe, D. J. (2002). The amyloid hypothesis of Alzheimer's disease: progress and problems on the road to therapeutics. *science*, *297*(5580), 353-356.

12. Wang, Y. J., Zhou, H. D., & Zhou, X. F. (2006). Clearance of amyloid-beta in Alzheimer's disease: progress, problems and perspectives. *Drug discovery today*, *11*(19-20), 931-938.

13. Miners, J. S., Baig, S., Palmer, J., Palmer, L. E., Kehoe, P. G., & Love, S. (2008). SYMPOSIUM: Clearance of Aβ from the Brain in Alzheimer's Disease: Aβ-Degrading Enzymes in Alzheimer's Disease. *Brain pathology*, *18*(2), 240-252.

14. Eckman, E. A., & Eckman, C. B. (2005). Aβ-degrading enzymes: modulators of Alzheimer's disease pathogenesis and targets for therapeutic intervention. *Biochemical Society Transactions*, *33*(5), 1101-1105.

15. Mueller-Steiner, S., Zhou, Y., Arai, H., Roberson, E. D., Sun, B., Chen, J., ... & Gan, L. (2006). Antiamyloidogenic and neuroprotective functions of cathepsin B: implications for Alzheimer's disease. *Neuron*, *51*(6), 703-714.

16. Xiang, Y., Bu, X. L., Liu, Y. H., Zhu, C., Shen, L. L., Jiao, S. S., ... & Wang, Y. J. (2015). Physiological amyloid-beta clearance in the periphery and its therapeutic potential for Alzheimer's disease. *Acta neuropathologica*, *130*(4), 487-499.

17. Dotti, C. G., Banker, G. A., & Binder, L. I. (1987). The expression and distribution of the microtubule-associated proteins tau and microtubule-associated protein 2 in hippocampal neurons in the rat in situ and in cell culture. *Neuroscience*, *23*(1), 121-130.

18. Slaughter, T., Wang, J., & Black, M. M. (1997). Microtubule transport from the cell body into the axons of growing neurons. *Journal of Neuroscience*, *17*(15), 5807-5819.

19. Griffin, W. S. T. (2006). Inflammation and neurodegenerative diseases. *The American journal of clinical nutrition*, *83*(2), 470S-474S.

20. Citron, M. (2010). Alzheimer's disease: strategies for disease modification. *Nature reviews Drug discovery*, *9*(5), 387-398.

21. Serrano-Pozo, A., Frosch, M. P., Masliah, E., & Hyman, B. T. (2011). Neuropathological alterations in Alzheimer disease. *Cold Spring Harbor perspectives in medicine*, *1*(1), a006189.

22. Fann, J. R., Ribe, A. R., Pedersen, H. S., Fenger-Grøn, M., Christensen, J., Benros, M. E., & Vestergaard, M. (2018). Long-term risk of dementia among people with traumatic brain injury in Denmark: a population-based observational cohort study. *The Lancet Psychiatry*, *5*(5), 424-431..

23. LoBue, C., Wadsworth, H., Wilmoth, K., Clem, M., Hart Jr, J., Womack, K. B., ... & Cullum, C. M. (2017). Traumatic brain injury history is associated with earlier age of onset of Alzheimer disease. *The Clinical Neuropsychologist*, *31*(1), 85-98.

24. Kondo, A., Shahpasand, K., Mannix, R., Qiu, J., Moncaster, J., Chen, C. H., ... & Lu, K. P. (2015). Antibody against early driver of neurodegeneration cis P-tau blocks brain injury and tauopathy. *Nature*, *523*(7561), 431-436.

25. Shahpasand, K., Sepehri Shamloo, A., Nabavi, S. M., Ping Lu, K., & Zhen Zhou, X. (2018). Tau immunotherapy: Hopes and hindrances. *Human Vaccines & Immunotherapeutics*, *14*(2), 277-284.

26. Lunardi, P., Nardin, P., Guerra, M. C., Abib, R., Leite, M. C., & Gonçalves, C. A. (2013). Huperzine A, but not tacrine, stimulates S100B secretion in astrocyte cultures. *Life sciences*, *92*(12), 701-707.

27. Anand, P., & Singh, B. (2013). A review on cholinesterase inhibitors for Alzheimer's disease. *Archives of pharmacal research*, *36*(4), 375-399.

28. Dos Santos Picanco, L. C., Ozela, P. F., de Fatima de Brito Brito, M., Pinheiro, A. A., Padilha, E. C., Braga, F. S., ... & da Silva Hage-Melim, L. I. (2018). Alzheimer's disease: a review from the pathophysiology to diagnosis, new perspectives for pharmacological treatment. *Current medicinal chemistry*, *25*(26), 3141-3159.

29. Taheri MA: "Human from another outlook" Interuniversal Press; 2nd Edition (September 26, 2013). ISBN-13: 978-1939507006, ISBN-10: 1939507006 2013.

30. Taheri, M. A., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Influence of Faradarmani Consciousness Field (FCF) on Spatial Memory and Passive Avoidance Behavior of Scopolamine Model of Alzheimer Disease in Male Wistar Rats. *Available at SSRN 3761188*.

31. Taheri, M. A., Semsarha, F., Mahdavi, M., Afsartala, Z., & Amani, L. (2020). The Influence of the Faradarmani Consciousness Field on the Survival and Death of MCF-7 Breast Cancer Cells: An Optimization Perspective. *Available at SSRN 3705537*.

32. Taheri, M. A., Semsarha, F., & Modarresi-Asem, F. (2020). An Investigation on the Electrical Activity of the Brain during Fara-Darmani Connection in the Fara-Therapist Population.

33. Torabi, S., Taheri, M. A., & Semsarha, F. (2020). Alleviative effects of Fara-darmani Consciousness Field on *Triticum aestivum* L. under salinity stress [version 1; peer review: 1 approved with reservations]. *F1000Research* 2020, **9**:1089 (https://doi.org/10.12688/f1000research.25247.1)

34. Jiajia, L., Shinghung, M., Jiacheng, Z., Jialing, W., Dilin, X., Shengquan, H., ... & Wei, C. (2017). Assessment of neuronal viability using fluorescein diacetate-propidium iodide double staining in cerebellar granule neuron culture. *Journal of Visualized Experiments: JoVE*, (123), 55442.

35. Buée, L., Bussière, T., Buée-Scherrer, V., Delacourte, A., & Hof, P. R. (2000). Tau protein isoforms, phosphorylation and role in neurodegenerative disorders. *Brain Research Reviews*, *33*(1), 95-130.

36. Orr, M. E., Sullivan, A. C., & Frost, B. (2017). A brief overview of tauopathy: causes, consequences, and therapeutic strategies. *Trends in pharmacological sciences*, *38*(7), 637-648.

37. Ballatore, C., Brunden, K. R., Huryn, D. M., Trojanowski, J. Q., Lee, V. M. Y., & Smith III, A. B. (2012). Microtubule stabilizing agents as potential treatment for Alzheimer's disease and related neurodegenerative tauopathies. *Journal of medicinal chemistry*, *55*(21).

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An Investigation of the Electrical Activity of the Brain during the Treatment with Faradarmani Consciousness Field in the Faradarmangar Population

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Abstract

Researchers have extensively investigated consciousness, the mind–body interaction, and its manifestations in the brain. The Faradarmani Consciousness Field (FCF), as introduced by Mohammad Ali Taheri (the founder), is a method of initiating a Connection with the Cosmic Consciousness Network (CCN) through the mediating role of the human mind, while the brain functions as a detector in this process. As a result of this *Connection*, the scanning process of a being (an organism's) condition—for example, the health status of its cells and, consequently, its organs—is carried out. This study was conducted to investigate the effect of the FCF on electroencephalographic (EEG) features as important indicators of brain function. The results showed that, among Faradarmangar population (Faradarmani practitioners), a significant increase in power within the Gamma 2 frequency band (35–40 Hz) was observed during the Connection, compared with the control condition (resting state, without Connection), in the medial frontal gyrus (BA6) and the paracentral lobule (BA31) of the frontal lobe. Based on the cortical electrical activity of the Faradarmangars during the FCF Connection, increased gamma-wave power and activation of brain regions involved in memory, attention, perception, and the intrinsic activity of the default mode network were observed. These findings distinguish the FCF Connection, as demonstrated through patterns of brain activity (brain waves and activated regions), from established mind–body approaches such as various forms of meditation.

Keywords: T-Consciousness Field, Cosmic Consciousness Network (CCN), default mode network, EEG, Faradarmani, Faradarmangar, gamma wave, mind–body

Introduction

Consciousness and its nature remain unknown to the scientific community [1]. Questions concerning where consciousness resides, its internal and external dimensions, how it is experienced, and related issues remain largely unanswered, or receive different answers depending on the field of study. The role of the brain in providing the necessary conditions for consciousness experience is currently one of the most interesting and challenging scientific topics and represents a common focus across many experimental studies [2].

One of the oldest methods for investigating the manifestation of consciousness in the body is the measurement of the brain's electrical activity using electroencephalography (EEG). In 1924, Hans Berger recorded the first human electroencephalogram (EEG) in an attempt to discover the physiological basis of psychological phenomena. Although this objective was not achieved, his work led to the identification of several brain-wave patterns, including α and β waves, and to the introduction of the term 'electroencephalogram' [3].

Subsequent studies further characterized brain activity in terms of the cortical regions involved and the frequencies of the recorded brain waves. The power of these waves has been determined under different functional states of the brain. Brain waves with frequencies above 30 Hz (gamma waves) have been associated with a variety of cognitive functions, including neural processes related to alertness [4], consciousness perception [5], solving an urgent issue [6], attention [7], and working memory and long-term memory processes [8]. Other brain waves with frequencies below 30 Hz—beta (12–30 Hz), alpha (8–12 Hz), theta (4–8 Hz), and delta (0.5–4 Hz)—correspond to oscillatory electrical activity associated with progressively deeper states of relaxation and sleep [9]. In addition, distinct electrical regions of the cerebral cortex have been identified, comprising a total of 52 Brodmann areas grouped into 11 histological regions [10]. These different cortical regions are involved in a wide range of cognitive and behavioral functions [11]. The distinction between task and resting states in the measurement of brain electrical activity constitutes a fundamental step in studies of consciousness. The resting state, or the brain's baseline state, and its differences from the active state have been described in various ways. Koch et al. (2016) reported new findings indicating that the anatomical neural correlates of consciousness are located primarily in the well-defined posterior cortical region, which includes sensory areas, rather than in the frontoparietal network involved in task monitoring and reporting [12].

Shulman et al. [13] first described the Default Mode Network (DMN) in 1997. Subsequently, Raichle et al. (2001) [14] observed that when an individual is not focused on the external world, specific brain regions exhibit greater metabolic activity than during cognitively goal-directed tasks, and that the activity of these regions decreases when the individual engages in goal-directed behavior. Collectively, these regions—also referred to as the Default Mode Resting State Network (DMRSN)—comprise a set of brain areas including the ventral and dorsal medial prefrontal cortex (BA 24, 10m, 10r, 10p, 32a, 32c, 9), the anterior/posterior cingulate cortex (BA 29/30, 23/31), the inferior parietal lobule (BA 39, 40), the lateral temporal cortex (BA 21), and the hippocampal formation [15].

Over the past two decades, the Default Mode Network (DMN) has been shown to be associated with self-awareness [16], mental states [17], and human awareness [18]. Furthermore, it has been demonstrated that EEG gamma power in the frontal and midline regions reflects the activity of the Default Mode Network (DMN) [19,20].

Investigating the mind-body relationship through the measurement of brain activity during various meditation practices has become one of the main areas of consciousness research in healthy individuals, focusing on the manifestation of different activity states in the brain. Kaur and Singh (2015) reviewed studies on the effects of different types of meditation on brain waves [21]. Their review examined Buddhist meditation, Transcendental Meditation (TM), Yoga meditation, and several other less well-known forms of meditation, and found that increases in delta, theta, and alpha frequency bands in the frontal, occipital, and parietal regions distinguish different

meditation practices. In addition, Desai et al. (2015) conducted a comprehensive review of fifteen published studies on various Yoga techniques and their effects on brain waves [22]. They found that different Yoga techniques significantly increased alpha, beta, and theta waves in the frontal cortex. In a systematic review of 56 studies involving 1,358 healthy participants, Lomas et al. (2015) reported that mindfulness is associated with increased alpha and theta power, reflecting a relaxed state of consciousness [23]. In contrast, no consistent pattern was observed for beta, delta, or gamma waves. Several studies have also emphasized that long-term meditation can suppress and reduce Default Mode Network processing and its associated gamma-wave power [19, 20, 24, 25].

In addition to the numerous studies on different forms of meditation, which have consistently reported significant increases in alpha, delta, and theta waves together with reductions in gamma-wave activity, a small number of meditation practices have been found to exhibit increased high-gamma activity alongside the brain-wave patterns typically associated with meditation. In these cases, however, the increase occurs in regions other than the Default Mode Network. Braboszcz et al. (2017) reported enhanced high-gamma activity (60–110 Hz) in the parieto-occipital regions during three traditional meditation practices—Vipassana, Himalayan Yoga, and Isha Shoonya—in experienced meditators under specific conditions compared with controls [26]. In addition, increased occipital gamma power associated with long-term meditation practice and enhanced sensory awareness has been reported [27], and other related studies have also been reviewed [28].

According to Taheri, there are T-Consciousness Fields with a non-frequency nature that exist as subsets of the Cosmic Consciousness Network (CCN). The effect of these fields begins through a brief; momentary attention directed toward them. This brief attention is initiated by a trained individual, referred to as a *Faradarmangar* [29]. In the present study, the electrical activity of the brains of Faradarmangars (Faradarmani practitioners) was investigated while establishing the Faradarmani Consciousness Field (FCF).

Methods

Thirty-six healthy Faradarmangars (28 females and 8 males), aged between 20 and 50 years (mean age: 36.5 ± 6.20 years), who had successfully completed the corresponding two-year training program, participated in this study.

Application of the Faradarmani Consciousness Field

In the Faradarmangar population, each participant can initiate the FCF for themselves. In other words, the Faradarmangar initiates a Connection between the subject under study (in this project, themselves) and the Cosmic Consciousness Network (CCN). This process is referred to as *Announcement.*

Announcement is the process by which Mohammad Ali Taheri, or any Announcer authorized by him, mentally passes the name of the subject under study together with the arranged time and location, thereby transmitting the subject's initial information to the Cosmic Consciousness Network (CCN). The subject under study may be a patient or any individual who wishes to experience a Connection with the Cosmic Consciousness Network (CCN). In the present study, the subject of the Announcement is the Announcer themself. According to Taheri's theory, a Faradarmangar (serving as the Announcer in Figure 1) is a trained and certified individual who has successfully completed the required training courses. These courses, which typically take approximately two years to complete, provide both theoretical and practical instruction on the application of T-Consciousness Fields within the Cosmic Consciousness Network (CCN).

Connection to the Cosmic Consciousness Network (CCN)

This is a process that is accessible to everyone, at any location worldwide, 24 hours a day. Except for the present study, in which the Announcers themselves were the subjects of the study, for any research or experience involving the use of T-Consciousness Fields, each researcher or volunteer is required to register on the Cosmointel website[4]. After registration, the user must access the “Research /

Connection Experience" section and complete the relevant form.

For any study or experience conducted at a specific time and location, it is necessary for researchers or volunteers to provide essential information about their experiment to the designated guidance center. It should be noted that both registration on the website and the Announcement request are free of charge.

EEG Recording

EEG data were recorded from the participants during both the 'rest' and 'task' conditions in a quiet, dimly lit room while they were seated with

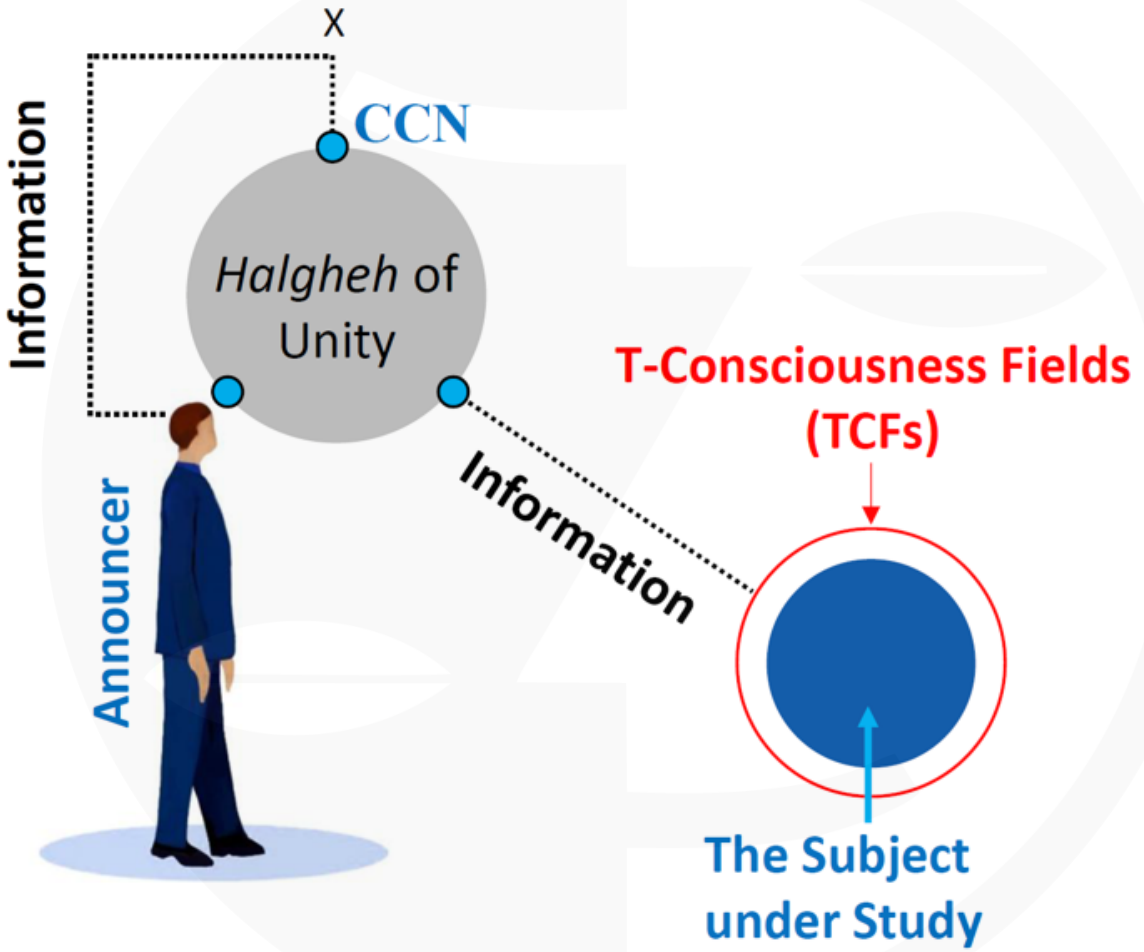


Figure 1. Schematic illustration of the 'Announcement' process and the 'Connection' between the subject under study and the Cosmic Consciousness Network (CCN) through a T-Consciousness Field, according to Mohammad Ali Taheri's theory.

4. www.cosmointel.com

their eyes closed. Recordings lasted approximately 15 minutes and were obtained using a 19-channel EEG system (EEGR 19-26, Medicom, Russia) with the following electrode placements: Fp1, Fp2, F7, F3, Fz, F4, F8, T3, C3, Cz, C4, T4, T5, P3, Pz, P4, T6, O1, and O2. During the task condition, participants were instructed to initiate the FCF Connection according to Taheri's theory.

Since different EEG frequency bands reflect different brain functions, the data were digitally filtered into ten frequency bands: delta (1–4 Hz), theta (4–8 Hz), alpha 1 (8–10 Hz), alpha 2 (10–12 Hz), beta 1 (12–15 Hz), beta 2 (15–18 Hz), beta 3 (18–25 Hz), high beta (25–30 Hz), gamma 1 (30–35 Hz), and gamma 2 (35–40 Hz). At least two minutes of EEG data from each participant were selected for quantitative analysis. Power spectrum analysis was performed using the 'Fast Fourier Transform' (FFT). For each of the 19 monopolar derivations, absolute power, relative power, and mean frequency were calculated for the above frequency bands. Absolute power (μV^2) was the only parameter used to generate functional images of neural electrical activity for the five classical EEG bands: delta, theta, alpha, beta, and gamma.

Regional Analysis

In this study, the three-dimensional intracerebral distribution of neural electrical activity, or current density, was evaluated using Low-Resolution Brain Electromagnetic Tomography (LORETA) across the 1–40 Hz frequency range. LORETA estimates this parameter from the distribution of scalp-recorded potentials based on the assumption that, among all possible solutions to the inverse problem, the smoothest solution is the most probable. This assumption is consistent with the premise that neighboring neurons are activated synchronously [30]. The three-dimensional solution space in LORETA is restricted to the cortical gray matter and hippocampus, as defined by the Talairach Brain Atlas [31] and its corresponding digital probabilistic atlas (Brain Imaging Centre, Montreal Neurological Institute).

Statistical Analysis

To compare each participant's EEG data between the rest and task conditions, a paired *t*-test was performed. Statistical significance was assessed at $p < 0.05$ and $p < 0.01$.

Results

The results showed a significant increase in gamma 2 activity (35–40 Hz) in the fronto-central region of the brain during the task condition compared with the resting condition (Figure 2).

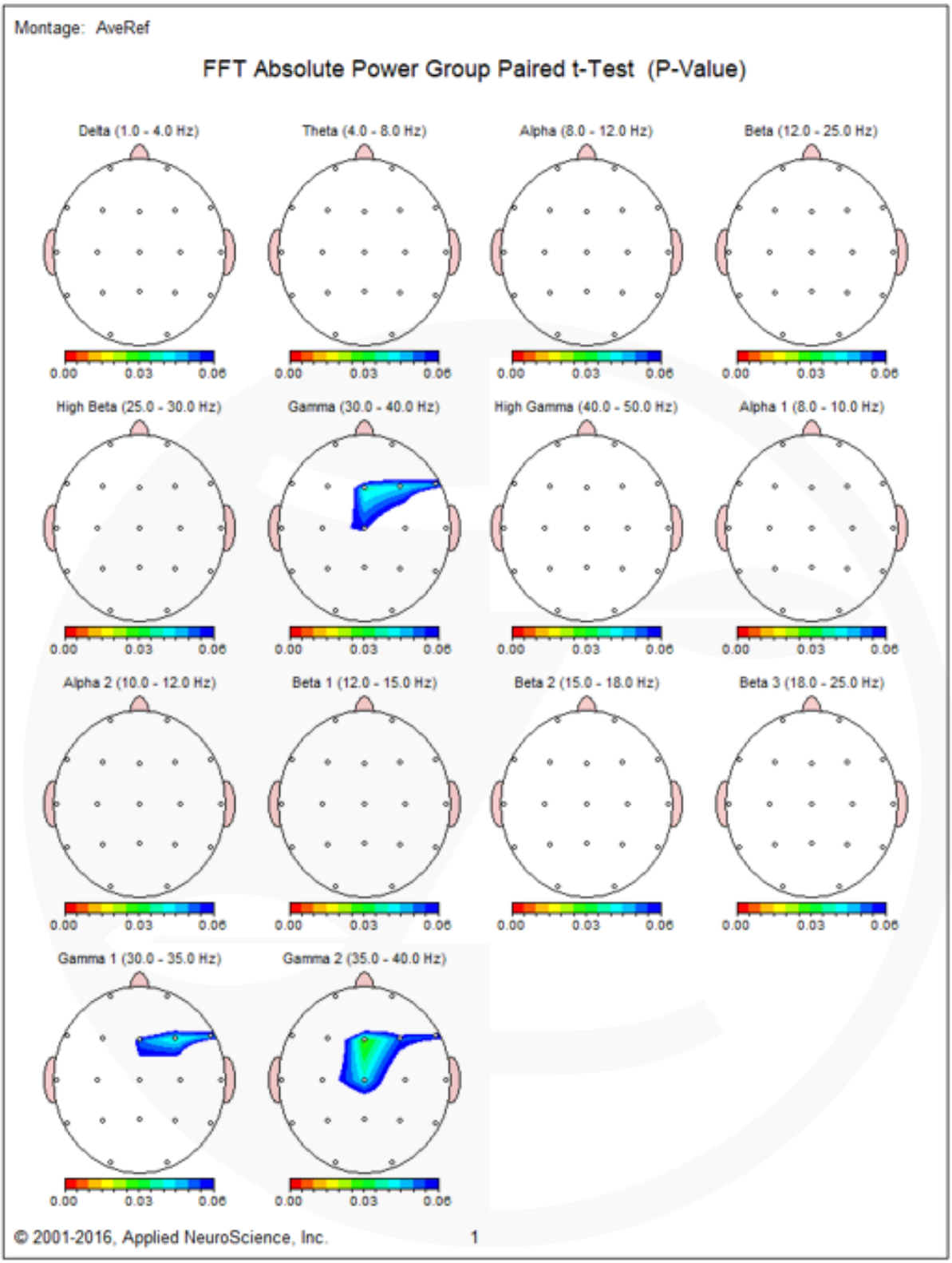


Figure 2. Increased gamma activity during the 'task' condition (i.e., Faradarmani Consciousness Field Connection) at electrodes Fz, F4, F8, and Cz (Sig. < 0.05).

As shown in Table 1, the increase in Gamma 2 (35–40 Hz) power at channels F4, F8, Fz, and Cz was statistically significant. The highest absolute Gamma 2 power was observed at Fz, while the greatest increase relative to the control condition was recorded at F8.

Table 1. Gamma 2 (35–40 Hz) band power across all 19 EEG channels during the 'rest' and 'task' conditions, and the differences between them.

Channel	Rest		Task		Diff		
	Mean/μV²	**SD**	**Mean/μV²**	**SD**	**Mean/μV²**	**P value**	**Diff. Percent**
FP1-AVE	0.79	0.47	0.97	0.72	0.19	0.22	23.80%
FP2-AVE	0.68	0.39	0.97	0.89	0.29	0.13	42.78%
F3-AVE	0.62	0.59	0.82	0.70	0.20	0.09	31.25%
F4-AVE	0.78	0.83	1.14	0.95	0.35	0.05	45.18%
C3-AVE	0.44	0.30	0.72	0.72	0.29	0.07	66.25%
C4-AVE	0.60	0.36	1.06	1.00	0.46	0.08	77.24%
P3-AVE	0.43	0.29	0.67	0.66	0.23	0.10	53.46%
P4-AVE	0.54	0.35	0.84	0.83	0.31	0.07	56.73%
O1-AVE	0.63	0.50	0.83	0.72	0.20	0.14	31.98%
O2-AVE	0.81	0.55	0.99	0.91	0.18	0.24	22.10%
F7-AVE	0.75	0.55	1.09	0.73	0.34	0.16	44.62%
F8-AVE	0.81	0.37	1.41	0.89	0.59	0.05	72.95%
T3-AVE	0.59	0.40	0.85	0.68	0.26	0.14	44.34%
T4-AVE	0.93	0.47	1.56	1.46	0.63	0.19	68.25%
T5-AVE	0.49	0.33	0.61	0.48	0.12	0.26	24.03%
T6-AVE	0.60	0.37	0.79	0.68	0.19	0.32	30.78%
Fz-AVE	0.62	0.57	0.89	0.79	0.27	0.03	43.82%
Cz-AVE	0.56	0.37	0.93	0.91	0.36	0.04	64.71%
Pz-AVE	0.48	0.32	0.75	0.75	0.26	0.09	54.74%

LORETA results revealed significant differences in the following brain regions. The first was the medial frontal gyrus, corresponding to Brodmann area 6 (BA6). The second was the paracentral lobule, corresponding to Brodmann area 31 (BA31).

Figures 3 and 4 show two-dimensional and three-dimensional maps of the brain activity in the *Faradarmangar* during the announcement of the FCF, relative to the resting state.

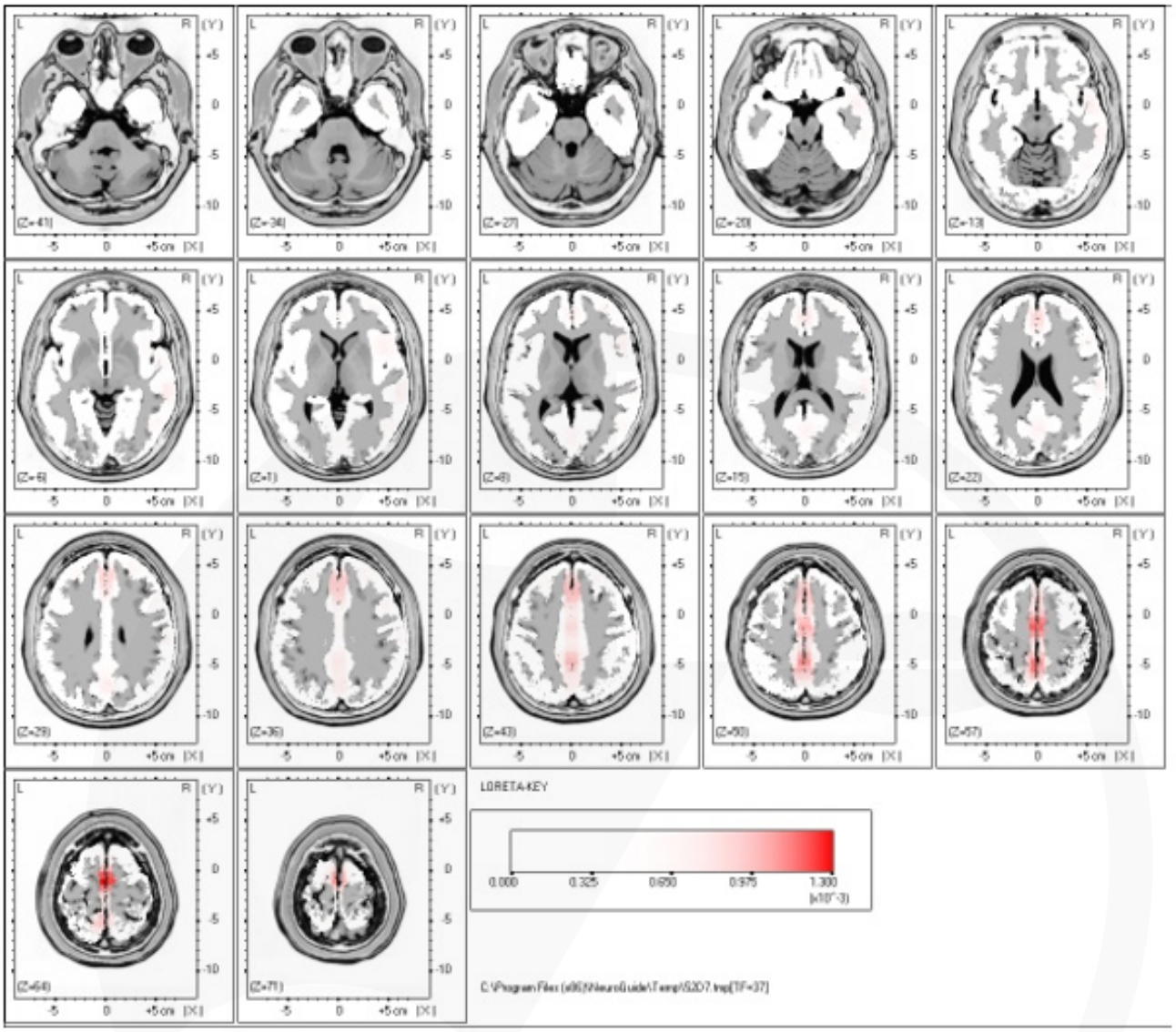


Figure 3. Two-dimensional representation of the brain activity regions in the Faradarmangar population during the Faradarmani Consciousness Field Connection.

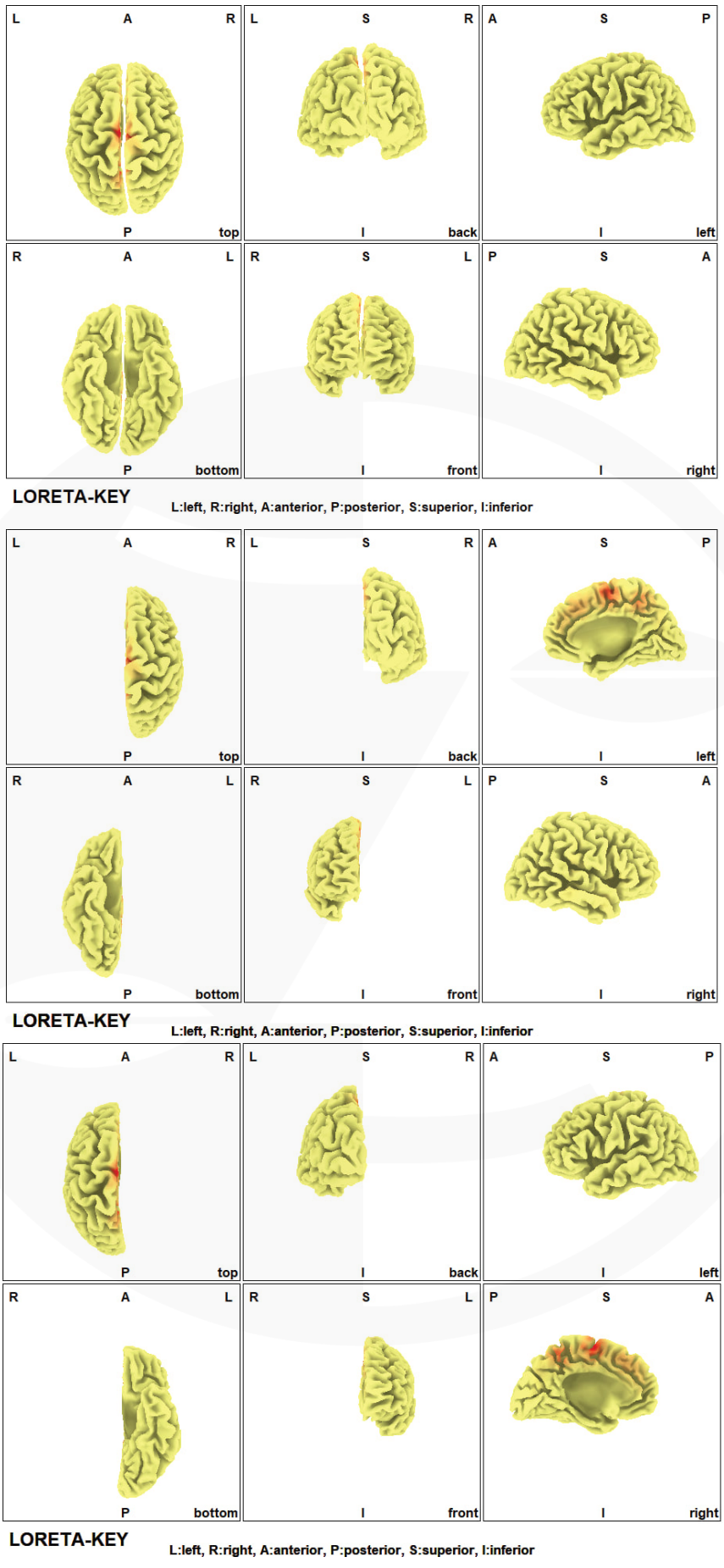


Figure 4. Three-dimensional map of the brain activity regions in the Faradarmangar population during the Faradarmani Consciousness Field Connection.

Discussion

Based on Mohammad Ali Taheri's theory, Faradarmani differs from other mind–body interaction methods in both mechanism and purpose. In its mechanism, emphasis is placed on the connection between the Whole Consciousness, or the Cosmic Consciousness Network (CCN), which contains the data and information of the totality of the universe and every animate and inanimate component of it. The purpose of this 'Connection' is defined as the correction and reconstruction of the mentioned components. In this approach, during a Connection initiated by *Faradarmangar* (announcer), the human brain functions as a detector and receiver, exhibiting the manifestations of this Connection and serving as its intermediary.

In this study, which was conducted in line with other approaches for investigating mind–body interactions and aimed at examining brain electrical activity during the *Faradarmani* Connection in a *Faradarmangar* population, it was observed that brain activity during this Connection, compared to the 'rest' condition within the same individuals, was restricted to gamma activity, and the waves were localized to regions associated with the brain's default state. Furthermore, during this Connection, an increase in intrinsic brain activity related to overall brain function (DMN), which consumes more than 90% of brain energy, was notable [32].

Gamma waves are considered the fastest brain activity and are associated with cognitive functions, learning, information processing, attention, concentration, multisensory integration (olfactory, visual, and auditory), consciousness, problem solving, mental processing, and perception. It has also been reported that gamma waves may serve as a biomarker for depression, and both pharmacological and non-pharmacological antidepressant treatments can affect gamma activity [33]. Increased gamma activity has been suggested as a therapeutic approach in the treatment of several conditions, including Alzheimer's disease [34].

On the other hand, the functions of the two activated brain regions in the frontal lobe—the frontal gyrus (BA6) and the paracentral region (BA31)—in the *Faradarmangar* population during the FCF connection have previously been identified in various conscious experiences. The first region, BA6, is mainly associated with multiple functions related to movement sequencing and motor planning [35]. The involvement of BA6 in memory, attention, and executive functions may be due to the activation of a broader brain network that sometimes recruits this region [36].

The second region, BA31, is known for its primary role in emotion as well as its involvement in different types of memory (e.g., topographical memory, episodic memory, etc.) [37,38]. This region is also one of the areas included in the DMRSN (default mode resting state network) [39].

Based on the results of this study, although the use of Faradarmani in terms of mental mediation and being placed in the present moment during task performance is similar to various mind–body interaction methods, the increase in gamma wave power in the frontal lobe, medial frontal gyrus (BA6) and paracentral lobule (BA31), and the absence of increased low-frequency waves (as typically observed in mind–body interaction methods), in addition to supporting the effectiveness of the Faradarmani Consciousness Field, indicate that the manifestations of the Faradarmani Connection are completely different and distinct from known meditation and mind–body methods. It is hypothesized that information transferred from T-Consciousness Fields leads to changes in the treated subjects. In this study, the increase in gamma power and activity in regions associated with memory, attention, perception, and motor functions provides evidence for this effect. Further investigations on obtaining brain electrical and metabolic activity patterns during the Faradarmani Connection in a Faradarmangar population compared to a non-Faradarmangar population are planned by the authors. Additionally, studies on patient populations with disorders related to the activated regions and frequency bands observed in this study will be of particular importance.

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References

1. Hameroff, S., & Penrose, R. (2014). Consciousness in the universe: A review of the 'Orch OR'theory. *Physics of life reviews*, *11*(1), 39-78.

2. LeDoux, J. E., Michel, M., & Lau, H. (2020). A little history goes a long way toward understanding why we study consciousness the way we do today. *Proceedings of the National Academy of Sciences*, *117*(13), 6976-6984.

3. Millett, D. (2001). Hans Berger: From psychic energy to the EEG. *Perspectives in biology and medicine*, *44*(4), 522-542.

4. Crick, F., & Koch, C. (1990, January). Towards a neurobiological theory of consciousness. In *Seminars in the Neurosciences* (Vol. 2, No. 263-275, p. 203).

5. Meador, K. J., Ray, P. G., Echauz, J. R., Loring, D. W., & Vachtsevanos, G. J. (2002). Gamma coherence and conscious perception. *Neurology*, *59*(6), 847-854.

6. Golledge, H. D., Hilgetag, C. C., & Tovée, M. J. (1996). Information processing: A solution to the binding problem?. *Current Biology*, *6*(9), 1092-1095.

7. Landau, A. N., Esterman, M., Robertson, L. C., Bentin, S., & Prinzmetal, W. (2007). Different effects of voluntary and involuntary attention on EEG activity in the gamma band. *Journal of Neuroscience*, *27*(44), 11986-11990.

8. Jensen, O., Kaiser, J., & Lachaux, J. P. (2007). Human gamma-frequency oscillations associated with attention and memory. *Trends in neurosciences*, *30*(7), 317-324.

9. Abhang, P. A., Gawali, B. W., & Mehrotra, S. C. (2016). *Introduction to EEG-and speech-based emotion recognition*. Academic Press.

10. Clarke, E., Dewhurst, K., & Aminoff, M. J. (1996). *An illustrated history of brain function: imaging the brain from antiquity to the present*. Norman Publishing.

11. Tortora, G. J., & Derrickson, B. H. (2018). *Principles of anatomy and physiology*. John wiley & sons.

12. Koch, C., Massimini, M., Boly, M., & Tononi, G. (2016). Neural correlates of consciousness: progress and problems. *Nature reviews neuroscience*, *17*(5), 307-321.

13. Shulman, G. L., Fiez, J. A., Corbetta, M., Buckner, R. L., Miezin, F. M., Raichle, M. E., & Petersen, S. E. (1997). Common blood flow changes across visual tasks: II. Decreases in cerebral cortex. *Journal of cognitive neuroscience*, *9*(5), 648-663.

14. Raichle, M. E., MacLeod, A. M., Snyder, A. Z., Powers, W. J., Gusnard, D. A., & Shulman, G. L. (2001). A default mode of brain function. *Proceedings of the national academy of sciences*, *98*(2), 676-

682.

15. Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The brain's default network: anatomy, function, and relevance to disease. *Annals of the new York Academy of Sciences*, *1124*(1), 1-38.

16. Gusnard, D. A., & Raichle, M. E. (2001). Searching for a baseline: functional imaging and the resting human brain. *Nature reviews neuroscience*, *2*(10), 685-694.

17. Mason, M. F., Norton, M. I., Van Horn, J. D., Wegner, D. M., Grafton, S. T., & Macrae, C. N. (2007). Wandering minds: the default network and stimulus-independent thought. *science*, *315*(5810), 393-395.

18. Li, J., Curley, W. H., Guerin, B., Dougherty, D. D., Dalca, A. V., Fischl, B., ... & Edlow, B. L. (2021). Mapping the subcortical connectivity of the human default mode network. *Neuroimage*, *245*, 118758.

19. Berkovich-Ohana, A., Glicksohn, J., & Goldstein, A. (2012). Mindfulness-induced changes in gamma band activity–implications for the default mode network, self-reference and attention. *Clinical neurophysiology*, *123*(4), 700-710.

20. Berkovich-Ohana, A., Glicksohn, J., & Goldstein, A. (2014). Studying the default mode and its mindfulness-induced changes using EEG functional connectivity. *Social cognitive and affective neuroscience*, *9*(10), 1616-1624.

21. Kaur, C., & Singh, P. (2015). EEG derived neuronal dynamics during meditation: Progress and challenges. *Advances in preventive medicine*, *2015*(1), 614723.

22. Desai, R., Tailor, A., & Bhatt, T. (2015). Effects of yoga on brain waves and structural activation: A review. *Complementary therapies in clinical practice*, *21*(2), 112-118.

23. Lomas, T., Ivtzan, I., & Fu, C. H. (2015). A systematic review of the neurophysiology of mindfulness on EEG oscillations. *Neuroscience & Biobehavioral Reviews*, *57*, 401-410.

24. Garrison, K. A., Zeffiro, T. A., Scheinost, D., Constable, R. T., & Brewer, J. A. (2015). Meditation leads to reduced default mode network activity beyond an active task. *Cognitive, Affective, & Behavioral Neuroscience*, *15*(3), 712-720.

25. Brewer, J. A., Worhunsky, P. D., Gray, J. R., Tang, Y. Y., Weber, J., & Kober, H. (2011). Meditation experience is associated with differences in default mode network activity and connectivity. *Proceedings of the National Academy of Sciences*, *108*(50), 20254-20259.

26. Braboszcz, C., Cahn, B. R., Levy, J., Fernandez, M., & Delorme, A. (2017). Increased gamma brainwave amplitude compared to control in three different meditation traditions. *PloS one*, *12*(1), e0170647.

27. Cahn, B. R., Delorme, A., & Polich, J. (2010). Occipital gamma activation during Vipassana meditation. *Cognitive processing*, *11*(1), 39-56.

28. Cahn, B. R., & Polich, J. (2006). Meditation states and traits: EEG, ERP, and neuroimaging studies. *Psychological bulletin*, *132*(2), 180.

29. Taheri MA: “Human from another outlook” Interuniversal Press; 2nd Edition (September 26, 2013). ISBN-13: 978-1939507006, ISBN-10: 1939507006 2013.

30. Pascual-Marqui, R. D., Michel, C. M., & Lehmann, D. (1994). Low resolution electromagnetic tomography: a new method for localizing electrical activity in the brain. *International Journal of psychophysiology*, *18*(1), 49-65.

31. Talairach, J., & Tournoux, P. (1988). *Co-planar stereotaxic atlas of the human brain: 3-dimensional proportional system: an approach to cerebral imaging*. G. Thieme; New York: Thieme Medical Publishers.

32. Raichle, M. E., & Snyder, A. Z. (2007). A default mode of brain function: a brief history of an evolving idea. *Neuroimage*, *37*(4), 1083-1090.

33. Fitzgerald, P. J., & Watson, B. O. (2018). Gamma oscillations as a biomarker for major depression: an emerging topic. *Translational psychiatry*, *8*(1), 177.

34. McDermott, B., Porter, E., Hughes, D., McGinley, B., Lang, M., O’Halloran, M., & Jones, M. (2018). Gamma band neural stimulation in humans and the promise of a new modality to prevent and treat Alzheimer’s disease. *Journal of Alzheimer’s Disease*, *65*(2), 363-392.

35. Shah, K. B., Hayman, L. A., Chavali, L. S., Hamilton, J. D., Prabhu, S. S., Wangaryattawanich, P., ... & Kumar, A. J. (2015). Glial tumors in brodmann area 6: spread pattern and relationships to motor areas. *Radiographics*, *35*(3), 793-803.

36. Catalan, M. J., Honda, M., Weeks, R. A., Cohen, L. G., & Hallett, M. (1998). The functional neuroanatomy of simple and complex sequential finger movements: a PET study. *Brain: a journal of neurology*, *121*(2), 253-264.

37. Berthoz, A. (1997). Parietal and hippocampal contribution to topokinetic and topographic memory. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, *352*(1360), 1437-1448.

38. Krause, B. J., Horwitz, B., Taylor, J. G., Schmidt, D., Mottaghy, F. M., Herzog, H., ... & Mueller-Gaertner, H. W. (1999). Network analysis in episodic encoding and retrieval of word-pair associates: A PET study. *European Journal of Neuroscience*, *11*(9), 3293-3301.

Neural Correlation of Faradarmani Consciousness Field Mind Mediation: A Comparative Functional Connectivity and Graph Analysis

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Abstract

The study of brain networks using Electroencephalography (EEG) data analysis—based on statistical dependencies (functional connectivity) and mathematical graph theory concepts—is a well-established approach in neuroscience and cognitive science for investigating both healthy and clinical populations. T-Consciousness Fields, based on the theory of Mohammad Ali Taheri, and their applications in optimizing target systems, have been explored in various studies. This study investigates the neurofunctional impacts of the Faradarmani Consciousness Field (FCF) at the cortical level in Faradarmangars (Faradarmani practitioners). Based on this theory, Faradarmangars are one of the essential components involved in mediating the function of the FCF. To investigate this, the functional and effective connectivity, as well as EEG-based brain graph measures, of the brains of Faradarmangars are compared with those of non-Faradarmangars during the FCF Connection. According to the findings of the present study, compared with non-Faradarmangars, the brains of Faradarmangars exhibited significantly reduced activity in the delta (BA8), beta 2 (BA4/6/8/9/10/11/32/44/47), and beta 3 (across 34 of the 52 Brodmann areas) frequency bands, predominantly in the frontal lobe and, to a lesser extent, in the parietal and temporal lobes. Furthermore, analyses of functional and effective connectivity within the frontal network revealed widespread reductions in dominant connectivity, primarily in the beta 3 frequency band throughout the frontal network. In contrast, graph theory analysis of the Faradarmangars' brains demonstrated increased activity in the O2, T5, F4, F3, FP2, and F8 regions, together with a significant decrease in characteristic path length and increases in global efficiency, the clustering coefficient, and transitivity. Overall, the higher graph efficiency, together with the reduced brain activity and connectivity observed during the mind's mediation under the influence of the FCF, supports the proposed passive, detector-like function of the human brain during connection with this T-Consciousness Field.

Keywords: Brain Graph, EEG, Faradarmani Consciousness Field, T-Consciousness Fields, Functional Connectivity.

Introduction

Understanding consciousness and its underlying mechanisms has been one of the most challenging topics in neuroscience and cognitive science over the past century. Numerous scientific and philosophical theories have been proposed in this field. Regardless of whether consciousness is considered to originate within the brain or to arise from processes beyond the brain (the Hard Problem of Consciousness proposed by David Chalmers) [1], it is possible to investigate brain function during various activities and under different states of health and disease using a range of experimental approaches.

According to Taheri's theory, T-Consciousness Fields are non-frequency-based fields that are subsets of the Cosmic Consciousness Network (CCN). The effects of these fields begin through a brief, momentary attention initiated by the mind of the announcer, who is referred to as a Faradarmangar [2]. The present study analyzes EEG data from Faradarmangars and non-Faradarmangars using statistical dependencies (functional connectivity) and concepts from mathematical graph theory to investigate the brain's neural correlates during the Faradarmani Consciousness Field (FCF) Connection.

Various techniques, including functional magnetic resonance imaging (fMRI), positron emission tomography (PET), electroencephalography (EEG), magnetoencephalography (MEG), transcranial magnetic stimulation (TMS), or combinations of these methods, can be used to examine different aspects of brain function [3]. Each technique has its own strengths and limitations. Among them, EEG offers higher temporal resolution than PET or fMRI, allowing brain responses to stimuli to be measured on the millisecond timescale. EEG enables the detection of voltage fluctuations at the scalp that arise from the synchronized electrical activity of large populations of neurons located near the scalp. In addition, these oscillations occur across different frequency bands, making it possible to compare the relative power of these bands under different experimental conditions [3]. Consequently, the effects of various stimuli, referred to as tasks, can be measured with high temporal precision and compared with the baseline condition (resting state or no stimulus).

Various analytical approaches are applied to EEG data to obtain more comprehensive information about brain activity and its underlying processes. These analyses are based on the premise that the human brain is organized according to two fundamental principles: functional segregation and functional integration [4]. According to the principle of functional segregation, the cerebral cortex can be regarded as a non-homogeneous system composed of structurally distinct (brain anatomy) and functionally specialized (processing specific stimuli) regional modules. In contrast, the principle of functional integration emphasizes that no single brain region is sufficient to carry out a specific cognitive process independently. Rather, dynamic interactions and information exchange among different brain regions are essential. This principle forms the basis of functional connectivity studies, which examine the synchronization of spatially separated neurophysiological events during specific tasks in order to identify the associated brain networks [5].

The most recent approach to analyzing functional brain connectivity, which examines the organization of brain network patterns, is graph theory. In graph-based analysis of EEG signals, stable characteristics of EEG activity that cannot be captured by other linear analytical methods can be identified and described [6]. In this context, graph theory has revealed distinctive features that differentiate healthy individuals from patients, providing important evidence regarding the pathophysiological processes underlying disrupted brain connectivity [7]. According to the T-Consciousness Fields Theory, the human brain can function as a powerful detector, revealing the manifestations of such a connection [8]. The electrical activity of the brains of Faradarmangars during the FCF Connection was investigated in a previous study [9]. In the present study, we aimed to examine the functional differences between the brains of Faradarmangars and those of non-Faradarmangars during the FCF Connection. To this end, EEG recordings from both groups were compared. The EEG data from the Faradarmangars were analyzed using effective

connectivity and graph theory to identify the distinctive characteristics of their brain networks during the functioning of the FCF.

Methods

This study was designed to investigate and compare the effects of the FCF on EEG characteristics as biomarkers of brain function in two different groups. A total of 45 volunteer Faradarmangars (33 women and 12 men; age range: 20–50 years; M = 34.5, SD = 7.10) and 15 volunteer non-Faradarmangars (11 women and 4 men; age range: 20–50 years; M = 34.3, SD = 5.90) were randomly selected to participate in the study.

Application of the Faradarmani Consciousness Field

Two procedures were employed to apply the FCF. First, in the Faradarmangar group, each participant initiated the FCF Connection for themselves (this procedure is referred to here as 'Announcement') (Figure 1). Announcement is the process by which the Faradarmangar, through a brief, momentary attention directed toward both the subject under study and the T-Consciousness Field, initiates the action of the Field. In the present study, the subject under investigation in the Faradarmangar group was the Announcer themselves. The Faradarmangars (shown as the Announcer in Figure 1) were trained and certified individuals who had successfully completed a two-year training program conducted by Mohammad Ali Taheri or his authorized instructors. During this program, participants received both theoretical and practical instruction in the application of the T-Consciousness Fields.

EEG activity was recorded using a 19-channel system under both resting and task conditions. During the resting condition, participants remained with their eyes closed without performing any task. Under the task condition, participants in the Faradarmangar group were instructed to initiate the FCF Connection using the method they had been trained to perform. In contrast, during the task condition for the non-Faradarmangar group, a Faradarmangar established the Connection between the subject under study (a non-Faradarmangar participant) and the Cosmic Consciousness Network (CCN) (Figure 1).

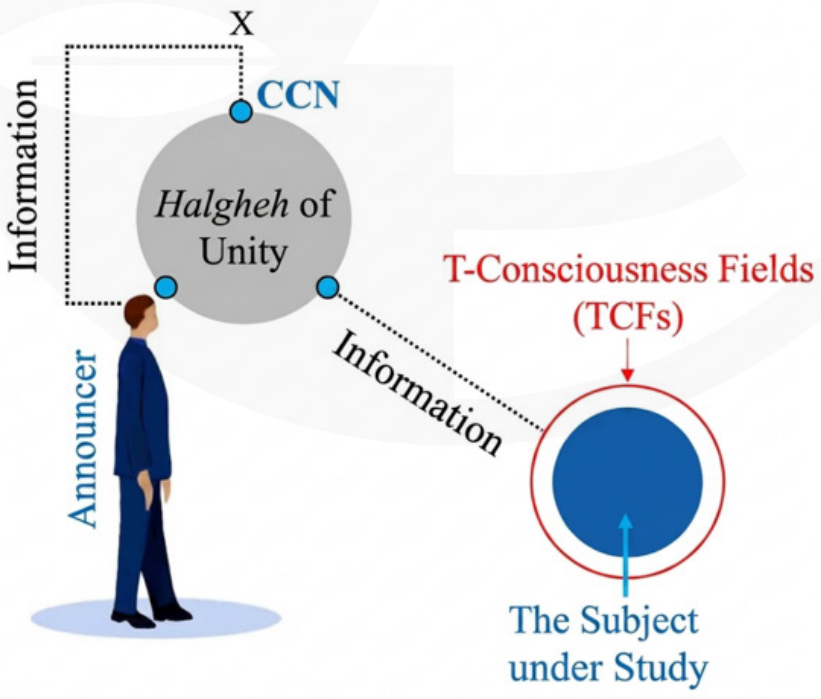


Figure 1. The mechanism of 'Announcement' and 'Connection' between the subject of study and the Cosmic Consciousness Network (CCN) via T-Consciousness Field, based on Taheri's Theory.

It is worth noting that applying T-Consciousness Fields has been made available to researchers free of charge. For this purpose, interested parties should visit the Cosmointel Research Center website[1]. Further details are provided in the General Considerations section of this issue.

EEG Assessment

The volunteers in this research were comfortably seated in a dimly lit, sound-attenuated room. Approximately 15 minutes later, EEG data for the task with eyes-closed were collected using a 19-channel system (EEGR 19-26, Medicom, Russia). The data processing and analysis stages were carried out similarly to the previous study [9].

Regional Analysis

In the present study, 'exact low-resolution electromagnetic tomography' (eLORETA) was used to estimate cortical electrical activity from scalp EEG data [10, 11]. The nearest voxel to each seed point was selected to define the regions of interest (ROIs). Intracranial spectral density was computed from the EEG data using the eLORETA software with a frequency resolution spanning 1–80 Hz. Functional eLORETA images of spectral density were generated for eight frequency bands: delta (1.5–4 Hz), theta (4–8 Hz), alpha 1 (8–10 Hz), alpha 2 (10–13 Hz), beta 1 (13–21 Hz), beta 2 (21–30 Hz), beta 3 (31–40 Hz), and gamma (40–80 Hz).

Significant differences between cortical voxels and group comparisons were assessed using statistical nonparametric mapping (SnPM) with randomization. This procedure determines the critical probability threshold for the observed *t*-values while correcting for multiple comparisons across all voxels and frequency bands. This methodological approach is implemented in the eLORETA software and is based on Fisher's permutation test [12]. A total of 5,000 permutations were performed to determine statistical significance for each randomization test. T-level thresholds corresponding to statistically significant differences ($p < 0.05$ and $p < 0.01$) were applied, and the associated *T*- and *p*-values are reported after correction for multiple comparisons [13, 14].

Functional and Effective Connectivity Analysis

The Brodmann areas (BAs) of the brain, as implemented in the eLORETA software according to the Talairach Daemon (http://www.talairach.org/), were used to define the regions for the analysis of functional and effective connectivity. Lagged Phase Synchronization (LPS) was employed as the measure of nonlinear functional connectivity.

Graph Analysis

Graph-theoretical analysis was performed using the BRAPH toolbox [15]. Using this toolbox, the brain atlas, subject groups, and connectivity matrices were specified, and weighted undirected graph analysis was carried out. After loading the Talairach functional atlas into BRAPH, the EEG data were imported into the software, thereby defining the network nodes. Based on weighted undirected brain connectivity, the toolbox computed the edges representing the relationships between nodes. Differences between the two groups at both the nodal and global levels were evaluated using nonparametric permutation tests (1,000 permutations).

Results

Given the mediating role of the mind in Faradarmangars during the establishment of a Connection with T-Consciousness Fields (such as the FCF), brain activity was measured and compared between the Faradarmangar and non-Faradarmangar groups during the task condition (the FCF Connection). For simplicity, the brain activity of the Faradarmangar and non-Faradarmangar groups during the FCF Connection task is hereafter referred to as the experimental and control conditions, respectively.

Comparison of Regional Measurements

The frequency bands exhibiting reduced activity, obtained from the comparison of EEG data recorded during the task condition in the experimental and

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control groups, together with their corresponding brain regions, are presented in Table 1.

Table 1. Frequency bands showing a significant decrease in activity during task conditions: a comparison between the experimental and control groups with corresponding details (p value < 0.001, threshold 1.19).

Frequency	X (MN)	Y (MN)	Z (MNI)	BA	Lobe*	Structure*
Delta	-35	20	50	8	Frontal	Middle Frontal Gyrus
	-40	20	50	8	Frontal	Middle Frontal Gyrus
	-35	25	50	8	Frontal	Middle Frontal Gyrus
Beta 2	148 coordinates in BA regions*: 10 (54), 11(62), 32(1), 4(1), 44(1), 47(3),6(7), 8(12), 9(7)				Frontal (147) Parietal (1)	Anterior Cingulate (1) Inferior Frontal Gyrus (8) Medial Frontal Gyrus (20) Middle Frontal Gyrus (45) Orbital Gyrus (6) Precentral Gyrus (11) Rectal Gyrus (4) Superior Frontal Gyrus (53)
Beta 3	2079 coordinates in BA regions*: 10 (134), 11 (228), 13 (135), 18(6), 19(59), 2(5), 20(109), 21(105), 22(89), 24(1), 25 (19), 27(2), 28(19), 32(36), 34(15), 35(13), 36(30), 37(96), 38(126), 39(29), 4(6), 40(165), 41(26), 42(19), 43(12), 44(51), 45(58), 46(43), 47(210), 5(8), 6(43), 7(1), 8(49), 9(132)				Frontal (905) Limbic, A (36) Limbic, I (1) Limbic, P (69) Limbic, P (35) Occipital (64) Parietal (179) Sub-lobar, Ext (10) Sub lobar, Ins (111) Temporal (587)	Fusiform Gyrus (86) Inferior Frontal Gyrus (1) Inferior Temporal Gyrus (75) Insula (1) Middle Temporal Gyrus (147) Sub-Gyral (11) Superior Temporal Gyrus (240) Supramarginal Gyrus (8) Transverse Temporal Gyrus (18)

Values in parentheses indicate the frequency of each item across all coordinates

As shown in Table 1, during the task condition, the experiment group exhibited a significant decrease in delta, beta-2, and beta-3 wave activity compared to the control group. The specific brain regions associated with the reduced activity of these three frequency bands (presented in Table 1) are illustrated in Figure 2.

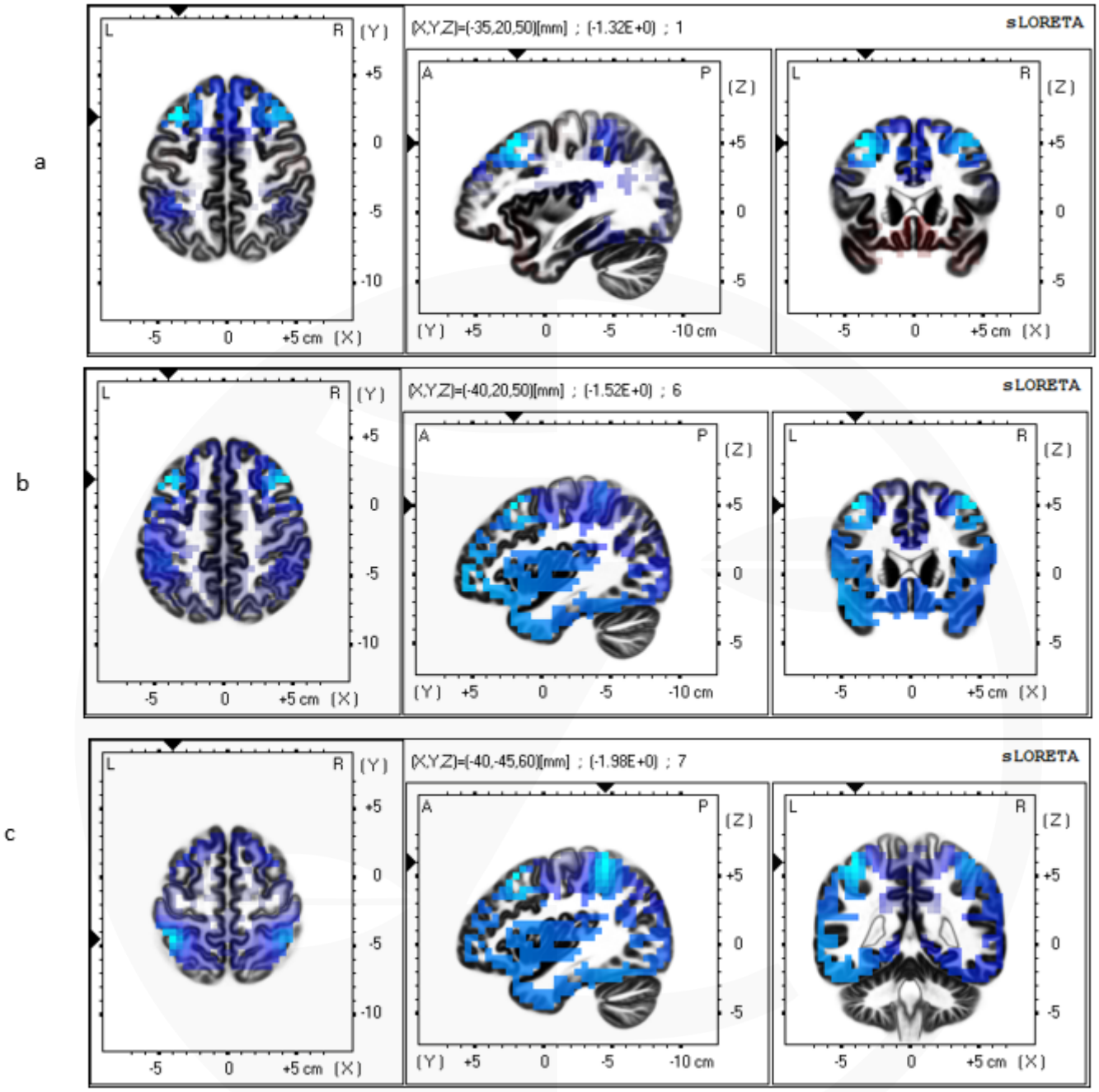


Figure 2. Cross-sectional (left), sagittal (center), and coronal (right) views of the brain regions in the Faradarmangar group exhibiting reduced activity (relative to the control group) in (a) the delta frequency band, (b) the beta-2 frequency band, and (c) the beta-3 frequency band during the Faradarmani Consciousness Field Connection.

Functional Connectivity Analysis

The synchronization of spatially separated neurophysiological events was measured in the brains of the experimental and control groups. Functional connectivity within the frontal network was then compared between the experimental task and control task conditions. The results are presented in Figure 3 and Table 2.

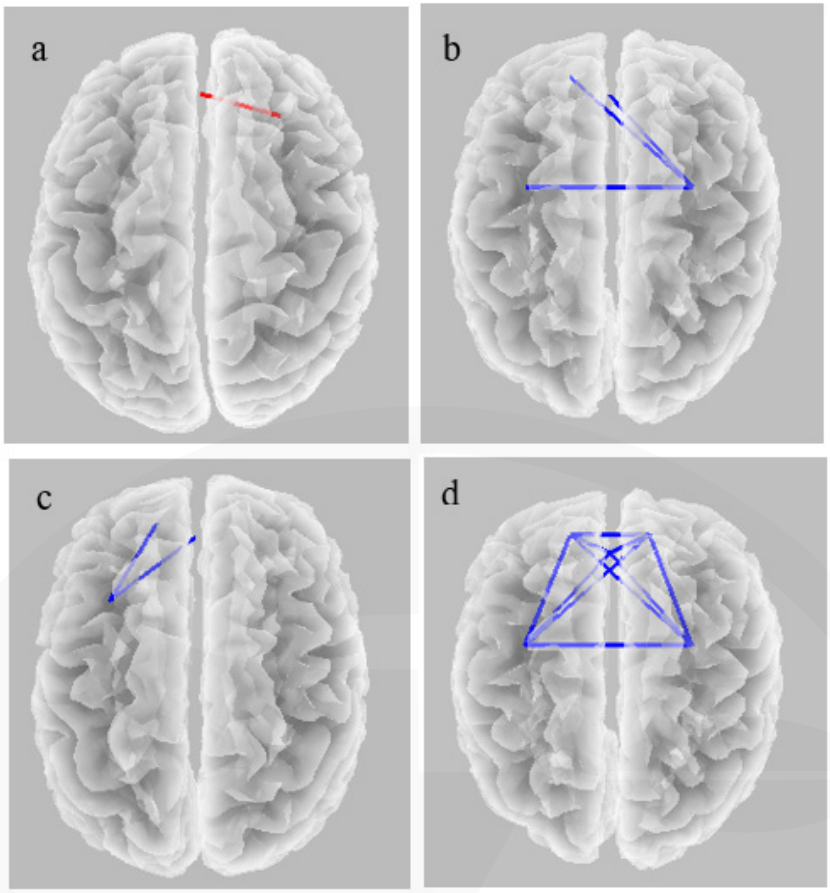


Figure 3. Increases (red) and decreases (blue) in connectivity between different regions in the experiment group compared to the control group across various frequency bands: (a) alpha-1, (b) alpha-2, (c) beta-2, and (d) beta-3.

Table 2. Alterations in connectivity between different regions of the frontal brain network in Faradarmangars compared to non-Faradarmangars (p-value < 0.05, threshold=2.06).

Frequency band	Related regions	Change in the connectivity
Alpha1	rSFG-ACC	Increase
Alpha2	rSFG-ACC rSFG-lMFG rSFG-LSFG	Decrease
Beta 2	LSFG-ACC LSFG-LmFG	Decrease
Beta 3	All parts of the frontal network	Decrease

Differences in connectivity within the delta, theta, beta-1, and gamma frequency bands between the two studied groups are not statistically significant. Furthermore, as shown in Table 2 and Figure 3, the only instance of increased connectivity is observed in the alpha-1 frequency band, whereas the most pronounced decrease in connectivity between different frontal brain regions can be observed within the beta-3 frequency band.

Effective Connectivity Results

To determine the alterations in the direction of information transfer across different components of the frontal network in both the experimental and control groups, we evaluated effective connectivity, as illustrated in Figure 4. The results indicate that only the delta frequency band exhibits a reduction in information flow from the rmFG to the LSFG regions (between the left and right hemispheres) in the experiment group compared to the control group.

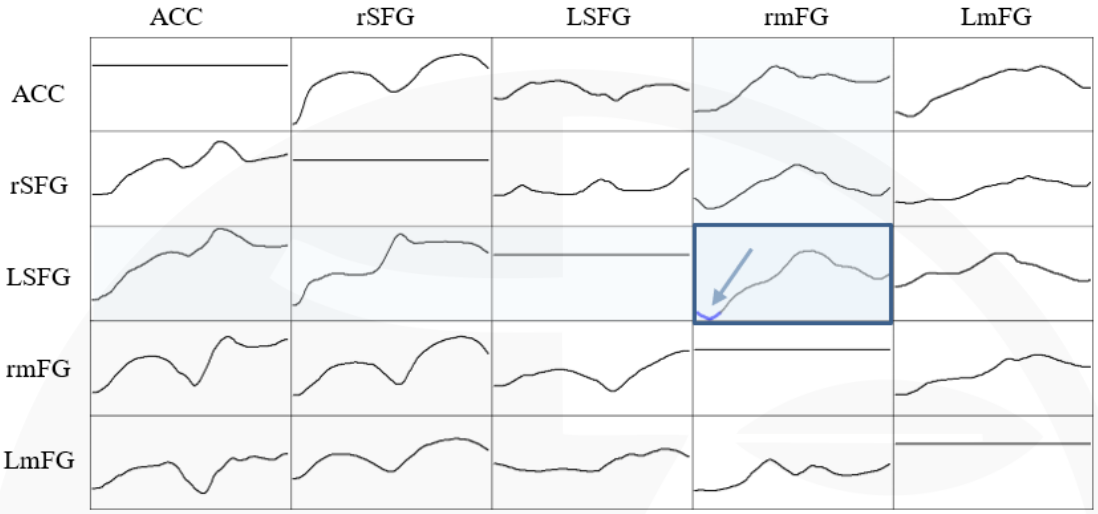


Figure 4. The effective connectivity matrix of the frontal brain network in the Faradarmangar group (compared to the control group) illustrates a reduction in information flow between the highlighted regions within the delta band (indicated by the blue arrow) (p-value = 0.022, threshold=2.1).

Graph Analysis

The graph analysis of brain activity for the experiment group compared to the control group is presented in Table 3 and Figure 5.

Table 3. Main metrics of the brain graph of Faradarmangars during Connection with Faradarmani Consciousness Field compared to the control group.

Measure	Experimental	Control	difference	p (1-tailed)
Char. path length	2.0854	2.3921	-0.3067	0.005
Global efficiency	0.5696	0.5092	0.0603	0.005
Local efficiency	1.4695	1.1839	0.2855	0.004
Clustering	0.518	0.4329	0.0851	0.001
Transitivity	0.7759	0.6494	0.1265	0.002

Regarding the global network topology, the results show a significant decrease in characteristic path length and an increase in global efficiency, clustering coefficient, and transitivity in the experiment group compared to the control group. At the regional level, node degree had a significant difference between the two groups. A normal functional network is characterized by a high clustering coefficient (an index of functional segregation) between neighboring nodes and a short path length (an index of functional integration) between any pair of nodes. In other words, there must be a proper balance between local specialization and global integration.

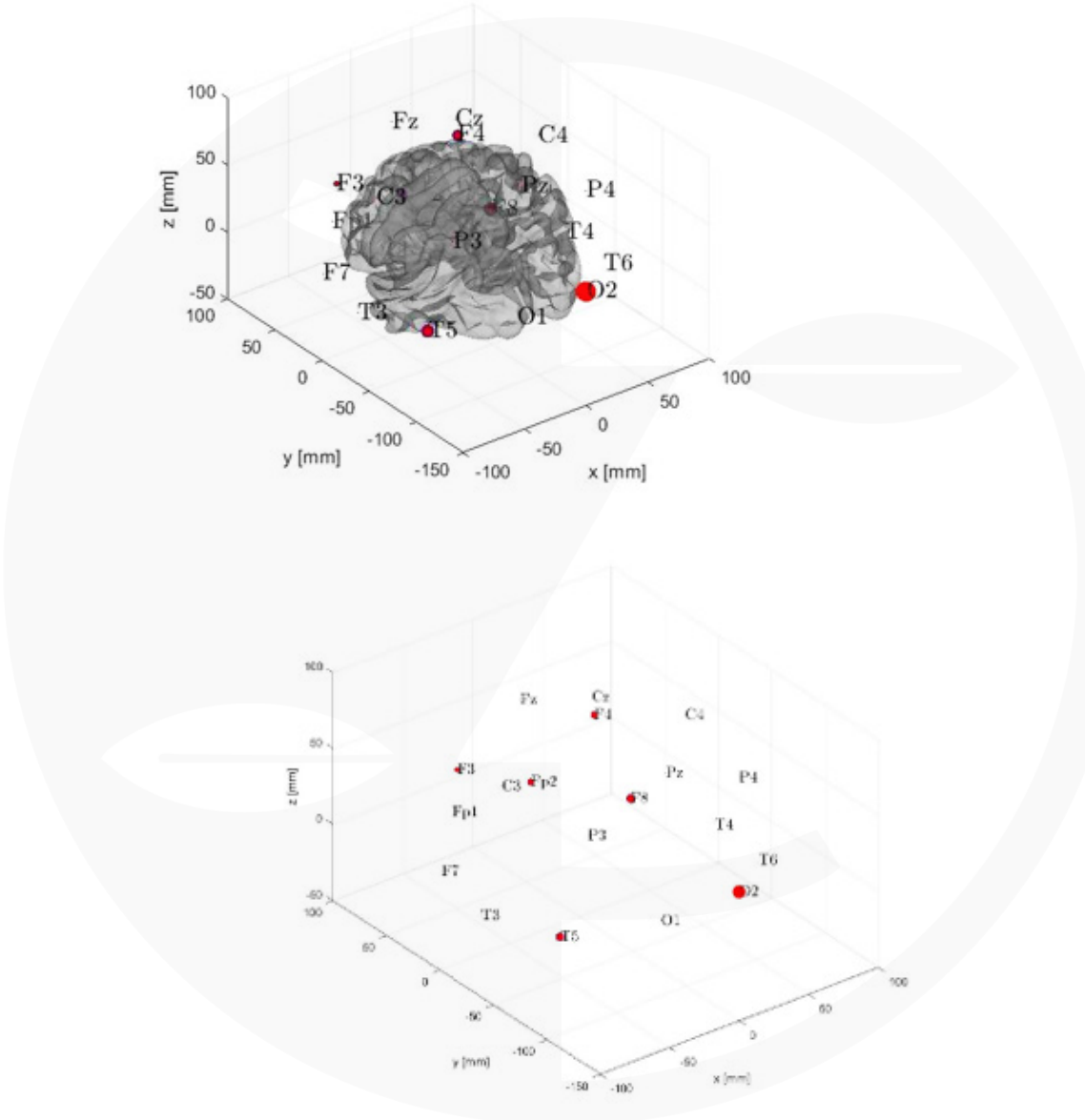


Figure 5. Graph analysis indicating increased connectivity (compared to the control group) within the highlighted region in the experiment group.

As shown in Figure 5, the activity of regions O2-T5-F4-F3-FP2-F8 in the experiment group is higher than in the control group. In fact, these regions in the experiment group have the most connections with their neighboring regions.

Discussion

Studying brain activity is very important in the consciousness research. Studies done so far in this field measure brain activity during specific tasks in cognitive science, behavioral science, and neuroscience. In the present study, both groups were placed under a Cosmic Consciousness Network (CCN) Connection. The Faradarmangar group served as the 'Announcers,' establishing the Connection for themselves, whereas the control group functioned solely as the recipients of the Connection. The marked difference in brain activity between the two groups reflects the mediating role of the mind in the Faradarmangar group. According to Taheri's theory and the intermediary role of the Faradarmani practitioner's mind in initiating the function of T-Consciousness Fields, this study compared their brain activity with that of non-practitioners or non-Faradarmangars (controls) under the same conditions, to observe possible differences attributable to this mediating role (mediating the function of T-Consciousness Field) at the brain level.

According to Mohammad Ali Taheri's theory, the human brain acts like a 'detector' when exposed to the FCF, and the result of this Connection is the repair of the system under treatment. For this Connection to begin, the presence of a person in the role of Faradarmangar (Faradarmani practitioner) is essential. Previously, in a study conducted by the authors of this article, the electrical brain activity of Faradarmangars was examined [9]. The results of that study showed an increase in gamma frequency in the frontal-parietal and DMN regions of the brain in Faradarmangars compared to the control group.

Since Connection with T-Consciousness Fields is possible for all humans through Faradarmangar(s), the effects were interpreted in two contexts: non-Faradarmangars exposed to the FCF and Faradarmangars serving as study subjects while being exposed to the FCF. On the other hand, what is observed in the comparison of brain manifestations in Connection with FCF between the two populations of Faradarmangars and random non-Faradarmangars (larger than the previous study) is purely the result of being a Faradarmangar during the mind's intermediation in the function of the FCF.

In the present study, consistent with the findings by Taheri and colleagues [9], not only was there no increase in activity in the frequency bands and regions associated with other meditation and mindfulness methods, but there was also a significant decrease in delta activity. Beta 2 and beta 3 frequency bands are observable in different brain regions. Furthermore, compared to the previous mentioned study, it can be concluded that the increased activity observed in the gamma frequency band is the result of Connection with the FCF in humans, regardless of whether one is a Faradarmangar or not.

Delta waves are the slowest recorded brain waves. They are often found in infants and young children and are observed in the deepest levels of relaxation and restorative sleep [16]. The decrease in delta waves is consistent with the conscious state of "emptiness" in meditation [17]. In contrast, beta 2 waves (mid-range beta: 15–20 Hz) are associated with increased energy, anxiety, and performance, and beta 3 waves (high beta: 18–40 Hz) are associated with stress, anxiety, paranoia, high energy, and high arousal [16]. The decrease in the beta 2 and beta 3 frequency bands in the Faradarmangar group during the mediation of the FCF function indicates a disengagement from the active and stimulated state of the brain and an overall reduction in conscious brain activity during this state.

Continuing the study of changes caused by the intermediation of the FCF function in the present study led to finding various types of decreases and increases in the pattern of connections between different brain regions during this state. Mental intermediation of Faradarmani function in the connectivity study (connections between different brain regions) shows that for the alpha1 frequency band, there is an increase in functional connectivity only between the ACC and rSFG regions, and multiple decreases in functional connectivity

between various regions of the frontal network for alpha2 and beta2/3 (in all frontal networks). Also, regarding the delta band between the left and right brain and in the frontal network, which is generally associated with cognitive and motor activities during human evolution, a decrease in information flow is observed [18]. Furthermore, graph analysis of the brain during mental intermediation of the FCF function shows a distinct brain graph with higher global efficiency associated with a specific task and six nodal regions, all of which can be considered indicators and representations of mental intermediation in Faradarmani function at the brain level of Faradarmangars.

In summary, considering five of the eight brain frequency bands and 39 of the 52 Brodmann areas (BAs), the findings of this study demonstrate widespread reductions in frequency-band activity together with a marked decrease in functional connectivity, particularly within the frontal lobe. Alongside these reductions, and despite the observed increase in global graph efficiency, these findings support the hypothesis that, in the role of a Faradarmangar, the human brain functions primarily as a passive yet powerful detector, indicator, and mediator of the operation of the FCF, rather than as an active operator or initiator. Based on these findings, further investigation of the effects of other T-Consciousness Fields on the brain, as well as the application of additional neuroimaging techniques such as fMRI, is warranted.

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References

1. Chalmers, D. J. (1995). Facing up to the problem of consciousness. *Journal of consciousness studies*, *2*(3), 200-219.

2. Taheri MA: “Human from another outlook” Interuniversal Press; 2nd Edition (September 26, 2013). ISBN-13: 978-1939507006, ISBN-10: 1939507006 2013.

3. Hecht, E., & Stout, D. (2014). Techniques for studying brain structure and function. In *Human paleoneurology* (pp. 209-224). Cham: Springer International Publishing.

4. Friston, K. (2002). Beyond phrenology: what can neuroimaging tell us about distributed circuitry?. *Annual review of neuroscience*, *25*(1), 221-250.

5. Friston, K. J. (1994). Functional and effective connectivity in neuroimaging: a synthesis. *Human brain mapping*, *2*(1-2), 56-78.

6. Ismail, L. E., & Karwowski, W. (2020). A graph theory-based modeling of functional brain connectivity based on EEG: a systematic review in the context of neuroergonomics. *Ieee Access*, *8*, 155103-155135.

7. Vecchio, F., Miraglia, F., & Rossini, P. M. (2017). Connectome: Graph theory application in functional brain network architecture. *Clinical neurophysiology practice*, *2*, 206-213.

8. Taheri, M. A. (2014). The purpose of practicing Faradarmani treatment; an Iranian complementary and alternative medicine. *Procedia-Social and Behavioral Sciences*, *114*, 75-79.

9. Taheri, M. A., Semsarha, F., & Modarresi-Asem, F. (2020). An Investigation on the Electrical Activity of the Brain during Fara-Darmani Connection in the Fara-Therapist Population. Preprints 2020, 2020090679 (doi: 10.20944/preprints202009.0679.v1).

10. Pascual-Marqui, R. D. (2007). Discrete, 3D distributed, linear imaging methods of electric neuronal activity. Part 1: exact, zero error localization. *arXiv preprint arXiv:0710.3341*.

11. Pascual-Marqui, R. D., Lehmann, D., Koukkou, M., Kochi, K., Anderer, P., Saletu, B., ... & Kinoshita, T. (2011). Assessing interactions in the brain with exact low-resolution electromagnetic tomography. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, *369*(1952), 3768-3784.

12. Nichols, T. E., & Holmes, A. P. (2002). Nonparametric permutation tests for functional neuroimaging: a primer with examples. *Human brain mapping*, *15*(1), 1-25.

13. Canuet, L., Ishii, R., Pascual-Marqui, R. D., Iwase, M., Kurimoto, R., Aoki, Y., ... & Takeda, M. (2011). Resting-state EEG source localization and functional connectivity in schizophrenia-like psychosis of epilepsy. *PloS one*, *6*(11), e27863.

14. Imperatori, C., Della Marca, G., Brunetti, R., Carbone, G. A., Massullo, C., Valenti, E. M., ... & Farina, B. (2016). Default Mode Network alterations in alexithymia: an EEG power spectra and connectivity study. *Scientific reports*, *6*(1), 36653.

15. Mijalkov, M., Kakaei, E., Pereira, J. B., Westman, E., Volpe, G., & Alzheimer's Disease Neuroimaging Initiative. (2017). BRAPH: a graph theory software for the analysis of brain connectivity. *PloS one*, *12*(8), e0178798.

16. Abhang, P. A., Gawali, B. W., & Mehrotra, S. C. (2016). *Introduction to EEG-and speech-based emotion recognition*. Academic Press.

17. Hinterberger, T., Schmidt, S., Kamei, T., & Walach, H. (2014). Decreased electrophysiological activity represents the conscious state of emptiness in meditation. *Frontiers in psychology*, *5*, 99.

18. Leisman, G., Moustafa, A. A., & Shafir, T. (2016). Thinking, walking, talking: integratory motor and cognitive brain function. *Frontiers in public health*, *4*, 179575.

Task-fMRI Group and Functional Connectivity Analysis of the Brain During Faradarmani Consciousness Field Connection

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Abstract

Mohammad Ali Taheri has introduced "T-Consciousness," from which T-Consciousness Fields originate, as one of the fundamental constituents of the universe, in addition to matter and energy. These fields are neither matter nor energy, but they can be proven through scientific experiments. In this study, the Faradarmani Consciousness Field (FCF), which is one of Taheri's Consciousness Fields has been applied. A Faradarmangar (Faradarmani practitioner) is a trained individual who has the ability to apply T-Consciousness Fields. The fMRI task plays an important role in understanding the specific functions of various regions of the human brain during different cognitive activities. This study was conducted with the aim of investigating group analysis and functional connectivity in the brains of Faradarmangars during Connection with the FCF, and using task-fMRI, various activated and deactivated brain regions were identified during this Connection. Clusters that showed a significant difference in peak intensity between the task group and the rest group were selected as seeds for seed-voxel analysis. After identifying activated and deactivated networks, group differences in functional connectivity analysis were used. In this study, an fMRI-based representation of Connection with the FCF is reported. Group analysis of the data showed activation of the frontal lobe (BA6/BA10/BA11) during Connection with the FCF. Furthermore, seed-based functional connectivity analysis showed decreased connectivity between activated clusters and the posterior cingulate gyrus (BA31). In addition, increased connectivity was observed in deactivated clusters and the frontal lobe (BA11/BA47) during Connection with the FCF. The activated clusters, as well as the increased and decreased connectivity between different brain regions during Connection with the FCF, first confirm the significant influence of the FCF, and second, reveal the distinct pattern of Connection with this non-material and non-energy Field at the brain level.

Keywords: Faradarmani Consciousness Field, T-Consciousness Fields, Functional Connectivity, Task-fMRI

Introduction

For over a century, researchers have tried to discover how cognitive activities work in the brain. Functional magnetic resonance imaging (fMRI) is a powerful, non-invasive technique that allows researchers to look at the living brain while a person performs a specific task, thereby seeing which parts of the brain are active during that task [1]. Activation in brain regions is defined by changes in the blood oxygen level-dependent (BOLD) signal [2]. In other words, activity in a specific brain region is accompanied by increased blood flow to that region, which supplies the oxygen and glucose needed for neural activity. fMRI is increasingly used to investigate dysfunction in diseases such as Alzheimer's [3, 4], Parkinson's [5, 6], schizophrenia [7, 8], and others. Furthermore, fMRI is particularly suitable for screening the effects of drugs on pain processing in the human central nervous system [9].

Studies of functional activities have also been used to clarify the level of functional connectivity between different brain regions. Functional connectivity is defined as the temporal dependence between neurophysiological events that are physically distant from each other [10, 11]. Biswal and colleagues were the first to show that there are high degrees of temporal correlation both within and across the sensorimotor cortex of the brain at rest [12, 13]. Various studies have reported connectivity between the left and right motor cortex during rest [14].

The default mode network (DMN) is known as the brain system that is preferentially active when individuals are not focused on the external environment [15, 16]. Additionally, the DMN has been involved in self-referential mental activities [17]. Goal-directed behaviors cause a decrease in activity in brain regions including the medial prefrontal cortex, medial and lateral parietal cortex, and limbic and paralimbic regions, which are considered the default network [18]. Among these regions, the medial prefrontal cortex (mPFC) primarily shows decreased activity during goal-directed behaviors in fMRI studies [17]. It has been reported that DMN activity and connectivity are involved in the integration of cognitive and emotional processing [19], as well as in mind-wandering [20]. Furthermore, numerous studies have investigated changes within this network in disorders of cognitive dysfunction such as schizophrenia [21–23] and depression [24].

Many researchers have long investigated the issue of the mind-body relationship, behavior, and specific regions of the brain. The reductionist approach that some researchers take suggests that each part of the brain has a specific functional role [1]. Chen and colleagues (2019) provided evidence for the architecture of directed information networks in the cerebral cortex using resting-state fMRI, stating that the configuration features of information flow in the baseline state (rest) underlie cognitive ability in humans [25]. Numerous research projects have been conducted to investigate how the mind interacts with the brain and the major neural changes in this interaction; for example, the brain under meditation or mindfulness states has been extensively studied. Several studies indicate that mindfulness is associated with brain activation or connectivity in multiple brain regions [26]. According to a systematic review, mindfulness increases insular cortex activities in seven brain regions. However, they found no strong evidence for increased activities in the lower regions of the prefrontal cortex [27]. Recently, an fMRI study during Transcendental Meditation practice showed that blood flow patterns are higher in the anterior cingulate and lateral posterior prefrontal cortex but lower in the pons and cerebellum [28]. It has been reported that meditation is associated with decreased DMN activities compared to performing an active task in meditation, compared to the control group [29]. Similarly, it has been shown that in several different meditations, including focus, loving-kindness, and choiceless awareness, the DMN (prefrontal cortex and posterior cingulate) is deactivated compared to the control [30].

In the current century, the nature of ‘consciousness’ and its place in the world of science have received much attention, and many philosophical and scientific theories have been proposed in this field. In the 1980s, Mohammad Ali Taheri introduced new fields with a non-material and non-energy nature, which are called T-Consciousness Fields (T-Consciousness Fields). In this view, T-Consciousness is one of the

three elements existing in the universe, in addition to matter and energy.

The effect of T-Consciousness Fields is initiated by a trained individual, known as a *Faradarmangar*, through a brief moment of attention. These Fields cannot be directly measured by science, but their effects on various subjects can be investigated through repeatable experiments [31]. In previous research, it was observed that the MCF-7 cancer cell line [32], wheat plants under salt stress [33], and an animal model of Alzheimer's disease [34] were significantly affected by the Faradarmani Consciousness Field (FCF). More details about Taheri's Consciousness Fields theory and types of experimental studies are presented in a review study [35].

Also, in a previous related study [36], the electrical brain activity during Faradarmani Connection was investigated in a population of Faradarmangars, and it was observed that the power of the 34–40 Hz frequency band in the frontal lobe increased significantly. This increase was mainly in the medial frontal gyrus (BA6), and subsequently in the central lobule of the brain, during the task of Connection with the FCF, compared to the resting state (without Connection) in the same population of Faradarmangars. In the present study, in order to complement and further develop the aforementioned previous investigations, brain activity in the population of Faradarmangars was examined using the fMRI technique. The aim of this study is to investigate the specific behavior of the human brain during Connection with the FCF, using task groups and functional connectivity analysis.

Method

In the present study, group task-fMRI analysis and functional connectivity analysis were performed on a population of Faradarmangars, and the activity of their brain regions was compared during task and rest. The task refers to the activity during which the Faradarmangar connects to the Cosmic Consciousness Network. This study was approved by the Ethics Committee of Iran University of Medical Sciences (Approval ID: IR.IUMS.REC.1399.29).

Participants

The participants in this study were 20 healthy individuals (males and females in equal numbers) with a history of at least two years of activity as Faradarmangar. The age range of the samples was between 20 and 50 years (MD = 35.5 ± 9.16).

Task Design

In this study, three rest blocks (Rest 1, 2, and 3) and two task blocks (Task 1 and 2) were defined, and the study began with a rest state (Figure 1). The purpose of this design, in addition to providing conditions for observing greater differentiation between task and rest states, was also to examine changes in brain activity when switching from task state to rest state. Prior to this study, the possibility of disconnecting from the T-Consciousness Field after initial initiation had not been experimentally studied. Therefore, in this study, we examined the ‘disconnection’ referred to as Rest 2 and 3 between the states of Connection with the FCF (Task blocks 1 and 2).

The task in this study is the establishment of Connection by the defined participants with the FCF. At the beginning of each task block, a sound is played and participants are asked to close their eyes and initiate this Connection during their fMRI scan. The study began with a rest state (without Connection to the FCF) and with eyes open, and the total scan time in both task and rest states was 15 minutes per person. In the rest blocks, a fixed point (+) is displayed for 180 seconds. All comparisons in this study were between the task and rest states within the same group of participants.

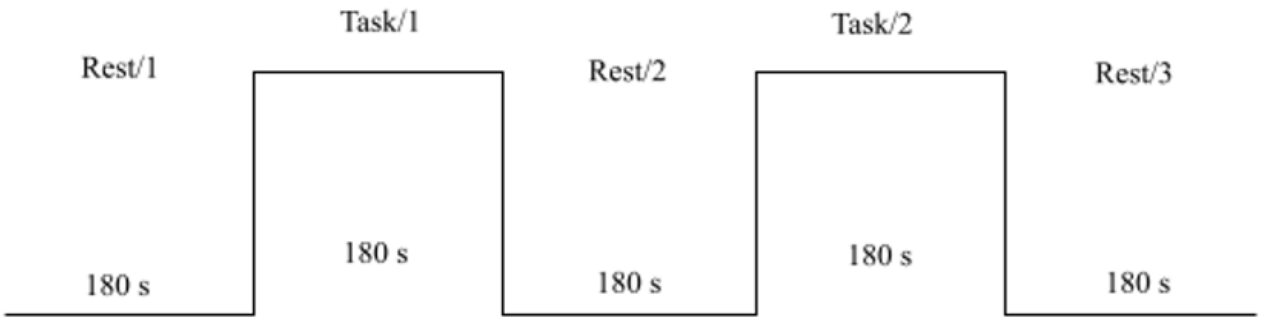


Figure 1. The Task-Rest block design and their duration in the present study

fMRI Data Collection

Brain imaging was performed at the National Brain Mapping Laboratory (Tehran, Iran). Participants were positioned in the MRI scanner, and foam pads were used to minimize head motion and improve the signal-to-noise ratio (SNR). Data were acquired using a 3-Tesla MRI system (Siemens MAGNETOM Prisma) equipped with a standard 20-channel head coil. Three-dimensional T2*-weighted functional images were acquired using blood oxygen level-dependent (BOLD)-sensitive gradient-echo echo-planar imaging (EPI), with an echo time (TE) of 30 ms and a repetition time (TR) of 3000 ms. During each TR, 34 axial slices were obtained with a flip angle of 90°, a 64 × 64 acquisition matrix, a field of view (FOV) of 210 mm, and a voxel size of 3 × 3 × 3 mm. Functional scanning consisted of 248 volumes for each participant. High-resolution whole-brain structural images were acquired for each participant using a T1-weighted MPRAGE sequence (TR = 1800 ms, TE = 3.74 ms, flip angle = 7°, 176 slices, FOV = 256 × 256 mm, voxel size = 1 × 1 × 1 mm).

fMRI Task Analysis

Task fMRI analysis was performed using the Statistical Parametric Mapping software package (SPM12) (Wellcome Department of Cognitive Neurology, London, UK). The preprocessing stage included fieldmap correction, realignment, co-registration of functional and anatomical scans, normalization, and smoothing. Additionally, low-frequency noise was removed by applying a high-pass filter (cut-off period = 100 seconds) to the fMRI time series at each voxel. Head motion was checked, and the threshold was considered to be less than the voxel size (3 mm). Significant hemodynamic changes for each condition were investigated using a general linear model with boxcar functions convolved with a hemodynamic response function. Statistical parametric maps were calculated for each t-statistical contrast on a voxel-wise basis.

Group and Functional Connectivity Analysis of fMRI

Preprocessing of data for fMRI connectivity analysis was performed using the CONN toolbox (version c19) (Whitfield-Gabrieli and Nieto-Castanon 2012). The analysis includes the following steps:
1- Estimation and correction of participant head motion

2- Slice timing correction

3- Segmentation of different brain regions (gray/white/CSF) and normalization of data into MNI standard space.

Following that, in the denoising step, fMRI signals are passed through a 100-degree filter to remove the effects of respiratory and cardiac noise from the signal. In order to perform functional connectivity analysis, the peak coordinates of activated clusters in the fMRI data analysis were considered as seeds with a radius of 10 mm. Functional connectivity analysis was performed using generalized psychophysiological interaction (gPPI) [37] at the first-level analysis stage. Effects are reported according to the contrast for activated networks (Task>Rest) and for deactivated networks

(Rest>Task) across all participants in the seed-to-voxel analysis. At the second-level analysis stage, for each participant, the gPPI model average BOLD time series of each seed from the corresponding functional images was calculated as the representative of that seed, and was correlated using Pearson correlation analysis with the time courses of all brain voxels.

Statistical Analysis

In the fMRI analysis, a paired t-test was used to create contrasts, and the p-value was set at 0.05. In the functional connectivity analysis, statistical significance for all comparisons was set at $p < 0.05$, FDR-corrected at the cluster level (cluster threshold), and $p < 0.001$ uncorrected at the voxel level (height threshold).

Results

Activated and Deactivated Brain Regions

Activation and deactivation of brain regions during Connection with the FCF were measured, as shown in Figure 2. As illustrated in this figure, the frontal-parietal lobes of both brain hemispheres show a significant increase in activity during this task. On the other hand, the temporal and occipital lobes of the left and right hemispheres become deactivated during Connection with the FCF.

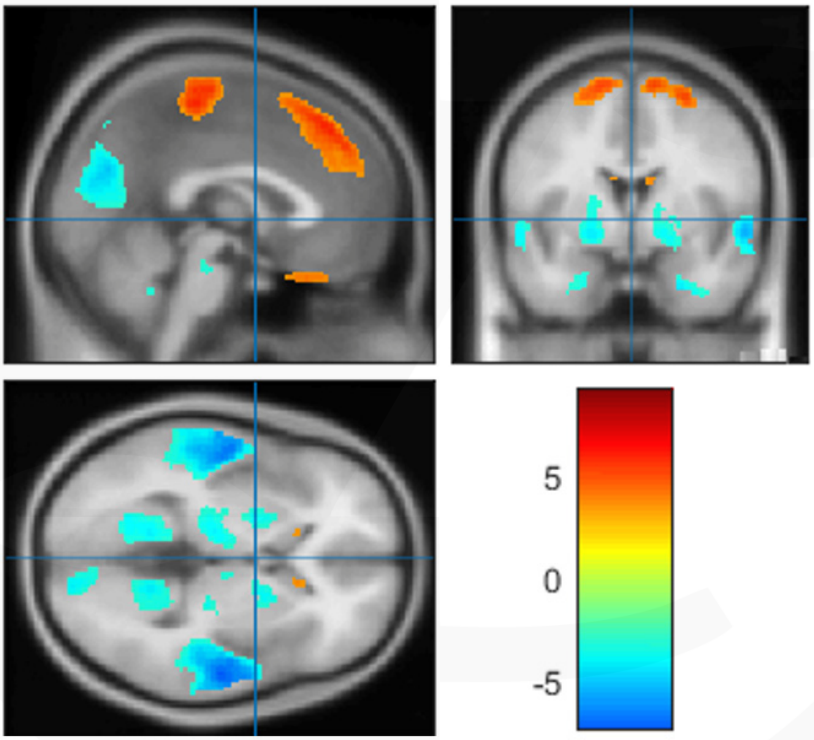


Figure 2. Activated and deactivated brain regions during 'Connection' with the Faradarmani Consciousness Field in the Faradarmangar population of the present study (red indicates higher activity and blue indicates lower activity)

The three-dimensional display of activated and deactivated brain regions during the task is shown in Figure 3.

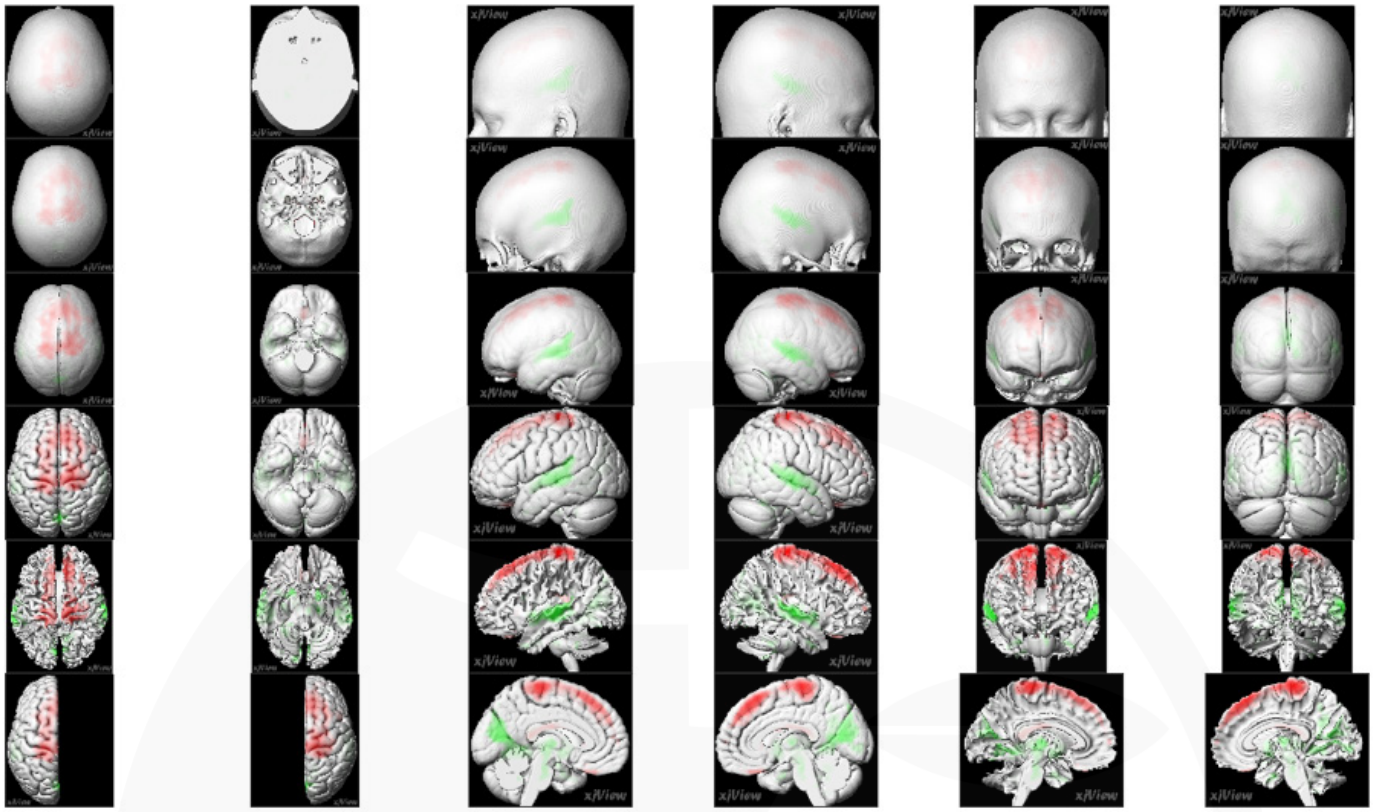


Figure 3. Three-dimensional view of the brain of the Faradarmangar population during the fMRI task (Faradarmani Consciousness Field Connection) in all directions (top, bottom, sagittal, and dorsal views).

An interesting point is that during FCF Connection, there is symmetry in the activated and deactivated regions, which is significantly different compared to the rest state (Figure 3). The comparison of task contrasts from Reset1 and all Reset blocks in activated and deactivated regions is shown in Figure 4.

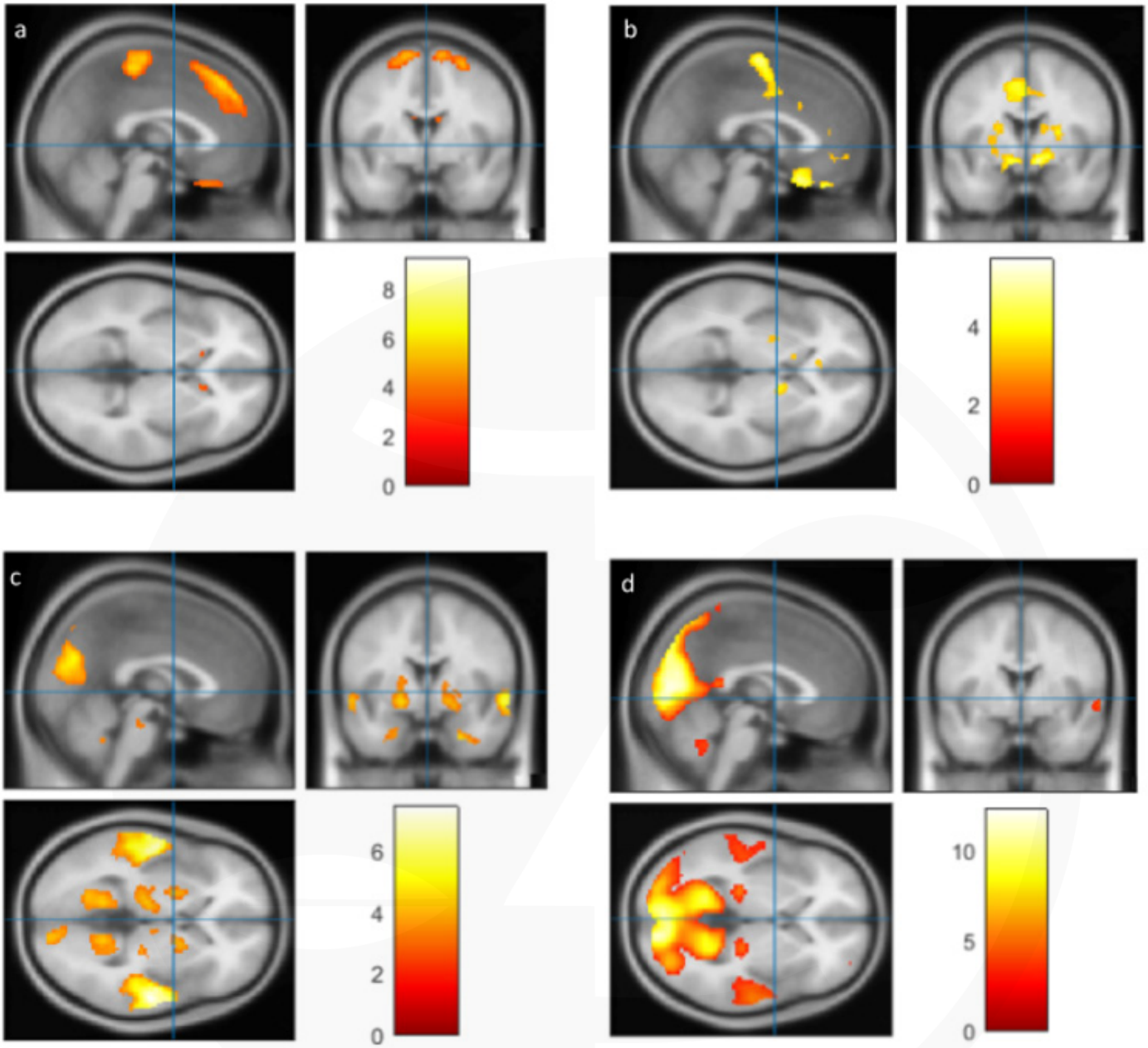


Figure 4. Activated and deactivated brain regions in the Faradarmangar population during Connection with the Faradarmani T-Consciousness Field; Activated in: (a) Task > Rest, (b) Task > Rest 1, and deactivated in: (c) Rest 1 > Task, and (d) Rest > Task.

As shown in Figure 4, considering different rest states leads to significant changes in the intensity and the activated and deactivated regions in the brains of Faradarmangars. For better clarity, three sagittal views (a) and (c) from Figure 4 have been expanded and are shown in Figure 5.

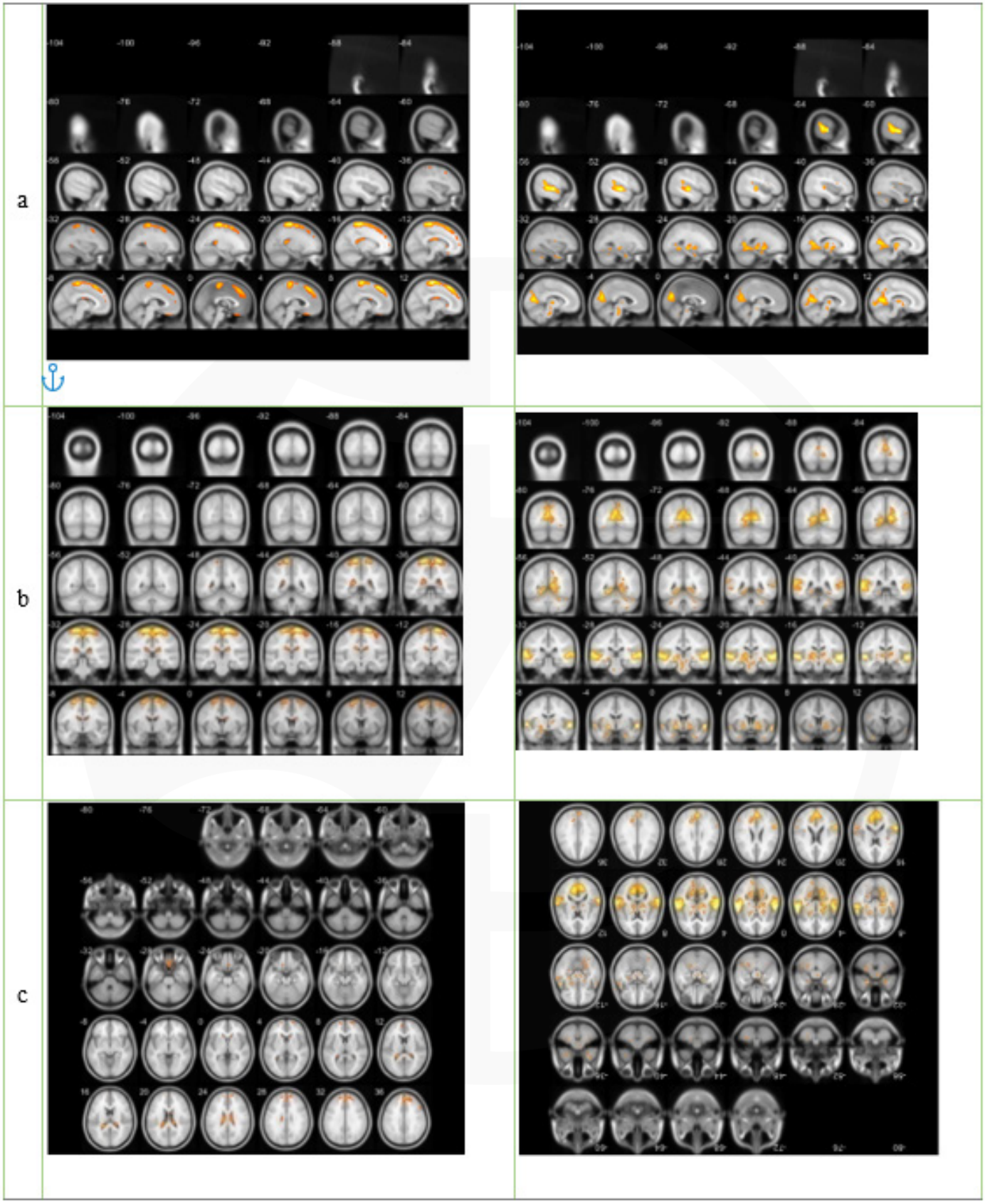


Figure 5. Activated (left) and deactivated (right) brain regions of Faradarmangars during Faradarmani Consciousness Field Connection in Task>Rest1 and Rest1>Task, respectively, in (a) sagittal, (b) coronal, and (c) transverse views.

Analysis of Activated and Deactivated Clusters

The activated and deactivated clusters during Faradarmani Consciousness Field Connection were measured and are shown in Tables 1 and 2, respectively. The threshold for this analysis was set at p-value = 0.001, intensity = 3.0916, and cluster size = 5.

Table 1. Number of voxels, peak MNI coordinates, associated regions, and intensity in activated clusters during Faradarmani Connection. Activated clusters with a voxel count in the order of 1000 are highlighted in gray.

Activation clusters	Number of voxels	Peak MNI coordinate	Cerebrum	Lobe	Peak MNI region	Peak intensity
1	173	-4 34 -28	Left	Frontal	Rectal Gyrus (BA11)	4.1921
2	16	-10 24 -20	Left	Frontal	Medial Frontal Gyrus	3.6603
3	18	12 22 0	Right	Sub-lobar	Caudate_R (aal)	3.5045
4	14	-14 22 2	Left	Sub-lobar	Caudate_L (aal)	3.3306
5	6	-32 -48 2	Left	Sub-lobar	Lateral Ventricle	3.563
6	33	-16 62 6	Left	Frontal	Medial Frontal Gyrus	3.8461
7	56	20 64 6	Right	Frontal	Superior Frontal Gyrus (BA10)	3.963
8	396	-20 -38 14	Left	Sub-lobar	Lateral Ventricle	5.2362
9	225	18 -28 20	Right	Sub-lobar	Caudate	4.7855
10	8993	14 -24 72	Right	Frontal	Precentral Gyrus	9.1736

As shown in Table 1, the right and left frontal lobes, as well as the subcortical regions of the brain, become activated during the FCF Connection (more than 50 voxels). The most active regions are observed in the Precentral Gyrus in the white matter of the right frontal lobe (BA6). Following that, the left and right subcortical regions, as well as BA11 and BA10, are also activated regions.

Table 2. Number of voxels, peak MNI coordinates, associated regions, and intensity of deactivated clusters during the Faradarmani Consciousness Field Connection. Deactivated clusters with a voxel count in the order of 1000 are highlighted in gray.

Deactivation clusters	Number of voxels	Peak MNI coordinate	Cerebellum	Lobe	Peak MNI coordinate region	Peak intensity
1	45	28 -52 -52	Right	Cerebellum Posterior	Cerebellar Tonsil	-3.6114
2	29	20 -42 -42	Right	Cerebellum Posterior	Cerebellar Tonsil	-3.7023
3	36	-32 -48 -34	Left	Cerebellum Anterior	Culmen	-3.5606
4	121	26 0 -34	Right	Limbic	ParaHippocampal_R (aal)	-4.5244
5	1293	-24 -22 -6	Left	Sub-lobar	Optic Tract	-5.1218
6	193	32 -44 -34	Right	Cerebellum Anterior	Culmen	-3.837
7	11	2 -54 -34	Right	Cerebellum Anterior	Vermis_9 (aal)	-3.3818
8	6	10 -26 -34	Right Brainstem	undefined	Pons	-3.1819
9	43	46 -50 -28	Right	Cerebellum Anterior	Culmen	-3.8079
10	8	-28 -56 -24	Left	Cerebellum Posterior	Declive	-3.3039
11	2023	58 -18 0	Right	Temporal	Superior Temporal Gyrus	-7.3881
12	51	8 -20 -16	Right Brainstem	undefined	Midbrain	-3.7833
13	39	-32 -72 -14	Left	Occipital	brodmann area 18 // Fusiform_L (aal)	-3.6249
14	145	30 -16 -12	Right	Sub-lobar	Hippocampus_R (aal)	-4.4384
15	4271	12 -60 10	Right	Limbic	Calcarine_R (aal)	-5.3935
16	491	18 2 -8	Right	Sub-lobar	Extra-Nuclear	-4.2654
17	2153	-54 -14 0	Left	Temporal	Superior Temporal Gyrus	-6.6313
18	15	32 -80 -10	Right	Occipital	Inferior Occipital Gyrus	-3.57
19	23	-34 -8 18	Left	Sub-lobar	Insula // brodmann area 13	-3.6764
20	14	-44 14 18	Left	Frontal	Sub-Gyral	-3.392
21	17	56 -62 22	Right	Temporal	Superior Temporal Gyrus // brodmann area 39	-3.4743
22	9	34 -28 22	Right	Sub-lobar	Extra-Nuclear	-3.4575

The most deactivated regions (more than one thousand voxels) during the FCF Connection are shown in Table 2. The highest level of deactivation is observed in the white matter of the right limbic lobe in the Calcarine region, followed by the gray and white matter of the right and left temporal lobes in the superior temporal gyrus (BA22). Finally, deactivation was also observed in the white matter of the left subcortical region in the optic tract.

Functional Connectivity Analysis

Functionally Related Regions in Activated Areas

The results of the seed-to-voxel analysis are shown in Table 3. These measurements consider the peak activity points in the fMRI analyzed at Task>Rest with an uncorrected P-value < 0.001. Information on voxels that were functionally related to the peak

of activated regions with an uncorrected p-value < 0.001 is presented in Table 4.

Information on voxels that were functionally related to the peak of activated regions with an uncorrected p-value < 0.001 is presented in Table 4.

Table 3. Peak activity in the Task-Rest contrast of fMRI data considering a cluster threshold of 50 voxels and FWE = 0.05.

#	X	Y	Z	Voxel
Cluster 1	-4	34	-28	173
Cluster 2	20	64	6	56
Cluster 3	-20	-38	14	396
Cluster 4	18	-28	20	225
Cluster 5	14	-24	72	8993

Table 4. Activation of functionally related clusters in voxels and corresponding regions.

Cluster No.	1
Dimension	x: -4 y: -30 z: +42
Related regions	128 voxels covering 5% of atlas.PC (Cingulate Gyrus, posterior division) 18 voxels covering 0% of atlas.PreCG l (Precentral Gyrus Left) 30 voxels covering 0% of atlas.not-labeled

As shown in Table 4, there is an increase in connectivity between the activated clusters during FCF Connection (Table 3) and the posterior cingulate gyrus. The sagittal view of the functionally related clusters identified, and their effect size are shown in Figure 6.

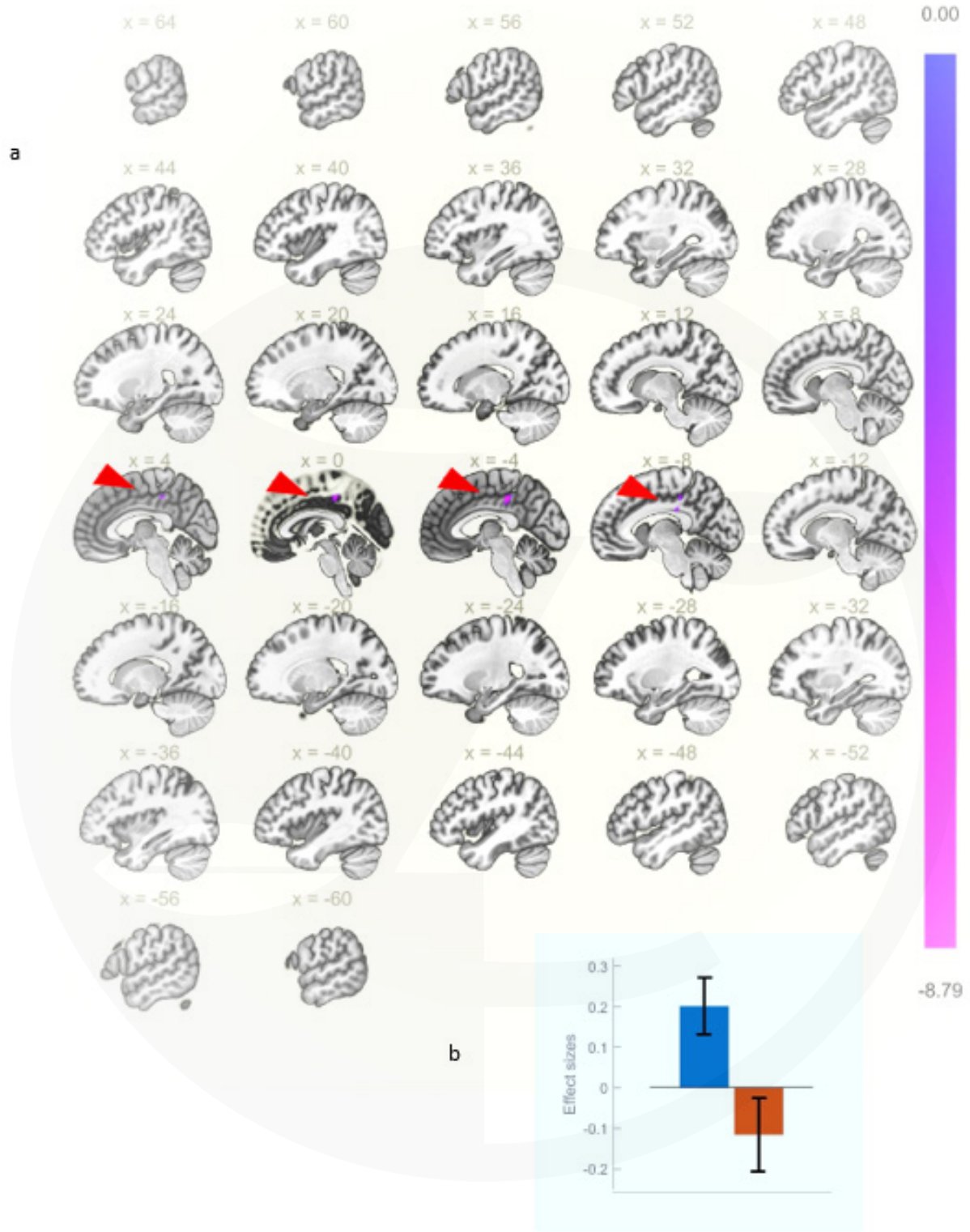


Figure 6. Regions related to functionally activated clusters (red arrow) from a: sagittal view and b: its effect size plot showing Faradarmani Consciousness Field Connection with the red bar.

Functionally Related Regions in Deactivated Areas

The results of the seed-to-voxel analysis, considering the peak activity points of the analyzed fMRI data as seeds (Table 5) in Rest1>Task with an uncorrected p-value < 0.001, are as follows:

Table 5. Peak activity in the Rest-Task contrast of fMRI data considering a cluster threshold of 50 voxels and FWE = 0.05.

Cluster Number	X	Y	Z	# Voxel
1	26	0	-34	121
2	-24	-22	-6	1293
3	32	-44	-34	193
4	58	-18	0	2023
5	8	-20	-16	51
6	30	-16	-12	145
7	12	-60	10	4271
8	18	2	-8	491
9	-54	-14	0	2153

Information on clusters and voxels that are functionally related to the peaks of deactivated regions in the rest state compared to the task (Rest-Task contrast), with an uncorrected p-value < 0.001, is presented in Tables 6 and 7.

Table 6. Deactivation in functionally related clusters.

Cluster	Cluster (x,y,z)	size	size p-FWE	size p-FDR	size p-unc	peak p-FWE	peak p-unc
1	+50 +18 -12	136	0.021966	0.032768	0.000799	0.994287	0.000090
2	+10 +60 -14	147	0.026336	0.045301	0.001105	0.998435	0.000149

Table 7. Deactivation of functionally related clusters in voxels and associated regions.

Cluster	No. of Voxels	Related Regions
1	47	covering 3% of atlas.IC r (Insular Cortex Right)
	34	covering 1% of atlas.TP r (Temporal Pole Right)
	8	covering 1% of atlas.FOrb r (Frontal Orbital Cortex Right)
	4	covering 0% of atlas.Putamen r
	2	covering 1% of atlas.FO r (Frontal Operculum Cortex Right)
	41	covering 0% of atlas.not-labeled
2	61	covering 1% of atlas.FP r (Frontal Pole Right)
	52	covering 1% of atlas.FP l (Frontal Pole Left)
	34	covering 0% of atlas.not-labeled

As shown at the cluster level in Table 6, two clusters with increased connectivity between deactivated clusters during the FCF Connection (Table 5) correspond to regions BA47 and BA11 in the right frontal lobe. The sagittal view of the functionally related clusters, as well as their effect sizes, can be seen in Figures 7 and 8.

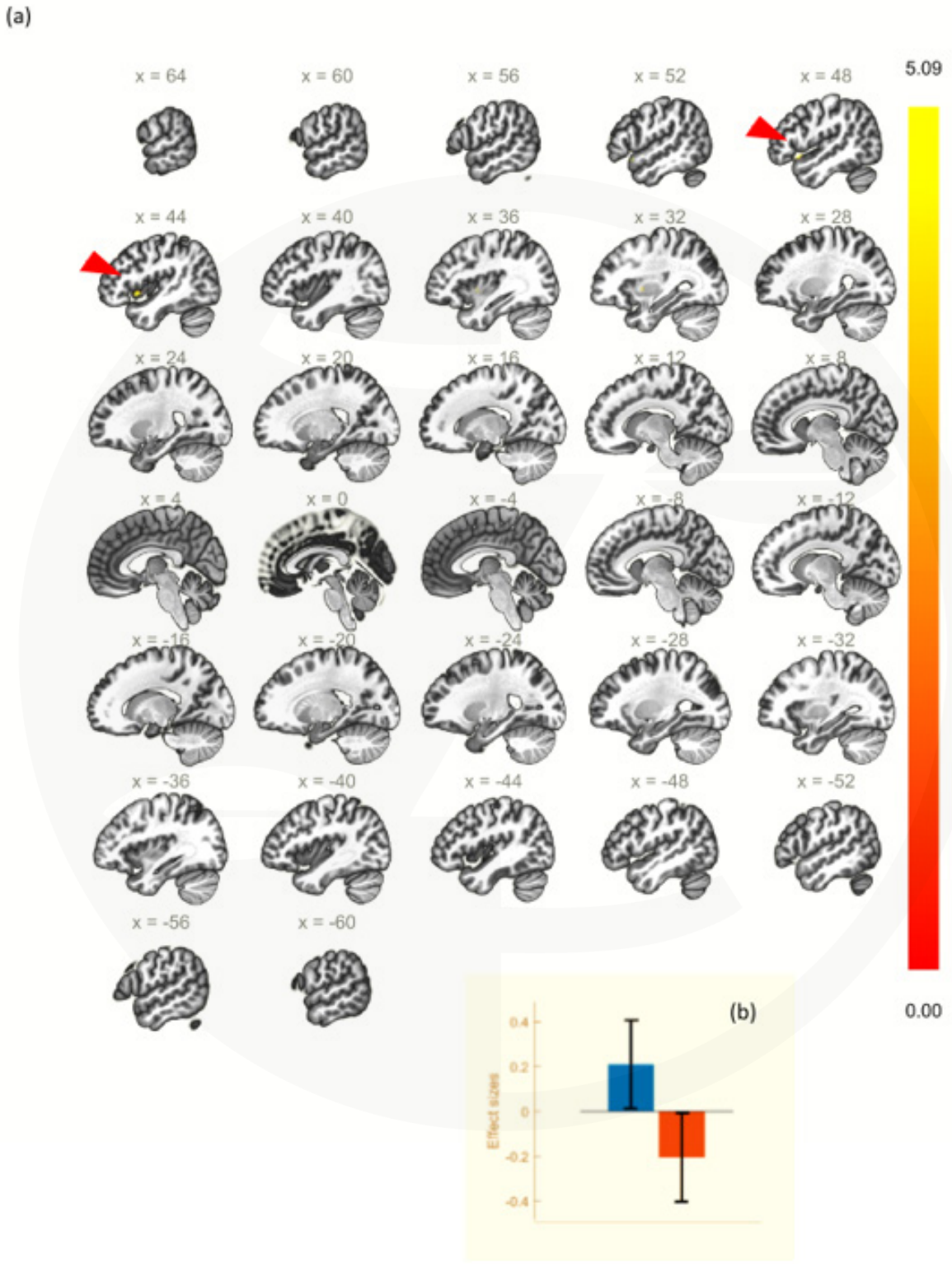


Figure 7. Regions related to functionally deactivated cluster 1 (red arrow) from a: sagittal view and b: its effect size plot showing Faradarmani Consciousness Field Connection with the red bar.

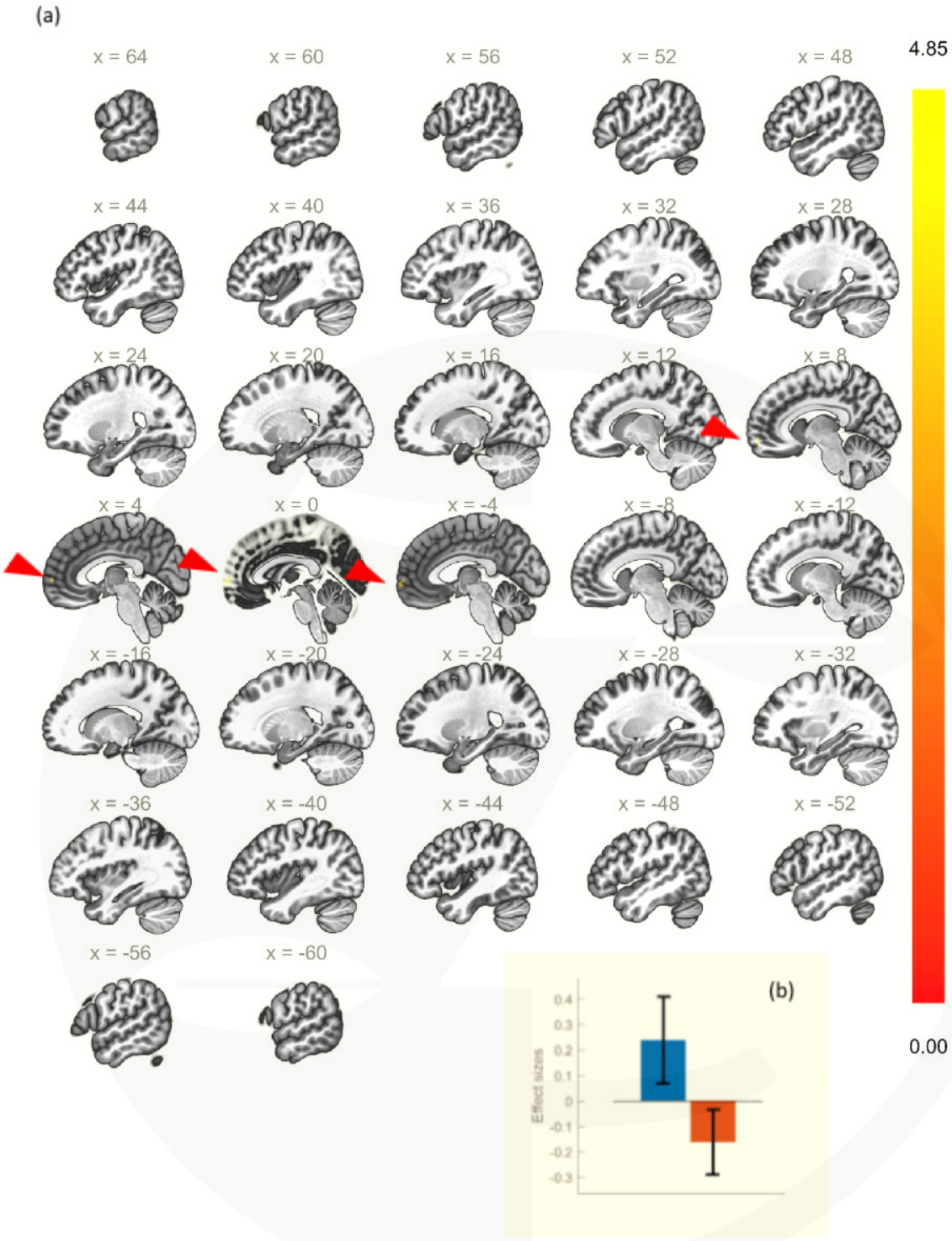


Figure 8. Regions related to functionally deactivated cluster 2 (red arrow) from a: sagittal view and b: its effect size plot showing Faradarmani Consciousness Field Connection with the red bar.

Discussion

In this study, we measured the activation and deactivation of brain regions and analyzed the results using task fMRI and functional connectivity. Based on the results, FCF Connection leads to activation of the frontal regions of the brain. These results are consistent with previous studies on the brain of Faradarmangars [36], in which most activities occurred in the BA6 regions. On the other hand, FCF Connection led to decreased activity in the calcarine limbic lobes and the BA22 temporal lobes. Functional connectivity analysis in activated and deactivated brain regions shows that functional connectivity increases in the BA31 region during the FCF Connection. In contrast to the task state, upon disconnection from the FCF, functional connectivity increases in the BA11/47 region.

Similar to previous findings [36], brain electrical activity increases in the frontal lobes during the FCF Connection. A distinctive feature of the frontal lobe is its role as a traffic hub within the nervous system, connecting to other brain regions and vice versa [38]. In the present study, the BA6 region within the frontal lobe showed the highest activity during FCF Connection. The BA6 region is the largest part of the Brodmann area and is commonly called the premotor cortex, which is involved in determining the sequence and planning of movements [39]. Many functions have been attributed to this region, including a role in cognitive function [40]. Other proposed roles for the BA6 region include memory [41] and attention [42].

After BA6, the BA10/11 part of the frontal lobe is the next region that becomes highly activated; BA10/11 is also part of the prefrontal cortex (PFC) and is located in the anterior part of the frontal lobe. This region developed at one of the latest points in evolutionary time and makes up more than a quarter of the cerebral cortex [43]. Functions attributed to BA10 include memory encoding [41], memory retrieval [44], and working memory [45]. It has also been reported that this part plays a role in personality integration [46]. To date, due to the difficulty of studying the connection between these regions when using fMRI tests, few investigations have been conducted on how this region responds and correlates with personality dimensions.

The decrease in functional connectivity between BA10/11 and BA31 is one of the interesting findings in this study. As suggested in the literature related to the DMN, the default network hubs are typically located between the mPFC and the PCC [15]; the observed decrease may be due to the lack of connection between the activated regions and the default network. This data also rules out the possible simultaneity and connection between the default network and brain activity during FCF Connection.

In this study, during the FCF Connection, we also observe deactivated brain regions. The limbic region of the brain, located on both the left and right sides, is the most primitive part of the brain, shared with other mammals, reptiles, amphibians, and fish. The main functions of this region are regulating emotions, sexual responses, and homeostasis in humans [47]. The decrease in activity in the limbic region during FCF Connection occurs in the calcarine parts, which house the primary visual cortex [48]. Additionally, the optic tracts located within the lobes in the left cortex show decreased activity in the FCF Connection. This decrease is concurrent in the BA22 regions, which are the auditory association cortex [49].

This decrease in activity in the visual and auditory regions of the brain is related to the opening of the eyes in the rest state and the sound signal that is heard at the end of it, signaling entry into the task state. On the other hand, in deactivated regions and the PFC parts (BA47/11), an increase in functional connectivity is observed, which in the case of BA11 correlates with a part of the activated brain regions. This result clearly indicates a change in brain activity between the state related to FCF Connection and the disconnection from it, as a result of the task and rest designed in the present study.

Overall, we can summarize our findings in four parts:
1- FCF has a definite effect on the human brain.
2- FCF leads to the activation of human brain regions and changes the connectivity of various brain networks.

3- The activated parts of the brain are mostly associated with the most advanced frontal regions of the brain, and functional connectivity is activated unlike the default networks (due to the decrease in the BA31 hub).
4- The connection between deactivated and activated regions indicates a switch in the brain of the Faradarmangar, especially in the BA11 region, during the initiation and disconnection of the FCF.

Examining other brain regions and comparing the activities of different regions in larger and more diverse populations can help highlight the significance of FCF Connection and the findings related to its effects. Furthermore, investigating the effects of the FCF on brain function in the treatment of nervous system diseases will be among the future considerations of the authors of this study.

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References

1. Delcomyn, F. (1998). Foundations of neurobiology.

2. Ogawa, S., Lee, T. M., Nayak, A. S., & Glynn, P. (1990). Oxygenation-sensitive contrast in magnetic resonance image of rodent brain at high magnetic fields. *Magnetic resonance in medicine*, *14*(1), 68-78.

3. Greicius, M. D., Srivastava, G., Reiss, A. L., & Menon, V. (2004). Default-mode network activity distinguishes Alzheimer's disease from healthy aging: evidence from functional MRI. *Proceedings of the National Academy of Sciences*, *101*(13), 4637-4642.

4. Koenig, P., Smith, E. E., Troiani, V., Anderson, C., Moore, P., & Grossman, M. (2008). Medial temporal lobe involvement in an implicit memory task: evidence of collaborating implicit and explicit memory systems from fMRI and Alzheimer's disease. *Cerebral Cortex*, *18*(12), 2831-2843.

5. Moody, T. D., Bookheimer, S. Y., Vanek, Z., & Knowlton, B. J. (2004). An implicit learning task activates medial temporal lobe in patients with Parkinson's disease. *Behavioral neuroscience*, *118*(2), 438.

6. Skidmore, F., Korenkevych, D., Liu, Y., He, G., Bullmore, E., & Pardalos, P. M. (2011). Connectivity brain networks based on wavelet correlation analysis in Parkinson fMRI data. *Neuroscience letters*, *499*(1), 47-51.

7. Kim, D. I., Sui, J., Rachakonda, S., White, T., Manoach, D. S., Clark, V. P., ... & Calhoun, V. D. (2010). Identification of imaging biomarkers in schizophrenia: a coefficient-constrained independent component analysis of the mind multi-site schizophrenia study. *Neuroinformatics*, *8*(4), 213-229.

8. Walter, H., Ciaramidaro, A., Adenzato, M., Vasic, N., Ardito, R. B., Erk, S., & Bara, B. G. (2009). Dysfunction of the social brain in schizophrenia is modulated by intention type: an fMRI study. *Social cognitive and affective neuroscience*, *4*(2), 166-176.

9. Schweinhardt, P., Bountra, C., & Tracey, I. (2006). Pharmacological FMRI in the development of new

analgesic compounds. *NMR in Biomedicine: An International Journal Devoted to the Development and Application of Magnetic Resonance In vivo*, *19*(6), 702-711.

10. Friston K. J. (1998). The disconnection hypothesis. *Schizophrenia research*, *30*(2), 115–125. https://doi.org/10.1016/s0920-9964(97)00140-0

11. Fox, M. D., & Raichle, M. E. (2007). Spontaneous fluctuations in brain activity observed with functional magnetic resonance imaging. *Nature reviews neuroscience*, *8*(9), 700-711.

12. Biswal, B. B., Kylen, J. V., & Hyde, J. S. (1997). Simultaneous assessment of flow and BOLD signals in resting-state functional connectivity maps. *NMR in Biomedicine*, *10*(4-5), 165-170.

13. Biswal, B., Zerrin Yetkin, F., Haughton, V. M., & Hyde, J. S. (1995). Functional connectivity in the motor cortex of resting human brain using echo-planar MRI. *Magnetic resonance in medicine*, *34*(4), 537-541.

14. Van Den Heuvel, M. P., & Pol, H. E. H. (2010). Exploring the brain network: a review on resting-state fMRI functional connectivity. *European neuropsychopharmacology*, *20*(8), 519-534.

15. Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The brain's default network: anatomy, function, and relevance to disease. *Annals of the new York Academy of Sciences*, *1124*(1), 1-38.

16. Raichle, M. E., MacLeod, A. M., Snyder, A. Z., Powers, W. J., Gusnard, D. A., & Shulman, G. L. (2001). A default mode of brain function. *Proceedings of the national academy of sciences*, *98*(2), 676-682.

17. Gusnard, D. A., Akbudak, E., Shulman, G. L., & Raichle, M. E. (2001). Medial prefrontal cortex and self-referential mental activity: relation to a default mode of brain function. *Proceedings of the National Academy of Sciences*, *98*(7), 4259-4264.

18. Pallesen, K. J., Brattico, E., Bailey, C. J., Korvenoja, A., & Gjedde, A. (2009). Cognitive and emotional modulation of brain default operation. *Journal of Cognitive Neuroscience*, *21*(6), 1065-1080.

19. Greicius, M. D., Krasnow, B., Reiss, A. L., & Menon, V. (2003). Functional connectivity in the resting brain: a network analysis of the default mode hypothesis. *Proceedings of the national academy of sciences*, *100*(1), 253-258.

20. Mason, M. F., Norton, M. I., Van Horn, J. D., Wegner, D. M., Grafton, S. T., & Macrae, C. N. (2007). Wandering minds: the default network and stimulus-independent thought. *science*, *315*(5810), 393-395.

21. Bluhm, R. L., Miller, J., Lanius, R. A., Osuch, E. A., Boksman, K., Neufeld, R. W. J., ... & Williamson, P. (2007). Spontaneous low-frequency fluctuations in the BOLD signal in schizophrenic patients: anomalies in the default network. *Schizophrenia bulletin*, *33*(4), 1004-1012.

22. Whitfield-Gabrieli, S., Thermenos, H. W., Milanovic, S., Tsuang, M. T., Faraone, S. V., McCarley, R. W., ... & Seidman, L. J. (2009). Hyperactivity and hyperconnectivity of the default network in schizophrenia and in first-degree relatives of persons with schizophrenia. *Proceedings of the National Academy of Sciences*, *106*(4), 1279-1284.

23. Calhoun, V. D., Maciejewski, P. K., Pearlson, G. D., & Kiehl, K. A. (2008). Temporal lobe and "default" hemodynamic brain modes discriminate between schizophrenia and bipolar disorder. *Human brain mapping*, *29*(11), 1265-1275.

24. Grimm, S., Boesiger, P., Beck, J., Schuepbach, D., Bermpohl, F., Walter, M., ... & Northoff, G. (2009). Altered negative BOLD responses in the default-mode network during emotion processing in depressed subjects. *Neuropsychopharmacology*, *34*(4), 932-943.

25. Chén, O. Y., Cao, H., Reinen, J. M., Qian, T., Gou, J., Phan, H., ... & Cannon, T. D. (2019). Resting-state brain information flow predicts cognitive flexibility in humans. *Scientific reports*, *9*(1), 3879.

26. Marchand, W. R. (2014). Neural mechanisms of mindfulness and meditation: Evidence from neuroimaging studies. *World journal of radiology*, *6*(7), 471.

27. Young, K. S., van der Velden, A. M., Craske, M. G., Pallesen, K. J., Fjorback, L., Roepstorff, A., & Parsons, C. E. (2018). The impact of mindfulness-based interventions on brain activity: A systematic review of functional magnetic resonance imaging studies. *Neuroscience & Biobehavioral Reviews*, *84*, 424-433.

28. Mahone, M. C., Travis, F., Gevirtz, R., & Hubbard, D. (2018). fMRI during transcendental meditation practice. *Brain and cognition*, *123*, 30-33.

29. Garrison, K. A., Zeffiro, T. A., Scheinost, D., Constable, R. T., & Brewer, J. A. (2015). Meditation leads to reduced default mode network activity beyond an active task. *Cognitive, Affective, & Behavioral Neuroscience*, *15*(3), 712-720.

30. Simon, R., & Engström, M. (2015). The default mode network as a biomarker for monitoring the therapeutic effects of meditation. *Frontiers in psychology*, *6*, 776.

31. Taheri MA: "Human from another outlook" Interuniversal Press; 2nd Edition (September 26, 2013). ISBN-13: 978-1939507006, ISBN-10: 1939507006 2013.

32. Taheri, M. A., Semsarha, F., Mahdavi, M., Afsartala, Z., & Amani, L. (2020). The Influence of the Faradarmani Consciousness Field on the Survival and Death of MCF-7 Breast Cancer Cells: An Optimization Perspective. *Available at SSRN 3705537*.

33. Torabi, S., Taheri, M. A., & Semsarha, F. (2020). Alleviative effects of Fara-darmani Consciousness Field on *Triticum aestivum* L. under salinity stress [version 1; peer review: 1 approved with reservations]. *F1000Research* 2020, **9**:1089(https://doi.org/10.12688/f1000research.25247.1)

34. Taheri, M. A., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Influence of Faradarmani Consciousness Field (FCF) on Spatial Memory and Passive Avoidance Behavior of Scopolamine Model of Alzheimer Disease in Male Wistar Rats. *Available at SSRN 3761188*.

35. Taheri, M. A., Semsarha, F., Mozavi, M., Myerholtz, C., & Monfared, M. (2020). Consciousness Fields According to Taheri: Experimental Investigation of the Function and Implication of Consciousness. *Available at SSRN 3753649*.

36. Taheri, M. A., Semsarha, F., & Modarresi-Asem, F. (2020). An Investigation on the Electrical Activity

of the Brain during Fara-Darmani Connection in the Fara-Therapist Population.

37. McLaren, D. G., Ries, M. L., Xu, G., & Johnson, S. C. (2012). A generalized form of context-dependent psychophysiological interactions (gPPI): a comparison to standard approaches. *Neuroimage*, *61*(4), 1277-1286.

38. Baars, B., & Gage, N. M. (2013). *Fundamentals of cognitive neuroscience: a beginner's guide*. Academic Press.

39. Catalan, M. J., Honda, M., Weeks, R. A., Cohen, L. G., & Hallett, M. (1998). The functional neuroanatomy of simple and complex sequential finger movements: a PET study. *Brain: a journal of neurology*, *121*(2), 253-264.

40. Tanaka, S., Honda, M., & Sadato, N. (2005). Modality-specific cognitive function of medial and lateral human Brodmann area 6. *Journal of Neuroscience*, *25*(2), 496-501.

41. Ranganath, C., Johnson, M. K., & D'Esposito, M. (2003). Prefrontal activity associated with working memory and episodic long-term memory. *Neuropsychologia*, *41*(3), 378-389.

42. Nobre, A. C., Sebestyen, G. N., Gitelman, D. R., Mesulam, M. M., Frackowiak, R. S., & Frith, C. D. (1997). Functional localization of the system for visuospatial attention using positron emission tomography. *Brain: a journal of neurology*, *120*(3), 515-533.

43. Fuster, J. M.., (2009) Prefrontal Cortex, *Encyclopedia of Neuroscience, Academic Press,* Pages 905-908, ISBN 9780080450469,

44. Tulving, E., Kapur, S., Markowitsch, H. J., Craik, F. I., Habib, R., & Houle, S. (1994). Neuroanatomical correlates of retrieval in episodic memory: auditory sentence recognition. *Proceedings of the National Academy of Sciences*, *91*(6), 2012-2015.

45. Zhang, J. X., Leung, H. C., & Johnson, M. K. (2003). Frontal activations associated with accessing and evaluating information in working memory: an fMRI study. *Neuroimage*, *20*(3), 1531-1539.

46. Ciorciari, J., Gountas, J., Johnston, P., Crewther, D., & Hughes, M. (2019). A neuroimaging study of personality traits and self-reflection. *Behavioral Sciences*, *9*(11), 112.

47. Michael-Titus, A. T., Revest, P., & Shortland, P. (2014). *The Nervous System: Systems of the Body Series*. Elsevier Health Sciences.

48. Johns, P. (2014). *Clinical neuroscience e-book*. Elsevier Health Sciences.

49. Mirz, F., Ovesen, T., Ishizu, K., Johannsen, P., Madsen, S., Gjedde, A., & Pedersen, C. B. (1999). Stimulus-dependent central processing of auditory stimuli: a PET study. *Scandinavian audiology*, *28*(3), 161-169.

An Investigation of the Effect of Faradarmani Consciousness Field on Heart Rate Variability Parameters

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Abstract

Mohammad Ali Taheri has introduced the Faradarmani Consciousness Field (FCF), which is a new qualitative field (it is neither matter nor energy), as a complementary and alternative medicine. The present study was designed to investigate the effectiveness of this T-Consciousness Field on the function of the autonomic nervous system (ANS). For this purpose, heart rate variability (HRV) indices and skin conductance (SC) were measured as reliable indicators of autonomic nervous system changes under the influence of the FCF. To this end, 50 volunteers (23 women, 27 men, age 23 to 77 years) participated randomly in this double-blind study. In order to standardize the conditions for the volunteers, all recordings were performed under constant environmental conditions, between 10 AM and 12 PM, at least one hour after breakfast, and 10 to 15 minutes after the participant's arrival at the laboratory, in two 5-minute sessions. Data recording was performed in the first 5 minutes without applying the FCF to determine the baseline state of the autonomic nervous system for each volunteer. In the second 5 minutes, the participants were exposed to the FCF, and the corresponding data were recorded again. After extracting the HRV signal from the heart rate data obtained from the blood volume pressure signals using a biofeedback device, the data were analyzed in both time-domain and frequency-domain modes. Finally, the HRV and SC data were statistically analyzed using two-way ANOVA, followed by Tukey's post hoc test for comparing the Faradarmani state with the baseline state. In the parameters examined under the influence of Faradarmani, two types of changes (either increases or decreases) were observed. Two-way ANOVA analysis showed significant changes in HRV parameters (but not SC) compared to baseline. Comparison of the results from the frequency-domain and time-domain analysis of HRV revealed significant changes in the frequency-domain mode (VLF: P1=0.0016, P2=0.0147; LF: P1<0.001, P2=0.008; HF: P1=0.0338, P2=0.0086; LF/HF: P1=0.0011, P2=0.0119) compared to the time-domain mode (PNN50: P1=0.0464). Based on the findings of this study, the FCF not only produced significant changes in ANS function, but the different changes observed in the HRV parameters of different individuals also suggest a form of consciousness that takes each person's condition and needs into account.

Keywords: Faradarmani, T-Consciousness Fields, Heart Rate Variability, Skin Conductance, Autonomic Nervous System

Abbreviations used in the article

Autonomic Nervous System	ANS
Complementary and Alternative Medicine	CAM
Cosmic Consciousness Network	CCN
High Frequency	HF
Heart Rate	HR
Heart Rate Variability	HRV
Low Frequency	LF
the percentage of successive normal-to-normal (NN) intervals that differ by more than 50 ms.	PNN50٪
Skin Conductance	SC
Standard Deviation of Normal to Normal intervals	SDNN
T-Consciousness Fields	TCFs
Very Low Frequency	VLF

Introduction

Modern life has given rise to many problems, including physical inactivity, poor nutrition, and environmental stress, all of which contribute to physical and mental illness [1, 2]. The presence of illness impairs individuals' functioning and behavior [3, 4], which in turn leads to a range of social problems [5]. As these problems become more numerous and more complex, particularly those related to human health, diagnosis and treatment become increasingly difficult, especially when symptoms are hysterical and their cause is unknown [6]. Consequently, with the emergence of incurable and untreated diseases such as COVID-19, together with the fear of infection and reduced visits to physicians and psychologists, people's difficulties have increased [7].

In the current century, the nature of ‘consciousness’ and its place in the world of science have received much attention, and many philosophical and scientific theories have been proposed in this field. In the 1980s, Mohammad Ali Taheri introduced new fields with a non-material and non-energy nature, which are called Taheri's Consciousness Fields (T-Consciousness Fields). In this view, T-Consciousness is one of the three elements existing in the universe, besides matter and energy.

According to this theory, there are various T-Consciousness Fields with different functions, which are subsets of the cosmic internet network knows as the Cosmic Consciousness Network (CCN). The major difference between the theory of T-Consciousness Fields and other theoretical concepts related to consciousness is the practical application and use of T-Consciousness Fields. These fields can be applied to all living and non-living beings, such as plants, animals, microorganisms, materials, and so on [8].

Given that in the scientific approach, the probability of randomness is calculated to be less than 5%, and the result of a test is confirmed when there is a difference of more than 95% between groups, it can be said that if the results are significant, they are valid. At the same time, the accuracy of this method is determined by statistical analysis. According to the mentioned points, the aim of this study is to investigate the effect of the Faradarmani Consciousness Field (FCF) on the function of the autonomic nervous system (ANS) through measuring heart rate variability (HRV) indices and skin conductance (SC).

Research Methodology

Applying Faradarmani Consciousness Field

Fifty participants of both genders were exposed to the FCF according to the guidelines provided on the website for research in the field of T-Consciousness Fields. The request for Connection with

T-Consciousness Fields (*Nazar*) is freely available in the 'Connection Announcement Request' section on this website[6]. In order to study at any time and place, researchers register on the mentioned website and introduce the experiment to the support center. For example, it is necessary to specify the sample numbers, controls, and their designated names. This study was conducted in a double-blind manner. This means that not only were the participants and the data-recording technicians unaware of this treatment and the purpose of the experiment, but the *Faradarmangar* (Faradarmani practitioner) also did not know the participating individuals.

Only individuals with no history of cardiovascular disease and no use of related medications were included in the study. Before the experiment, participants completed a general health and medical history questionnaire to ensure normal cardiovascular function and the absence of medications affecting autonomic nervous system activity [9, 10].

Ultimately, 50 healthy volunteers of both genders (23 women and 27 men, aged 23 to 77 years, with education levels from bachelor's to doctorate), provided written informed consent and were enrolled in this study. Their HRV and SC were recorded. Since autonomic nervous system function can be affected by the environmental conditions of the testing site, the psychological state, or even the respiratory state of the participants [11], it is essential to conduct the experiment under stable and optimal conditions. For this purpose, all recordings were performed under identical environmental conditions (in a fixed room with specified environmental factors).

Furthermore, all recordings were performed between 10 AM and 12 PM (before lunch and at least one hour after breakfast) to avoid the effects of circadian rhythm [12]. Additionally, in order to eliminate the influence of daily physical factors on autonomic nervous system activity [13], participants were not allowed to engage in physical exercise the day before. On the study day, after arriving at the laboratory and before data recording, they were asked to sit still and relax their bodies for 10-15 minutes.

It is worth noting that since each participant's data is compared with their own baseline before exposure to the FCF (and not with each other), there was no need to match participants across groups. Still, all participants were asked to breathe calmly during both recordings to reduce measurement error.

Recording Heart Rate Variability and Skin Conductance Data

HRV and SC data were recorded using a four-channel biofeedback device (manufactured by Medinatab, Tehran) over six consecutive days (from 10 AM to 12 PM). For each participant, data were recorded in two 5-minute sessions after attaching heart rate and skin conductance electrodes to the fingers.

The first 5-minute recording was performed without any intervention for each participant to determine the baseline state of their autonomic nervous system. Then, in the second 5-minute session, remote Connection with the FCF was applied in a double-blind manner through the Faradarmangar (Faradarmani practitioner), and simultaneously the participants' data were recorded for comparison with their baseline state. Finally, each of the heart rate variability parameters (frequency-domain and time-domain) was calculated using power spectrum analysis of the recorded data, based on the model first proposed by Bianchi in 1997, using the biofeedback device [14].

Statistical Analysis

Statistical analyses were performed using GraphPad Instat-3 software, using two-tailed ANOVA followed by Tukey's post hoc test, and values are expressed as mean ± standard deviation. P values less than 0.05 indicate statistically significant differences.

Results

As shown in Table 1, based on the results obtained from two-tailed ANOVA analysis, the FCF caused

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Table 1. Comparison of values between the baseline and Faradarmani conditions.

Parameters	Base (mean)	± SEM	Faradarmani (mean)	± SEM	*P*-Value
VLF1	36.586	1.489	44.405	1.825	0.0016
VLF2	48.557	2.898	39.974	1.716	0.0147
LF1	26.29	1.417	37.494	1.644	0.001
LF2	35.859	1.995	27.074	1.425	0.008
HF1	21.627	2.529	29.78	2.721	0.0338
HF2	31.016	2.727	20.829	2.553	0.0086
LF/HF 1	1.2	0.1371	2.639	0.3954	0.0011
LF/HF 2	2.241	0.3792	1.156	0.1623	0.0119
PNN50 1	20.2	3.971	33.2	4.907	0.0464
PNN50 2	31.033	3.896	21.933	3.529	0.887
SDNN 1	53.652	6.806	73.739	9.002	0.0820
SDNN 2	86.333	10.979	65.519	10.633	0.1791

major changes in HRV parameters (some increasing and some decreasing) compared to the baseline state

Comparison of the frequency-and time-domain HRV parameters showed significantly greater changes in the frequency-domain measures (VLF: P1 = 0.0016, P2 = 0.0147; LF: P1 < 0.001, P2 = 0.008; HF: P1 = 0.0338, P2 = 0.0086; LF/HF: P1 = 0.0011, P2 = 0.0119) than in the time-domain measures (PNN50: P1 = 0.0464).

Frequency-Domain Analysis of Heart Rate Variability

Figure 1 shows the frequency-domain HRV parameters (VLF, LF, HF, LF/HF) for each participant before (red) and after Connection with the FCF (green).

In the initial plots of each frequency index (a, d, g, j), the changes appeared irregular and inconsistent. However, assuming that the effect of the FCF depends on the patient's needs, the plot of each index was divided into two groups: ,increased, (b, e, h, k) and ,decreased, (c, f, i, l), so that the changes in each individual under the influence of Faradarmani could be more clearly visualized. For example, the VLF index, which represents very low-frequency heart rates, increased in 29 out of 50 participants under the influence of the FCF (as shown in Figure 1, section b), while it decreased in 21 participants (Figure 1). Finally, as shown in Figure 2, statistical analysis showed significant and meaningful changes in each of the increased and decreased groups (indicated by numbers 1 and 2).

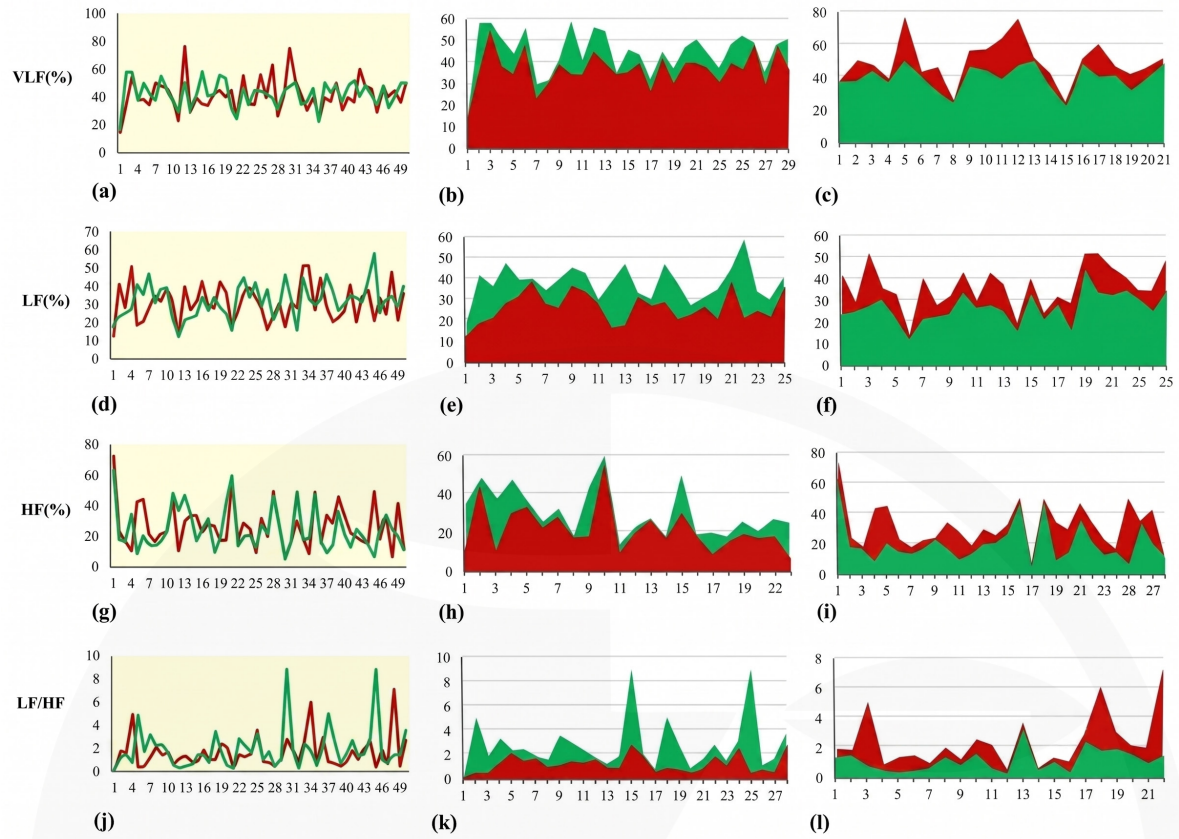


Figure 1. Comparison of frequency-domain HRV parameters (VLF, LF, HF, LF/HF) between baseline (red) and under the influence of the Faradarmani Consciousness Field (green) for each participant.

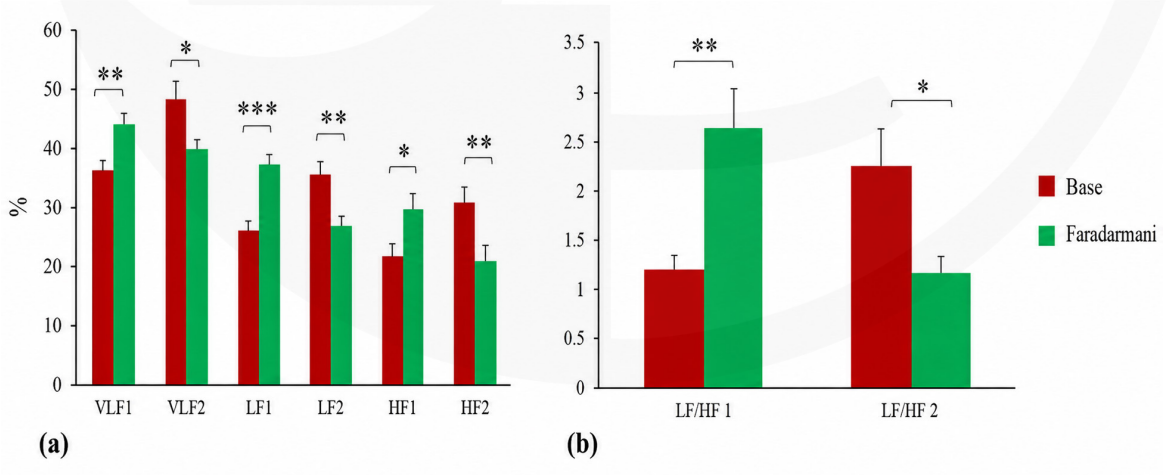


Figure 2. Statistical analysis of frequency-domain HRV parameters between baseline (red) and under the influence of the Faradarmani Consciousness Field (green). Labels 1 and 2 in each parameter indicate the increased and decreased groups, respectively (*: P values less than 0.05, **: P values less than 0.01, ***: P values less than 0.001).

Statistical analysis of frequency-domain HRV parameters showed significant changes in VLF between Faradarmani and baseline states (increase: P1=0.0016, decrease: P2=0.0147), LF (increase: P1<0.001, decrease: P2=0.008), HF (increase: P1=0.0338, decrease: P2=0.0086), LF/HF (increase: P1=0.0011, decrease: P2=0.0119) (Figure 2).

Time-Domain Analysis of Heart Rate Variability

Figure 3 shows the time-domain HRV parameters (PNN50, SDNN) for each participant before (pink) and after Connection with the FCF (green). Dividing each plot into two groups— "Increased" (b, e) and "decreased" (c, f)—makes the changes in each individual under the influence of Faradarmani more clearly visible. Analysis of time-domain HRV parameters showed statistically significant changes in PNN50 (increase: P1=0.0464) between baseline and the Faradarmani (Figure 4). No significant difference was observed in SDNN before and after treatment with the Faradarmani.

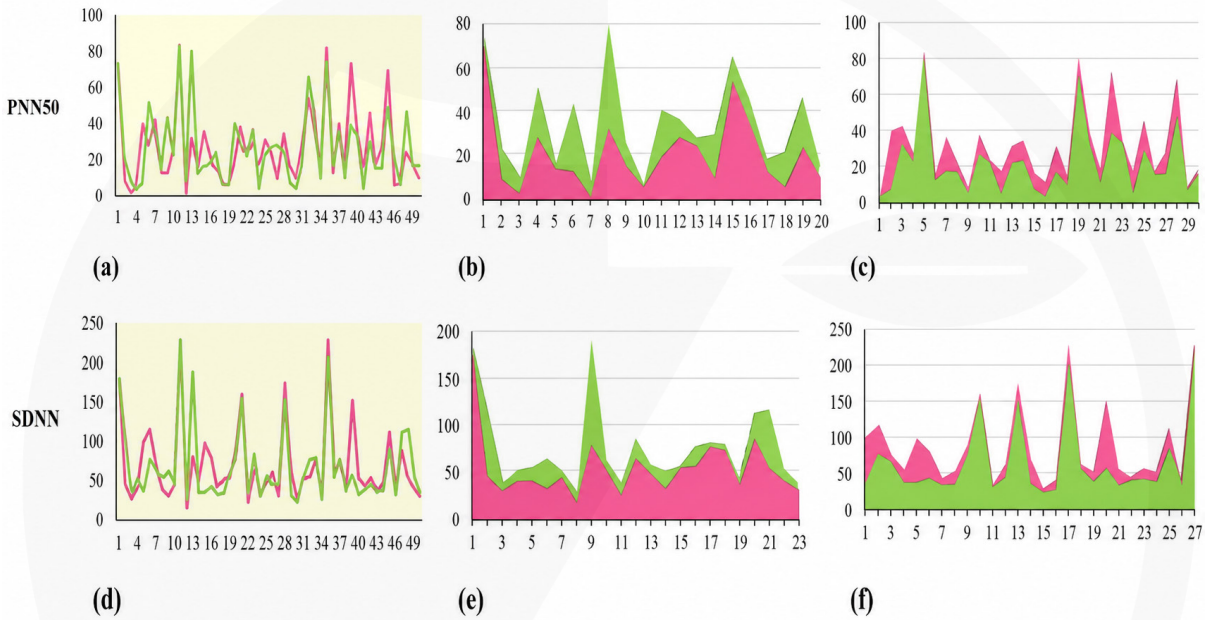


Figure 3. Comparison of time-domain HRV parameters (PNN50, SDNN) between baseline (pink) and under the influence of the Faradarmani Consciousness Field (green) for each participant.

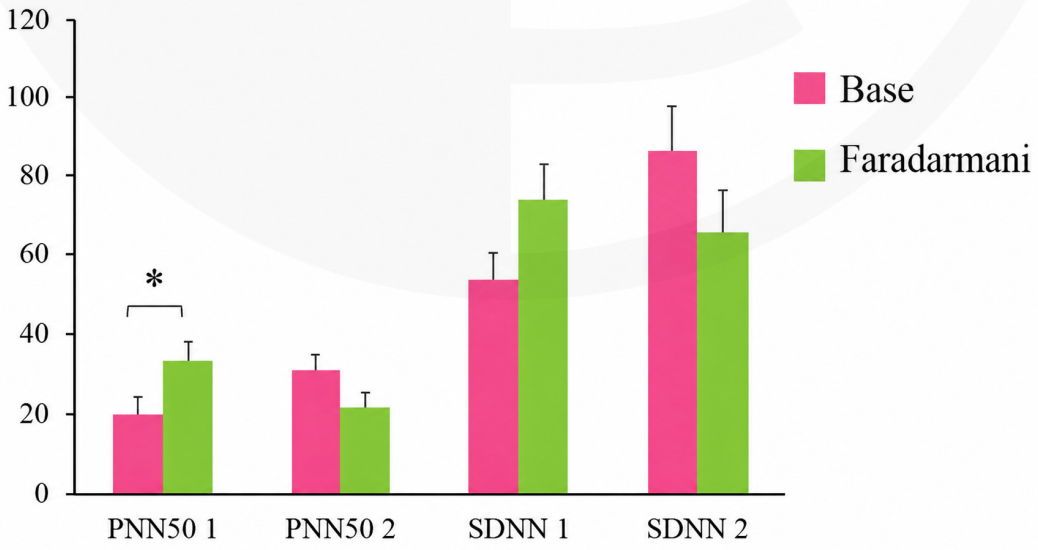


Figure 4. Statistical analysis of time-domain HRV parameters between baseline (pink) and under the influence of the Faradarmani Consciousness Field (green). Labels 1 and 2 in each parameter indicate the increased and decreased groups, respectively. *: p- value < 0.05

Skin Conductance Index

Based on two-tailed ANOVA analysis, no significant change was observed in the SC index under the influence of the Faradarmani Consciousness Field.

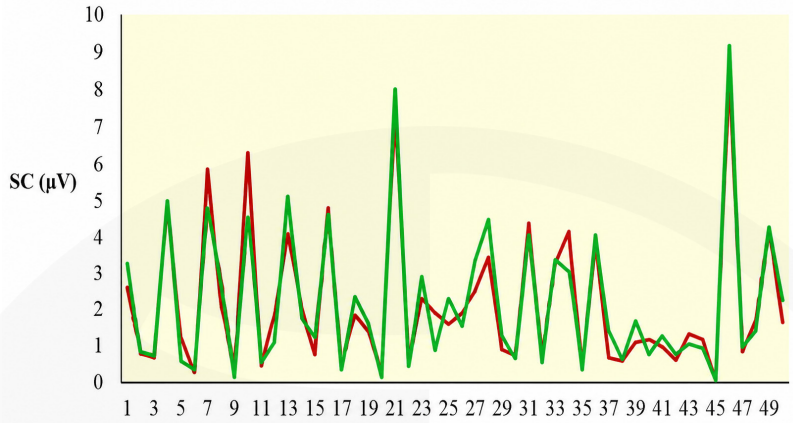


Figure 5. Comparison of SC index before (red) and after connection with the Faradarmani Consciousness Field (green) for each participant.

Discussion and Conclusion

Studying new therapies in the present era can be the starting point for a breakthrough or perhaps a change in the type of treatment in medical approaches. So far, much research has been conducted on the effect of various complementary and alternative medicine (CAM) therapies on heart rate and HRV. For example, there are studies on the effects of mindfulness [15–18] and acupuncture [19–21] on HRV, which often focus on their effectiveness, while their mechanism of action is still unclear.

Based on studies conducted so far on complementary therapeutic methods such as meditation and mindfulness, these methods show a consistent increase in HRV during practice sessions, regardless of the individual's conditions and needs [22, 23]. For example, a group of researchers from the UK, Brazil, and the United States published a systematic review article on meditation in 2020, in which they pointed out the side effects of meditation. According to this comprehensive review, which examined all relevant articles published from 1974 to 2019, both individuals with a history of mental health problems and those without any prior history may experience side effects during or after meditation practice, and may experience harmful effects such as anxiety and depression (with a prevalence rate of 8.3%). This rate is comparable to the frequency of similar cases reported in psychotherapy practices [24].

Regarding the Faradarmani Consciousness Field, as mentioned in the introduction, although it cannot be directly and quantitatively measured, its effects can be investigated through various experiments. In previous studies, we have investigated and observed the effects of this T-Consciousness Field on the MCF7 breast cancer cell line [25], cellular and mouse models of Alzheimer's disease [26], spatial memory and avoidance behavior in a rat model of Alzheimer's disease [27], wheat plants [28], bacterial population growth [29], viral growth [30], and electrical brain activity in a population of Faradarmangars during Faradarmani Connection [31].

Based on the results of the present study, not only does the FCF have significant effects (even remotely) on autonomic nervous system function, but it also applies different changes to HRV parameters in different individuals. This type of effect seems to indicate a kind of consciousness that takes into

account the individual's conditions and needs. However, more research should be conducted to identify the effects of the FCF.

Regarding the skin conductance index, according to studies conducted on the effect of various CAM methods on SC reactivity, it appears that significant changes require a long-term period with a time scale of several months [32]. Therefore, it is suggested that future studies investigate the effects of the FCF over longer periods.

References

1. Booth, F. W., Roberts, C. K., & Laye, M. J. (2011). Lack of exercise is a major cause of chronic diseases. *Comprehensive physiology*, *2*(2), 1143-1211.

2. Fang, Y. Y., Huang, C. Y., & Hsu, M. C. (2019). Effectiveness of a physical activity program on weight, physical fitness, occupational stress, job satisfaction and quality of life of overweight employees in high-tech industries: a randomized controlled study. *International Journal of Occupational Safety and Ergonomics*, *25*(4), 621-629.

3. Concha-Barrientos, M., Steenland, K., Prüss-Üstün, A., Campbell-Lendrum, D. H., Corvalán, C. F., Woodward, A., & World Health Organization. (2004). *Occupational noise: assessing the burden of disease from work-related hearing impairment at national and local levels*. World Health Organization.

4. Mols, F., & Denollet, J. (2010). Type D personality in the general population: a systematic review of health status, mechanisms of disease, and work-related problems. *Health and quality of life outcomes*, *8*(1), 9.

5. Wen, M., Cagney, K. A., & Christakis, N. A. (2005). Effect of specific aspects of community social environment on the mortality of individuals diagnosed with serious illness. *Social science & medicine*, *61*(6), 1119-1134.

6. Abse, D. W. (2013). *Hysteria and related mental disorders: an approach to psychological medicine*. Butterworth-Heinemann.

7. Hossain, N., Samuel, M., Sandeep, R., Imtiaz, S., & Zaheer, S. (2020). Perceptions, generalized anxiety and fears of pregnant women about corona virus infection in the heart of pandemic.

8. Taheri MA: “Human from another outlook” Interuniversal Press; 2nd Edition (September 26, 2013). ISBN-13: 978-1939507006, ISBN-10: 1939507006 2013.

9. Aronson, D., & Burger, A. J. (2001). Effect of beta-blockade on heart rate variability in decompensated heart failure. *International journal of cardiology*, *79*(1), 31-39.

10. Bekheit, S., Tangella, M., el-Sakr, A., Rasheed, Q., Craelius, W., & El-Sherif, N. (1990). Use of heart rate spectral analysis to study the effects of calcium channel blockers on sympathetic activity after myocardial infarction. *American heart journal*, *119*(1), 79-85.

11. Stauss, H. M. (2003). Heart rate variability. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, *285*(5), R927-R931.

12. Kleiger, R. E., Bigger, J. T., Bosner, M. S., Chung, M. K., Cook, J. R., Rolnitzky, L. M., ... & Fleiss, J. L. (1991). Stability over time of variables measuring heart rate variability in normal subjects. *The American journal of cardiology*, *68*(6), 626-630.

13. Soares-Miranda, L., Sattelmair, J., Chaves, P., Duncan, G. E., Siscovick, D. S., Stein, P. K., & Mozaffarian, D. (2014). Physical activity and heart rate variability in older adults: the Cardiovascular Health Study. *Circulation*, *129*(21), 2100-2110.

14. Bianchi, A. M., Mainardi, L. T., Meloni, C., Chierchiu, S., & Cerutti, S. (1997). Continuous monitoring of the sympatho-vagal balance through spectral analysis. *IEEE engineering in medicine and biology magazine*, *16*(5), 64-73.

15. Delizonna, L. L., Williams, R. P., & Langer, E. J. (2009). The effect of mindfulness on heart rate control. *Journal of Adult Development*, *16*(2), 61-65.

16. Krygier, J. R., Heathers, J. A., Shahrestani, S., Abbott, M., Gross, J. J., & Kemp, A. H. (2013). Mindfulness meditation, well-being, and heart rate variability: a preliminary investigation into the impact of intensive Vipassana meditation. *International Journal of Psychophysiology*, *89*(3), 305-313.

17. Mankus, A. M., Aldao, A., Kerns, C., Mayville, E. W., & Mennin, D. S. (2013). Mindfulness and heart rate variability in individuals with high and low generalized anxiety symptoms. *Behaviour research and therapy*, *51*(7), 386-391.

18. Shearer, A., Hunt, M., Chowdhury, M., & Nicol, L. (2016). Effects of a brief mindfulness meditation intervention on student stress and heart rate variability. *International Journal of Stress Management*, *23*(2), 232.

19. Anderson, B., Nielsen, A., McKee, D., Jeffres, A., & Kligler, B. (2012). Acupuncture and heart rate variability: a systems level approach to understanding mechanism. *Explore*, *8*(2), 99-106.

20. Lee, S., Lee, M. S., Choi, J. Y., Lee, S. W., Jeong, S. Y., & Ernst, E. (2010). Acupuncture and heart rate variability: a systematic review. *Autonomic Neuroscience*, *155*(1-2), 5-13.

21. Streitberger, K., Steppan, J., Maier, C., Hill, H., Backs, J., & Plaschke, K. (2008). Effects of verum acupuncture compared to placebo acupuncture on quantitative EEG and heart rate variability in healthy volunteers. *The Journal of Alternative and Complementary Medicine: Paradigm, Practice, and Policy Advancing Integrative Health*, *14*(5), 505-513.

22. Kirk, U., & Axelsen, J. L. (2020). Heart rate variability is enhanced during mindfulness practice: A randomized controlled trial involving a 10-day online-based mindfulness intervention. *PloS one*, *15*(12), e0243488.

23. Nesvold, A., Fagerland, M. W., Davanger, S., Ellingsen, Ø., Solberg, E. E., Holen, A., ... & Atar, D. (2012). Increased heart rate variability during nondirective meditation. *European journal of preventive cardiology*, *19*(4), 773-780.

24. Farias, M., Maraldi, E., Wallenkampf, K. C., & Lucchetti, G. (2020). Adverse events in meditation practices and meditation-based therapies: a systematic review. *Acta Psychiatrica Scandinavica*, *142*(5), 374-393.

25. Taheri, M. A., Semsarha, F., Mahdavi, M., Afsartala, Z., & Amani, L. (2020). The Influence of the Faradarmani Consciousness Field on the Survival and Death of MCF-7 Breast Cancer Cells: An Optimization Perspective. *Available at SSRN 3705537*.

26. Taheri, M. A., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Faradarmani Consciousness Field Suppresses Alzheimer's Disease Development in Both in Vitro and in Vivo Models of The Disease.

27. Taheri, M. A., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Influence of Faradarmani Consciousness Field (FCF) on Spatial Memory and Passive Avoidance Behavior of Scopolamine Model of Alzheimer Disease in Male Wistar Rats. *Available at SSRN 3761188*.

28. Torabi, S., Taheri, M. A., & Semsarha, F. (2020). Alleviative effects of Fara-darmani Consciousness Field on Triticum aestivum L. under salinity stress. *F1000Research*, *9*, 1089.

29. Taheri, M. A., Zarrini, G., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Influence of Fara-darmani Consciousness Field on Bacterial Population Growth. *bioRxiv*, 2021-01.

30. Taheri, M. A., Etemadi, M. R., Torabi, S., Nabavi, N., & Semsarha, F. (2021). Evaluation of the Influence of Faradarmani Consciousness Field on Viral Growth.

31. Taheri, M. A., Semsarha, F., & Modarresi-Asem, F. (2020). An Investigation on the Electrical Activity of the Brain during Fara-Darmani Connection in the Fara-Therapist Population.

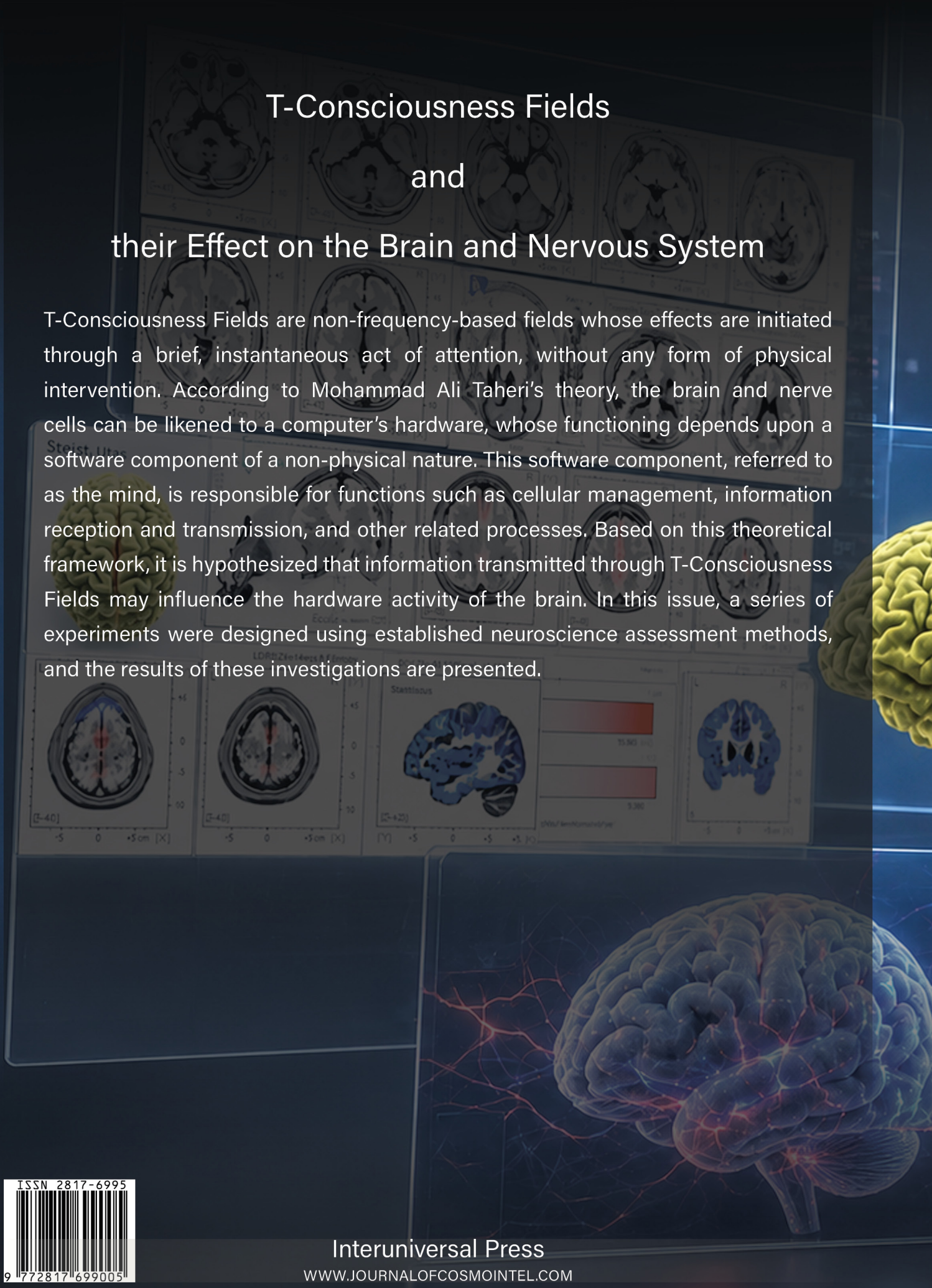
32. Kelm, D. J., Ridgeway, J. L., Gas, B. L., Mohan, M., Cook, D. A., Nelson, D. R., & Benzo, R. P. (2018). Mindfulness meditation and interprofessional cardiopulmonary resuscitation: a mixed-methods pilot study. *Teaching and learning in medicine*, *30*(4), 433-443.

T-Consciousness Fields

and

their Effect on the Brain and Nervous System

T-Consciousness Fields are non-frequency-based fields whose effects are initiated through a brief, instantaneous act of attention, without any form of physical intervention. According to Mohammad Ali Taheri's theory, the brain and nerve cells can be likened to a computer's hardware, whose functioning depends upon a software component of a non-physical nature. This software component, referred to as the mind, is responsible for functions such as cellular management, information reception and transmission, and other related processes. Based on this theoretical framework, it is hypothesized that information transmitted through T-Consciousness Fields may influence the hardware activity of the brain. In this issue, a series of experiments were designed using established neuroscience assessment methods, and the results of these investigations are presented.



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