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EMG Feedback and Stress Inoculation in Anxiety Neurosis: Follow-up Analysis

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Abstract

A follow-up assessment done one month after termination of the therapeutic programme revealed that the 'adequate responders' to therapy could maintain improvement and that the 'inadequate responders' could continue to improve. A qualitative analysis of the follow-up data done subsequently, over a period of as long as 26 months, further strengthened the claim that the addition of cognitive treatment methods can result in powerful changes which are general across situations and stable over time.

Key words -
EMG feedback,
Stress inoculation,
Anxiety neurosis,
Follow-up

Follow-up after termination of therapy needs to be extensively and closely examined. Very few of the studies on frontal EMG feedback assisted relaxation in clinical anxiety have included follow-up analysis in their methodologies. In some of these studies [1], [2] follow-up data are not all available. In the study by Lavellee et al [3], improvement was only partly maintained over a short period of 6 months. The studies by Weinman et al [4] and Sargunaraj and Kumaraiah [5] report evidences for maintenance of improvement and further gains made on follow-up. However, follow-up was conducted over short periods of 6 weeks and 5 months respectively. Only one study by Libo and Arnold [6] report the findings of a long term follow-up ranging from 1 to 5 years. Eightyone per cent was the improvement reported indicating a high level of maintenance. However, one must also consider that anxiety neurosis was only one of the six diagnostic categories studied. In contrast, majority of the studies on stress inoculation training (SIT) in clinical anxiety [7], [8], [9] have included follow-up analysis in their methodologies and these studies provide strong evidence for maintenance of improvement and further gains made on follow-up.

It is only from an analysis of follow-up data that one can confidently say that a therapeutic programme has been efficacious. For this reason, the authors as a part of a study on the effect of EMG feedback and stress inoculation in anxiety neurosis evaluated the follow-up data one month after termination of therapy and conducted a qualitative analysis of the follow-up data thereafter, over a period as long as 26 months.

Material and Method

Sample

A sample of 22 clients was studied. They were selected from among those clients who were referred to the Behaviour Therapy and biofeedback Unit, NIMHANS, from the Outpatient Centre of NIMHANS.

The criteria for inclusion were as follows:

1. A diagnosis of anxiety state - 300.0, ICD-9 [10].
2. Literacy in either English, Kannada or Tamil languages.
3. Age between 20-45 years.

The criteria for exclusion were as follows:

1.Presence of an additional psychiatric diagnosis.
2.Presence of any medical illness
3. Presence of anxiety symptoms during marked physical exertion or life threatening situations
4. Duration of anxiety neurosis of more than 10 years

Tools

Psychological measures

Self-report measures

1. Symptom Rating Scale (SRS) [11]
2. Cognitive Somatic Anxiety Questionnaire (CSAQ) [12].
3. State-Trait Anxiety Inventory (STAI -Forms Y1 and Y2) [13].

Therapist's report measure

1. Hamilton Anxiety Rating Scale (HARS) [14].

Emphasis was given to the preceding 10 days. The Kannada and Tamil versions of the CSAQ and the STAI were also used [15].

A Post-therapy clinical interview was also prepared by the authors to evaluate the clients' perception of change in therapy soon after the completion of therapy. This provided only qualitative data and served as an appropriate index to clinical improvement and was not retrieved for statistical analysis.

Procedure

After termination of the therapy programme, i.e., 10 sessions of EMG feedback assisted relaxation [11], [16] followed by 10 sessions of EMG feedback assisted relaxation with SIT [17], [18], the clients were assessed on the psychological measures listed above. The clients were asked to continue rehearsing the coping skills acquired during therapy especially in anxiety arousing situations despite setbacks. They were then asked to come one month after, for another assessment (follow-up assessment). The clients who came were re-assessed on the psychological measures and were then asked to maintain monthly follow-ups thereafter. These follow-ups were in the form of clinical interviews which were conducted either in person or through a letter. Clients were also given a session of relaxation preferably without feedback whenever possible.

Analysis

The post-therapy scores of the 22 clients on the SRS [11] was chosen as an index of improvement, based on the empirical evidence that the scores on the scale reflected clients' perception of the degree of distress caused by the anxiety symptoms. The group was divided according to whether each client's score fell above or below the median score. Those clients with scores below the median were designated as 'adequate-responders' and those with scores above the median as 'inadequate-responders' to therapy.

Eighteen out of the 22 clients studied returned to the Unit for the follow-up assessment one month after termination of therapy. These 18 clients who were classified as either an 'adequate responder' or an 'inadequate responder' to therapy at the post-therapy assessment were compared on the psychological measures obtained at the post-therapy and follow-up assessments using students' t test for independent means in order to isolate differences between them and understand the trends seen at both the assessments.

A qualitative analysis of the follow-up data obtained subsequently, was also done in order to examine whether the clients were able to maintain or further the improvement gained by the intervention strategies.

Results

The results are shown in Tables I-IV.

Table I depicts the means and standard deviations of the 2 groups of adequate and inadequate responders who came for the first follow-up assessment on the psychological measures obtained at the post-therapy assessment.

Table I - Means and standard deviations of the adequate and inadequate responders who came for the I follow-up assessment on the post-therapy psychological measures

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The result of Table I indicate that the 2 groups were significantly different from each other on the SRS in that the 'adequate responders' had lower symptom scores than the 'inadequate responders.'

The results of Table I indicate that the 2 groups were not significantly different from each other on cognitive anxiety, somatic anxiety, state anxiety and trait anxiety.

Though there were no significant differences between the adequate and inadequate responders on the CSAQ and STAI, the 'adequate responders' were found to have lower scores than the 'inadequate responders' on the measures.

The results of Table I also indicate that the 2 groups were significantly different from each other on the HARS in that the 'adequate responders' had significantly lower scores on the HARS than the 'inadequate responders' as assessed by the therapist.

Table II depicts the mean scores and standard deviations of the 2 groups of adequate and inadequate

responders on the psychological measures obtained at the first follow-up assessment.

Table II - Means and standard deviations of the adequate and inadequate responders on the I follow-up psychological measures

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The results of Table II indicate that at the first follow-up assessment there were no significant differences on any of the psychological measures between the adequate and the inadequate responders. However, the 'adequate responders' were found to have lower scores on all the variables compared to the inadequate responders'.

On comparing Tables I and II, we learn that by the first follow-up assessment, the scores of the 'inadequate responders' on all the psychological measures had decreased more than they had for the 'adequate responders.'

Tables III and IV depict the clients' subjective estimates of improvement expressed as percentages obtained at the mid-therapy assessment, post-therapy assessment and on follow-up, of 10 clients who were on medication and of 12 clients who were off medication during the course of therapy, respectively. Many clients failed to come to the Unit every month or even respond through a letter. Some came to the Unit or wrote a letter after several months had lapsed, especially in response to a letter sent.

Table III - Follow-up data of clients on medication

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FU - Follow-up
*M - Resumed medication, 1,2,3
M - Monthly follow-ups
(M - Reduced medication
(- Setback
L - Letter
OM - Off medication.

Table IVa - Follow-up data of clients off medication

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Table IVb - Follow-up data of clients off medication

Table IVb - Follow-up data of clients off medication

FU - Follow-up
* - Resumed medication (SOS basis); 1 2 3
M - Monthly follow-ups
(- Almost (approximately)
(- Setback
L - Letter
OM - Off medication

> - More than

From Table III we learn that 5 clients maintained follow-ups through letters primarily on account of the practical inconvenience of travel over long distances. The follow-up period ranged from 1 month to as long as 26 months. Most clients, i.e., 7 out of 10 could maintain and even further improvements made during the follow-up phase. Client P had a setback at the fourth follow-up and again at the seventh follow-up owing to several stressors in his personal life but could make gains subsequent to them. Clients PD. P at the first follow-up and SM after the course of therapy. Client P felt a decreased need to take medicines by the second followup and stopped medicines altogether by the third follow-up, but had to be restarted on a course of medicines owing to a setback. Clients SDM, S, US and PU also felt a decreased need to take medicines at various stages during the follow-up phase.

From Table IV, we see that 2 clients H and HA maintained follow-ups through letters whenever they could not come personally to the Unit because of the practical difficulty of travel over long distances. The follow-up period ranged from 3 months to as long as 22 months. Only 4 out of 12 clients could sustain or even further improvements made during the follow-up phase. All others reported 'ups' and 'downs' in their subjective estimates of improvement primarily because they were not applying the coping skills regularly and adequately. Client E had a setback at the third follow-up 8 months after termination of therapy owing to a significant stressor related to his personal life and had to be started on a course of medication on an SOS basis. By the fifth follow-up the stopped medicines altogether. He could make gains subsequently to the extent of functioning at a near normal level. Likewise, client EL had a setback at the eleventh follow-up 19 ½ months after termination of therapy owing to a significant stressor related to his personal life. He, however, said he would be able to manage without medication.

Discussion

On comparing the scores of the adequate and inadequate responders on the psychological measures seen at the post-therapy and first follow-up assessments (Tables I and II), one finds that the 'adequate responders' could maintain improvement and the 'inadequate responders' could continue to improve. This is in contrast to an earlier study by Sargunaraj and Kumaraiah [19] on EMG feedback alone in anxiety neurosis, who found that on follow-up 1-5 months after termination of therapy, the 'adequate responders' in comparison to the 'inadequate responders' continued to improve in that they reported significantly lesser number of anxiety symptoms. The combined effect of EMG feedback and SIT in the present study should have helped the 'inadequate responders' to continue to improve.

The qualitative analysis of the followup data obtained (Tables III and IV), revealed that all clients could relax well even without feedback demonstrating the maintenance of self-control. Some could even improve upon the gains reached. Majority of the clients on medication (Table III) could maintain and even further overall improvements made during the follow-up phase unlike the clients who were not on medication (Table IV). One possible reason for this could be that unlike the clients on medication, the clients without medication had nothing to fall back on if they failed to make use of their coping skills. These clients reported 'ups, and 'downs' in their subjective estimates of improvement primarily because they were not applying the coping skills regularly and adequately. Libo and Arnold [6] in their long term follow-up study to find out the utilization and effectiveness of

relaxation practice after feedback therapy, found that continued practice was significantly related to the maintenance of long-term improvement. It was also observed that many of the clients on medication felt a decreased need for the pharmacological agent during various stages of the follow-up phase. They either stopped taking in their long term follow-up study to findout the utilization and effectiveness of relaxation practice after feedback therapy, found that continued practice was significantly related to the maintenance of long-term improvement. It was also observed that many of the clients on medication felt a decreased need for the pharmacological agent during various stages of the follow-up phase. They either stopped taking medication or reduced the dosage. Although some clients experienced setbacks, they could make gains subsequently. With regard to a setback, a point of difference between clients on medication and who had stopped taking it and the clients off medication was that the former had to be started on another course of medication while the latter could manage with medication on an SOS basis or even without it. (Tables III and IV).

The follow-up analysis of the present study has been conducted over a relatively long period of time, i.e., 26 months. The results strengthen the claim that the addition of cognitive treatments can produce changes, general across situations and stable over time.

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