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Determination of Effectiveness of Remembrance of "Ya Allah" in Alleviating Anxiety Using Neurofeedback (Impact on Alpha and Theta Waves)

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ABSTRACT

Aims: Anxiety is an extremely disabling disorder which affects many aspects of life. This study aims to study the use of Alpha-theta neurofeedback training methods along with the remembrance of Allah as a new therapeutic way in patients with anxiety disorders.
Methodology: This experimental study was carried out in Dezful University of Medical Sciences in 2016. 20 participants were divided into two groups of equal size. Participants were firstly evaluated by a clinical psychologist and then underwent neurofeedback test. In order to decrease the impact of external factors, participants were asked to count to 20 before the first EEG is recorded. After that, the first group was received routine neurofeedback. For the second group, the word Allah was displayed on the screen and participants were asked to focus it and repeat "Ya Allah". For these two groups, Alpha and Theta waves on Pz point were displayed on the screen simultaneously so that they can inspect the changes in waves. All waves and the final EEG in three thirty-minute sessions were recorded by the eWave8 system.
Findings: Mean and standard deviation (STD) of Alpha waves for before and after using the recitation of "Ya Allah" were 25.6410±4.90765 and 44.3920±17.11289, respectively. Also, mean and STD of Theta waves were 24.2930±6.131127 and 42.5580±21.60156, respectively. These results showed that recitation of "Ya Allah" led to an increase in the posterior midline of alpha and theta. Also, it makes a significant decrease in the anxiety of the participants in the first session of the treatment itself. As well, in comparison with routine neurofeedback, results showed that using proposed neurofeedback has a higher mean and a lower STD.
Conclusion: Our findings show that recitation of "Allah" with neurofeedback is effective in alleviating anxiety.
KEYWORDS: Alpha-theta neurofeedback training, recitation of "Ya Allah", anxiety.

INTRODUCTION

Based on DSM-IV, anxiety can be defined as an in-advance concern about future outcomes or miseries accompanied by the feeling of unpleasant and physiological symptoms. Clinical examinations reveal that anxiety symptoms appear in different levels including behavioral, physical, communicative, and cognitive. According to World Health Organization (WHO) estimation, the prevalence of anxiety is increasing in developing countries. Anxiety disorders are one of the commonest psychological disorders in public.In recent decades, different methods have been used to reduce anxiety. For example, religious behaviors and alpha-theta neurofeedback training techniques can be mentioned.

Religious behavior is one of the complex human behaviors which has been less considered by psychologists. Herbert Benson states that there is no gap between science and spirituality in treating patients. As well, regular praying (Duaa) decreases the number of breaths and brain's wave activities. Hope and trust in God's answer to prayers, spiritual condition, the time and place of praying are important factors. Praying can be as effective as medicine [1]. For example, in a case study on 70 patients awaiting abdominal surgery, Nikbakht et al. [2] showed that prayer recitation is effective in alleviating the anxiety level of these patients.

Recitation of the names of God (Zikr-e-Asma-Al-Husna) brings peace of heart and mind. Also, it lights up the soul and strengthens the power of thinking [2]. Recitation of "Ya Allah" (meaning O' God) is highly recommended to decrease anxiety and stress. "Allah" has been repeated 2699 times in Muslim Holy

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Book, Quran. Ayatollah Makarem Shirazi states that recitation of "Allah" creates a mental power and courage in person to fight the problems [3]. In addition, scientific results indicate that recitation of word "Allah" has an effective impact on medical conditions such as pain, anxiety, stress and vital signs [4-7]. As well, it can be as a non-pharmacological, low-cost, noninvasive and without side effects method [8].

Studies showed that neurofeedback can alleviate the anxiety level [9-11]. It uses electroencephalography (EEG) to register brain's performance. It provides psychological data from brain's waves [12]. Electrical momentums are prepared using Neurotherapy. Its amplitude is received in separate filtered frequency bands. Consequently, the results can be displayed to the participants visually and aurally. This helps the patient to regulate their brain's waves in the bandwidth [9].

Studies that use both religious behavior and neurofeedback for reducing anxiety are few. These studies were mostly focused on Quran and Muslim praying (Salat). For example, Noor Ashikin et al. [13] showed that listening to Quran increases alpha band more than listening to classical music does. They stated that listening to Quran creates a higher level of relaxation and sobriety. As well, Alshaikhli et al. [14] studied the effects of EEG and ECG signals while listening to Quran recitation in a specific place. Their findings show that participants who listened to Quran were in a calmer and relaxed state. Salleh et al. showed that "prostrating during salat generated higher alpha relative power as compare with mimic prostration. This finding concludes that prostration, one unique position in Salat may promote a remarkable relaxation state to human mind and body" [15].

To our knowledge, up to now, no research has been done on studying the effect of recitation of the names of God especially the word "Ya Allah" on both Alpha and theta waves in during neurofeedback training. Hence, this paper is the first work in this field.

METHODOLOGY

This experimental study was carried out in Dezful University of Medical Sciences in 2016. Twenty young volunteers including 6 males and 14 females participated in the study. They were firstly evaluated by a clinical psychologist. Then, they were divided into two equally-sized groups: 1) traditional neurofeedback and 2) neurofeedback with reciting of the word "Allah".

Participants sat in a comfortable chair. Each participant underwent neurofeedback test for three thirty-minute sessions in one week. Recording brain waves was conducted according to the classic protocol of anxiety treatment by increasing alpha and theta waves in the midline at Pz point. All data were acquired by eWave8 Neurofeedback [16].

The procedure of neurofeedback test for two groups is as following steps. First Step is to register the initial test and a one-minute record. This is to eliminate external interruptions and to calm participants. During this step, participants were asked to count to 20, slowly. In this way, the first EEG was recorded. Second step is to register a five-minute record as a baseline test before applying alpha-theta neurofeedback training. These two steps were done only in the first session. Third and fourth steps were to train alpha and theta waves, respectively. In these two steps, Alpha and Theta waves were displayed on the screen simultaneously so that participants can inspect the changes in waves. All waves and the final EEG are recorded as well. For the second group, the word Allah was displayed on the screen and participants were asked to focus it and slowly recite "Ya Allah" by heart (without moving lips).

Finally, the first record in the first session (i.e. baseline test) and the last record in the last session were compared. In other words, the records of EEG related to before and after applying alpha-theta training were compared.

Findings

Both alpha and theta waves of all participants in both two groups were evaluated. Mean and standard deviation of Alpha and Theta waves were showed in Tables 1&2, respectively. As well, Figs. 1& 2 showed these results graphically. The results were showed for both before and after using the alpha-theta neurofeedback training. From these results, it can be concluded that:

- Recitation of "Ya Allah" led to an increase in Alpha and Theta waves.
- It makes a significant decrease in the anxiety of the participants in the first session of the treatment itself.
- It led to a higher mean and a lower standard deviation in comparison with traditional neurofeedback.

Table 1: Comparison of mean and standard deviation of Alpha waves before and after using neurofeedback.

parameter	Group 1		Group2	
	Pre Test	Post Test	Pre Test	Post Test
Mean	24.94	40.764	25. 6410	44. 3920
STD	5.777895	25.76854	4. 90765	17.11289

Table 2: Comparison of mean and standard deviation of Theta waves before and after using neurofeedback training.

parameter	Group 1		Group2	
	Pre Test	Post Test	Pre Test	Post Test
Mean	25.396	41.325	24.293	42.558
STD	6.937051	25.79447	6.131127	21.60156

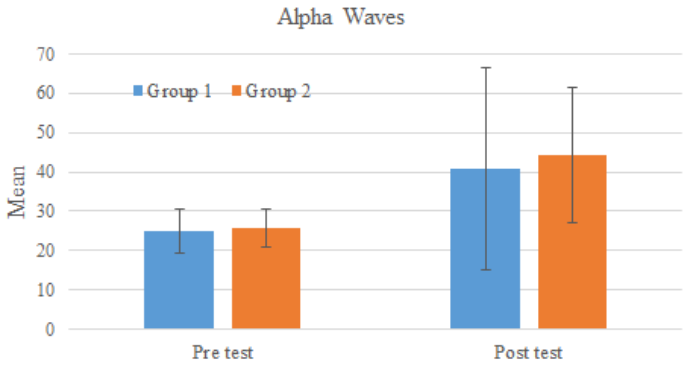

Figure 1: Comparison of mean and standard deviation of Alpha waves of participants before and after using neurofeedback training.

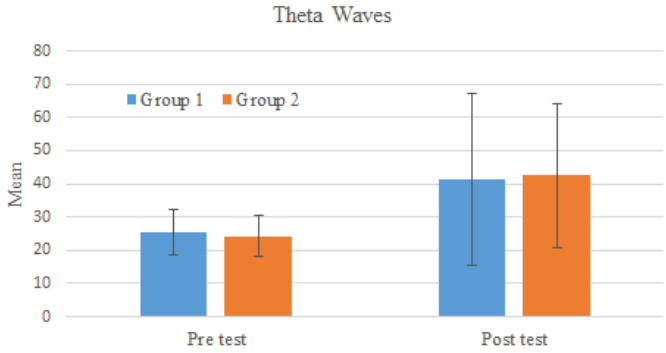

Figure 2: Comparison of mean and standard deviation of Theta waves of participants before and after using neurofeedback training.

DISCUSSION

Our findings show that recitation of “Ya Allah” is effective in alleviating anxiety through its impact on alpha and theta waves. To the best of our knowledge, no study has been carried out on the impact of recitation of “Ya Allah” on decreasing the anxiety level. Though there are few studies which are indirectly related to the subject. Nasrabadi at al. [2] compared Benson Relaxation Method and prayer recitation (reciting Alhamd Sura, the Opening Chapter of Quran for 7 times and the phrase "There is no might nor power except in Allah” 100 times) in patients who were to undergo surgery next day. Their findings show that recitation is effective in reducing anxiety in patients which is in consistency with our findings.

Avaze et al. [4] showed that recitation of “Allah” is effective in alleviating pain and stress while changing the bandage for patients with burns. Their findings are consistent with that of ours.

Najafabadi et al. [9] showed that neurofeedback creates changes in the amplitude of variables at FP1-T3 point. It also strengthens the amplitude of SMR at CZ point which leads to a significant alleviate of

anxiety in participants. It is an inconsistency with our findings that show recitation of "Ya Allah" leads to a decrease of anxiety in participants by increasing the posterior midline of alpha and theta.

Noor Ashikin et al. [13] showed that listening to Quran increases alpha band more than listening to classical music does. They stated that listening to Quran creates a higher level of relaxation and sobriety. Though it is different from our study with respect to the prayer recitation, it is an inconsistency with our findings by showing that recitation of spiritual prayers has a positive impact on alpha waves of the brain. This study reveals the positive impact of belief in God and spirituality.

Ayatollah Makarem Shirazi states that recitation of "Allah" creates a mental power and courage in person to fight the problems. Psychologists and Psychiatrists found out that prayer recitation and remembrance of God help people overcome problems. As a result, it alleviates anxiety, restlessness, and fear which brings about peace of mind. Hoffman conducted a research in Amsterdam University and showed that recitation of "Allah" leads to a state of calmness and reduces stress and anxiety [4, 7, 8].

It is recommended that nurses and physicians pay attention to the impact of religious beliefs in improving the treatment process. It is also suggested that they use prayer recitation (common among Muslim Iranians) instead of Benson's relaxation or other relaxation methods. The same study can be conducted to study the impact of recitation of "There is no might nor power except in Allah".

It is important for researchers to increase participants' knowledge about prayer recitation and give them incentive before the commence of the study. This helps patients to define more realistic goals in their treatment process. It is also suggested researchers evaluate the impact of prayer recitation on larger samples including both genders. As some researcher suggest 20-30 neurofeedback sessions for adults, it is appropriate for robustness and generalization of the results to hold more sessions with the consent of participants. In addition, it is suggested that few post-treatment follow-up sessions be held in order to establish the waves. Participants should be informed that the impact of prayer recitation method might be gradual. Specified depression protocols may be used instead of anxiety treatment protocols. Considering the incremental prevalence of anxiety and feeble spirituality, it is suggested long-term studies be conducted to evaluate the long-term effectiveness of prayer recitation treatment method. People need to be informed at a national level through media about the effectiveness of prayer recitation in treating anxiety disorders.

CONCLUSION

Our findings show that recitation of "Ya Allah" (O' God) decreases anxiety level through increasing alpha and theta waves. As the lack of spirituality is an effective factor in anxiety and stress, spiritual relaxation methods and trust in God leads to alleviation of anxiety. Recitation of "Ya Allah" leads to an increase in the posterior midline of alpha and theta. As a result, anxiety showed a significant decrease in participants in the first session of the treatment. Participants experienced peace and a stronger trust in God during the sessions. This study results in strengthening spirituality in participants by decreasing anxiety and its symptoms in their behaviors.

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