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RESEARCH PAPER

EFFECT OF BIOFEEDBACK THERAPY TO RELIEVE ANXIETY, STRESS AND DEPRESSION SYMPTOMS IN DISSOCIATIVE CONVERSION DISORDER PATIENTS.

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ABSTRACT

Background-Biofeedback is one of the most useful adjuncts in treating physiologic hyper arousal-both episodic and chronic-seen in anxiety disorders also in insomnia. It provides a visible and experiential demonstration of the mind-body connection. . Used alone as relaxation therapy, biofeedback is as efficacious as other forms of relaxation training, such as hypnosis, progressive muscle relaxation or transcendental meditation.

Aims and objectives- This study was taken with the aim of assessing effect of biofeedback therapy in anxiety, depression and stress symptoms in Dissociative Conversion Disorders

Materials and methods- This was a single centre, observational, non-randomized, open label study conducted at Dept. of psychiatry, Sardar Patel medical college, Sample comprised of 30 patients with diagnosis of Dissociative Conversion disorder according to ICD-10 criteria, where 7 sessions of biofeedback therapy has been given to each patient. HAM-A, HAM-D and PSS Scales were applied on day 1st and day7th. . Paired student t-test was applied on 1st day and 7th day scales data and anxiety, stress, depression symptoms were compared before and after therapy.

Results- According to HAM-A Scale on pre treatment, out of total 30 patients, 80% were in moderate Hamilton anxiety disorder group and after 7 days treatment, only 20% patients were found in moderate group while 1 severe patient remained in severe range. Mean Hamilton anxiety disorder score at pre treatment was 19.803.80 and after 7 days treatment it decreased to 13.574.55 and According to HDRS score at pre treatment, only 5.6% patient was normal while 94.4% were within abnormal range and after treatment 40% patients had their Hamilton depression score within normal range while 60% patients remains abnormal range. Mean Hamilton Depression score at pre treatment was 16.973.96 and after 7 days treatment it decreased to 10.764.60. According to Perceived Stress Scale, at pre treatment, only 11.1% patients were within normal range (0-13) while 93.3% patients were in moderate range (14-26) and after 7 days, 40% patients had their perceived stress scale within normal range (0-13) and 60% patients had their perceived stress scale within moderate range (14-26%). Mean Perceived Stress Scale score at pre treatment was 20.933.92 and after 7 days treatment it decreased to 14.634.21 and this difference was found statistically highly significant ($p<0.001$) in the three variables.

Conclusion – It is concluded that psycho physiological treatment with biofeedback is an effective method to reduce anxiety, depression and stress symptoms in Dissociative conversion disorder patients.

KEY WORDS : Biofeeedback, stress, anxiety, depression, dissociative conversion disorder

INTRODUCTION:

Biofeedback, also referred to as applied psycho physiological feedback, is the process of displaying involuntary or sub threshold physiological processes, usually by electronic instrumentation, and learning to voluntarily influence those processes by making changes in cognition. It provides a visible and experiential demonstration of the mind-body connection. Biofeedback is also a therapeutic tool to facilitate learning self-regulation of autonomic functions for improving health.

Biofeedback is one of the most useful adjuncts in treating physiologic hyper arousal-both episodic and chronic-seen in anxiety disorders. Biofeedback training is a part of the behavioral treatment, which includes relaxation training, because of its additional specificity. Patients with mainly autonomic symptoms generally receive thermal, GSR, heart rate and respiration feedback. Used alone as relaxation therapy, biofeedback is as efficacious as other forms of relaxation training, such as hypnosis, progressive muscle relaxation or transcendental meditation. The adjunctive use of biofeedback is reasonably well-documented for the psychological disorders of anxiety and insomnia. Biofeedback monitoring can provide a uniquely vivid demonstration of the connection between thoughts and feelings. When a person is stressed, their internal processes such as pressure, pulse can become irregular. Biofeedback therapy teaches relaxation and mental exercises that can alleviate symptoms.

AIMS:

This study was taken with the aim of assessing effect of biofeedback therapy in anxiety, depression and stress symptoms in Dissociative Conversion Disorders

MATERIAL AND METHOD:

SUBJECTS:

This was a single centre, prospective, open label study conducted at Dept. of psychiatry, Sardar Patel medical college, Bikaner to assess the effect of biofeedback therapy to relieve stress, anxiety and depression symptoms in Dissociative Conversion disorder patients. Sample comprised of 30 patients with following

INCLUSION CRITERIA: age group of 16 yrs and above, Patients with diagnosis of Dissociative Conversion disorder according to ICD-10 criteria, cooperative patients, patients ready for written informed consent.

EXCLUSION CRITERIA: Uncooperative patient, patient not ready for written informed consent ,patient with mental disorder other than Dissociative Conversion disorder, patient with any

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neurological disorder, patient with any medical disorder, patients with failure to comply with study protocol.

PROCEDURE:

After taking ethical clearance from institutional ethical and review board we screened 30 patients of Dissociative Conversion disorder as per ICD-10 clinical descriptions and diagnostic guide lines.

: It's an observational non-randomized study of patients who were given biofeedback therapy on inpatient basis in a tertiary centre in north western Rajasthan.

The hospital has a well established psychiatry unit (outpatient and inpatient with special clinical service) with 60 inpatient beds. All patients who are admitted in psychiatry inpatient unit undergo a detailed diagnostic work up under the supervision of a consultant. All the information is then recorded in a case- note. Diagnosis are based on international statistical classification of disease, Tenth Revision (ICD-10).A informed consent was taken for each patient before biofeedback therapy. Sociodemographic and clinic details of patients who received biofeedback therapy recorded in the Proforma developed for study. A total 30 patients were selected for study and 7 sessions of biofeedback therapy has been given to each patient. Scales were applied on day 1st and day7th.

TOOL:

Tools used for study were, a semi- structured questionnaire of socio-demographic variables and clinical details and Hamilton Anxiety rating scale (HAM-A), Hamilton depression rating scale (HAM-D) and Perceived stress scale (PSS)

Three scales were applied:

(1)Hamilton anxiety rating scale (HAM-A):

It's a tool for measuring the severity of pt's anxiety

The HAM-A consists of 14 items: (1) anxious mood, (2) tension, (3) fears, (4) insomnia, (5) intellectual impairment, (6) depressed mood, (7) somatic muscular complaints, (8) somatic sensory complaints, (9) cardiovascular symptoms, (10) respiratory symptoms, (11) gastrointestinal symptoms, (12) genitourinary symptoms, (13) autonomic symptoms, and, (14) patient's behavior at interview; each defined by a series of symptoms. Each of these 14 items is assessed by a semi-structured series of questions related to symptoms of anxiety. Each item is rated on a 5-point scale ranging from: 0 = anxiety not present; 1 = mild anxiety; 2 = moderate anxiety; 3 = severe anxiety; to 4 = very severe or grossly disabling anxiety. (2, 3).

HAM-A score level of anxiety
<17: mild
18 – 24: mild to moderate
25 – 30: moderate to severe

(2) Hamilton depression rating scale (HAM-D): The HDRS (also known as the Ham-D) is the most widely used clinician-administered depression assessment scale. The original version contains 17 items (HDRS17) pertaining to symptoms of depression experienced over the past week.

Scoring: Method for scoring varies by version. For the HDRS17, a score of 0–7 is generally accepted to be within the normal range (or in clinical remission), while a score of 20 or higher (indicating at least moderate severity) is usually required for entry into a clinical trial. (4,5)

(3) Perceived stress scale (PSS):

The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. Scoring: PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5 and 10 of the PSS 10 item scale Individual scores on the PSS can range from 0 to 40 with higher scores indicating higher perceived stress. Scores ranging from 0-13 would be considered low stress. Scores ranging from 14-26 would be considered moderate stress. Scores ranging from 27-40 would be considered high perceived stress.(6)

Scales was applied on day 1st and day 7th.of biofeedback therapy. Paired student t-test was applied on 1st day and 7th day scales data.

Statistical Analysis:

Paired t-test was applied for all quantitative measure. The two sided $p<.05$ were considered statistically significant. The data analysis was performed by using licensed SPSS version 21.0 version

RESULT:

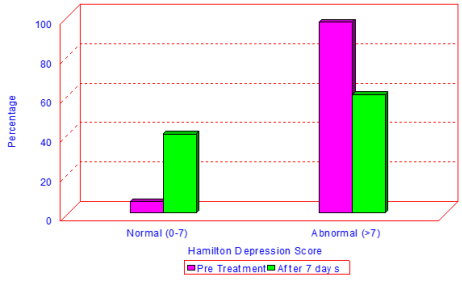
Table 1: According to Hamilton Anxiety rating scale

Hamilton Anxiety Disorder Group	Pre Treatment		After 7 Days		Total
	No.	%	No.	%	No.
Mild (<17)	5	16.7	23	76.7	28
Moderate (17-24)	24	80.0	6	20.0	30
Severe (25-30)	1	5.6	1	5.6	2
Total	30	100	30	100	-
Mean	19.80		13.57		
SD	3.80		4.55		
T	13.805				
P	<0.001				

On pre treatment, out of total 30 patients, 80% were moderate Hamilton anxiety disorder group and after 7 days treatment, only 20% patients were found in moderate group while 1 severe patient has little change but it remains in severe range. Mean Hamilton anxiety disorder score at pre treatment was 19.803.80 and after 7 days treatment it decreased to 13.574.55 and this difference was found statistically highly significant ($p<0.001$).

Table 2: According to Hamilton Depression Score

HDR Group	Pre Treatment		After 7 Days		Total
	No.	%	No.	%	No.
Normal (0-7)	1	5.6	12	40.0	13
Abnormal (>7)	29	94.4	18	60.0	47
Total	30	100	30	100	
Mean	16.97		10.76		
SD	3.96		4.60		
T	12.596				
P	<0.001				

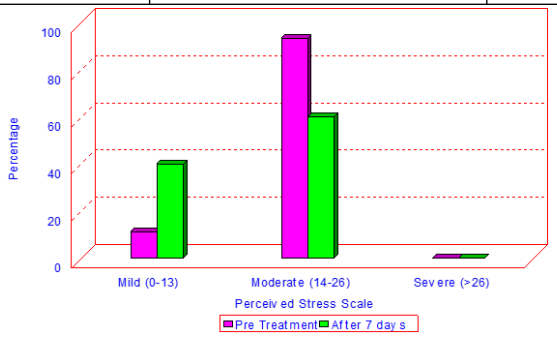


According to Hamilton depression rating score at pre treatment, only 5.6% patient was normal while 94.4% were within abnormal range and after treatment 40% patients had their Hamilton depression score within normal range i.e. 0-7 while 60% patients remains abnormal range (>7) Mean Hamilton Depression score at pre treatment was 16.973.96 and after 7 days treatment it decreased to 10.764.60 and this difference was found statistically highly significant ($p<0.001$).

Table 3: According to Perceived Stress Scale

PSS Group	Pre Treatment		After 7 Days		Total
	No.	%	No.	%	No.
Mild (0-13)	2	11.1	12	40.0	14
Moderate (14-26)	28	93.3	18	60.0	46

Severe (>26)	0	-	0	-	-
Total	30	100	30	100	
Mean	20.93		14.63		
SD	3.92		4.21		
T	13.688				
P	<0.001				



According to Perceived Stress Scale, at pre treatment, only 11.1% patients were within normal range (0-13) while 93.3% patients were in moderate range (14-26) and after 7 days, 40% patients had their perceived stress scale within normal range (0-13) and 60% patients had their perceived stress scale within moderate range (14-26%). Mean Perceived Stress Scale score at pre treatment was 20.933.92 and after 7 days treatment it decreased to 14.634.21 and this difference was found statistically highly significant ($p<0.001$).

DISCUSSION:

The present study was aimed to assess the effect of biofeedback therapy in stress, anxiety and depressive symptoms in patients of Dissociative Conversion disorder. After recruitment of patients, scores of various scales like HAM-A, HAM-D, PSS are compared before and after biofeedback therapy. In our study, difference in mean HAM-A, HAM-D and PSS score were found statistically significant.

Most studies document improvement and significant symptom reduction in six to 12 sessions of Biofeedback training. For instance, in 1993 Rice et al. studied 45 GAD subjects and all treated subjects showed significant reductions in STAI-Trait Anxiety and psycho physiological symptoms on the Psychosomatic Symptom Checklist. (1).A study conducted by saeee,i masafi,Omid Rezaei and Hasan ahadi et al, in 2011 Biofeedback associated with relaxation is effective in decreasing anxiety in women of breast cancer taking chemotherapy, as a result, state and trait anxiety means were decreased in experimental group in pre- test- post test. so biofeedback associated with relaxation is effective in decreasing the State anxiety during chemotherapy (7).In a another study conducted by Prima vitasari,Muhammad Nubli ali Abdul Wahab Tutut Herawan,Suriya Kumar Sinnadurai et al in 2011, in the inclusion of biofeedback training programs in educational contexts could be a way of university students it is concluded that biofeedback therapy is very effective to teach students to reduce their anxiety level. The result shows that there is a significant change over time in the beat-per-minute and breath-per-minute through the participants. From the training, it is shown that after 10th session, students be able to control their heartbeat and respiration to reduce anxiety level. (8) A Similar study conducted by Aitor Aritzeta et al in 2017, on 2nd year psychology undergraduate from university of Basque country. The program consisted of five biofeedback sessions. Results showed that after participating in the program, students in the experimental group had lower levels of anxiety and increased academic performance.This suggests that the inclusion of biofeedback training programs in educational contexts could be a way of reducing anxiety and improving academic performance. (9)In a another study conducted by L. STANLEY WENCK and PATRICIA WORK LEU et al, explored the reduction of anxiety with children using biofeedback techniques. A post-test anxiety scale demonstrated a significant reduction in both state and trait anxiety(10)In a another study conducted by Paul Ratanasiripong et al, efficacy of biofeedback on state anxiety n perceived stress in 2nd yr nursing students was investigated and findings indicated that biofeedback signifi cantly reduced anxiety and maintained stress levels in nursing students(11).In a another study Pookala Bhat et al in 2010, carried out in a multispecialty Command Hospital by enrolling 100 patients with psychiatric diagnosis from both inpatient and outpatient services. The anxiety level was assessed clinically and by using Hamilton Anxiety Scale and Taylor's Manifest Anxiety Scale. It was found that biofeedback therapy was almost as efficacious as pharmacological intervention in the management of anxiety symptoms, and relatively more useful in females.(12) In a another study Paul Ratanasiripong, Nop Ratanasiripong, and Duangrat Kathalae et al in 2012 conducted study on 60 nursing students to assess the effect of biofeedback therapy on students stress n anxiety. Results indicated that the biofeedback group was able to maintain the stress level while the control group had a significant increase in the stress level over the 5-week period of clinical training. Additionally, the biofeedback group had a significant reduction in anxiety, while the control group had a moderate increase in anxiety.(13) In a another study conducted by Martin Siepmann et al in 2008 to assess the feasibility of using heart rate variability (HRV) biofeedback to treat moderate to severe depression. As a result, depressed patients had reduced anxiety, decreased heart rate and increased HRV after conduction of biofeedback. (14) In a another study conducted by Auditya Purwandini Sutarto et al in 2012 to examine the effect of resonant breathing biofeedback training for reducing stress among manufacturing operators and results indicated that depression, anxiety, and stress significantly decreased after the training in the experimental group (15)

CONCLUSION:

From biofeedback training, it is shown that after 7th session, patients became able to control their heart beat and respiration to reduce anxiety level. It is concluded that psycho physiological treatment with biofeedback is an effective method to reduce anxiety, depression and stress symptoms in Dissociative conversion disorder patients.

LIMITATIONS AND SUGGESTIONS:

Among limitations of study we cannot generalize the finding because our sample size is small and follow up period was brief. So, in future, further long term study of responded patients with large sample size is required to assess long term effect of biofeedback therapy to relieve stress, anxiety and depression in dissociative conversion disorder pt.

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