Best Evidence Summaries of Topics in Mental Healthcare

BEST *in* MH *clinical question-answering service*

Question

In adults with generalised anxiety and/or panic disorder, how effective is relaxation practice when compared with any other interventions in relieving the physical symptoms?

Clarification of question using PICO structure

Patients: Adults with generalised anxiety and/or panic disorder
Intervention: Relaxation Proactive
Comparator: Any other intervention
Outcome: Relieving physical symptoms

Clinical and research implications
Overall, the evidence is sparse and of a poor quality; there are insufficient data to support the use of relaxation therapy, in preference to other interventions, for the relief of physical symptoms in anxiety disorders. There are some, very limited data to suggest that relaxation therapy, and other active interventions, may offer similar benefits compared with waiting list control. It should be noted that, where outcome measures include questions relating to both psychological and physical symptoms, the possibility that any effect observed may be due entirely or primarily to relief of psychological symptoms cannot be ruled out.

Large, randomised controlled trials are need to compare physical symptom relief measures between different treatment options; new trials should ideally follow-up participants for a minimum of six months.

What does the evidence say?

Number of included studies/reviews (number of participants)
We identified seven RCTs, with a total of 299 participants, which partially met the PICO criteria for this abstract. No study explicitly reported physical symptoms of anxiety as an outcome measure, however, all seven studies reported at least one anxiety assessment scale where some or all questions were about physical symptoms; this abstract focuses upon the results reported for these scales. Assessment scales included the bodily symptoms questionnaire (BSQ), the anxiety control questionnaire (ACQ), the Beck anxiety inventory (BAI), the Hamilton anxiety rating scale (HARS) and the somatic domain of the cognitive-somatic anxiety questionnaire (CSAQ). Four studies were conducted in patients with generalised anxiety disorder (GAD),[2,3] two were conducted in patients with panic disorder (PD)[4-8] and one was conducted in patients with social phobia.[4]

Main Findings
Studies compared applied relaxation therapy (AR), usually based on Öst's method, with cognitive therapy (CT), pharmacotherapy and/or a waiting list control.

The two studies conducted in patients with PD compared AR based on Öst's method with CT, both delivered as internet self-help interventions,[2] or with CT and pharmacotherapy (imipramine).[3] Calbring et al.[2] found that both treatments produced improvements in BSQ, ACQ and BAI (medium to large effect sizes), but there was no significant difference in overall effect size (combining outcome measures) between the two treatment groups. Clark et al.[3] found no significant difference in HARS or BAI, between AR and the other treatment groups, at 3, 6, or 15 month follow-up. CT generally performed better than AR or imipramine on BSQ and ACQ.[3] AR was superior to waiting list control on all four measures.[3]

The study conducted in patients with social phobia compared AR based on Öst's method in combination with exposure therapy with CT and a waiting list control group.[4] Both the CT and AR + EXP groups showed a significant treatment effect (reduction in BAI score) compared to the control group. However, the reduction in BAI score observed in the CT group was significantly greater than that in the AR + EXP group.

Of the four studies conducted in patients with GAD, only two presented data on between group comparisons.[7,8] These were contradictory; Öst et al.[8] reported no significant difference in HARS-based Estimations of clinically significant improvement between AR and CT, whereas Kohi et al.[7] reported significantly greater reductions from baseline in HARS in two treatment groups using different types of relaxation therapy (autogenic relaxation and breathing relaxation) than in an unspecified pharmacotherapy group. Conrad et al.[4] reported effect sizes, for AR based on Öst's method, of between -0.06 and 0.67, but did not report data for individual outcome measures, or between group comparisons with the waiting list control. Craske et al.[5] compared progressive muscle relaxation using Jacobson's procedure with interoceptive exposure and cognitive restructuring, or a combination of both treatments and reported that the relaxation group showed a deterioration in HARS and CSAQ (somatic sub-scale), whereas the other groups showed treatment gain maintenance.

Authors Conclusions
The two studies conducted in patients with PD concluded, respectively, that internet self-help interventions warrant further development,[2] and that all three interventions (AR, CT and imipramine) were effective when compared with waiting list control.

The study conducted in patients with social phobia concluded that CT appears to be superior to AR + EXP for the treatment of social phobia.[4]

The conclusions of the four studies conducted in patients with GAD were generally more cautious. Conrad et al.[4] concluded that the clinical effects of AR are moderate, Craske et al.[5] concluded that the addition of AR to exposure cognitive procedures does not improve effectiveness and may reduce long-term effects, Kohi et al.[7] concluded that relaxation techniques are at least as effective as conventional anxiolytic medication, and Öst et al.[8] concluded that both AR and CT have potential as treatments for GAD but require further development.

Reliability of conclusions/Strength of evidence
All studies were small and likely to be under-powered. Follow-up was frequently short (<6 months). Although the nature of the intervention does not allow for blinding of the participants or therapists, there was little evidence of attempts at independent outcome assessment. Between group comparisons, whether between active interventions or between relaxation therapy and waiting list controls, were not always undertaken and were generally poorly reported. Reporting of results/analyses was incomplete in most cases.

Overall, the evidence is sparse and of a poor quality; there are insufficient data to support the use of relaxation therapy, in preference to other interventions, for the relief of physical symptoms in anxiety disorders. There are some, very limited data to suggest that relaxation therapy, and other active interventions, may offer similar benefits compared with waiting list control. It should be noted that, where outcome measures include questions relating to both psychological and physical symptoms, the possibility that any effect observed may be due entirely or primarily to relief of psychological symptoms cannot be ruled out.

What do guidelines say?
The Clinical Guideline Number 113 (General Anxiety Disorder In Adults: Management in Primary, Secondary and Community Care) specifically mentions applied relaxation therapy only once step 3 of a four stage stepped-care model is reached. Step one specifies identification and assessment, education about treatment options and active monitoring Step two specifies low-intensity psychological interventions (individual non-facilitated self-help, individual guided self-help and psychoeducational groups). Step three is recommended only for GAD patients with marked functional impairment, or who have not improved after step two interventions; it specifies a choice of a high-intensity psychological intervention (CBT/applied relaxation) or a drug treatment.

This guideline covers all aspects of the management of GAD, but does not provide any specific recommendations on the relief of physical symptoms.

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References

Randomised Controlled Trials

1. Carlbring P, Ekselius L, Andersson G: Treatment of panic disorder via the Internet: a randomized trial of CBT vs. applied relaxation. J Behav Ther Exp Psychiatry (2003) 34(2), 129-140.

2. Clark D, Salkovskis P, Hackmann A, Middleton H, Anastasiades, Gelder M. A comparison of Congitive Therapy, Applied Relaxation and Impramine in the Treatment of Panic Disorder. The British Journal Of Psychiatry (1994), 164:759-769.

3. Clark DM, Ehlers A, Hackmann A, McManus F, Fennell M, Grey N, Waddington L, Wild J: Cognitive therapy versus exposure and applied relaxation in social phobia: A randomized controlled trial. J Consult Clin Psychol (2006) 74(3), 568-578.

4. Conrad A, Isaac L, Roth W. The Psychophysiology of Generalised Anxiety Disorder: 2. Effects of Applied Relaxation. Psychphysiology 45 (2008) 377-388.

5. Craske M, Brown T, Barlow D. Behavioural Treatment of Panic Disorder: A Two-Year Follow-up. Behaviour Therapy (1991) 22, 289-304

6. Kohli A, Varma V, Nehra R. Comparison of Efficacy of Psychorelaxation and Pharmacotherapy in Generalised Anxiety Disorder. Journal of Personality Disorder and Clinical Studies (2000), 16, 43-48

7. Ost L, Breitholtz E. Applied Relaxation vs Cognitive Therapy in the Treatment of Generalised Anxiety Disorder. Behaviour Research and Therapy 38(2000) 777-990

Guidelines

8. National Institute for Health and Clinical Excellence (January 2011) National Clinical Guideline Number 113 General Anxiety Disorder In Adults: Management in Primary, Secondary and Community Care. http://www.nice.org.uk/nicemedia/live/13314/52599/52599.pdf

Results

RCTs/DTAs

Author (year)	Inclusion criteria	Number of participants	Summary of results	Risk of bias
Calbring (2003)	Participants were recruited from a waiting-list of people who had expressed an interest in taking part of the Internet-administrated self-help program for panic disorder. Participants were accepted if the met the following criteria: i) DSM-IV criteria for panic disorder, duration ≥1 year ii) age between 18 and 60 years iii) no other psychiatric disorder in immediate need of treatment iv) depression point total <21 on the self-rated version of the Montgomery Asberg Depression Rating Scale, and <4 on the suicide question (Item 9) v) Panic disorder as the primary problem; at least one full-blown panic attack or one limited symptom attack during the pre-treatment	N=22 (CBT n=11, AR n=11)	This article compared self help materials (cognitive behavioural therapy (CBT) and applied relaxation (AR)) delivered over the internet. The CBT intervention consisted of 197 page self-help manual and exercises divided into 6 modules: psychoeducation, breathing retraining, cognitive restructuring, interoceptive exposure, exposure in vivo, relapse prevention and assertiveness training. The AR intervention consisted of an internet adaptation of Öst's applied relaxation book and CD with three relaxation instructions. Treatment was divided into 9 modules: psychoeducation; rational; progressive muscle relaxation (long versiuon); progressive muscle relaxation (short version); conditioned relaxation; differential relaxation; quick relaxation; applied relaxation; relapse prevention. Participants with a cellular phone (n=5) were sent short message service (SMS) reminders to relax about twice every weekday. Participants had to answer the questions at the end of each module before they received the password to the next module. The mean total time spent by the therapist on each participant was approximately 30 min, including administration, and responding to the e-mails. The authors stated that two groups did not differ significantly	The nature of the interventions precluded blinding of participants and study personnel. Assessment of out comes by independent blinded personnel would have been advantageous, but all outcomes were self-reported. To ascertain if a subject's opinion of the treatment's credibility could predict treatment

	baseline (a limited symptom attack was defined as meeting all other criteria but having fewer than four somatic or cognitive symptoms.) vi) if on prescribed drugs for panic disorder, (a) the dosage had to be constant for 3 months before the start of the treatment, and (b) the patient had to agree to keep the dosage constant throughout the study vii) if in therapy, this had to have been ongoing for more than 6 months and not be of CBT type viii) previous contact with a physician, psychologist, or other health professional as a consequence of panic attacks ix) no epilepsy, kidney problems, strokes, organic brain syndrome, emphysema, heart disorders, or chronic high blood pressure		in any of the measurements at baseline, however, previous treatments and levels of depression and phobias appeared to differ between the two groups. Results were reported as within group Cohen's d effect size (pre- to post-intervention); between group difference in effect size was only reported as an aggregate of all outcome measures (BSQ, ACQ, MLAlone, MLAccomp, BAI, BDI, QOLI, and panic diary). For those outcome measures which include physical symptoms components, the results were: BSQ: CBT effect size 0.79, AR effect size 0.93. ACQ: CBT effect size 0.83, AR effect size 0.64. BAI: CBT effect size 0.34, AR effect size 1.40. An effect size >0.8-1.0 is generally regarded as 'large'. The overall effect size was not significantly different between groups (0.42 for the CBT group and 0.71 for the AR group).	outcome, participants were given a five-item, 10-point scale adapted from Borkovec and Nau (1972); there was no difference in the assessment of treatment credibility between the two groups. Five participants dropped out after randomisation, and analyses were on an intention-to-treat basis.
Clark (1994)	Participants were accepted if the met the following criteria: i) DSM-III-R panic disorder, with no, mild or moderate agoraphobic avoidance.	N=64	This study compared cognitive therapy, applied relaxation, imipramine (mean 233 mg/day), or a 3-month wait followed by allocation to treatment for the treatment of panic disorder. During treatment patients had up to 12 sessions in the first 3 months and up to three booster sessions in the	The nature of the interventions precluded blinding of

	ii) Current episode duration at least 6 months (this criterion was intended to minimise spontaneous re mission; a previous study (Catalan et al, 1984) of recent-onset anxiety disorders suggested spontaneous remission is common in the first 6 months). iii) At least three panic attacks in the last 3 weeks. iv) Consider panic their main problem. v). Age 18-60 years. vi) Willing to accept random allocation.		next 3 months. Imipramine was gradually withdrawn after 6 months. Applied relaxation(AR) was a modified version of the relaxation training devised by Öst. Patients were taught to identify the early signs of panic and to relax rapidly. Homework assignments included twice-daily relaxation practice. CBT was based on the cognitive theory of panic. Cognitive procedures included: identifying and challenging patients' evidence for their misinterpretations; substituting more realistic interpretations; and restructuring images. Behavioural procedures included: inducing feared sensations in order to demonstrate possible causes of patients' symptoms; and stopping safety behaviours in order to help patients disconfirm their negative predictions about the consequences of their symptoms. Homework assignments included keeping a daily record of negative thoughts and rational responses, and conducting behavioural experiments to test these thoughts. Results were reported as mean (SD) scores at baseline, 3 months, 6 months and 15 months. For those outcome measures which include physical symptoms components, comparisons between active treatment groups showed: HARS: No significant differences between groups. BAI: patients receiving CBT had significantly lower scores at 3 months than those receiving imipramine (8.2 (4.6) vs. 17.1	participants and study personnel. Assessment of out comes included some ratings (unclear which) by an assessor who was blind to treatment allocation). Eight patients dropped out after randomisation (five from the imipramine group) and were excluded from the analyses.

			(12.5)). There were no other significant differences. BSQ: Patients receiving CBT had lower scores at 3 months than those receiving AR or imipramine (22.5 (5.2) vs. 35.9 (13.2) and 33.2 (9.3), respectively). Patients receiving CBT had lower scores at 6 months than those receiving AR (24.8 (7.2) vs. 36.4 (11.5)). Patients receiving CBT had lower scores at 15 months than those receiving AR or imipramine (22.7 (6.0) vs. 34.0 (10.9) and 37.3 (11.2), respectively). ACQ: Patients receiving CBT had lower scores at 3 months than those receiving AR or imipramine (19.4 (3.3) vs. 27.0 (7.4) and 26.2 (8.3), respectively). Patients receiving CBT or imipramine had lower scores at 6 months than those receiving AR (20.5 (5.3) and 24.3 (6.8), respectively vs. 28.2 (8.7)). There were no other significant differences. AR was significantly superior to waiting list on all four measures.	
Clark (2006)	Participants were accepted if the met the following criteria: i) DSM-IV, social phobia ii) had experienced social phobia for ≥months iii) social phobia considered to be the patient's main problem iv) age 18-60 years v) did not meet DSM-IV criteria for alcohol or substance dependency vi) no current of previous	N=62 (CT n=21, exposure therapy (EXP) + AR n=21, waiting list control n=20)	This study compared cognitive therapy, and combined treatment of exposure therapy and applied relaxation, and a waiting list control for the treatment of social phobia. Treatment consisted of up to 14 weekly sessions, followed by up to 3 booster sessions in the first 3 months of follow-up. CT was based on: a development of the Clark and Wells model (1995) using the patient's own thoughts, images attentional strategies, safety behaviours and symptoms; experiential exercises; systematic training in externally focussed attention with practice in non-social and social situations; techniques for restructuring distorted self-imagery; surveys to collect data on other peoples' beliefs	The nature of the interventions precluded blinding of participants and study personnel and the outcome measure was self-reported. Drop out rates

	psychosis vii) social phobia had not previously been treated with exposure therapy or CBT viii) no psychotropic medication, or stable dose for at least 2 months without improvement and willing to maintain constant dosage throughout the trial ix) agreed not to start any additional treatment during the trial. With the exception of borderline personality disorder, Axis II personality disorders were not a reason for exclusion.		about issues such as blushing and trembling; structuring of planned confrontation with feared social situations. EXP + AR was based on EXP described by Butler (1985) and AR described by Öst (1987). Therapy sessions included both exposure exercises and relaxation training, both of which were included I weekly homework assignments. There were no significant differences between the groups, at baseline, in demographic characteristics, social phobia or anxiety scores, or co-morbid conditions. Results were reported as mean (SD) scores at baseline, post-treatment, 3 months follow-up and 1 year follow-up. For BAI, CT and EXP + AR both showed a significant treatment effect compared to the waiting list control. In addition the CT group showed significantly greater reductions in BAI score than the EXP + AR group: Pre-treatment scores for the CT, EXE + AR and wait groups were 19.00 (8.60), 17.95 (8.56) and 16.80 (8.69), respectively. Post treatment scores were 3.19 (3.93), 7.48 (5.50) and 13.50 (7.05), respectively. Three month follow up score for the CT and EXP + AR groups were 4.29 (4.54) and 8.11 (7.92) , and one year follow-up scores were 4.91 (6.03) and 9.24 (10.85).	were low (two patients from the EXE + AR group and none from the CT group) and all patients appear to have been included in the analyses.
Conrad (2008)	Genaralised anxiety disorder (GAD) patients were offered free psychological treatment for their participation and no anxious controls (NACs) were offered $180 ($30 for each of	N=49 GAD patients (AR n=29, WLC n=20) and 21 controls (only GAD	This study was designed to investigate the mechanism of action of AR. One component of the study was a comparison of AR with a waiting list control (WLC) group in GAD patients. Applied relaxation(AR) was a modified version of the relaxation training devised by Öst. Therapy was standardised,	The nature of the interventions precluded blinding of participants

	the six assessments). The patient group had to meet DSM-IV criteria for GAD as primary diagnosis. benzodiazepines, participants were included only if the dose was stable and less than 1.5 mg/day in the month preceding the assessment.	patients are considered in this abstract)	consisting of 12 weekly sessions lasting for 50 to 60 min and homework. There were no differences between AR and WLC groups in gender, age, ethnicity, race, body mass index, fitness level or interest, medication, or secondary diagnoses. Results were presented as within group mean (SD) scores, pre- and post-treatment and at 6 weeks follow-up. Reporting of between group comparisons was limited. Post-treatment, intention-to-treat analyses showed 36% of AR patients compared to 5% of WLC patients were considered clinically improved. Cohen's d effect sizes ranged from 0.24 to 0.67 for primary outcomes and from–0.06 to 0.67 for secondary outcomes (individual outcome measure results were not reported). Follow-up, intention-to-treat analyses showed 24%of AR and 0% of WLC participants met criteria for clinically significant improvement. Effect sizes were not reported. For those outcome measures which include physical symptoms components, mean (SD) scores were: BAI: Pre-treatment scores for the AR and WLC groups were 23.24 (16.04) and 17.95 (5.98), respectively. Post-treatment scores for the AR and WLC groups were 11.59(12.11) and 12.13 (6.86), respectively. The follow-up score for the AR groups was 17.00 (13.95). CSAQ (somatic sub-scale): Pre-treatment scores for the AR and WLC groups were 19.72 (5.68) and 18.80 (5.53)	and study personnel. Assessment of out comes by independent blinded personnel would have been advantageous, but it was unclear whether this was the case. During the intervention, 8 AR and 2 WLC participants dropped out. The authors reported undertaking completer and intention-to-treat analyses.

			respectively. Post-treatment scores for the AR and WLC groups were 16.35 (3.98) and 18.00 (6.78), respectively. The follow-up score for the AR groups was 17.93 (6.49).	
Craske et al(1991)	Participants had been assigned a diagnosis of panic disorder with mild or no agoraphobic avoidance using DSM-III-R criteria, as responding to the (ADIS-R). Participants were excluded if: i) aged <18 yrs or >65 yrs ii) current drug or alcohol abuse/dependency iii) principal diagnosis of major depression iv) signs of psychosis or organic brain syndrome v) involved in other psychotherapy programmes focussed on anxiety management vi) had started benzodiazepines in the previous 3 months, or MAO inhibitors or tricyclic antidepressants in previous 6 months	N=41	This study compared three active treatments (progressive muscle relaxation (R), interoceptive exposure and cognitive restructuring (E & C) and a combination treatment (COMB)) and a waiting list control. R used Jacobson's procedure, tapering from 16 to 8 then 4 muscle groups to cue-controlled relaxation. Relaxation was then applied during self-directed practices to individualised anxiety-producing situations. E & C comprised identification and challenge of anxiety provoking thoughts, a session of breathing re-training, and application of cognitive and breathing skills to anxiety-producing situations. COMB focussed on R in the first half of treatment and E & C in the second. Between group comparisons were not presented. For those outcome measures which include physical symptoms components, mean (SD) scores were: HARS: Post-treatment scores for R, E & C and COMB were 5.78 (3.96), 9.50 (5.86) and 6.67 (3.98), respectively. Six month scores were 10.56 (8.19), 9.00 (5.18), and 5.33 (3.27), respectively. Twenty-four month scores were 9.83 (7.55), 7.82 (4.54) and 12.87 (4.82), respectively. CSAQ (somatic sub-scale): Post-treatment scores for R, E & C	The nature of the interventions precluded blinding of participants and study personnel. Assessment of out comes by independent blinded personnel would have been advantageous, but all outcomes were self-reported. Outcome assessments were completes pre- and post-treatment and at 3, 6, 12 and 24 (active treatment

			and COMB were 18.60 (3.13), 17.17 (3.87) and 17.20 (4.76), respectively. Six month scores were 22.0 (4.47), 16.17 (3.43), and 17.00 (2.12), respectively. Twenty-four month scores were 19.83 (6.52), 14.80 (6.09) and 16.43 (3.51), respectively. Time interaction analyses indicated that the R group showed a deterioration in HARS and CSAQ (somatic sub-scale), whereas the E & C and COMB groups showed treatment gain maintenance.	groups only) months. Missing 6 month data (18 patients) were replaced by 3 month data if available. 12 and 24 month data were not analysed.
Kohli (2000)	Participants were in the age range of 18-45 years, educated up to minimum matric level and who had not received and treatment in the past, fulfilling to DSM-III-R criteria. Patients with a co-morbid psychiatric disorder, organic brain pathology, mental retardation, having difficulty in concentration, or residing at a distance, were excluded from the study.	N=25 (AT n=6, BRT n=6, DRUG n=13)	This study compared autogenic relaxation (AT), breathing relaxation (BRT) and conventional pharmacotherapy (DRUG). AT and BRT followed the model o9f Aivazian et al. (1988). AT and BRT were administered in 20 and 30 minute supervised sessions, respectively, three times per. week for six weeks, then once a month for four months. Patients carried out the exercise daily, at home, between sessions. Conventional pharmacotherapy was not specified. HARS scores were measured pre- and post-treatment and at four month follow-up. The three groups were comparable in age, but baseline GAD symptoms appeared to vary across the groups. HARS scores did not differ significantly at baseline. HARS scores fell for each treatment group, but was statistically significant at the end of the six week treatment period in the AT group only. The reduction in HARS scores	The nature of the interventions precluded blinding of participants and study personnel, however, different researchers carried out relaxation therapies and measured anxiety scores. Full results were not reported, only the results of

			from baseline was significantly greater in both the AT and BRT groups than in the DRUG group at all follow-up points (1, 2, 3, and 4 months); results of significance tests only, absolute values were not reported.	significance tests for differences between groups were given.
Ost (2000)	In order for inclusion the participants had to meet the following criteria. i). DSM-III-R (APA, 1987) criteria for generalized anxiety disorder ii). A duration of the disorder of at least 1 yr iii). Be between 18±60 yr of age iv). Not suffer from primary depression (i.e. onset before the start of the GAD) v). Not suffer from any other psychiatric disorder in more need of treatment vi). Generalized anxiety disorder must be the patient's primary problem vii). If on prescribed drugs for anxiety disorder, (a) the dosage had to be constant for 3 months before the start of the treatment and (b) the patient had to agree to keep the dosage constant throughout the study	N=36	This study compared AR and CT for the treatment of GAD. AR followed the Öst method. The relaxation training started with progressive relaxation with tension-release of the muscles (session 2 and 3). The short version (release only) was introduced during session 4 and cue-controlled (conditioned) relaxation during session 5. During session 6 differential relaxation was introduced and it was continued during session 7. In session 8 the patients were taught rapid relaxation and practiced applying their relaxation skills in stressful but not anxious situations and this was continued during session 9. Sessions 10 and 11 were used for application training in natural situations. Finally, session 12 was used for a review of the treatment and maintenance instructions. CT was based on the cognitive theory of generalized anxiety. Treatment followed the following steps, applied flexibly across 12 sessions: the following steps: (1) Identifying the anxiety associated thoughts, beliefs etc., (2) Discussing the causal role of these, (3) Getting the patient to question the thoughts and beliefs and search for evidence for and against, (4) Helping the patient to develop alternative assumptions that are less, or not at all anxiety-arousing, (5) Testing these alternatives through behavioral experiments and homework assignments and (6) Teaching the above skills in such a way that they can be used as coping techniques in	The nature of the interventions precluded blinding of participants and study personnel, some outcome measures were recorder by independent assessors and some were self-report. To ascertain if a subject's opinion of the treatment's credibility could predict treatment outcome, participants were given a

	viii). Agreeing to take part in the study for 18 weeks, including pre- and post-assessment and 1 yr follow-up and be willing to accept random allocation.		everyday life. Outcome measures were assessed pre- and post-treatment and at one year follow-up. The two treatment groups did not differ significantly at on any pre-treatment assessment. For independently assessed ratings (including HARS), the ANOVAs yielded significant time effects on all measures, but no group or interaction effects. This was also the case for self-report scales (including BAI and CSAQ somatic sub-scale). For BAI and CSAQ somatic sub-scale both groups showed significant improvements which were maintained at follow-up. Estimations of clinically significant improvement, using HARS, were not significantly different between groups. For those outcome measures which include physical symptoms components, mean (SD) scores were: HARS: Pre-treatment scores for AR and CT were 24.87 (6.73) and 23.94 (6.54), respectively. Post-treatment scores for AR and CT were 11.93 (7.56) and 11.39 (5.90), respectively. Follow-up scores for AR and CT were 11.20 (6.84) and 13.50 (8.45), respectively. BAI: Pre-treatment scores for AR and CT were 23.13 (8.32) and 21.56 (8.35), respectively. Post-treatment scores for AR and CT were 14.27 (8.19) and 14.78 (8.82), respectively. Follow-up scores for AR and CT were 14.40 (8.95) and 14.56 (9.45), respectively. CSAQ somatic sub-scale: Pre-treatment scores for AR and CT	five-item, 10-point scale adapted from Borkovec and Nau (1972); there was no difference in the assessment of treatment credibility between the two groups. Three patients, 2 in the AR-group (12%) and 1 in the CT-group (5%) dropped out at an early stage of treatment; it was not clear if these patients were included in the analyses.

			were 20.00 (4.86) and 22.17 (5.25), respectively. Post-treatment scores for AR and CT were 14.87 (5.95) and 18.33 (5.74), respectively. Follow-up scores for AR and CT were 14.40 (4.76) and 19.06 (5.34), respectively.	

Risk of Bias:

RCTs

Study	RISK OF BIAS					
	Random allocation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective Reporting
Study 1	☺	?	☹	☹	☺	☹
Study 2	☺	?	☹	?	☹	☺
Study 3	☺	☺	☹	☹	☺	☺
Study 4	☺	?	☹	?	☺	☹
Study 5	☺	?	☹	☹	☹	☹
Study 6	☺	?	☹	☺	☺	☹
Study 7	☺	?	☹	☹	☹	☹

☺ Low Risk ☹ High Risk ? Unclear Risk

Search Details

Source	Search Strategy	Number of hits	Relevant evidence identified
SRs and Guidelines			
NICE	"panic disorder" or "generali* anxiety disorder" filtered by guidelines	131	1
DARE	(panic disorder or generalised anxiety or generalized anxiety) AND (relaxation or medication or drugs or pharmacology or pharmacological)	47	1
Primary studies			
CENTRAL	#9 MeSH descriptor Anxiety Disorders explode all trees 4087 edit delete #10 MeSH descriptor Relaxation Therapy explode all trees 1221 edit delete #11 MeSH descriptor Muscle Tonus explode all trees 208 edit delete #12 (#9 AND #10 AND #11) 0 edit delete #13 (#9 AND #10) 118 edit delete #14 "generalised anxiety disorder" 144 edit delete	118	7 RCTS from all databases.

	#15 "panic disorder" 1582 edit delete #16 "relaxation techniques" 385 edit delete #17 "relaxation practice" 21 edit delete #18 "Relaxation therapy" 1299 edit delete #19 (#16 OR #17 OR #18) 1583 edit delete #20 (#14 OR #15) 1662 edit delete #21 (#19 AND #20) 51 edit delete	51	
MEDLINE	1. MEDLINE; exp ANXIETY DISORDERS/; 59124 results. 2. MEDLINE; "generalised anxiety disorder*".ti,ab; 304 results. 3. MEDLINE; "generalized anxiety disorder*".ti,ab; 3063 results. 4. MEDLINE; "panic disorder*".ti,ab; 7035 results. 5. MEDLINE; 1 OR 2 OR 3 OR 4; 61059 results. 6. MEDLINE; RELAXATION THERAPY/; 5478 results. 7. MEDLINE; exp MUSCLE RELAXATION/; 25027 results. 8. MEDLINE; "relaxation practice*".ti,ab; 43 results. 9. MEDLINE; "relaxation technique*".ti,ab; 919 results. 10. MEDLINE; 6 OR 7 OR 8 OR 9; 30862 results. 11. MEDLINE; 5 AND 10; 480 results. 12. MEDLINE; "randomized controlled trial".pt; 324618 results. 13. MEDLINE; "controlled clinical trial".pt; 84256 results. 14. MEDLINE; randomized.ab; 240241 results. 15. MEDLINE; placebo.ab; 135476 results. 16. MEDLINE; "drug therapy".fs; 1521839 results. 17. MEDLINE; randomly.ab; 175750 results. 18. MEDLINE; trial.ab; 249075 results.	180	

	19. MEDLINE; groups.ab; 1153146 results. 20. MEDLINE; 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19; 2911544 results. 21. MEDLINE; 11 AND 20; 180 results. _____		
EMBASE	10. EMBASE; "generalised anxiety disorder*".ti,ab; 432 results. 11. EMBASE; "generalized anxiety disorder*".ti,ab; 3765 results. 12. EMBASE; "panic disorder*".ti,ab; 8709 results. 13. EMBASE; "relaxation practice*".ti,ab; 49 results. 14. EMBASE; "relaxation technique*".ti,ab; 1150 results. 15. EMBASE; GENERALIZED ANXIETY DISORDER/; 3547 results. 16. EMBASE; PANIC/; 15034 results. 17. EMBASE; RELAXATION,MUSCLE/; 10202 results. 18. EMBASE; RELAXATION THERAPY/; 7468 results. 19. EMBASE; 10 OR 11 OR 12 OR 15 OR 16; 19551 results. 20. EMBASE; 13 OR 14 OR 17 OR 18; 17981 results. 21. EMBASE; 19 AND 20; 292 results. 22. EMBASE; random*.ti,ab; 671179 results. 23. EMBASE; factorial*.ti,ab; 17573 results. 24. EMBASE; (crossover* OR cross-over*).ti,ab; 57365 results. 25. EMBASE; placebo*.ti,ab; 162603 results. 26. EMBASE; (doubl* ADJ blind*).ti,ab; 119852 results. 27. EMBASE; (singl* ADJ blind*).ti,ab; 11323 results. 28. EMBASE; assign*.ti,ab; 188035 results.	69	

	29. EMBASE; allocat*.ti,ab; 63257 results. 30. EMBASE; volunteer*.ti,ab; 147020 results. 31. EMBASE; CROSSOVER PROCEDURE/; 31378 results. 32. EMBASE; DOUBLE BLIND PROCEDURE/; 102103 results. 33. EMBASE; RANDOMIZED CONTROLLED TRIAL/; 294155 results. 34. EMBASE; SINGLE BLIND PROCEDURE/; 14552 results. 35. EMBASE; 22 OR 23 OR 24 OR 25 OR 26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34; 1114654 results. 36. EMBASE; 21 AND 35; 69 results. _____		

PsycINFO	15. PsycINFO; "generalised anxiety disorder*".ti,ab; 188 results. 16. PsycINFO; "generalized anxiety disorder*".ti,ab; 3821 results. 17. PsycINFO; "panic disorder*".ti,ab; 8103 results. 18. PsycINFO; "relaxation practice*".ti,ab; 55 results. 19. PsycINFO; "relaxation technique*".ti,ab; 811 results. 20. PsycINFO; GENERALIZED ANXIETY DISORDER/; 1262 results. 21. PsycINFO; PANIC DISORDER/; 6374 results. 22. PsycINFO; exp RELAXATION THERAPY/; 3275 results. 23. PsycINFO; exp MUSCLE RELAXATION/; 607 results. 24. PsycINFO; 15 OR 16 OR 17 OR 20 OR 21; 11699 results. 25. PsycINFO; 18 OR 19 OR 22 OR 23; 4271 results. 26. PsycINFO; 24 AND 25; 121 results. 27. PsycINFO; CLINICAL TRIALS/; 5645 results. 28. PsycINFO; random*.ti,ab; 104550 results. 29. PsycINFO; groups.ti,ab; 315182 results. 30. PsycINFO; (double adj3 blind).ti,ab; 15452 results. 31. PsycINFO; (single adj3 blind).ti,ab; 1142 results. 32. PsycINFO; EXPERIMENTAL DESIGN/; 8098 results. 33. PsycINFO; controlled.ti,ab; 65431 results. 34. PsycINFO; (clinical adj3 study).ti,ab; 6542 results. 35. PsycINFO; trial.ti,ab; 54997 results. 36. PsycINFO; "treatment outcome clinical trial".md; 20697 results. 37. PsycINFO; 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR	51	

	33 OR 34 OR 35 OR 36; 482549 results. 38. PsycINFO; 26 AND 37; 51 results. _____		

Summary	**NA**	**NA**	

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