

Conquering Worry Using the Brain-Based Geometric Meditative Approach in the Age of COVID-19

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1. Abstract

The present paper proposes a special protocol to conquer worry in the age of COVID-19 offering some geometric meditation techniques, along with a link to a video clip file dedicated to each technique available free for public use. When laying out this protocol, techniques which do not require specific training were selected. Such techniques are intended to address various cognitive, emotional, physical and behavioral aspects of anxiety and stress and the related negative consequences. It is hoped that the present protocol on stress management within the mind-body continuum, will be used by the general public allowing a smoother transition from the present time with all its emotional red flags.

2. Keywords: Anxiety; Stress management; Geometric meditation; COVID-19

3. Introduction

With the worrisome pandemic of the new corona virus (COVID-19), stress management and mindful control over worries has become a must most especially for those who lack efficient cognitive-emotion regulation skills. The accumulating worry with increasing number of COVID-19 afflicted cases worldwide is becoming a challenge especially in those with underlying stress-related and depressive disorders [1]. On the other hand, chronic anxiety is shown to weaken the immunity against viral infections [2]. Stressed-out subjects also tend to experience inefficient sleep,

poor diet as well as tobacco, substance and alcohol overuse which in turn counteract their physical, mental, affective and cognitive health.

While the viral outbreaks of COVID-19 raise concerns as a serious health-related issue, and one needs to follow all preventive medical precautions and advice; distressing worry would add nothing but making things worse. Although ongoing distress negatively affects our overall health from psycho-neuro-endocrino-immunological standpoints, eustress is a productive response to manage and overcome risks we face in our surrounding [3].

The impact of “what-if” thoughts can be overwhelming particularly when we have not harnessed our capacity in problem-solving with mental health measures. When negative thinking predominates, we would be constantly expecting the worst which can toll on our emotional and physical well-being [4].

Based on a recent investigation, the worries that occupy an anxious mind never come to fruition inasmuch as 91.4% of worries did not come true for those with a Generalized Anxiety Disorder (GAD) [5].

Indeed, much of one’s distress is down to worrying about things that may never happen, or things he would have no control over. There is no doubt that if we can control and change some unpleasant happening for better, we certainly need to take action, yet either

way, nothing can improve only because we carry on great deal of worry. We need to consider how much stress is needed in an encounter and refuse to give that more. In that sense, we would be practically able to find our stop-loss point and define a clear limitation for our worries [4,5].

Moreover, stress management does not indicate that we shall ignore the issue. We however need to acknowledge the worry and conquer that by taking the distress out of our mind partly through writing them down. This approach which is also known as journaling would expectedly let us categorize, organize and supervise tasks and worries in stressful situations.

In addition, shifting your worry from the long-term issues to daily routines and actions to solve the problem is known to be productive. That would perhaps refer to the ability of living in the daytime compartment and to avoid metalizing unpleasant issues which may or may not occur somewhere in the future [6,7].

For those who constantly deal with trifles as worrisome issues, a fast-growing health-related concern which has even been announced as a pandemic viral disease (COVID-19) is nothing less than a disaster. In case the usually recommended advice do not help such individuals to conquer their distressing worry and they continue to feel panic and stressed out, they perhaps need to seek medical advice, take anxiolytic medications, Cognitive-Behavioral Therapy (CBT). The use of neuromodulation approaches such as neurofeedback might often become warranted. Mean while, for someone with no history of mental illness or present symptoms of overt anxiety, all needed is to follow mental health and cognitive-emotional fitness advice [8].

3.1. Geometric Meditative Practice to Conquer the Existing Worry

With the current rapidly-evolving stressful COVID-19 pandemic, medical professionals and health psychologists have repeatedly advised the general public to use various techniques of meditation, relaxation, and mindfulness-based trainings. This has been refocused to help reducing the distressing effect of the worrisome news and concerns on physical and mental health at personal and societal levels [9].

Based on the existing evidence in the field of neuro-psycho-endocrinology and the influence of Cognitive-Emotion Regulation (CER) on our immune system, this opinion paper has been an attempt to provide a set of techniques and protocol in accordance with our validated, evidence-based geometric meditation method (Far shad's Geometric Meditation-FGM) [10].

FGM is an innovative and effective method which unlike other meditative approaches is free from ideological attachments. This approach is divided into two different parts i.e. Geometric Somatic Breathing-Based Meditation (GSBBM) and Geometric Introspective-Based Meditation (GIBM)

or geometric visual-based meditation.

The key substrates of FGM rest upon purposeful and self-induced practice of attention leading to the experience of an altered state of consciousness and a hyper-focused level of concentration [6, 10].

The spotlighted attention is reflected through the brain capability and tendency to deal with a single subject or a phenomenon and to ignore surrounding objects and phenomena at the same time. In mindfulness-based cognitive training, this is often practiced though the efficient use of metalizing cognitive metaphors [11].

The efficacy and safety of FGM approach has been examined through a set of controlled studies within the Neuroscience Laboratory at Shiraz University of Medical Sciences, The Iranian Neuroscience Society and The Fars Medication Academy. The reason this approach is identified as Brain-Based Geometric Meditation (BBFGM) is that the process of experiencing deep-down meditative state has been examined in a set of controlled studies using objective neuroscience diagnostics such as quantitative electroencephalography (qEEG), functional Near-Infra Red Spectroscopy (fNIRS), hemoencephalography and polygraphic assessments in our Brain, Cognition and Behavior laboratory over the past 5years [12]. Most FGM techniques when practiced by trained meditators were found to result in whole brain synchronization in default mode, dorsal attentional, ventral attentional and salience networks within the brain when meditators reached the peak effect in each technique versus resting state. A vast majority of study participants reported subjective sense of tranquility and self-awareness with less possibility to fuss with trifles and feel stressed in their activities of daily living [6, 10, 11, 13].

Based on our studies, participants could report an increased awareness on what was happening in their minds, especially during mental disturbances such as anxiety, obsession and thought rumination. Through practicing geometric meditation one is expected to learn how to optimize attention control towards the continuum of concern in his mind and not to suppress, distort or transform it. We need to know how to avoid cognitive conflict with the subject matter of concern in an efficient way. When practiced in an efficient way, geometric meditation is expected to shrink mental distress caused by worry, obsession, rumination and self-criticism. The whole approach is then planned to counteract the 'what-if' thoughts [6, 13].

3.2. Preparations for Geometric Meditation-Based Cognitive Training (GMBCT)

In order to effectively perform the above protocol following points need to be considered:

- Instead of speakers, a headset or earphone is recommended upon listening to the audio files.

- Perform the techniques where there is least distractor. Look for a silent ambience.
- Try practicing the techniques every day at a certain time.
- While some techniques are performed in sitting position, others need to be practiced when lying supine.
- For each technique to be effective, it is not enough to simply listen to the audio file, yet we need to feel momentarily present and attentive to the certain part of the body or our state of being as instructed.
- Follow the sequence of the techniques as instructed in the protocol.
- As you gradually move towards the relaxed and deep down mind state in a gentle slope, try relaxing your mind to exit such a state likewise in a gentle slope.
- Do not overwhelm your mind and cognitive domains in order to experience a deeper relaxing state.
- Adhere to the techniques from the beginning to the end as instructed in the audio files and do not leave the techniques half-done.

3.3. Definition of Some Key Terms in Geometric Meditation

To better understand the geometric meditation techniques, first we need to define some key terms.

The term "attention" in geometrical meditation refers to the brain's ability to address a subject or phenomenon while simultaneously ignoring other phenomena.

The "scope of attention" in geometrical meditation corresponds to the whole range where your attention freely spans. In FGM, such a scope is a 360-degree circular span comprising 90 degrees of sensory-peripheral, 90 degrees of physical geography, 90 degrees of emotional, and 90 degrees of intellectual and mental perspectives.

The term "focus" in geometric meditation refers to a process of reducing the level of friction with all subjects and phenomena, while increasing the level of friction with a particular subject or phenomenon.

The "skewness of attention" in geometrical meditation corresponds to the process of disrupting the balance of attention throughout an entire object or perspective for the benefit of a particular part of the object or a particular scope. As such, no other part of the object or perspective retains enough concentration except what our attention is skewed toward. In other words, the "skewness of attention" can be considered as focus and the opposite of "balance

of attention".

The term "meditation" in FGM pertains to the purposeful and spontaneous manipulation of the "scope of attention" leading to the experience of altered states of consciousness, intensification of focus and a pervasive mental silence. The word "attention" can in some ways be interchangeably used for "meditation". Following the skewness of attention towards a particular part of the body, the focus should be on the whole physical range (balance of attention). The ability to optimize the span of attention is a prerequisite but not sufficient factor for meditative practice. Upon narrowing the scope of attention (skewness), for instance by 5 degrees towards the right knee, attention needs to be simultaneously casted on the entire 90 degree of physical scope (balance of attention) [10,11].

3.4. An Overview on Selected Geometric Meditation Techniques

3.4.1. The "Pre-technique" in FGM aims at regaining attention from the surroundings to be settled where self-attendance begins. The pre-technique increases our concentration and attention density towards our physical geography in order to provide a favorable introspective environment for each technique to begin. This technique is performed in sitting position on a chair [10, 11].

3.4.2. The "Horizontal-Linear Concentration (HLC) Technique":

HLC is among the body-based and breathing-based geometric techniques practiced in FGM. In this technique, attention is focused on the horizontal movements of abdominal muscles, outward with inhalation and inward with exhalation. Respiration, at first, occurs actively with more range of oscillation. Abdominal muscles move on the direction of the horizontal line, superposing the navel, which is upright to the longitudinal symmetry line of the body. When active breathing is surrendered, it will continue automatically. As spontaneous breathing continues, the more relaxed, lighter, thinner and shorter it becomes. Therefore, oscillation range of the abdominal muscles becomes so small that the horizontal line disappears, retreats and finally turns to short impulses inward and outward. At the end, breathing slows down and becomes calm so one feels no abdominal muscle movements for a short period of time. In this phase, the horizontal line will convert to a single point, as a compressed ball. This stage is known as pointed attention (contraction of attention) whereby attention is pulled up on the direction of longitudinal symmetry line of the body located in the center of gravity inside our head. Now, one should be aware of the feeling inside the head region such as deliverance, expansion and emptiness and also the difference between the heaviness of the head rather than the other parts of body and limbs. Meditators should

also be aware of the attention expanding throughout the body and experience the specific quality of body-awareness (expansion of attention) [10,11,13].

3.4.3. Jumping Movement of Attention (Joint to Joint):

The main aim of this technique (JMA) is to reach a deep-down relaxed state. To relax the whole body, we often do not need to move the attention throughout the musculoskeletal structure, so the only thing needed is to increase the contact surface of attention to the mobile joints of the body one at a time. In this technique, attention is focused on each mobile joint for a few seconds and then jumps to the next adjacent joint. The first round of attention movement is done unilaterally during which attention is focused on the joints of only one side and then the other side of the body. The second round of attention movement is done bilaterally in which attention is simultaneously and symmetrically focused on the joints of both sides of the body. During the third and fourth rounds, which is done unilaterally and then bilaterally, attention scope is gradually increased and expanded towards the joints throughout the body [6, 10, 11].

3.4.4. The “Idea-Motion Technique”: This technique (IM) allows for superficial attention to the body by regularly observing the surfaces of the body's contact with the ground. This technique is performed in supine position. To facilitate sleep, practice the technique after going to bed in lying down position. Most meditators often report falling asleep before completing the technique [13, 14].

In this posture, the body has greatest contact surface to the ground which provides the best opportunity to surrender the whole weight and heaviness of body to the gravity. In this technique, by the synergic impact of each exhalation which is felt on the same direction of gravity, one attends to the vertical movements of the abdominal muscles while exhaling and simultaneously, attention is focused on each contact surface of the body to the ground for a few seconds. This synergistic effect will accelerate the feeling of losing the weight and heaviness of body and surrendering it to the ground. One may start from the contact surface of right heel and then gradually moves to the contact surface of the right leg, right thigh, left leg, left thigh and other contact surfaces of the body respectively and in the same order unilaterally and bilaterally through the JMA technique [11].

3.4.5. The “Pendular Movement of Attention”(PMA) Technique:

PMA is one the mindfulness-based techniques in FGM where in the attention span oscillates between the three domains of the being as a pendulum, observing every stimulus on its way for a brief

moment. These three domains include the surrounding world, physical geography, and mental and internal space. This technique tends to diminish attentional bias towards distractors such as muscle tension, and peripheral acoustic sensitivity. It also helps modulating the mental and emotional exhaustion through a calm cognitive-emotional atmosphere over the entire mental, physical and sensory domains. It simultaneously enhances the sense of consciousness and body-mind awareness. The technique is performed in sitting position on a chair [10, 13].

3.4.6. Nasal Angular Concentration (NAC):

This technique helps tracing the direction of air flow on the base of one nostril and nasal septum. Attention moves on the base of the nasal canal towards the end while inhaling and it moves along with the nasal septum towards the nasal tip while exhaling. Breathing first occurs actively through the long inhalation and exhalation, but then it carries on spontaneously. Along the direction of attentional movement, an angle is made which starts receding in both ends while breathing becomes slower, and then it will turn into a point superposing the end of nasal canal or the space between eyebrows. Now, one should be aware of how the attention deposits and settles on this specific zone and attend on the feeling of slight vibrations, heaviness, pressure, tingling, etc. in between the eyebrows. Then, attention which is perceived as a compressed ball is shifted towards the center of gravity inside the head and expands on the direction of longitudinal symmetry line throughout the body [6].

3.4.7. The “Vertical and Horizontal Bi-Conical Concentration” Techniques:

In these concentrative techniques (vBCC and hBCC, respectively), attention is focused on one cone while being formed vertically or horizontally during inhalation and on the other cone, while reversely formed upon exhalation. The cones appear and disappear in accordance with the fixed and static points on the direction of longitudinal symmetry line of the body.

Then, attention is focused on the vertical or horizontal cones which are being formed to ultimately reach the pointed attention stage in-different areas i.e. within the abdominal cavity, thoracic cage, neck or head [13].

3.4.8. The “Bi-Spherical Concentration” Technique:

In this technique (BSC), the volume inside the abdominal cavity fluctuates during inhalation and exhalation. Meanwhile, the influence is traced in sphere form which starts propagating into the head while one attends to the center of head simultaneously with the expansion and contraction of the abdominal cavity. This would

be reflected as the expansion and contraction of the sphere inside the head which can be felt on the sides of head, temporal lobes, and sides of the eye-sockets. These subtle vibrations and delicate breathing impacts could be organized inside the head in the form of a sphere. The concurrent focus on forming both spheres i.e. the sphere inside the abdominal cavity and the one inside the head is called BSC [13].

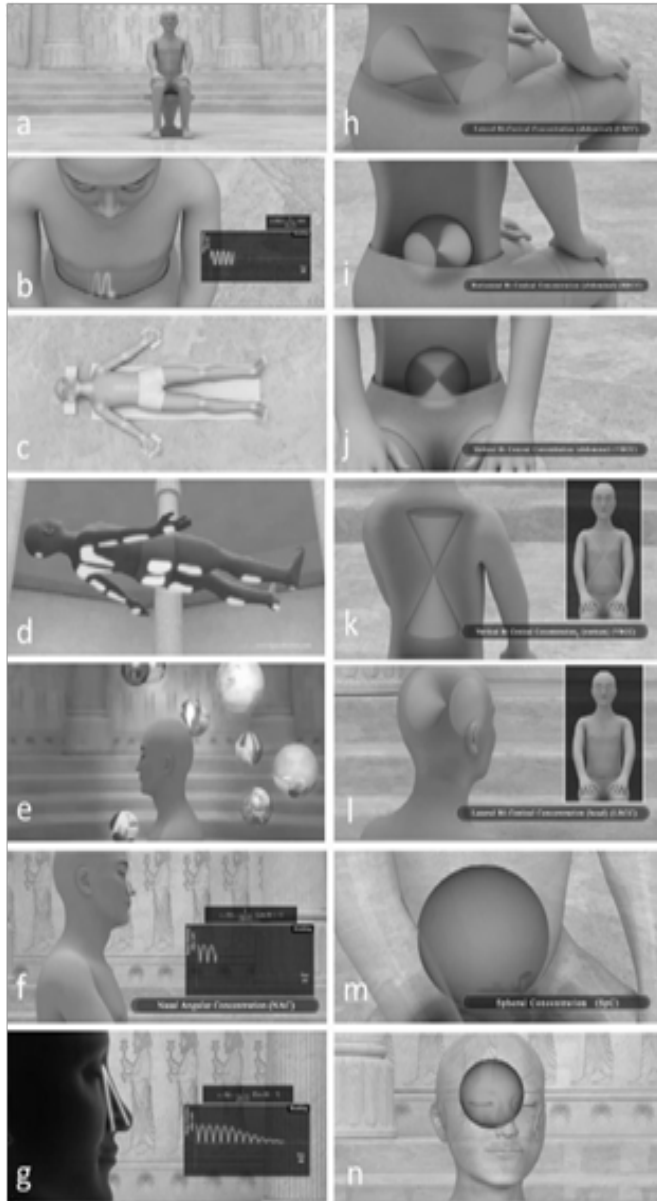


Figure 1: Selected FGM techniques to be used in COVID-19 anxiety protocol. These techniques have been selected from the full range of FGM techniques owing to their examined efficacy in inducing and maintaining bilateral slow-wave synchronization in the brain (theta synchrony) leading to subjective and objective outcomes helping to conquer worry. The protocol comprises pre-technique (a), horizontal-linear concentration-HLC (b), jumping movement of attention-JMA(c), idea-motor-IM(d), pendular movement of attention-PMA(e), nasal angular concentration-NAC (f-g), biconical vertical and horizontal concentration-vBCC/hBCC (h-l) and bi-spherical concentration-BSC (m-n). Data on file. (Fars Medication Academy-2020)

4. Geometric Meditation-Based Stress Management Protocol Schedule for Reducing COVID-19 Anxiety

The protocol is a regular weekly program comprising two meditation-based sessions during the day and a relaxation-mindfulness session before bedtime. After completing the techniques based on the weekly schedule, the protocol will be repeated for the following weeks as needed.

5. Closing Remarks



Besides all validated mindfulness-based cognitive training approaches in stress management, we propose Geometric Meditation-Based Stress Management Protocol as an efficient approach towards conquering worry. We propose this approach based on our earlier investigations on FGM in our applied neuroscience laboratories where findings indicated subjective and objective measures favoring improved cognitive-emotion regulation. Our qEEG and optical neuroimaging studies have also supported optimization of fronto-polar hemoreactivity, bicentroparietal theta and alpha synchronization as well as polyvagal response control upon FGM practice [6, 10, 11, 13].







As such, we expect the present protocol to be safe and effective in reducing these days COVID-19-induced anxiety especially in those lacking sufficient cognitive-emotion regulation capacity.








6. Acknowledgment






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Table 1: The 7-day scheduled protocol. The QR codes are linked to the video file for training instructions.

Day One	QR Codes linked to video instructions
Perform the pre-technique in the morning somewhere between the wake-up time and around 11:00 am	
Perform the horizontal-linear concentration(HLC) technique somewhere between 4:00-7:00 pm	

Perform jumping movement of attention-JMA (joint to joint) in lying position (supine) a while before bedtime	
Day Two	QR Codes linked to video instructions
Perform HLC in the morning somewhere between the wake-up time and around 11:00 am	
Perform the pedular movement of attention (PMA) technique somewhere between 4:00-7:00 pm	
Perform idea-motor (IM) technique in lying position (supine) a while before bedtime	
Day Three	QR Codes linked to video instructions
Perform HLC in the morning somewhere between the wake-up time and around 11:00 am	
Perform the vertical and horizontal biconical concentration (vBCC and hBCC) techniques somewhere between 4:00-7:00 pm	
Perform IM in lying position (supine) a while before bedtime	
Day Four	QR Codes linked to video instructions

Perform bi-spheral concentration (BSC) in the morning somewhere between the wake-up time and around 11:00am	
Perform the nasal-angular concentration (NAC) technique somewhere between 4:00-7:00 pm	
Perform IM in lying position (supine) a while before bedtime	
Day Five	QR Codes linked to video instructions
Perform vBCC and hBCC techniques in the morning somewhere between the wake-up time and around 11:00am	
Perform the PMA technique somewhere between 4:00-7:00 pm	
Perform IM in lying position (supine) a while before bedtime	
Day Six	QR Codes linked to video instructions
Perform NAC in the morning somewhere between the wake-up time and around 11:00 am	

Perform the BSC technique somewhere between 4:00-7:00 pm	
Perform IM in lying position (supine) a while before bedtime	
Day Seven	QR Codes linked to video instructions
Perform HLC in the morning somewhere between the wake-up time and around 11:00 am	
Perform the BSC or NAC techniques somewhere between 4:00-7:00 pm	
Perform IM in lying position (supine) a while before bedtime	

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