Randomized Controlled Trials on Relaxation Training in Complementary Treatment of Mental Disorders

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Abstract: *Objective:* Evaluation of the effectiveness of progressive relaxation (PR) versus autogenic training (AT) in the complementary treatment of anxiety disorders and depressive disorders implemented at the start of outpatient psychotherapy.

Method: Randomized controlled trials including unselected samples of 60 adult patients with anxiety disorders and 60 adult patients with depressive disorders. In each study, 20 patients were randomized to (A) psychotherapy only, (B) PR-introductions additional versus (C) AT-introductions additional. Outcomes were evaluated with reference to relapse, treatment readmission, and clinical scales, including two-year follow-ups.

Results: Follow-ups show that there are significantly fewer relapses and readmissions in Groups B and C than in Group A. Short-term outcomes of complementarily applied PR and AT are positive in anxiety disorders, long-term outcomes are more positive for AT.

Conclusions: Suggestions for the implementation of therapy in outpatients with anxiety and depressive disorders enhancing outcomes by the indication of complementary relaxation training at the start of psychotherapy are discussed.

Keywords: Anxiety disorders, depressive disorders, psychotherapy, relaxation therapy, treatment effectiveness evaluation.

1. INTRODUCTION

The results of large epidemiological studies are repeatedly in agreement that anxiety and mood disorders belong—besides somatoform disorders, alcohol and drug dependence, impulse control disorders, and dementia—to the mental disorders with the highest lifetime prevalence and 12-month prevalence in Europe [1-4], the United States [5-8], and many other countries [9]. Because of their psychological strain and restrictions of functioning in everyday life, individuals with anxiety and depressive disorders are very frequently found in psychotherapy, these with mild to moderate symptoms especially in outpatient treatment.

This great demand for therapy resulted in many efforts to develop and to evaluate treatment methods. Besides psychopharmacological treatments—which may lead to side effects and may lose their effects after drug offset and, therefore, may be implemented as a first aid during waiting time for psychotherapy or may be combined reasonably with psychotherapy in its early stage or for long-term symptom remission [10, 11]—psychotherapeutic methods for the treatment of anxiety and mood disorders were developed historically rather early on, although not only but most prominently, in psychodynamic therapy and behavior therapy. In the last decades, especially the cognitive-behavioral approaches have been successful and have shown good treatment outcomes—at least in short- and midterm effectiveness evaluations. Thus, we have rather good empirical evidence for the effectiveness of psychotherapy for phobia and agoraphobia [11, 12], generalized anxiety disorder [13], and depressive disorders [10, 14, 15].

Recent problems of psychotherapy for depression refer, for example, to the result (1) that dropout rates are high and are significantly higher for cognitive-behavior therapy than for similarly effective psychodynamic therapy, problem-solving therapy, interpersonal psychotherapy, social skills training, and behavioral activation treatment [14], (2) that many randomized controlled trials are restricted to short-term evaluations (see, e.g., [16] with a 31-day trial) without follow-up, (3) that follow-ups—if implemented—are restricted to too short time periods after treatment termination in a type of disorder with a relative high probability of recurrence [10, 15]. Problems (2) and (3) neglect the dangers of relapsing and recurrent depressions, which are frequently observed. Problem (1) points out the necessity of early treatment gains [17-20], for example, in active help for problem solving and symptom reduction in everyday life. In the integrative psychological theory of psychotherapy from

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Klaus Grawe [21], this is called the problem perspective of therapy, which is in line with the treatment objective to increase the patient's mastery and self-efficacy.

Klaus Grawe [21] presented a psychological theory of psychotherapy with reference to an expectancy-value perspective that maintains a systems view of human experience and behavior as well as to taxonomies of general (common) therapeutic factors shared by all psychotherapies. The basic idea is that common therapeutic factors—that is, (1) resource activating interventions, (2) mastery-oriented interventions, and (3) consciousness-creating interventions, together in a three-component model of the change mechanism of psychotherapy—are involved in the psychotherapeutic process with differing levels of importance, recombining continuously, and altogether, are responsible for treatment outcomes. Here, one hypothesis is that the providing of mastery-oriented interventions with good applicability in everyday life (e.g., complementary intensive training of a systematic relaxation method like autogenic training or progressive relaxation) just at the beginning, that is, in the first stage of individual psychotherapy, can decrease dropouts.

1.1. State of Research on Relaxation Methods in the Treatment of Anxiety and Depressive Disorders

In the treatment of anxiety disorders, applications of relaxation techniques are the professional standard that were developed rather early in the context of counter conditioning procedures, systematic desensitization, and exposure therapy featuring parts of progressive relaxation (PR) that was developed—as physically oriented relaxation method—in Chicago/USA by the physiologist Edmund Jacobson [22, 23] in the late 1920ies. However, in nearly all studies and recent applications only some parts of an abbreviated progressive relaxation are used [24, 25], while ignoring the necessity of systematic, step-wise training of the PR exercises, which theoretically should have a duration of six to eight weeks with small group sessions (up to 10 patients ideally with different disorders) once a week. These requirements for the effective training and learning of PR (resulting in stable relaxation effects in different life situations) are in agreement with the requirements for an effective training and learning of autogenic training (AT) from Johannes H. Schultz [26-30]. AT—as a mentally oriented relaxation method—was invented in the late 1920ies by the German neurologist Johannes H. Schultz.

Clearly, the application of only certain parts of PR or AT in psychotherapy is due to restrictions of time and costs, but this reduction may hinder the patient's acquisition of fully functioning PR or AT relaxation effects, that is, the stabilization and generalization of relaxation effects across situations. This is achieved best—another mutuality of PR and AT described in detail already by their founders [22, 23, 26, 30]—in small group settings because of the mutual reinforcement and motivation of group members, the reduction of technical mistakes in exercise learning, the awareness of inter-individual differences in the experiences of relaxation processes, and in the problems and success of the application of the relaxation exercises in everyday life situations with different subjective difficulty and stress.

The interim conclusion, therefore, in the form of a hypothesis, is that accompanying individual psychotherapy with autogenic training or progressive relaxation during the first two months of therapy can contribute to the reduction of dropouts at the early stage of psychotherapy. This is accomplished specifically by maintaining patient treatment motivation because the patients' mastery and self-efficacy is increased through their learning of relaxation exercises which induce stable and generalized relaxation effects that are suitable for implementation in everyday life situations such as those that are subjectively critical and stress triggering, cause psychophysiological arousal and anxiety, bad moods and the blahs, rumination, sleeplessness and instability etc.

Furthermore, the application of systematic relaxation methods is justified by their positive stabilizing impact on peripheral physiological and neurological functions. Biopsychosocial models for the etiology and maintenance of anxiety and depressive disorders imply biological components and processes, which refer not only to the autonomous nervous system but to the central nervous system as well (which are frequently overlooked and this has been properly criticized by Auerbach *et al.* [31]). This may very well be one reason for the rather high comorbidity of anxiety and depressive disorders (following the quite frequent progression pattern of "major depressive episodes [MDE…] temporally secondary to anxiety disorders in all countries, with primary panic and generalized anxiety disorders the most powerful predictors of the first onset of secondary MDE" [9, p. 3]), which—however—increases the probability of treatment demands significantly [3].

Empirically evaluated experiences with the application of progressive relaxation or autogenic training in the treatment of anxiety disorders (i.e., phobia, agoraphobia, panic disorder, generalized anxiety disorder) are quite good, albeit in the majority of studies abbreviated relaxation exercises were implemented, but frequently in combination with other therapeutic techniques (e.g., systematic self-observation of anxiety signals, use of conditioned relaxation signals, music, imagination [24, 32-36]. The impact of relaxation exercises like progressive relaxation and autogenic training on the reduction of anxiety is meta-analytically estimated in the area of small to medium effect sizes [37-39]. However, there is one risk of application that must be considered in the adaptive indication of AT and PR for anxiety patients: This quite seldom risk refers to the manifestation of "relaxation anxiety", which is interpreted as a special form of the anxiety of loss of control. Heide and Borkovec [40] report on a slightly increased manifestation of psychological and physiological symptoms of relaxation anxiety during the first PR exercises in some patients with high scores in the worry component of anxiety. These paradoxical reactions and anxiety-inducing ruminations can be controlled therapeutically with the help of imagination exercises, successive slight relaxation techniques, and self-control techniques at the start of relaxation training.

Empirically evaluated experiences with the application of progressive relaxation or autogenic training in the treatment of mood disorders (i.e., major depression and dysthymia) are weaker than these in the treatment of anxiety disorders, but at hand [38, 41-44]. The main problem of applications of progressive relaxation in depressive patients refers to the very high dropout rate, which reaches—very similar to behavioral activation treatments such as jogging, dancing, or strength training—up to 60% [41]. In autogenic training groups the dropout rate of depressive patients is lower [42], perhaps because the mental approach of AT accommodates the passive attitude of the depressive syndrome. However, this accommodation implies the risk that depressive symptoms like rumination, paying particular attention to the negativity of life, the future, and the own person, etc. are triggered or increased during the relaxation exercise. This must be therapeutically controlled [27, 40, 42] by the prescription of very brief durations of relaxation exercise (five minutes at maximum), the exact exploration of the patient's mental relaxation technique and corrections, the exact timing and placing of the AT exercises outside the group setting with clear definitions of obligatory behavioral activities after an AT exercise, strong reactivations at the end of relaxation exercises, the use of static relaxation images, and—perhaps—pre-exercises for the reduction of physical tightness, emotional strain, and mental stress.

Given these prerequisites, the results of randomized controlled trials show that autogenic training is effective in depressive patients both during the waiting time for psychotherapy and when implemented as a complement during the first stage of individual therapy [42]. Better than this, the results show that the combination of autogenic training and individual psychotherapy in the first stage of treatment is more effective than treatment with individual therapy only in the short and the long term. AT seems to be effective as a protective factor in the long term, because the vulnerability for relapse and the somatic symptoms of depression are reduced, and self-efficacy in coping with stressful and subjectively difficult life situations is increased. This is theoretically in line with the positive stabilizing impact of systematic relaxation methods not only on peripheral physiological but also on neurological functions. Biopsychosocial models for the etiology and maintenance of depressive disorders imply biological components and processes, which refer not only to the autonomous nervous system but to the central nervous system as well [31]. Somewhat similar results to these for AT are reported by Wood *et al.* [44] on the long-term effects of progressive relaxation in depressive adolescents: While short-term effects of a cognitive-behavioral therapy significantly exceed those of PR, six months after treatment termination there were more relapses in the cognitive-behavioral treatment group than in the PR group, for which the positive therapy outcomes not only were more stable, but—moreover—had actually increased.

1.2. Research Questions

As has been shown above, some of the results of the application of progressive relaxation and autogenic training in the treatment of anxiety and mood disorders are encouraging—at least under the requirements of their adaptive indication described. The research hypotheses state that the treatment outcomes of individual psychotherapy are increased by the application of autogenic training or progressive relaxation in small group settings complementary to individual therapy during the first eight weeks. More specifically, the treatment objectives of additional relaxation training aim at a lower dropout rate of patients in psychotherapy, a stronger decrease of the

respective anxiety or depression symptoms, a stronger decrease in general symptomatology, a stronger increase in self-efficacy, and fewer relapses at two-year follow-ups in comparison to individual psychotherapy alone. Thus, *a priori* hypotheses refer to better effects of complimentarily applied (in the first weeks of individual psychotherapy) AT or PR than psychotherapy alone in the treatment of anxiety and mood disorders. The results of empirical studies presented above suggest more positive short-term outcomes of PR for anxiety disorders. This hypothesis is tested explicitly and—in addition—extended to the question of long-term outcomes as well.

2. PRESENT STUDIES: OBJECTIVES, DESIGN, AND IMPLEMENTATION

2.1. Procedure and Design

The two therapeutic use studies with randomization of patients to three treatment conditions presented here test the effectiveness of an integrative psychotherapeutic approach with versus without small group applications of progressive relaxation or autogenic training at the start of treatment is analyzed. This is implemented with reference to unselected samples of adult outpatients with anxiety disorders (Study 1) versus depressive disorders (Study 2). In both studies patients were randomized to (1) individual psychotherapy only (Group A), (2) PR introductions (Group B) versus (3) AT introductions (Group C), respectively, both of which were implemented in small groups complementarily during the first eight weeks of individual psychotherapy. Research questions focus on whether the complementary implemented relaxation trainings at the start of individual psychotherapy are significant for treatment outcomes in psychopathology and for treatment dropout. Long-term therapeutic outcomes under study are clinical symptomatology, self-efficacy, treatment readmission, and—most significantly—recidivism of disorder. In accordance with demands on research, outcome assessments are multiple (de facto dual), that is, they refer not only to patient data but to psychotherapists' data as well. Thus, randomized controlled trials with three treatment groups and four times of measurement were implemented. Blinding to treatment groups and to outcomes was not possible in this therapeutic use study, because both the therapists and the patients talk and reflect on the treatment processes.

After initial stage clinical interviews according to DSM-IV for patient selection following the eligibility criteria (see below), repeated measurements were conducted at the start of psychotherapy (T1), after the first eight weeks of psychotherapy (T2), at the individual time of therapy termination (T3), and at a two-year follow-up (T4) implemented two years after individual therapy termination. Termination of psychotherapy was decided individually for each patient by consent of the psychotherapist and the patient herself or himself. Decisions were validated by the use of psychometric measures, symptom checks (see below) and case discussions in psychotherapists' supervision groups (see below).

A priori power analysis (software G*Power 3.1 [46]) for MANOVA F tests with four repeated measurements for the within-between interaction effect in a three group experimental design with randomization acts on the hypothesis of large effect sizes ($f[V] > 0.40$) for the primary objective variable (i.e., anxiety or depression, respectively), which results in the necessity of a total sample size of $N = 46$ patients with anxiety disorders (Study 1) and $N = 46$ patients with depressive disorders (Study 2) implying a test power of 1-β error probability = 0.955. Because treatment dropouts are possible and—following the literature—probable (see above), it was decided a priori to sample 60 outpatients with anxiety disorders and 60 with depressive disorders. More specifically, hypotheses on differential outcomes of PR versus AT are not formulated here, albeit there were some a priori speculations (without empirical evidence up to now) about somewhat better outcomes in anxiety disorders for PR and in depressive disorders for AT.

2.2. Psychotherapists

Six experienced psychotherapists conducted outpatient psychotherapies in private practice (job experience: 14-29 years), that is, in six different outpatient treatment settings. Billing to the respective health insurance agencies as short-term or long-term psychotherapies was carried out on a regular basis. In accordance with the German public health care delivery system, external psychotherapeutic experts approved all instances of psychotherapy. All therapists were licensed professionals and had full certifications in cognitive-behavioral psychotherapy ($n = 5$), psychodynamic therapy ($n = 3$), client-centered psychotherapy ($n = 4$) and/or relaxation therapy ($n = 6$) and had—in addition—intensive training in the general psychological therapy approach. Thus, their basic therapeutic orientation refers to the general psychological therapy approach [21]; they were trained and certified according to the requirements of the

German psychotherapeutic law, and they had opportunities to reflect on their professional experiences in regular group supervision sessions (at least once every two weeks). Supervision included checks for the use of relaxation exercises in the standard individual psychotherapies of all patients. Psychotherapists were instructed to motivate their patients of Group B (PR) and Group C (AT) to execute PR or AT exercises in their everyday life, but not to use such exercises during the individual psychotherapy setting. Psychotherapy of all patients with anxiety disorders (Group A, B, and C) included brief relaxation exercises, but no systematic trainings of a relaxation method, neither PR or AT or another relaxation method. This was controlled in the regular supervision of all psychotherapists.

2.3. Individual Psychotherapy

Psychotherapy follows closely Grawe's [21] psychological theory of psychotherapy, which was developed with reference to an expectancy-value perspective that maintains a systems view of human experience and behavior as well as to taxonomies of general (common) therapeutic factors shared by all psychotherapies. The idea is that common therapeutic factors—that is, (1) resource activating interventions, (2) mastery-oriented interventions, and (3) consciousness-creating interventions, together in a three-component model of the change mechanism of psychotherapy—are involved in the psychotherapeutic process with differing levels of importance, recombining continuously, and altogether, are responsible for treatment outcomes. Psychotherapists combined their scientific knowledge as well as long and intensive therapeutic experiences in cognitive-behavioral psychotherapy, psychodynamic therapy, and client-centered psychotherapy to integrative psychotherapy, which is regulated by focusing on one of the three psychotherapeutic factors. Thus, the primary therapeutic intervention and treatment processes were guided by Grawe's book [21] as kind of manual.

This is supported and controlled in professional supervision, which focus on psychotherapeutic processes (e.g., by focusing on one of the three psychotherapeutic factors, frequency of sessions, change of therapist) by providing analysis of stagnation, backward steps, and progress in resource perspective, problem perspective (mastery), and motivational perspective as measured by the post-session questionnaires [21, 45, 47]. Participants of these group supervision sessions were the six therapists involved in the study and one professional supervisor (job experience: 27 years) with professional licensure and full certification in cognitive-behavioral psychotherapy, psychodynamic therapy, client-centered psychotherapy, and relaxation therapy as well as experience with integrative psychotherapy.

2.4. Complementary Training of AT and PR

Either additional progressive relaxation (PR) or autogenic training (AT) was implemented complementarily in the first eight weeks of individual psychotherapy in small group settings with 6 to 10 patients with varying mental and physical disorders. These groups met once a week outside the individual therapy setting and were instructed by four therapists other than the personal psychotherapist of the patients. They were licensed professionals and had full certifications in cognitive-behavioral psychotherapy (n = 2), psychodynamic therapy (n = 2), client-centered psychotherapy (n = 1), and relaxation therapy (autogenic training and progressive relaxation; n = 4). Billing of the autogenic training and progressive relaxation to the respective health insurance agencies as measures of psychosomatic basic treatment was carried out on a regular basis in accordance with the German public health care delivery system.

Autogenic training and progressive relaxation was trained successively step-by-step in eight weekly group sessions. The first session began with instructions on how to find a comfortable sitting position and for the physical and mental reactivation at the end of a relaxation exercise (with the objective of conditioning psychomotor routines for relaxation). In addition, patients were taught the first steps of the two procedures, that is, the two first mental formulas of AT (I'm at peace - Peace; My right/left arm is heavy - Heaviness) or the first three muscles in PR (bilateral: hand and forearm muscles; biceps; triceps), depending on their assigned relaxation group. Moreover, they were advised to practice their respective relaxation exercise two or more times per day outside the group sessions (and throughout the entire eight-week training). In-group training sessions two through four, the remaining AT formulas or PR muscle groups are introduced to patients and the uses are practiced. Specifically, in the second session the AT formulas deal with warmth (my right/left arm is warm) and breathing (my breathing is calm – it breathes me), and the PR muscle groups are the shoulder, neck, and facial muscles. The third session introduces two more AT formulas (heartbeat is calm and regular and solar

plexus is warm) and three PR muscle groups including the back and abdominal muscles and the hamstring and gluteal muscles. In the fourth session, the final relaxation segments are introduced. In AT patients are taught the last standard formula (my forehead is kindly cool) and in PR the final two muscle groups (calf and tibia muscles). The fifth to eighth group sessions focus on the application of the AT or PR exercises, respectively, in everyday life situations with different subjective stress and on patients' application problems. As the patients became more proficient in performing AT or PR, shorter relaxation exercises with better applicability in everyday life were introduced and tested—at first—in the group sessions and—later—in real life situations. Short AT exercises include all seven formulae, but they are performed in a period of 2 to 3 minutes. In short PR exercises, fewer but broader regions of muscles (bilateral: hands, forearms, and upper arms together; shoulder and neck muscles; facial muscles; musculature of trunk; gluteal and leg muscles together) are activated, with a total time expenditure of 4 to 5 minutes. This is reduced even further to 2 to 3 minutes in the mental, that is, only imagined, version of short PR exercise that is introduced last to the patients, but in actuality is rarely performed with relaxation success (for more details on AT [27, 30, 42], for PR [27, 28, 48]).

2.5. Clinical Diagnoses

Therapists conducted initial stage clinical interviews according to DSM-IV (SCID-I and SCID-II [48, 49]) with all patients. Sampling referred to consecutive admissions of all patients (over a period of four years) with anxiety disorders (Study 1) or depressive disorders (Study 2) without acute and recent comorbidity of these two types of mental disorders (eligibility criteria). Other comorbidity diagnoses were tolerated and documented.

2.5.1. Informed Consent

After being thoroughly informed about the treatment in personal interviews, individual consent of all patients to psychotherapy as well as to diagnostic and evaluation procedures were gathered by signing informed consent forms with their full names. Information refers as well to the fact that the patient's records are recorded anonymously and that later rescinding consent will have no effect on the therapy. Six patients (three with an anxiety and three with a depressive disorder) refused to provide consent and, therefore, were not involved in the studies, but still obtained individual therapy.

2.5.2. Measures

Therapists conducted initial stage and final stage clinical interviews according to DSM-IV with SCID-I and SCID-II [47, 48]. Patients' and therapists' perceptions of psychotherapeutic processes with reference to progress, stagnation, and backward steps in resource activation, problem solving (mastery), and consciousness (motivational perspective) of the patients were measured with post-session questionnaires for patients and therapists (STEP [45, 47]). These post-session questionnaires were constructed and validated by large samples of psychotherapy out- and inpatients (N > 500; [47]). The subscales refer to (1) patient's perception of resource and relationship activation in the therapy session (3 items, item example: "In today's session I <the patient> was very much emotionally engaged"; r_{tt} > 0.79 in the present samples), (2) patient's perception of having gotten active help in problem solving in the session (4 items, e.g., "Today I have <the patient has> learned new behavior options"; r_{tt} > 0.80), and (3) patient's perception of having gotten insight in own psychodynamics and future outlook in the session (5 items, e.g., "In today's session I have <the patient has> gotten more insight into my person and my problems"; r_{tt} > 0.90). Scaling of answers ranges between 1 (total disagreement) and 7 (total agreement).

Patients receiving autogenic training or progressive relaxation in addition to individual psychotherapy completed special post-session questionnaires on the subjective experienced relaxation effects of the AT versus PR parts used in the particular group session [27]. Furthermore, they used daily reports on the frequency and the relaxation effects of the AT versus PR exercises, which they performed between the group sessions in everyday life at home, at work, or elsewhere [27]. Patients were instructed to perform their relaxation exercises two or more times per day.

The following psychometric instruments were included at the four times of repeated measurement with the goal of assessing (1) anxiety (Beck Anxiety Inventory, BDI [50, 51]; r_{tt} > 0.93 in the present samples), (2) depression (Beck Depression Inventory, Second Edition, BDI-II [52]; r_{tt} > 0.90), (3) general symptomatology (Symptom Checklist 90-revised, SCL-90-R [53, 54]; r_{tt} > 0.72), and (4) self-efficacy (Inventory for the Measurement of Self-Efficacy and Externality, I-SEE [55, 56]; r_{tt} > 0.85).

2.5.3. Follow-up

In addition, two-year follow-ups included data on (1) relapse and treatment readmission, (2) frequency of relaxation exercises (AT or PR, respectively) in everyday life, and (3) SCID-I screenings of the patients by their former psychotherapists.

3. STUDY 1: TREATMENT OF ANXIETY DISORDERS

3.1. Method of Study 1

3.1.1. Sample

Participants were an unselected sample of 60 adult Germans who consulted six psychotherapists in private practice for outpatient psychotherapy with the initial diagnosis of an anxiety disorder. Thus, sampling refers to consecutive admissions of all patients (during a four-year period) with dominant symptoms of anxiety without comorbidity of a depressive disorder (eligibility criteria). Other comorbidity diagnoses were tolerated and documented (see below). Three patients who met the eligibility criteria refused to provide informed consent. Three other patients who met the criteria and gave their consent replaced them.

Physicians (n = 29), other psychotherapists (n = 12), or patients themselves (n = 19) referred as usual participants to the six treatment settings in the Southwestern region of Germany. All underwent medical checkups for the exclusion of a physical etiology of the disorder. Ages range from 21 to 62 years (M = 37.7, SD = 8.9), and in agreement with epidemiological results, there are more females (n = 42) than males (n = 18). In terms of level of education and occupational status, the participants were lower-middle and upper-middle class. Twelve patients had undergone prior treatment of the anxiety disorder, five of them more than eight years ago; seven were under acute anxiolytic medication.

3.1.2. Diagnoses

Therapists conducted initial stage clinical interviews according to DSM-IV (SCID-I and SCID-II [48, 49]) with all patients. Primary diagnoses were phobia and agoraphobia (DSM-IV: 300.22, 300.23, 300.29; n = 33) and generalized anxiety disorder (DSM-IV: 300.2, n = 27) with the exclusion of a comorbid mood disorder (not DSM-IV: 296.xx, 300.4). One third of the patients (n = 20) had at least one comorbidity diagnosis: Most frequent were substance abuse (DSM-IV: 305.xx; n = 10), somatoform disorders (DSM-IV: 300.8x, 307.80; n = 5), and personality disorders (DSM-IV: 301.xx; n = 4, of which n = 3 were of the avoidant type, DSM-IV: 301.82).

At pretest, the BAI scores on anxiety of all patients exceeded the cutoff for clinically significant anxiety (BAI > 34). BDI depression scores of eight patients point to the suspicion of a mild depression (13 < BDI < 20), although this was not confirmed in the SCID-I interviews. BAI and BDI scores are—in agreement with the manuals [50, 51, 52]—significantly correlated (r = 0.47; $p < 0.01$). According to the SCL-90-R norm values, the mean score for general symptomatology (SCL-90-R) correspond to a percent rank of PR = 65, thus pointing to increased psychological and physical strain in the sample. In agreement with the results reported in the manuals, the SCL-90-R score is significantly correlated to BAI (r = 0.44; $p < 0.01$) and to BDI (r = 0.51; $p < 0.01$). According to the norm values of the I-SEE, mean self-efficacy in the sample is low (PR = 30), and all of its correlations with the clinical symptom scales are negative (r < -.38; $p < 0.01$).

Randomization to the three treatment groups resulted in comparable groups according to diagnosis, psychometric scale scores, sex, and age.

3.1.3. Treatment Compliance and Dropouts

After eight weeks of treatment (T2) there were nine dropouts (15%): n = 3 (15%) in the group receiving individual psychotherapy only (Group A), n = 4 (20%) in the group receiving additional progressive relaxation (Group B), and n = 2 (10%) in the group receiving additional autogenic training (Group C). Inquiries were responded to by eight of the dropouts: Five patients decided to use pharmacotherapy, two patients changed their psychotherapist, and one did not want any more treatment.

Psychotherapy was terminated regularly and individually (T3) in 49 patients (82%). There were two more dropouts in Group B (PR) and there were no more dropouts in the other two treatment conditions. Total treatment duration (T1 to T3) ranged from 4 to 8 months (M = 25 weeks; SD = 8.8) with 18 to 30 sessions of individual psychotherapy (M = 23.4; SD = 6.2), which were mostly scheduled on a weekly basis. Even though small sample sizes hinder intra-disorder statistical comparisons, trend analyses do not hint at differential treatment courses and durations between the different anxiety disorders. Treatment duration and number of sessions are independent from psychotherapists as well.

Additional PR or AT were timed in a standardized manner with weekly small-group sessions during the first eight weeks of treatment.

Two years after the individual treatment termination (T4), 48 former patients were contacted for personal follow-ups by their former therapists. One patient (of the group receiving individual psychotherapy only) had suffered an accidental death. Thus, data from 80% of the original sample were available for statistical analyses and hypotheses testing.

3.2. Results of Study 1

3.2.1. Relapse and Treatment Readmission

Two years after individual psychotherapy termination (follow-up at T4), eight patients had experienced a relapse, which is a recidivating phobia (n = 3) or generalized anxiety disorder (n = 5), and four of them with a comorbid substance-related disorder. Most of them (n = 5) opted for drug therapy, only two for renewed psychotherapy, and one (with specific phobia) for no treatment. Thus, relapse rate in the total sample is 17% or—to express this positively—treatment success rate is 83%.

Patients with relapse are distributed unequally to the three experimental treatment groups. Most relapses (n = 5) occurred in Group A, which had received individual psychotherapy without complementary relaxation training, two relapsed patients belonged to Group B with complementary progressive relaxation (PR), and one relapsed patient was in Group C with complementary autogenic training (AT).

Group B and Group C do not differ significantly in the relapse rate (χ^2 [df = 1] = 1.71; φ = 0.232; p > 0.15), and the probability of treatment success is similar (PB = 0.86; PC = 0.94). Therefore, patients of Groups B and C were combined in one group, called Group B+C, who had individual psychotherapy with complementary PR or AT in the first eight weeks of treatment in group sessions. Treatment outcomes in Group A (individual psychotherapy only) and Group B+C (psychotherapy with complementary PR or AT at the start of treatment) are presented in the upper part of Table **1**. The simple probability of success of psychotherapy in patients with anxiety disorders without PR or AT at the beginning is 69%; the simple probability of success of combined treatment (i.e., psychotherapy and complementary AT or PR in the first eight weeks) is 91%. Two-tailed statistical evaluation of relapse rates resulted in a significant group difference in favor of Group B+C (psychotherapy and PR or AT; see Table **1**). When the treatments were compared with regard to the relative risk of treatment failure, individual psychotherapy without PR or AT were found to fail three times more often than psychotherapy with PR or AT (rR = 3.4). The relative success of additional PR or AT (f = 0.71) shows that treatment failure of psychotherapy without PR or AT can be reduced by complementary PR or AT within the first eight weeks of psychotherapy by 71%. Last but not least, with reference to nonparametric methods for statistical treatment comparisons [57, 58], the odds ratio (OR = 4.7) indicates that psychotherapy with complementary PR or AT in patients with anxiety disorders is more than four times as effective as individual psychotherapy alone (see Table **1**).

3.2.2. Success in Complementary Relaxation Training

Of the 16 patients with complementary PR (Group B), 14 patients successfully learned and implemented PR at T2 and T3 (at least two or more PR exercises per week; 88%). At follow-up, the PR application rate in Group B decreased to 19% (n = 3). Out of the 18

Table 1: Treatment Outcome in Group A (Individual Psychotherapy) Versus Groups B and C (With Complementary PR or AT in the First Eight Weeks of Psychotherapy in Group Sessions) in Study 1 and Study 2 after Two Years

Treatment Outcome after 2 Years	Group A	Group B+C
Study 1: Treatment of anxiety disorders		
No relapse and no treatment because of a mental disorder	11(PA = 0.69)	29(PB+C = 0.91)
At least one relapse	5	3
χ^2 (df = 1) = 4.67; φ = 0.312 (p < 0.05; two-tailed; Yates continuity correction)		
Study 2: Treatment of depressive disorders		
No relapse and no treatment because of a mental disorder	12(PA = 0.67)	33(PB+C = 0.89)
At least one relapse	6	4
χ^2 (df = 1) = 4.05; φ = 0.290 (p < 0.05; Two-tailed; Yates continuity correction)		

Table 2: Tests of the Within-Between Interaction Effect in Multivariate Analyses of Variance with Three Groups (Groups A, B, C) and Repeated Measures (T1 to T4) on the Psychometric Scales Assessing the Primary Objective Variable a and Additional Variables in Study 1 and Study 2

Dependent variable	Study 1 (anxiety disorders)		Study 2 (mood disorders)	
	F(6/88)	Effect size (*f*)	*F*(6/102)	Effect size (*f*)
BAI anxiety	**12.32****	**0.51**	4.07*	0.19
BDI depression	3.09	0.11	**15.13****	**0.64**
SCL-90-R symptomatology	4.77	0.27	3.82*	0.12
I-SEE self-efficacy	6.84*	0.32	6.51*	0.38

Note. [a] Results of the primary objective variable in bold.

**p < 0.01; *p < 0.05.

patients with complementary AT (Group C), 16 successfully learned and implemented AT at T2 and T3 (exercising PR at least twice a week; 89%) At follow-up, the AT-application rate in Group C decreased slightly to 78% (n = 14).

3.2.3. Relaxation Training Success and Relapse

In the treatment with complementary PR (Group B), three patients with no relapse still exercised PR at T4 (25%), but nine patients with good general treatment outcome (no relapse) no longer implemented their PR exercises; the same is true for the two patients with additional PR at the first treatment stage who relapsed and reentered psychotherapy. This result implies that the long-term application of PR is not significant for treatment success in patients with anxiety disorders. Statistically, this is confirmed albeit not significantly: χ^2 [df = 1] = 1.64 and φ = 0.342 (p > 0.05) as well as rR = 0, f = 0, and OR = 0.

Actually, these findings are different for the treatment group receiving additional AT in its first stage of treatment (Group C): The only patient with relapse stopped exercising AT before T4, and 14 out of the 17 patients with treatment success (no relapse at T4) continued utilizing AT at T4 in their everyday life at least twice a week (82%; PC/AT+ = 1.00). Only three patients with general treatment success stopped using AT (PC/AT- = 0.75). The additional benefit of AT in anxiety patients seems to be 25% (PC/AT+ - PC/AT- = 1.00 – 0.75 = 0.25). This, however, cannot be statistically tested by rR, f, and/or OR because of mathematically inadmissible operations (divisions by zero).

3.2.4. Psychometric Evaluation of Treatment Outcomes

The hypotheses on statistically significant within-between interaction effects were tested by multivariate analyses of variance with three groups (Groups A, B, C) and repeated measures (T1 to T4) in a 3 x 4 MANOVA design with repeated measurement on the second factor (see above) for the psychometric scale on the primary objective variable (anxiety, BAI). In addition, exploratory tests of analogous hypotheses on depression (BDI), general symptomatology (SCL-90-R), and self-efficacy (I-SEE) were conducted. The results are reported in the left part of Table **2**.

The hypothesis on differences in the primary objective treatment outcome (anxiety measured by the BAI) between the three treatment groups is confirmed by the statistically significant within-between interaction term with an effect size (f = 0.51; see Table **2**) just barely reaching large area ($f_{def} \geq 0.50$). There is no significant interaction effect either in depression (BDI) or in general symptomatology (SCL-90-R), nevertheless, in the outcome variable of self-efficacy (I-SEE), the statistical interaction reaches significance with a medium effect size.

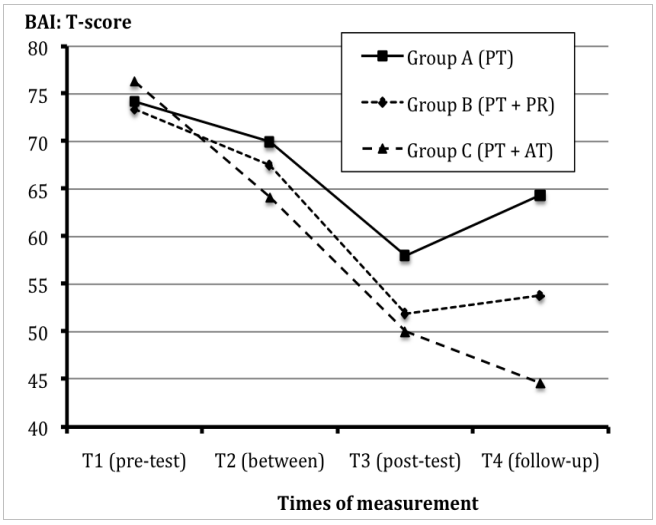

Figure 1: Treatment outcomes on anxiety (BAI) in the treatment groups (Study 1: Anxiety disorders).

Results on psychometrically measured anxiety and self-efficacy are illustrated in Figure **1** and Figure **2**, respectively. Both figures clearly show the long-term advantage of progressive relation (PR in Group B) or autogenic training (AT in Group C) as a complementary technique used in the first stage of individual psychotherapy in patients with anxiety disorders. The positive outcome is somewhat more pronounced for AT than PR, albeit the difference does not reach statistical significance ($p > 0.05$) in between-subject contrasts. However, in comparison to individual psychotherapy only (Group A), the between-subject contrast to Group C (with additional AT) reaches significance ($p < 0.05$) for anxiety (Figure **1**) and self-efficacy (Figure **2**).

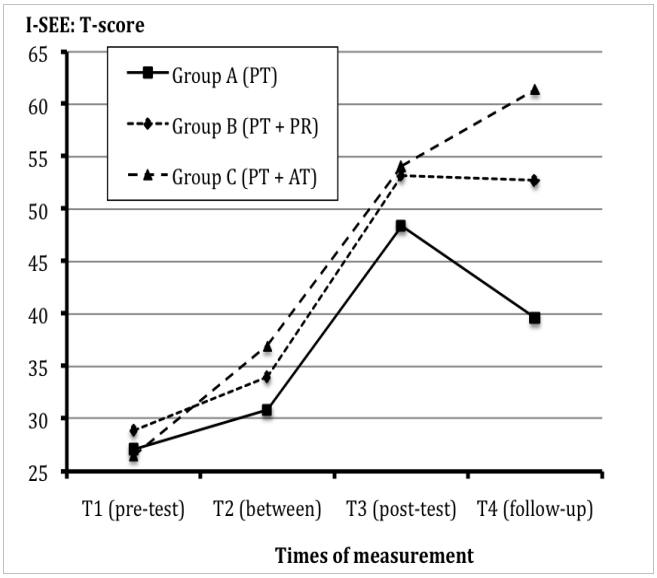

Figure 2: Treatment outcomes on self-efficacy (I-SEE) in the treatment groups (Study 1: Anxiety disorders).

Beyond the results of the within-between MANOVA interaction term concerning differential treatment outcomes, it should be noted that single mean comparisons for the follow-up data and pre-test data (T4 and T1) confirm significant treatment outcomes for all three treatment conditions longitudinally: Effect size for BAI anxiety is $d = .99$ in Group A, $d = 2.0$ in Group B, and $d = 3.2$ in Group C. The values for I-SEE self-efficacy are $d = 1.3$ in Group A, $d = 2.4$ in Group B, and $d = 3.5$ in Group C. These are large effect sizes for all treatment conditions.

3.3. Short Discussion of the Results of Study 1

The hypothesis that progressive relaxation (PR) or autogenic training (AT) applied complementarily to individual psychotherapy in the first eight weeks of treatment results in more positive long-term therapy outcomes is confirmed for patients with anxiety disorders (i.e., phobia, agoraphobia, and generalized anxiety disorder) in Study 1. With sufficient test power the results show that—in comparison to patients receiving individual psychotherapy alone—there are fewer cases of relapse and fewer treatment readmissions as well as more positive courses in psychometrically measured anxiety and self-efficacy in these patients who received PR or AT complementarily to individual psychotherapy during its first stage. Some of these positive effects are more pronounced in the patients who learned and successfully implemented AT for longer periods of time (two-years follow-up) than in patients who did the same thing with PR. Moreover, many of the patients in the PR group stopped implementing PR after treatment termination and before follow-up. Thus, they lose the additional benefit of stable and generalized conditioned PR exercises in everyday life—perhaps because of the use of shorter, but—as a rule—less effective and less generalized relaxation exercises (such as breathing, mental, or motor relaxation exercises), which they have learned in the course of the psychotherapy of their anxiety disorders.

4. STUDY 2: TREATMENT OF DEPRESSIVE DISORDERS

4.1. Method of Study 2

4.1.1. Sample

Participants were an unselected sample of 60 adult Germans who consulted six psychotherapists in private practice for outpatient psychotherapy with the initial diagnosis of a mood disorder. Thus, again sampling refers to consecutive admissions of all patients (during a four-year period) with dominant symptoms of depression without recent or acute comorbidity of an anxiety disorder (eligibility criteria). Other comorbidity diagnoses were tolerated (see below). Three patients who met the eligibility criteria refused to provide informed consent and were replaced by three others who met the criteria and gave their consent.

Physicians ($n = 24$), other psychotherapists ($n = 16$), or the patients themselves ($n = 20$) referred the participants to the six treatment settings in the Southwestern region of Germany. All underwent medical checkups for the exclusion of a physical etiology of the disorder. Ages range from 19 to 66 years ($M = 41.0$, $SD = 10.2$); and in agreement with epidemiological results, there are more females ($n = 38$) than males ($n = 22$). In terms of level of education and occupational status, the participants were lower-

middle and upper-middle class. Eight patients had undergone prior treatments of the mood disorder, four of them more than six years ago; four were under acute antidepressant medication.

4.1.2. Diagnoses

As in Study 1, the therapists conducted initial stage clinical interviews according to DSM-IV with all patients (SCID-I and SCID-II [48, 49]). Primary diagnoses were single episode of major depressive disorder (DSM-IV: 296.2; *n* = 31), recurrent major depressive disorder (DSM-IV: 296.3; *n* = 4), and dysthymic disorder (DSM-IV: 300.4, *n* = 25) with the exclusion of a recent or acute comorbid anxiety disorder (not DSM-IV: 300.2). Only 15 patients had at least one comorbidity diagnosis: Most frequent were somatoform disorders (DSM-IV: 300.8x, 307.80; *n* = 9) and personality disorders DSM-IV: 301.xx; *n* = 5) of which *n* =3 were of the dependent type, DSM-IV: 301.6).

At pretest the BDI depression scores of all patients exceeded the cutoff for clinically significant depression (BDI > 24). BAI anxiety scores of 12 patients point to mild anxiety (7 < BAI < 16) and of five patients to moderate anxiety (15 < BAI < 26); however, comorbidity of an acute anxiety disorder was not confirmed in the SCID-I interviews. BAI and BDI scores are—in agreement with the manuals [50, 51, 52]—significantly correlated ($r = 0.57$; $p < 0.01$). According to the SCL-90-R norm values, the mean score for general symptomatology (SCL-90-R) corresponds to a percent rank of PR = 72 pointing to increased psychological and physical strain in the sample. In agreement with the results reported in the manuals, the SCL-90-R score is significantly correlated to BAI ($r = 0.39$; $p < 0.01$) and to BDI ($r = 0.48$; $p < 0.01$). According to the norm values of the I-SEE, mean self-efficacy in the sample is very low (PR = 25), and all of its correlations with the clinical symptom scales are negative ($r < -0.53$; $p < 0.01$).

Randomization to the three treatment groups resulted in comparable groups according to diagnosis, psychometric scale scores, sex, and age.

4.1.3. Treatment Compliance and Dropouts

After eight weeks of treatment (T2) there were four dropouts (7%), two patients each in Group A (receiving individual psychotherapy only) and in Group B (receiving progressive relaxation in addition). Inquiries were responded to by all dropouts and showed that three patients decided to use pharmacotherapy and one changed to an inpatient treatment setting.

All patients receiving outpatient treatment at T2 finished psychotherapy (T3). Total treatment duration (T1 to T3) ranged from 4 to 13 months ($M = 42.3$ weeks; $SD = 12.6$) with 19 to 61 sessions of individual psychotherapy ($M = 50.7$; $SD = 10.3$), which mostly took place on a weekly basis. Even though small sample sizes hinder intra-disorder statistical comparisons, trend analyses do not hint at differential treatment courses and durations between the different depressive disorders. Treatment duration and number of sessions are independent from psychotherapists as well.

As in Study 1, additional PR or AT were timed in a standardized manner with small-group sessions occurring on a weekly basis during the first eight weeks of treatment.

Two years after the individual treatment termination (T4), 55 former patients were contacted for personal follow-ups by their former therapists. One patient (from Group C having had additional AT) was unavailable. Thus, data from 92% of the original sample were available for statistical analyses.

4.2. Results of Study 2

4.2.1. Relapse and Treatment Readmission

Two years after individual psychotherapy termination (follow-up at T4), 10 patients had experienced a relapse, that is, a recurrent depressive disorder (*n* = 6) or dysthymia (*n* = 4). Most of them (*n* = 8) had opted for drug therapy, two for renewed psychotherapy. Thus, relapse rate in the total sample is 18% or—to express this positively—treatment success rate is 82%.

Patients with relapse are distributed unequally to the three experimental treatment groups. Most relapses (*n* = 6) occurred in Group A, which had received individual psychotherapy without complementary relaxation training, two patients with relapse belong to Group B with complementary progressive relaxation (PR), and two patients belong to Group C with complementary autogenic training (AT).

Group B and Group C do not differ significantly in the relapse rate (χ^2 [$df = 1$] = 1.12; $\varphi = 0.174$; $p > 0.28$) and the probability of treatment success, that is, no relapse and no readmission, is identical (PB = 0.89; PC = 0.89). Therefore, patients of Groups B and C were combined in one group, called Group B+C, who had individual psychotherapy with complementary PR or AT during the first eight weeks of treatment in

symptom heterogeneous groups. Treatment outcomes in Group A (individual psychotherapy only) and Group B+C (psychotherapy with complementary PR or AT at the start of treatment) are presented in the lower part of Table **1**. The simple probability of success of psychotherapy in patients with depressive disorders without PR or AT at its beginning is 67%; the simple probability of success of combined treatment (i.e., psychotherapy and complementary AT or PR, in the first eight weeks) is 89%. Two-tailed statistical evaluation of relapse rates resulted in a significant group difference in favor of Group B+C (psychotherapy and PR or AT; see Table **1**). When the treatments were compared with regard to the relative risk of treatment failure, individual psychotherapy without PR or AT were found to fail three times more often than psychotherapy with PR or AT (rR = 3.0). The relative success of additional PR or AT (*f* = 0.67) shows that treatment failures of psychotherapy without PR or AT, can be reduced by complementary PR or AT during the first eight weeks of psychotherapy by 67%. Last but not least, with reference to nonparametric methods for statistical treatment comparisons [57, 58], the odds ratio (OR = 3.97) indicates that psychotherapy with complementary PR or AT in patients with depressive disorders is almost four times more effective than individual psychotherapy alone (see Table **1**).

4.2.2. Success in Complementary Relaxation Training

Of the 18 patients with complementary PR (Group B), 14 patients successfully learned and implemented PR at T2 and T3 (at least two or more PR exercises per week; 78%). At follow-up (T4), the PR application rate in Group B decreased to 17% (*n* = 3). Of the 19 patients with complementary AT (Group C), 16 successfully learned and implemented AT at T2 and T3 (exercising PR at least twice a week; 84%). At follow-up (T4) the AT application rate in Group C remained stable.

4.2.3. Relaxation Training Success and Relapse

In the treatment with complementary PR (Group B), three patients with no relapse still exercised PR at T4 (19%), but *n* = 13 patients with good general treatment outcome (no relapse) no longer implemented their PR exercises; the same is true for the two patients with additional PR at the first treatment stage, who had relapsed and were readmitted. These results point to the trend that long-term application of PR is not significant for treatment success in patients with depressive disorders. Statistically, this is confirmed albeit not significantly: χ^2 [*df* = 1] = 0.45 and φ = 0.158 (*p* > 0.50) as well as rR = 0, f = 0, and OR = 0.

Actually, and as in Study 1, this is different for the treatment group receiving additional AT in its first stage of treatment (Group C): Both patients with relapse stopped utilizing AT before T4, and 16 out of the 17 patients with treatment success (no relapse at T4) continued implementing AT at T4 in their everyday life at least twice a week (94%; PC/AT+ = 1.00). Only one patient with general treatment success stopped using AT (PC/AT- = 0.33). The additional benefit of AT in depressive patients seems to be 67% (= PC/AT+ - PC/AT- = 1.00 – 0.33 = 0.67). This, however, cannot be statistically tested by rR, f, and/or OR because of mathematically inadmissible operations (i.e., divisions by zero).

4.2.4. Psychometric Evaluation of Treatment Outcomes

As in Study 1, the hypotheses on statistically significant within-between interaction effects were tested by multivariate analyses of variance with three groups (Group A, B, C) and repeated measures (T1 to T4) in a 3 x 4 MANOVA design with repeated measurement on the second factor for the psychometric scale on the primary objective variable (depression, BDI). In addition, exploratory tests of analogous hypotheses on anxiety (BAI), general symptomatology (SCL-90-R), and self-efficacy (I-SEE) were carried out. The results are reported in the right part of Table **2**.

The hypothesis on differences in the primary objective treatment outcome (depression measured by BDI) between the three treatment groups is confirmed by the statistically significant within-between interaction term (see Table **2**) yielding a large effect size (*f* = 0.64). Significant interaction effects are also found in self-efficacy (I-SEE; medium effect size: *f* = 0.38) as well as in anxiety (BAI; *f* = 0.19) and in general symptomatology (SCL-90-R; *f* = 0.12), although the latter two yield small effect sizes.

Results on psychometrically measured depression, anxiety, general symptomatology, and self-efficacy are illustrated in Figures **3** to **6**. These figures show the long-term advantage of progressive relation (PR in Group B) or autogenic training (AT in Group C) used complementarily in the first stage of individual psychotherapy in patients with depressive disorders. The positive outcome is more pronounced for AT than PR, albeit the difference does not reach statistical significance (*p* > 0.05) in between-subject contrasts. However, in comparison to individual psychotherapy only (Group A), the between-subject contrasts against Group C (with additional AT) reaches significance

($p < 0.05$) for depression (Figure **3**), self-efficacy (Figure **4**), and general symptomatology (Figure **6**).

Beyond the results of the within-between MANOVA interaction term concerning differential treatment outcomes it should be noted that single mean comparisons for the follow-up data and pre-test data (T4 – T1) confirm significant treatment outcomes for all three treatment conditions longitudinally: Effect size for BDI depression is $d = .68$ in Group A, $d = 2.02$ in Group B, and $d = 2.01$ in Group C. The values for I-SEE self-efficacy are $d = 1.4$ in Group A, $d = 2.1$ in Group B, and $d = 3.96$ in Group C. All these large effect sizes of the main effect for treatment (T4 – T1) exceed the effect sizes for the interaction terms (see above). This is in agreement with medium to large effect sizes in general symptomatology and anxiety in Group B (psychotherapy and additional PR: $d = 1.63$ in general symptomatology; $d = 0.74$ in anxiety) and Group C (psychotherapy and additional AT: $d = 2.70$ and $d = 0.40$, respectively), but not or less in Group A (individual psychotherapy only: $d = 0.46$ in general symptomatology; $d = 0.03$ in anxiety).

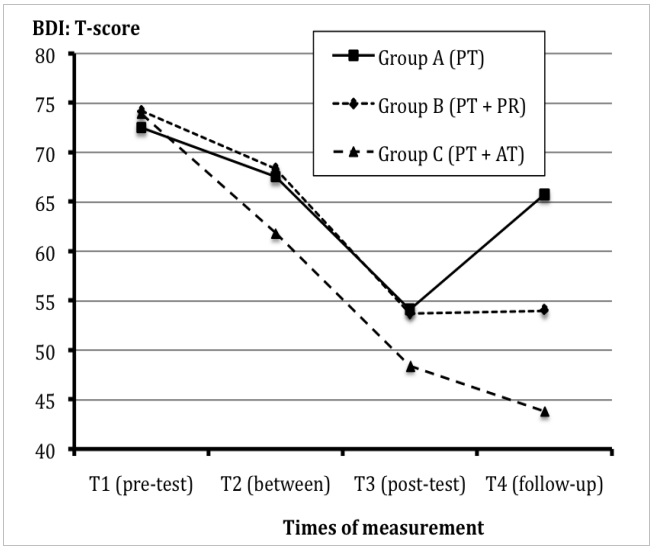

Figure 3: Treatment outcomes on depression (BDI) in the treatment groups (Study 2: Depressive disorders).

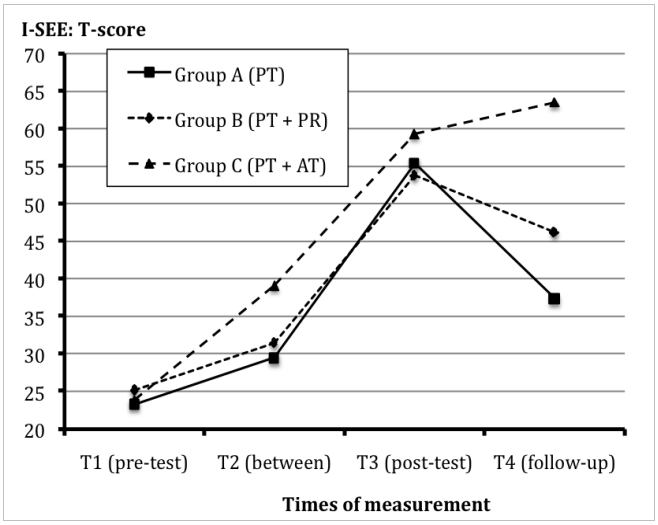

Figure 4: Treatment outcomes on self-efficacy (I-SEE) in the treatment groups (Study 2: Depressive disorders).

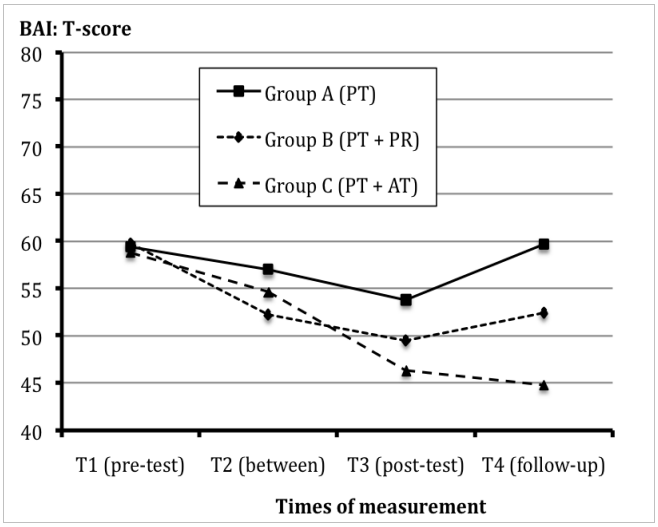

Figure 5: Treatment outcomes on anxiety (BAI) in the treatment groups (Study 2: Depressive disorders).

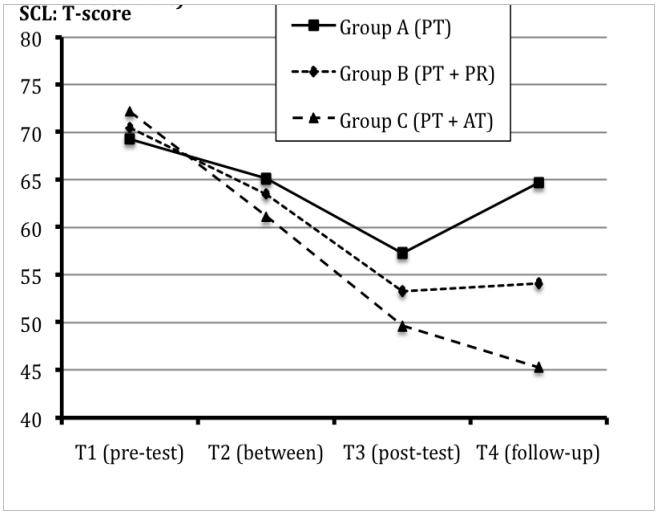

Figure 6: Treatment outcomes on general symptomatology (SCL-90-R) in the treatment groups (Study 2: Depressive disorders).

4.3. Short Discussion of the Results of Study 2

The hypothesis that progressive relaxation (PR) or autogenic training (AT) applied complementarily to individual psychotherapy during the first eight weeks of treatment results in more positive long-term therapy

outcomes is confirmed for patients with depressive disorders (i.e., major depression and dysthymia). With sufficient test power the results show that—in comparison to patients receiving individual psychotherapy only—there are fewer relapses and fewer treatment readmissions as well as more positive developments in psychometrically measured depression and self-efficacy as well as—with weaker effects—in general symptomatology and anxiety in the patients who received PR or AT complementarily to individual psychotherapy at its first stage. Some of these positive effects are more pronounced in the patients who learned and used AT for longer periods (two-year follow-up) than in the patients who learned PR. Moreover, many of the patients in the PR group stopped exercising PR after treatment termination and before follow-up; thus, they miss out on the additional benefit of stable and generalized conditioned PR exercises in everyday life.

5. GENERAL DISCUSSION AND CONSLUSIONS

First, it should be noted that the results presented suggest rather good long-term outcomes of psychotherapy oriented at the general psychological therapeutic approach [21] in adult outpatients with anxiety disorders and with depressive disorders. Significant symptom reductions, rather few relapse and treatment readmissions, positive outcomes in the primary outcome criteria (psychometrically measured anxiety in Study 1 or depression in Study 2, respectively) as well as positive outcomes in secondary outcome criteria (i.e., self-efficacy and general symptomatology) were observed in most patients in long-term follow-ups. Outcome assessments are multiple—referring to patient data (life record data and psychometric scales with sufficient reliability) and to semi-structured clinical interviews—and in agreement.

Follow-up data show that short- and long-term psychotherapy of outpatients with anxiety disorders and with depressive disorders works, whether it is implemented solely in an individual setting or in combination with complementary progressive relaxation (PR) or autogenic training (AT) in group settings during the first eight weeks of individual psychotherapy. However, comparisons of pre-test and follow-up data point to the superiority of the combined individual and group treatments (with PR or AT at the start of treatment) compared to individual therapy alone, because effect sizes of the combined treatment are much better than those of individual psychotherapy only. However, the superiority of the combined treatment might be determined not only by specific effects of PR or AT, respectively, but by unspecific treatment effects like the additional time and attention received by the patients and—more than that—positive group dynamics in the small group sessions with PR or AT instructions and learning. Such unspecific treatment effects are inherent in PR and AT introduction courses.

Thus, specific and unspecific effects of PR and AT introduction courses may be significant for the value of these additional treatment components. This value is not affected by the meta-analytic results from Marcus *et al.* [59] on evidence of treatment differences for primary versus secondary outcomes, because our results on the additional value of PR and AT, respectively, refer to primary and secondary outcomes as well.

Comparisons of the results of Study 1 and Study 2 show that—on average— length of psychotherapy for depressive disorders is of longer duration than for anxiety disorders. There are no hints at intra-disorder group differences (i.e., for phobia *vs*. generalized anxiety disorder and for major depression *vs*. dysthymia, respectively) in treatment duration, but—however—samples sizes are too small for statistical comparisons. Just as well, with regard to treatment outcomes, in both studies there are no hints at group differences between patients with less versus more sessions of individual psychotherapy. Number of AT- and PR-sessions was standardized to eight for all patients.

The additional value of implementing PR or AT in the first stage of individual psychotherapy is confirmed by the results of the MANOVA tests for the within-between interaction effect which yielded large effect sizes for the primary objective variable (i.e., anxiety or depression) in the patients with anxiety disorders and those with mood disorders. These positive outcomes are confirmed by positive secondary treatment outcomes in self-efficacy and general symptomatology. In the long-term behavior of the patients, the positive outcomes are more pronounced for autogenic training, that is, as indicated by the two-year follow-up data, there is a rather clear superiority of learning and implementing AT on a regular basis during the first stage of psychotherapy in comparison to learning and implementing PR. Thus, it is worth to note that short-term outcomes of complementarily applied PR and AT are positive in anxiety disorders, long-term outcomes are more positive for AT. Short- and long-term outcomes confirm this result pattern for patients with

depressive disorders with more distinct effects of AT in comparison to PR.

This superiority of autogenic training confirms earlier results on—in comparison to PR—the larger number of patients who have learned the AT technique and still apply it regularly years later. For example, 93% of antisocial disorder patients who learned AT were still applying this relaxation technique five years later, but this was the case for only 38% of the patients who learned PR [45]. Similarly, these results show that PR is easily learned and regularly applied by most of the patients with anxiety disorders and with depressive disorders at least up to the termination of their individual psychotherapy, but in the course of the two years thereafter—at two-year follow up—almost all of them stopped using PR in their everyday life.

A different picture emerges for anxiety and depression patients who learned AT as a complement to their individual psychotherapy during its initial stages. Nearly all of them did not only learn and use AT during the time of their psychotherapy, but also at the two-year follow-up. Thus, they integrated AT exercises in their everyday life and fully utilized the potentials of the relaxation technique before and in stress and personally difficult situations as well as for emotional stabilization. It is hypothesized that learning and practice of AT exercises in everyday life reduce the patients' vulnerability to stressors and negative stress reactions. In other words, patients with depressive and anxiety disorders improve in self-control, self-efficacy, and coping behavior. These patients have more effective relaxation and coping strategies at their disposal by which—perhaps initially weak, but depression- or anxiety-related—they can more effectively reduce and control their physiological and psychological symptoms using their own efforts. This contributes to the protection from recurrent symptom courses and relapse.

Of course, the presented results must be replicated in independent controlled studies. Some of the methodological problems may be moderate because the number of dropouts was small and sampling was unselected. However, there are validity restrictions, for example, because blinding to outcomes was not possible in the therapeutic use study and the sample sizes in the different treatment conditions are rather small, which were—however—determined and assured by statistical power analyses. Another weakness of the studies is that patients with comorbid anxiety and mood disorders are not considered in the eligibility criteria; this was done for the sake of the possibility of hypothesis testing in two different studies with independent samples, although such comorbidity diagnoses are found rather frequently in community sample surveys [6-9]. Furthermore, both samples are mixed with reference to phobia and generalized anxiety disorders as well as major depression and dysthymia, respectively. Even though small sample sizes hinder intra-disorder statistical comparisons in both studies, trend analyses do not hint at differential treatment courses between the different anxiety disorders and between the different depressive disorders. These are the costs, that is, the difficulties inherent in conducting research on differential therapeutics with reference to integrative psychotherapy up to now [60].

At any rate, the results have value for an integrative psychotherapy approach in designing interventions for patients with anxiety and depressive disorders. The first basic idea refers to the optimization of the first stage of individual integrative psychotherapy by complementary progressive relaxation or autogenic training, implemented in independent group settings. Objective is the maintenance and—perhaps—maximization of patient treatment motivation to reduce dropouts by the help of the early placement of a relaxation technique, which can be used broadly in everyday life and facilitates problem solving in many situations (problem perspective, i.e., mastery). Results show that this is achieved and dropouts are rare in the combined psychotherapy setting with individual and group sessions during the first eight weeks of treatment. In addition, it should be noted that additional PR or AT in 6 to 8 group sessions is very cost-efficient. Thus the cost-effectiveness (i.e., low relapse and readmission rates) balance is very good.

The second basic idea refers to an adaptive, flexible indication of psychotherapeutic methods and techniques in accordance with significant treatment objectives. This was regulated—firstly—by measurements, recorded in post-session questionnaires, of patients' as well as therapists' perceptions of psychotherapeutic processes with reference to progress, stagnation, and backward steps in resource activation (resource perspective), problem solving (problem perspective, i.e., mastery), and consciousness (motivational perspective, i.e., insight and future outlook) of the patient [21, 45, 47]. These were reflected upon regularly in supervision sessions.

A similar approach was—secondly—implemented in the complementary training of progressive relaxation

(PR) and autogenic training (AT). First of all and most significant is the disorder heterogeneous composition of the small groups (10 patients at maximum) in which the PR or AT is implemented. Disorder homogeneous group settings—sometimes called "indicative treatment groups"—should be avoided [26, 27, 30], because learning and transfer of PR and AT are hindered and complicated by the dangers of restricted, overly similar relaxation experiences within homogeneous groups and by insufficient interindividual differences in training success and different problems in the application and transfer of the exercises (which are reflected upon and—if necessary—corrected in the group sessions). To make matter worse, demotivation and dropouts increase in homogeneous groups de facto very early [27].

Furthermore, the process of training, learning, and transfer of PR and AT was carefully and systematically observed and evaluated with the help of special post-session questionnaires on the subjective experienced relaxation effects of the AT versus PR elements used in the particular group session and by daily reports on the frequency and the relaxation effects of the AT versus PR exercises that the patients performed between the group sessions in their everyday life at home, at work, or elsewhere. Thereby, the therapeutically significant control of possible problems of patients with anxiety disorders and with mood disorders in the learning and transfer of relaxation techniques is assured. For example, paradoxical reactions and anxiety-inducing ruminations can be controlled therapeutically with the help of imagination exercises, successive slight relaxation techniques, and self-control techniques at the start of relaxation training. Rumination and negative digressions are therapeutically controlled by the prescription of very short relaxation exercise times (maximum of five minutes), the exact exploration of the patient's mental relaxation technique and corrections, the exact timing and placing of the relaxation exercises outside the group setting with clear definitions of obligatory behavioral activities after the exercise, strong reactivations at the end of relaxation exercises, the use of static relaxation images, and—perhaps—pre exercises for the reduction of physical tenseness, emotional strain, and mental stress.

Provided that, the presented results confirm convincingly that especially autogenic training implemented complementarily during the first stage of individual psychotherapy can improve treatment compliance and treatment outcomes in outpatients with anxiety disorders and with depressive disorders significantly. Progressive relaxation is a good alternative for the first stage of psychotherapy and during the psychotherapy process. However, after psychotherapy termination most patients stop doing PR exercises and—therefore—do not fully utilize the potential of PR in the long run. Perhaps, this can be optimized with the help of diagnostic and adaptive models of differential indication of PR (*vs*. AT), for which some hypotheses had been confirmed empirically [48]. Variables with significance for differential indication of different relaxation methods are, for example, the earlier experiences with relaxation techniques, treatment motives, and intended objectives of the application of the relaxation exercises in everyday life.

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