

## Biofeedback treatment of Mixed Anxiety Depressive disorder: A case report

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### Abstract

Biofeedback is a mind–body technique which helps individuals learn how to modify the physiology of their body for the purpose of improving physical, mental, emotional and spiritual health. This present case study was done to see the effect of biofeedback therapy along with relaxation to 42 years old married Hindu suffering from Mixed Anxiety Depressive disorder. The patient was treated with biofeedback EMG relax and Heart Rate Variability. After 15 sessions of biofeedback significant improvement was found. He was under follow up sessions for six months and reached to pre morbid functioning level.

**Keywords:** Biofeedback; Depression; Anxiety; EMG; HRV

### 1. Introduction

Biofeedback is a treatment used for training patients to improve their health by using signals from their own body. It helps those patients who are tense and anxious and makes them relax. Research has shown that biofeedback, alone and in combination with other behavioral therapies, is effective for treating a variety of medical and psychological disorders, ranging from headache to hypertension to attentional disorders. It guides the individuals to facilitate the learning of voluntary control over body and mind, and take a more active role in maintaining personal health and higher level mind-body wellness. Biofeedback is based on the recognition that changes in the mind and emotions affect the body, and changes in the body also influence the mind and emotions. Biofeedback underscores educating individuals to become aware and increase control over their nervous system, brain, and body, and improve flexibility in physiologic responding. Feedback training has the positive effect of improving performance, learning and health.

A recent study reported reduction in anxiety and increased heart rate by using Heart Rate Variability (HRV) as a treatment for major depressive disorder (MDD.) All 11 participants received 10 weekly treatments. Significant improvements were noted in the Hamilton Depression Scale (HAM-D) and the Beck Depression Inventory (BDI-II) by session four. Clinically

and statistically significant improvement in depression persisted for the duration of the study [1]. Nevertheless it is clear that mixed features of anxiety and depression is accompanied by low self-efficacy, pain, headache, tension which is also associated with the hypothesis of Beck that people with negative evaluation towards self-have low self-efficacy and assess the environmental factors hence to reduce these symptoms interventions is required for patient self-control over aversive environmental events are likely to reduce anxiety- depression and decrease pain perceptual form in the same way. Thus this study was conducted to see the efficacy of Biofeedback in mixed anxiety depression.

## **2. Case Report**

The patient was 42 years old male, Hindu, graduate, married eldest in the family, working in insurance company, middle socio economic status suffering from moderate level of depression and anxiety. The duration of illness was one and half years. The patient had difficulty in carrying out his daily routine, always had negative thoughts, lack of self-confidence, anxiety, increased heart beat, tension headache due to which he was unable to go to his place of work; consequently he came for treatment. History revealed that he was very much fearful from his childhood and his parents didn't allow him to go out alone. He was the eldest among his siblings and did not try to mix with his brothers and sisters. At school his performance was not very good and he was being compared with his siblings most of the time.

Gradually he started avoiding his siblings and hated them and developed negative ideas that he will never be successful in his life, self-esteem decreased, he could not take any initiative in making decisions and remained anxious most of the time. Behaviour analysis was done regarding antecedent, frequency, duration, intensity and motivation of the patient in order to target behavior. Assessment regarding family interaction system, available support system, perceived support system as well as behaviour of other significant persons towards the patient was done.

## **3. Therapeutic Process**

### **3.1 Assessment of problem**

After establishment of rapport, clinical Interview was conducted for the assessment of problem which was continuing from last two years. Due to anxiety and fatigue he was unable to perform his daily work activities. He remains worried about his problems, feels sad and thinks that he will never improve and will not be able to work properly. His social and occupational functioning was disturbed and he had poor self-confidence. The patient was also assessed with Beck Depression Inventory [2] and Hamilton Anxiety Scale (HAM-A).

### **3.2 Objectives of the intervention**

The intervention package focused on the following points.

- To motivate the patient for Biofeedback sessions
- To increase his self- esteem level helps him in making decisions
- To reduce his stress related tensions and headache
- To reduce his negative thoughts
- To prepare him to carry out his daily activities as well as to go to his working palace

### 3.3 The therapeutic package

The therapeutic package consisted of the following intervention programmes

- Psycho education
- Jacobson’s progressive muscular relaxation technique
- Biofeedback
- Autogenic Training

Total of fifteen sessions of Biofeedback were conducted over a period of 7 weeks to achieve the target goal. Each session lasted for 45 min. Initially patient was psycho educated regarding the current problematic situations. In the next sessions patient was taught Jacobson’s Progressive Relaxation to deal in anxiety situations and was able to perform it in two to three sessions. It started with breathing exercises and then the patient underwent Jacobson Progressive Muscular Relaxation and patient was persuaded to practice it at home. Then Biofeedback Electromyogram (EMG) relax, HRV along with autogenic training was given. Patient was asked to give auto-suggestion to himself with affirmative statements so that he reduced anxiety situations, modified his negative thoughts regarding his future and how to build up his self confidence level. Patient received the feedback in the form of audio and visual feedback range of level was noted. These processes continued till the patient reached 2.5 microvolts in EMG relax and 70-72 beats per minute in HRV rate (FIG. 1). After following the biofeedback sessions, his anxiety gradually reduced, which patient himself felt and he was able to work comfortably with the situations which were not possible earlier. After discussion with the patient in the next session he was advised for auto suggestion for more positive statements so that he develops confidence during public dealings. Later when patient was relaxed with the help of Biofeedback EMG relax and HRV he was asked to change his irrational thoughts, modify his negative thinking and faulty learning which he had developed from childhood. Also his family members were psycho educated and were asked to monitor regularly and motivate him.

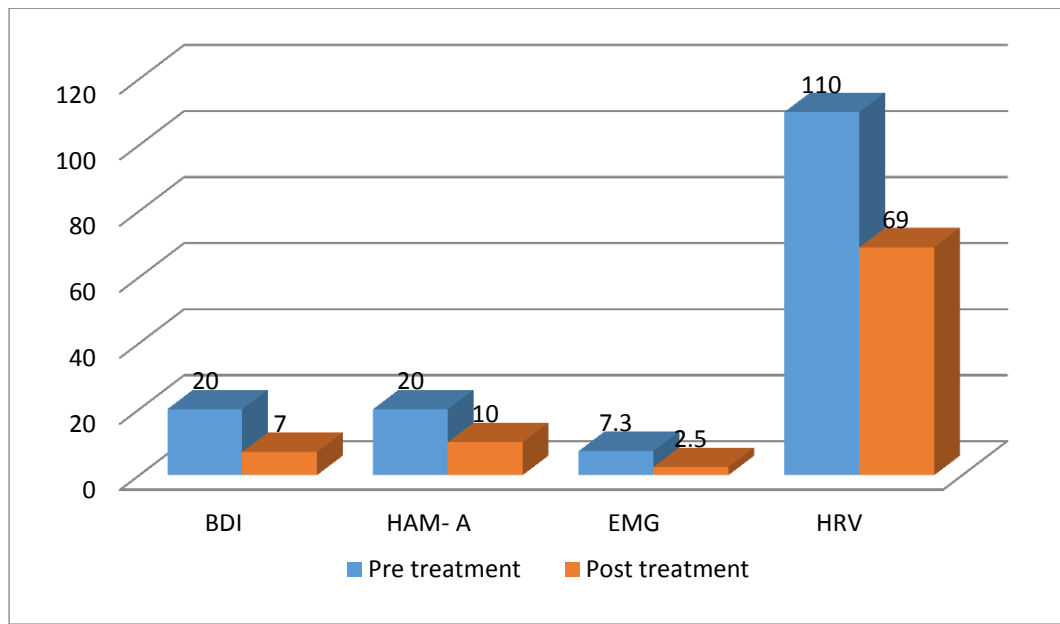


FIG.1. Results of Pretreatment and Posttreatment assessment.

There was significant improvement seen in his behavior after 15 sessions of Biofeedback EMG relax and HRV sessions along with autogenic training. The level of anxiety, tension, and headaches was decreased. His self-esteem increased and he was able to talk with his younger ones. This helped him to recover from his illness. At the end of three months followup with post assessment there was a marked improvement in his behavior, which ultimately led the patient to maintain a normal daily routine life.

#### **4. Discussion**

Depression not only affects the individual's physiological functions but disturbs his whole psychic life. Coming to management of Depression associated with anxiety psychotherapeutic techniques along with pharmacological treatment relaxation and biofeedback techniques is effective which not only helps the patient to improve his negative thoughts, beliefs system but help to enhance his efficacy level which is been reflected in his performance level at work. This case study aimed to see the efficacy of Biofeedback in treatment of depression with anxiety therefore a pretest was done to assess the level of depression and anxiety in the patient after 15 sessions of EMG relax and HRV again similar test was done to see the efficacy of biofeedback. Results obtained show that there was an improvement in symptoms of anxiety, low self-esteem, increased heart beet and was able to carry his work properly at as well as at office. Similar findings reported by Hurley and Meminger [3] who used frontal EMG biofeedback with 40 subjects trained to criterion and assessed anxiety over time using the State-Trait Anxiety Inventory (STAI). State anxiety improved more than trait anxiety. Also Wenck, Leu, and D'Amato [4] who trained 150, 7th and 8th-graders with thermal and EMG feedback, and found significant reduction in state and trait anxiety. To reduce depressive symptoms different studies were compared with biofeedback assisted relaxation to a wait list control on depression in chronic pain patients and found improved scores on the Beck depression index [5] which also supports with the present study findings. Recently different researches supported that indicates that autonomic function is altered in depression, as evidenced by impaired baroreflex sensitivity, changes in heart rate, and reduced heart rate variability (HRV) [1] define the results of HRV on major depressive patients which work as an adjunct treatment for major depressives.

The case report highlights how biofeedback is effective in reducing cognitive, emotional approaches in mixed anxiety with depression.

#### **5. Recommendations**

The encouraging finding of this case report about the effectiveness of biofeedback as an adjunct to the treatment of anxiety disorder needs to be confirmed by a larger case control study.

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