

Effect of the neurofeedback/emotion-focused combination couple therapy on brain wave activities and marital adjustment in Anxious-Avoidant Couples (a comparative study)

Abstract

This research compares the effect of neurofeedback and the neurofeedback and emotion-focused combination couple therapy on brain waves and marital adjustment in avoidant-anxious couples. The research was quasi-experimental with a pre-test-post-test design, and control and follow-up group. Its statistical population included all anxious-avoidant couples referring to medical and counseling centers in Ahvaz in 2018. For this purpose, we selected 30 couples with anxious and avoidant attachment styles through sampling at convenience. For data collection, the Collins and Reed Attachment Questionnaire, and the Locke – Wallace Marital Adjustment Questionnaire along with the QEEG was appropriate. We applied repeated measurement statistical tests to analyze the data and compare the two research variables.

In short, the results of this research showed that both neurofeedback and combination therapies had a significant effect on brain waves and marital adjustment. The increase in mean brain waves and marital adjustment of avoidant couples was more than that of anxious ones. A comparison of experimental groups with the Bonferroni test showed that the group receiving combination therapy showed more changes in brain waves and marital adjustment. Because the effect of neurofeedback therapy significantly was lower compared to combination one in terms of brain waves and marital adjustment. We should note that these results continued in the follow-up phase. According to the results, the combination of neurofeedback therapy with emotion-focused one has increased the effectiveness of treatment and improved brain waves and marital adjustment. Avoidant couples had better results than anxious ones. Overall, emotion-focused and neurofeedback combination therapy was more effective than specific therapies in improving brainwaves and adjustment among couples with avoidant attachment styles. Accordingly, we recommend the development of appropriate intervention programs to strengthen the marital adjustment of avoidant and anxious couples for solving their difficulties.

Keywords: *Neurofeedback, emotion-focused, Brainwaves, Marital adjustment, Anxious and Avoidant*

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Introduction

What is important in marriage is compatibility and satisfaction with marriage, so for the experts of family psychology, the criteria for marital satisfaction are relationships and achieving secure attachment (4). Since attachment is specific in terms of emotions, the attachment behaviors emerge solely in an interactive context that contains at least basic emotions (such as joy, sadness, fear, hatred, anger, and surprise) (11). Marriage, as the most supreme social tradition, has always been important for meeting the emotional and security needs of adults (3). From the point of view of attachment theory, the attachment system commits man to seek closeness, support, and protection in his mutual relations (13). Attachment is also a deep emotional bond that a person establishes with certain people throughout life, and this bond makes him feel the pleasure of interacting with those people and feels relaxed in times of stress. People start marriage as a source of satisfaction and success. In other words, the first ground for a couple is to

have a relationship, and the first skill needed to maintain a relationship is to have the proper communication skills (9). Understanding close relationships, couples' agitation, identifying effective interventions, articulating the process of change, and the ability to describe the adult love are processes that occur in the form of therapy called emotion-focused couple therapy (EFCT) (7). Susan Johnson and Leslie Greenberg first proposed emotion-focused couple therapy in the early 1980s. This treatment combines the techniques of empirical and systemic approaches to expand emotional responses and interactive cycles between couples. It seems that the emotion-focused approach, with its emphasis on the basic emotions shared by human beings and attachment needs, has been able to cover different cultures and classes well. Because emotional experiences are a key element of change in this approach, the therapist emphasizes in the treatment sessions the processing of emotions and basic interaction patterns as experienced in the treatment session. Through this approach, the therapists create a safe environment and base for couples,

help each of them to be able to express their experiences openly and clearly and find new ways to communicate with each other. This treatment includes reducing negative interaction cycles, reconstructing interactions, and consolidating and integrating them (6). Research has shown that this treatment has a significant effect on improving the condition of couples .

On the other hand, neurofeedback, originally called biofeedback electroencephalography, was innovated to correct and treat brain wave abnormalities (1). Neurofeedback is a safe and painless method that is used for improving brain function and self-control in a variety of ways. Its underlying mechanism includes the reinforcement of self-regulation required for effective functioning. Neurofeedback is a technique in which individuals learn to change the pattern of their brain waves through active conditionalization. The goal of neurofeedback training is to correct abnormal EEG, which results in the development of consistent behavioral and cognitive function in the individual (8). Research has shown that changing brain waves by neurofeedback can improve mood and emotions. For example, showed that different attachment styles in adolescents use different brain systems during emotional processing. For this purpose, they used ERP tools in their research.

Considering the above and that the results of research on couple therapy show that couples' difficulties (by 50%) have significantly recurred after stopping or limiting psychotherapy, a very disappointing result, we can conclude that effective adjuvant therapy should be used in conjunction with couple therapy to have a lasting effect on treatment. In other words, many couples who have been successful in traditional psychotherapy have not been psychologically resilient to change; but for resilient couples, the only counseling in couple therapy is not sufficient. It is a clear example of the limitations of traditional psychotherapy. Therefore, we can conclude that other new treatment techniques should help psychotherapy. Therefore, we assumed that by changing the functions of the brain, we could achieve better results. We decided to accelerate this improvement with the neurofeedback technique, and this requires intervention at the deep levels of the brain, which is possible with neurofeedback. Therefore, in addition to the use of traditional psychotherapy such as emotion-focused couple therapy and neurofeedback, we can use the combination of these two theories as a special method to evaluate the effect of treatment outcomes on safe bonds and their dimensions (accessibility, responsibility, and attention) in couples. Hence, this research seeks to answer the fundamental question of whether there is a significant difference between the effect of neurofeedback and the combination of emotion-focused couple therapy with neurofeedback on the change of brain waves and marital adjustment of avoidant-anxious couples.

Methods

Procedure

The present research aimed to evaluate and compare the effect of neurofeedback and the combination of neurofeedback with emotion-focused couple therapy on brain waves and marital adjustment in anxious-avoidant couples. Not all research conditions are under the control of the researcher and the selection of the sample is often random. This is why it is a quasi-experimental study with a pre-test-post-test design and control and follow-up groups.

The statistical population of this research included avoidant-anxious couples who were referred to medical and counseling centers in Ahvaz in 2018. The research sample consisted of 30 people or 15 couples who were randomly included in three groups of 10 people or 5 couples in each group. These couples were willing to participate in the research, and we selected them by sampling at convenience and randomly assigned them to two experimental groups and one control group. Each of the experimental groups received the designed treatment protocols in the training sessions, while we placed the control group on a waiting list. In order to observe the professional ethics, the people in the control group, after the experiment and the completion of the period of follow-up assessments, were trained in emotion-focused couple therapy.

Inclusion criteria include willingness to participate in a research treatment program and difficulty in marital adjustment due to which they have referred to counseling centers. Existence of anxious-avoidant attachment style in couples measured by Collins and Reed attachment test. Passing at least two years since the couple's marriage. Couples degree of diploma or higher. Couples' age of 24 years and above.

Exclusion criteria include requesting to leave the intervention process and program by the subject; creating psychological, family problems, and situations affecting the research results.

Measuring tools

1. Marital Adjustment Test: Aaron J. Locke and Karen M. Wallace developed this 15-question test in 1959, one of the first short scales to measure marital adjustment. A score of 100 or less is a cut-off score and indicates incompatibility in marital relationships. The score of this test is equal to the sum of the scores of all questions and its range is from 2 to 158 reported the validity of the scale with the retest method by 0.86 and with the Cronbach's alpha method by 0.89 and its simultaneous validity by 0.90. In domestic research, it had shown a significant positive correlation with who worked on the couple intimacy scale. Moreover, it had concurrent validity with the DAS marital adjustment scale. The correlation is shown to be $r = 0.86$.

In the present research, we obtained by 0.721 the reliability of this scale by Cronbach's alpha method. In order to investigate the factor structure of the Marital Adjustment Questionnaire in

the mentioned population, we analyzed heuristically the questions using the principal components. Findings of factor analysis showed that the KMO index (Kairs-Meyer-Oaklin index) is equal to 0.700 and the Bartlett test showed X^2 by 3698.15, which was significant at the level of 0.0001. The values indicate the adequacy of the sample size for factor analysis.

Collins and Reed Attachment Questionnaire developed this scale. It includes self-assessment of relationship-building skills and self-description of forming attachment relationships with close attachment figures. It consists of 18 items measured by marking on a 5-grade scale (Likert) from *it does not correspond in any way to my characteristics* (1), *until it fully corresponds to my characteristics* (5). Collins and Reed have prepared their questionnaire materials based on the descriptions in the Hazan and Shiver adult attachment questionnaire about the three main attachment styles. The anxiety subscale (A) corresponds to the ambivalent attachment. The closeness subscale (C) corresponds to secure attachment, and the dependence subscale (D) is almost the opposite of avoidant attachment. The description of these 3 subscales, each of which consists of 6 items, is:

Dependence (D): It measures the degree to which subjects trust others, and whether they are accessible when needed.

Closeness (C): Measures the degree of comfort in intimacy and emotional closeness.

Anxiety (A): Measure the fear of having a relationship.

Scoring

For the options, *I completely disagree* and *I strongly agree*, we considered scores of 0 to 4, respectively. Questions 1, 6, 8, 13, 12 and 17 measure closeness. Questions 5, 2, 16, 14, 7, and 18 assess dependence and finally questions 3, 4, 9, 10, 11, and 15 measure anxiety. In cases where the above questions are scored in reverse (marked in the scoring instructions with an *), the scores 4, 3, 2, 1, and 0, respectively, should be considered on the options 1 to 5.

Reliability and validity

Collis and Reed showed that the subscales of the proximity of dependence and anxiety remained stable for 2 months and even during 8 months. As for the reliability of the Collis and Reed adult attachment scale, they reported Cronbach's alpha for each subscale of this questionnaire in 3 samples of students as follows:

Subscale	Safe	Avoidant	Anxious
Samples			
173	0.81	0.78	0.85
130	0.80	0.78	0.85
100	0.82	0.80	0.83

Since Cronbach's alpha values are equal to or more than 80% in all cases, the test has high validity. On the other hand, the research of has determined the validity of the test through retest as a correlation between the two implementations. This questionnaire (RAAS) was administered to 100 randomly selected second-grade high school girls and boys. The results of twice conducting this questionnaire with an interval of one month from each other indicated that this test is valid at the level of 0.95.

In the present research, we obtained the reliability of this scale by Cronbach's alpha method for attachment, dependence, closeness, and anxiety and the general score of the scale was good and equal to 0.690, 0.779, 0.619, and 0.761, respectively. In order to investigate the factor structure of the Attachment Styles Questionnaire in the mentioned population, we analyzed the questions of the questionnaire by the principal components method. Findings of the research on the factor analysis showed that the KMO index (Kairs-Meyer-Oaklin index) is equal to 0.682 and the Bartlett test showed a value of X^2 by 3169.91, which was significant at the level of 0.0001. The values indicate the adequacy of the sample size for factor analysis.

3. Quantitative electroencephalography or QEEG

By placing a small number of electrodes on the head, we can receive these waves, record them and then analyze them by a computer. In this method of evaluation, several electrodes (usually 19) that are registered on a hat with a certain order and rule are placed on the head and brain waves are received. QEEG records brain waves in different modes of closed and opened eyes through performing a cognitive task like reading, then the computer differentiates these waves by frequency and displays them in different colors according to the intensity of activity. Images are presentable in the form of color heads called BRAIN MAP. These waves in the brain have a standard and a normal limit that changes only based on age and gender. This means that in order to have a proper function, each of the brain waves must have a certain amount of activity. By comparing the measurements obtained from recording waves in a person with normal values, we can determine which of the waves and at which point of the head has inappropriate activity.

Data analysis

To analyze the data in the present research, we used descriptive statistical methods such as calculation of frequency distribution, mean and standard deviation. To evaluate the objectives of the research, we benefited from repeated measures analysis by SPSS-22 software.

Findings

Assumptions of repeated measures analysis for the dependent variable including brain waves

In the present research, we used the statistical method of repeated measures analysis to investigate the general

hypothesis of the research, with the sphericity of the variance-covariance matrix of the dependent variable as the first assumption.

The results on the equality between covariance through Mauchly's sphericity test showed that the variance of the two post-test and the follow-up stages of brain waves are equal. Due to the insignificance of the results of Mauchly's test ($\chi=7.8$; $p = 0.06$), we can say that the assumption of sphericity or the assumption of homogeneity of the data covariance matrix has been appropriate and the relationships between dependent and independent variables do not change the values of the dependent variable. That is, there is no relationship between the type of treatment and the dependent. Consequently, the sphericity of the variance-covariance matrix is acceptable.

Another important assumption for repeated measures analysis is the homogeneity of regression coefficients. In this research, we measured the homogeneity test of regression coefficients through the pre-test interaction of variables with the independent variable in the post-test and follow-up stages. The interaction of pretest with independent in the stage was not significant and indicated the homogeneity of posttest regression coefficients. Therefore, we can conclude that analysis of covariance with repeated measures is generally significant and intervention methods are of effect on dependents. Accordingly, in examining the assumption of

Table 1: Results of repeated measures analysis of the effect of neurofeedback on brain waves among avoidant and anxious individuals

Source of effect	Total squares	Degree of freedom	Mean squares	F	Sig.	Eta coefficient	Test power
Total effect	6.528	1	6.528	248.5	0.000	0.883	1.000
				31			
Group effect	2.010	3	0.670	25.50	0.000	0.699	1.000
				8			
Effect of attachment style	0.334	1	0.334	12.71	0.001	0.278	0.933
				9			
Effect of gender	0.028	1	0.028	1.65	0.310	0.31	0.171
Pre-test effect	0.019	1	0.019	0.726	0.400	0.022	0.131
Error effect	0.867	33	0.026				

As we can see in Table 1, the effect of groups or types of intervention on brain waves is significant. The effect of attachment style on brain waves was significant. We applied

Table 2: A paired comparison of brain waves of individuals in the post-test and follow-up stages between avoidant and anxious couples

Basic group	Criterion group	Mean difference	Standard deviation error	Sig.	95% Confidence interval	95% Confidence interval

homogeneity of the regression coefficient, we found that the coefficient of non-determination of the independent variable in interaction with time and dependent was not significant at the level of $p < 0.143$ by F Wilks' $Lmd=2.25$, $d.f1=1$, $Value=0.297$, $d.f2=33$. Thus, we can say that the assumption of non-interaction or contrast between the linear composition of the independent and the dependents of the groups was observed. Thus, we can use the repeated measures analysis. Moreover, the results of Box's M test for evaluating the equality of the covariance matrix of brain waves between groups showed that the Box's M value ($p < 0.09$, $F = 1.51$, $Mox = 45.76$) or the covariance matrix of dependent variables is equal between the four groups and the difference is not significant. Accordingly, we can use the repeated measures analysis test.

The results of the Levin test to evaluate the equality of variance of brain waves between groups showed no significant difference between groups. In other words, the equality of variance of groups in terms of dependent variables is the case. Therefore, the results of the Levin test indicate the equality of error variances of dependent variables in different stages. Therefore, we can use repeated measures analysis tests to analyze the data.

We have reported the results of repeated measures analysis of variance for brain waves in the table below.

the Bonferroni follow-up test to determine the differences between groups' brain waves.

					Low level	Low level
Control group		-.174*	.051	.011	-.319	-.030
		-.383*	.051	.000	-.527	-.239
		-.410*	.056	.000	-.567	-.252
Emotion-focused		.174*	.051	.011	.030	.319
		-.209*	.051	.002	-.353	-.065
		-.235*	.055	.001	-.388	-.082
Combination		.410*	.056	.000	.252	.567
		.235*	.055	.001	.082	.388
		.027*	.054	1.000	-.126	.179
Final stage	Basic stages	Mean difference	Standard deviation error	Sig.	95% Confidence interval	
					Low level	Low level
Follow-up	Posttest	1.626	2.510	.522	-3.494	6.744
Basic attachment	Criterion attachment	Mean difference	Standard deviation error	Sig.	95% Confidence interval	
					Low level	Low level
Anxious	Avoidant	-.143*	.040	.001	-.225	-.61

As we can see in Table 2, the results of the Bonferroni test for pairwise comparison of the mean brain waves of the groups in the post-test stage show that the groups receiving the intervention have a significantly higher mean than the control group. That is, the mean post-test of the control group in brain waves was lower than the other groups. This significant difference indicates the effect of both types of interventions on brain waves. A comparison of experimental groups shows that combination therapy was more effective than other treatments. The effectiveness of neurofeedback therapy was higher than emotion-focused therapy. While emotion-focused therapy has the least significant effect on brain waves. A comparison of combination neurofeedback therapy showed that they are not significantly different from each other. In consequence, the emotion-focused group showed the least effect on brain waves, and combination therapy was more effective than couple therapy alone.

This difference between the groups continued in the follow-up stage, indicating that there was no significant change. The comparison of the mean brain waves in terms of attachment style in the post-test stage shows that there is a significant difference between couples with anxious and avoidant attachment styles. This indicates a greater increase in brainwaves of avoidant people compared to couples with an anxious attachment style. Because combination therapy and neurofeedback had a greater effect on avoidant couples and showed more changes in brain waves than anxious ones.

In addition to the effect of interventions on brain waves, we investigated the effect of interventions on marital adjustment of anxious and avoidant couples, the results of which are as follows.

Examining the assumptions of repeated measurement analysis for marital adjustment

In the present research, we used the statistical method of repeated measures analysis in order to test the research hypothesis; it first assumes the sphericity of the variance-covariance matrix of the dependent variable.

The results of the study of equality between covariance through Mauchly's sphericity test showed that the variance of the two stages of post-test and follow-up of brain waves is equal. Due to the lack of significance of Mauchly's test results ($\chi = 7.8$; $p = 0.06$), we can say that the assumption of sphericity and the assumption of homogeneity or sphericity of the data covariance matrix has been observed and the relationships between dependent and independent variables do not change the values of the dependent variable. That is, there is no relationship between the type of treatment and the dependent. Consequently, we can accept the sphericity of the variance-covariance matrix.

In this research, we measured the homogeneity test of regression coefficients through the pre-test interaction of variables with the independent variable in the post-test and follow-up stages. The interaction of pre-tests with the independent variable in the stage was not significant and indicated the homogeneity of post-test regression coefficients. Therefore, we can conclude that analysis of covariance with repeated measures is generally significant and intervention methods are of effect on dependents. Accordingly, in examining the assumption of homogeneity of the regression coefficient, we found that the coefficient of non-determination of the independent variable in interaction with time and dependent was significant at the level of $p < 0.15$ by F Wilks' $L_{md} = 2.17$, $d.f_1 = 3$, $Value = 0.93$, $d.f_2 = 30$. Thus, we can say

that the assumption of non-interaction or contrast between the linear composition of the independent and the dependents of the groups was not observed. However, since the sphericity assumption was established, we could use repeated measures analysis.

The results of the M-Box test to evaluate the equality of the covariance matrix of marital adjustment between groups showed that the value of M-box ($p < 0.068$, $F = 1.49$, $Mox = 43.9$) or the covariance matrix of dependent variables is equal among the four groups and the difference is not significant. Accordingly, we can use a repeated measures analysis test.

Table 3: Results of repeated measures analysis for marital adjustment among avoidant and anxious individuals

Source of effect	Total squares	Degree of freedom	Mean squares	F	Sig.	Eta coefficient	Test power
Total effect	34991.626	1	34991.626	167.0	0.000	0.848	1.000
				0.2			
Group effect	64030.970	3	21343.657	0.101	0.000	0.911	1.000
				88			
effect of attachment style		1	1489.987	7.11	0.012	0.192	0.733
				2			
effect of gender	18.666	1	18.666	0.089	0.767	0.003	0.060
Group interaction with attachment	1070.792	1	356.931	1.70	0.187	0.146	0.399
				4			
Pre-test effect	810.728	1	810.728	3.87	0.058	0.114	0.478
				0			
Error effect	6284.872	30	209.496				

As we can see in Table 3, the effect of group or types of intervention on marital adjustment is significant. The effect of attachment style on marital adjustment is also significant. We used the Bonferroni follow-up test to compare the groups and determine the differences between the groups.

As we can see in Table 4, the results of the Bonferroni test for pairwise comparison of the mean marital adjustment of the groups in the post-test stage show that the groups receiving the intervention have a significantly higher mean than the control group in marital adjustment. Because the difference between the mean of the control group and the experimental groups is negative. That is, in terms of marital adjustment, there is a significant difference between the control group and all experimental groups including emotion-focused couple

Table 4: Pairwise comparison of marital adjustment of the groups in post-test and follow-up stages between avoidant and anxious couples

Basic group	Criterion group			Sig.	95% Confidence interval
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The results of the Levin test to evaluate the equality of variances between groups shows no significant difference between groups. In other words, the equality of variance of groups in terms of dependent variables has been observed. Therefore, the results of the Levin test indicate the equality of error variances of dependent variables in different stages. Therefore, we can use repeated measures analysis tests to analyze the data.

The following table reports the results of repeated measures analysis of variance for marital adjustment.

therapy, neurofeedback, and combination therapy at the level of $p = 0.001$. This significant difference indicates the effect of both types of interventions on the safe bond. A pairwise comparison of groups receiving emotion-focused couple therapy with neurofeedback therapy also showed a significant difference in favor of emotion-focused couple therapy because the difference was positive. Emotion-focused couple therapy has been of more effect on couples' marital adjustment than combination therapy. A comparison of combination therapy with neurofeedback also showed a significant difference in favor of combination therapy ($p = 0.036$). This difference between the groups continued in the follow-up stage, indicating that there was no significant change.

		Mean difference	Standard deviation error		Low level	Upper level
Control group	neurofeedback					
	Combination					
Combination	Control					
	neurofeedback					
Final stage	Basic stages	Mean difference	Standard deviation error	Sig.	95% Confidence interval	
					Low level	Upper level
Follow-up	posttest					
Basic attachment	Criterion attachment	Mean difference	Standard deviation error	Sig.	95% Confidence interval	
					Low level	Low level
Anxious	Avoidant					

The comparison of the average marital adjustment of couples in terms of attachment style in the post-test stage shows that there is a significant difference between couples with anxious and avoidant attachment styles. This result indicates a higher increase in marital adjustment scores of anxious people compared to couples with avoidant attachment styles. Because combination and emotion-focused therapy had a great effect on anxious couples and showed more change in the mean of marital adjustment than avoidant ones. Because the anxious group was of a positive mean difference in comparison with the avoidant group in marital adjustment.

Discussion

The results showed that there is a significant difference between the effect of neurofeedback and emotion-oriented combination couple therapy on changing brain waves of avoidant and anxious couples.

In summary, the results of this research showed that the intervention based on the neurofeedback model and neurofeedback and emotion-focused combination therapy in comparison with the control group was significantly effective in increasing brain waves and marital adjustment in anxious and avoidant couples. A comparison of experimental groups also showed that neurofeedback was more effective than combination therapy for increasing brain waves. As for marital adjustment, neurofeedback and emotion-focused combination therapy have been more effective. In order to evaluate and explain these findings in comparison with other studies, there were some consistent and inconsistent studies. As for the effectiveness and stability of the results, we compared and concluded the finding of the present research with the results

of studies on the effect of the emotion-focused couple therapy model on variables of brain waves and marital adjustment.

As Table 2 showed the results of pairwise comparison of groups in terms of brain waves, the effectiveness of neurofeedback and emotion-focused combination couple therapy was more effective than neurofeedback alone. The effect of neurofeedback and that of neurofeedback and emotion-focused combination couple therapy on changing the brain waves of couples continued in the posttest and follow-up.

In line with the results of research conducted by this finding showed a significant improvement in the continuous function test and measured brain waves (delta and theta frequency range) during neurofeedback training sessions and follow-up after two months. The significance of the interaction between time and group for all three scales (correct answers, omission error, and presentation error) and the two amplitudes of delta and theta waves showed a significant improvement in the neurofeedback group. In a study of young men who were in an emotional relationship through an EEG tool reported that the level of activity of the parasympathetic nervous system is positively associated with their perception of the safety of their current relationship attachment and this activity level is negatively associated with anxious attachment. Moreover, in their research classified emotional stress through brain activity and the emotional value model. They found that the accuracy of classifying emotional stress based on peripheral signals was 79.95%. Using electroencephalographic signal analysis, was able to create positive emotions in comparison with negative emotions in frontal alpha and higher power in parietal beta; he did this based on the emotional value approach of valuable

traits. showed that different attachment styles in adolescents use different brain systems during emotional processing.

Explaining the different effects of the models under study on brain waves, we can say that the neurofeedback model, dedicated to changing and regulating brain waves, has been less effective than the neurofeedback and emotion-focused combination therapy. Because couple therapy has caused arousal and neurological change due to more emphasis on emotions. As for the combination therapy model, we can say that although brain waves are under influence of physiological and neurological changes, also they are affected by emotional changes and possible clinical outcomes, hence improving the behavior and marital adjustment of couples.

Conclusion

According to the results, we can conclude that the combination of neurofeedback with emotion-focused therapy has increased the effect of treatment on brain waves and marital adjustment. Avoidant couples had better results than anxious ones. Overall, emotion-focused and neurofeedback combination therapy was more effective than specific therapies in improving brainwaves and adjustment among couples with avoidant attachment styles. The research recommends developing appropriate intervention programs to strengthen the marital adjustment of avoidant and anxious couples to solve their difficulties. As for the great effect of emotion-focused couple therapy on the marital adjustment of anxious couples, we can recommend emotion-focused therapy and its combination with neurofeedback for promoting the marital adjustment of couples with anxious attachment styles.

Ethical considerations

We began the present research by observing ethical principles, including obtaining written consent to participate in the research. We explained all specialized terms to the couple. We answered any questions and removed ambiguities in this regard so that they could consciously participate in the research conditions. We assured also the participants of the confidentiality of their information and names. We declared them to withdraw from the research process wherever and when they want.

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Conflict of interests

The authors of this article state that there is no conflict of interest in writing this research.

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