| Table E4. Psychological/behavioral intervention and outcomes (n=19) |
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| **Author****Year****Setting** | **Population Description** | **Intervention** | **Outcome Measures**  | **Results** |
| Abbott,712009Australia | Baseline Sample: Total n = 56; Interven n = 32; Cntrl n = 24Setting: Internet in 23 industrial settings, Mean Age (SD): Interven: 50.5 y (9.5); Cntrl: 48.7 y (8.6)Gender: Interven: 96% male Cntrl: 83% malePresumed etiology of tinnitus: idiopathicDuration of tinnitus: > 3 months Severity of tinnitus: NRNumber of dropouts: Interven N=4; Cntrl=1Reasons for dropouts: most indicated withdrawal by no response when contactedAudiological factors: NRComorbidities: NR | Internet-based education Interven: 10 components, presented in six modules, and completed at the rate of one module per week. Modules included homework assignments and weekly diaries submitted electronically. Participants completed daily online registrations 1 week before Interven (pre-assessment) and 1 week immediately after Interven (post-assessment) on VAS (range 0 to 10) Comparator: Information onlyDuration of treatment: 6 weeks Number of follow ups: 1Duration of study: June 2006 to March 2007 | Depression (DASS-D)Anxiety (DASS-A)Loudness (VAS)Sleep (VAS)G-QOL (WHO-Social)TS-QOL(TRQ\*, VAS, OSI-R) | The CBT program was not found to be superior to the information program for treating tinnitus distress.Participants who completed the program generally reported finding most aspects of it useful, but found the sound enrichment, sound sensitivity, and cognitive restructuring tools less useful.Adverse Events: None  |
| Andersson,75 2005Sweden | Baseline sample Total n = 23; Interven n = 12; Cntrl n = 11Setting: web pages and newspaper articlesMean age (SD): 70.1y (3.90)Gender: 52% malePresumed etiology of tinnitus: NRDuration of tinnitus: Mean 13y (12.5)Severity of tinnitus: “problem with tinnitus” as inclusion criteriaNumber of dropouts: NoneReasons for dropouts: N/AAudiological factors: 22% previously fitted with hearing aidsComorbidities: NR  | CBTInterven: Sessions covered information about tinnitus, applied relaxation, cognitive restructuring, behavioral activation, positive imagery, sound enrichment, exposure to tinnitus, advice regarding hyperacusis, hearing tactics, and relapse prevention. Comparator: Wait listDuration of treatment: 6 weeks of 2 hour sessionsNumber of follow-ups: 2 (immediately post-treatment and 3 months post-treatment taken after crossover) Duration of study: 19 weeks | TS-QOL(TRQ)Depression (HADS-D)Anxiety (HADS-A\*, ASI) | TS-QOL Results showed statistically significant reductions of tinnitus-related distress. *F*(1,21)=6.4, p=0.02CBT was better than no treatment, but the particular aspects of CBT that contributed to the effects can not be established.The findings give some support for the use of group CBT for elderly people with tinnitus.Adverse Events: NR |

| **Table E4. Psychological/behavioral intervention and outcomes (n=19) (continued)** |
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| **Author****Year****Setting** | **Population Description** | **Intervention** | **Outcome Measures**  | **Results** |
| Andersson,74 2002Sweden | Baseline sample Total n = 117; Interven n = 53; Cntrl n = 64Setting: web pages and newspaper articlesMean age (SD): Interven: 48.5y (12.3); Cntrl: 47.2y (15)Gender: Interven: 54% male; Cntrl: 52% malePresumed etiology of tinnitus: NRSeverity of tinnitus: “severe problem” for which patient has seen GP or ENTNumber of dropouts:Interven n = 29; Cntrl n = 16Reasons for dropouts:Interven: 26 did not finish treatment; 4 incomplete questionnaire;Cntrl: 16 incomplete questionnaireAudiological factors: problems in 68% Comorbidities: sleep problems, anxiety, depression | CBT Interven: Self-help manual constructed following cognitive behavioral principles, consisting of 6 modules (1 module performed per week). Daily diary ratings were included for 1 week before and 1 week following the treatment period. Comparator: Wait listDuration of treatment: 6 weeksNumber of follow-ups:1 Duration of study: 1 yr | TS-QOL (TRQ\*, VAS-Ann, VAS-Ctrl)Anxiety (HADS-A\*, ASI)Depression (HADS-D)Sleep(VAS)Loudness(VAS) | TS-QOL: group effect on pre- vs. post-treatment change score: *t*(70)=3.99, p=0.002ITT analysis: NSNo significant differences between the groups were found at either post-treatment (p = 0.29) or at the 1-year follow-up (p= 0 .16).CBT via the Internet can help individuals decrease annoyance associated with tinnitus.Adverse Events: NR |
| Biesinger,78 2010Germany | Baseline sample Total: n = 40Interven: n = 20; Cntrl: n = 20Mean age(SD):Interven: 44.7y (10.9); Cntrl: 39.9y (11.3)Gender: 47.1% malePresumed etiology of tinnitus: Nonsomaterenic tinnitusDuration of tinnitus: >3 months Severity of tinnitus: Main complaintNumber of dropouts: Interven: 5; Cntrl: 1Reasons for dropouts: Missed sessions- job-related, personal, organizational reasons, incomplete data Audiological factors: Normal audiogram (LE 10dB or any frequency) as inclusion criteriaComorbidities: NR | Qigong Therapy is a set of breathing and movement exercises with possible benefits to health through stress reduction and body activity. Qigong contains important principlesof modern tinnitus therapy, such as relaxation, reduction of muscle tension, attention distraction, stress reduction, activation, and communication, especially when exercising in groups.Qigong training program for 5 weeks, 2 hrs twice a week under professional Qigong instructor.Comparator: Wait list Duration of treatment: 10 sessions, 5 weeksNumber of follow ups: 3Duration of study: NR | TS-QOL (TBF-12\*, VAS) | Qigong was completed by 80% of the assigned patients. Compared with the Cntrl group, Qigong participants experienced improvement in tinnitus severity, as reflected by a significant reduction in both the VAS and the TBF-12 (group x time interaction: *F*(3,66)=3.7, p=0.015)In the subgroup of patients with somatosensoric tinnitus, Qigong effects were more pronounced, resulting in a highly significant improvement in both scales compared to the waiting-list group.Adverse events: No Qigong related reasons affected participation in the study. No relevant side effects were reported.  |
| Cima,54 2012Netherlands | Baseline sample Total: n = 492Interven n = 245; Cntrl n = 247 Setting: Tinnitus CentreMean age (SD):Int: 53.74y (11.05); Cntrl: 54.63y (12.02)Gender: Int: 65% male; Cntrl: 61% malePresumed etiology of tinnitus: IdiopathicDuration of tinnitus: >1 year 70%Severity of tinnitus: primary complaint, 84% with continuous tinnitusNumber of dropouts: Interven n=74 (30%); Cntrl n=86 (35%)Reasons for dropouts: NRAudiological factors: 19% with hearing aid; 19% with sound generatorComorbidities: NR | Specialized care of CBT with sound-focused tinnitus retraining therapy. Comparator: Usual CareDuration of treatment: 8 monthsNumber of follow ups: 2Duration of study: September 2007 and January 2011 | G-QOL(HUI)TS-QOL(TQ\*, THI)Depression (HADS) | Patients assigned to specialized care improved in health-related QOL during a period of 12 months (between-group difference 0.059, 95% CI 0.025 to 0.094; p=0.0009);Decreased tinnitus severity (between group difference –8.062, 95% CI –10.829 to –5.295; p<0.0001) and tinnitus impairment (between group difference –7.506, 95% CI –10.661 to –4.352; p<0.0001).Specialized treatment of tinnitus based on CBT could be suitable for widespread implementation for patients with tinnitus of varying severity.Adverse Events: Adverse results as a result of treatment or measurements did not occur |
| Henry,87 1998Australia | Baseline sample Total n = 54Int Grp1: n = 12; Int Grp2: n = 14Int Grp3: n = 12; Cntrl: n = 14Setting: response to radio or newspaper announcementsMean age: 56.3 y (range 35 to 83)Gender: 62% malePresumed etiology of tinnitus: idiopathicDuration of tinnitus: >6 monthsSeverity of tinnitus: primary complaintNumber of dropouts: 4Reason for dropouts: NRAudiological factors: score 17+ on the TRQComorbidities: treatment resistant, 72% had subjective hearing loss | CBTACI - Attention Cntrl and Imagery Training: cognitive coping strategies to help subject learn to shift attention to and from tinnitus and focus on pleasant stimuli – all subjects provided with a written educational manualCR – Cognitive Restructuring –- all subjects provided with a written educational manual based on case examples and educational materialsACI+CR – Combined Treatment – condensed version of 2 treatments – subjects provided with treatment and education manuals3 treatment programs consisted of 8 weekly group sessions lasting 90 minutesComparator: Wait list Cntrl – treatment provided after 8 weeksDuration of treatment: 8 weeksNumber of follow-ups: post-treatment, 6 mDuration of study: NR | Depression (BDI)TS-QOL(TRQ\*, THQ handicap, TCSQ coping, TEQ) | The analyses revealed that the combined treatment condition (ACI +CR) showed significantly greater improvement on ameasure of psychological distress and achieved a higher clinical response rate compared to the two single treatments. Subjects in the CR condition improved significantly more than the ACI condition on the TRQ (F( 1,46) = 4.47, *p* <*0.05)*Subjects in the combined ACI + CR condition improved significantly more than those subjects in the ACI condition and CR condition on the TRQ (F( 1,46) = 4.38, *p* < 0.05).There were no significant group by time effects for any of the dependent variables at the six-month follow-up. Results were interpreted as supporting the practice of combining the two cognitive approaches.Adverse Events: NR |
| Henry,86 1996Australia | Baseline sample: Total n = 60, Int Grp1: n = 20, Int Grp2: n = 20, Cntrl: n = 20Setting: HospitalMean age: 64.6 y Gender: 86.6% malePresumed etiology of tinnitus: idiopathicDuration of tinnitus: >6 monthsSeverity of tinnitus: score ≥17 points on the TRQ; unsuccessful previous treatmentsNumber of dropouts: 0Reasons for dropouts: NAAudiological factors: no hearing aid, masker or tinnitus suppressive medication previous 6 monthsComorbidities: NR | CBTACI - Attention Cntrl and Imagery Training & CBT vs wait listTreatment groups involved 1 90- minute session per week for six weeks. Treatment conducted in groups of 5 to 7 participants. All psychological treatment was delivered by a clinical psychologist. Int Grp1: Cognitive coping skills training plus education;Int Grp2: Education,Comparator: Wait List CntrlDuration of treatment: 6 weeksNumber of follow ups: 2Duration of study: 12 months | Depression (BDI)TS-QOL (TRQ\*, TEQ, THQ-handicap, TCSQ coping, TCQ awareness)Loudness (Self reported) | TS-QOL: significant reduction in tinnitus distress which was significantly greater when the cognitive coping training was combined with education than when education alone was provided *(F(1,57*)=16.19, p <0.01)Subjects who received the combined cognitive/education intervention demonstrated significantly greater reductions in distress and handicaps associated with tinnitus and engagement in dysfunctional cognitions, than the subjects who received education alone. No significant effects were obtained on measures of depression or loudness. Adverse Events: NR |
| Henry,88 2007United States | Baseline sample Total n = 268Int Grp1 n = 94, Int Grp2 n = 84, Cntrl n = 90Setting: Hospital Mean age(SD): IntGrp1: 62.1y (8.9); IntGrp2: 60.8y (9.5);Cntrl: 62.0y (11.3)Gender: IntGrp1: 96.8% male; IntGrp2: 96.4% maleCntrl: 96.7% malePresumed etiology: NRDuration of tinnitus: 87.7% GE 3 ySeverity of tinnitus: Sufficiently bothersome to warrant IntervenNumber of dropouts: IntGrp1 n = 26, IntGrp2 n = 23, Cntrl n = 15Reasons for dropouts: NRAudiological factors: 93% difficulty hearing at least ‘sometimes’Comorbidities: NR | Group Education Counseling (TRT principles) Interven group attended four 1.5 hour group sessions each week conducted by audiologists. Assessed at baseline, and at 1, 6, and 12 months after their last group session. Comparison group (traditional-support) subjects attended four weekly 1.5-hour discussion-type group sessions. Sessions were moderated by the project coordinator. No education was provided in the support group.Comparator: no treatment and traditional support Duration of treatment: 4 weeksNumber of follow ups: 3Duration of study: 12 months | TS-QOL (TSI) | The educational counseling group showed a significant reduction in mean TSI score from baseline to 6 months (*p* < 0.001) and baseline to 12 months (*p* < 0.001).The effect sizes for the educational counselinggroup were 0.59 at 6 months and 0.45 at 12 months, while the effect sizes for the traditional support and no treatment groups were 0.11 or less at 6 and 12 months.Adverse Events: None  |
| Ireland,52 1985Australia | Baseline sample: Total n =33Setting: University clinicMean Age: 55.9 yGender: 46.6% malesInt Grp1: 54.5% malesInt Grp2: 44.4% malesCntrl:40.0% malesPresumed etiology of tinnitus: Idiopathic Duration of tinnitus: NR Severity of tinnitus: Other traditional treatments not recommended or had failed Number of drop outs: 3Reasons for drop outs: discontinued treatmentAudiological factors: NRComorbidities: NR | Relaxation Therapy vs wait listInt Grp1: Relaxation training; Int Grp2: Counterdemand, Neutral DemandCntrl: Wait List Cntrl Duration of treatment: 6 weeksNumber of follow ups: 2Duration of study: NR | Anxiety (STAI) Depression (BDI)Loudness (Self-reported)TS-QOL (Tinnitus interference self-report) | No significant effects for relaxation training were found on any measure. The BDI improved significantly from pretreatment to post-treatment, but the degree of change was equivalent for both treated and untreated groupsAdverse Events: NR |
| Kaldo,91 2007Sweden  | Baseline sample: Total n=72Interven=34; Cntrl=38Setting: phone calls and mailoutsMean age (SD): Interven=45.9 y(13.0); Cntrl=48.5 y (15.7)Gender: Interven: 50% male; Cntrl: 47.3% malePresumed etiology of tinnitus: NRDuration of tinnitus: >6 monthsSeverity of tinnitus: Score of 10 or above on TRQNumber of dropouts: 12Reasons for dropouts: 4 ended treatment prematurely; 3 general reasons. 5 unclearAudiological factors: NRComorbidities: NR | CBTSelf-help book and brief telephone therapy Treatment group: read the self-help book and had 7 weekly phone calls from one of two therapists over a period of 6 weeks (HIGH therapist contact group)Cntrl group: Wait-list; received self-help book and had one initial phone call after treatment group finished (LOW therapist contact group)Measured pre-treatment, post-treatment, extra 6 week post-treatment for LOW group, and follow-up 1 yr after LOW group’s post-treatment measurement.Comparator: Wait listDuration of treatment: 6 weeksNumber of follow ups: 3Duration of study: 1 yr | TS-QOL (THI, TRQ\*, VAS)Loudness (VAS)Depression (HADS-D)Anxiety (HADS-A) Sleep (ISI) | TS-QOL: group x time interaction: (*F*(1,70)=12.4, p <0.001On the TRQ, in the treatment group, 32% reached the criteria for clinical significance (at least 50% reduction of the TRQ) compared to 5% in the wait-list group.In the treatment group, 32% reached the criteria for clinical significance (at least 50% reduction of the TRQ) compared to 5% in the wait-list group.Adverse Events: NR |
| Kaldo,92 2008Sweden | Baseline sample: Total n = 51Interven n = 26; Cntrl n = 25Setting: Audiology clinic, InternetMean age (SD):Int: 47.4 (12.9); Cntrl: 45.0 (12.8)Gender: Int 58% male; Cntrl 56% malePresumed etiology of tinnitus: IdiopathicDuration of tinnitus: Int: 9.9y(13.5); Cntrl: 5.6y (6.1)Severity of tinnitus: primary problem; ≥10 TRQ (Wilson et al., 1991)Number of dropouts: 7Int n=4; Cntrl n=3Reasons for dropouts: NRAudiological factors: 33% “Much” or “very much: distressed by hearing deficitComorbidities: NR | Recruited by advertisements in newspapers, Wait List Cntrl for psychological treatment at the local Dept. of AudiologyInternet-administered CBT self-helpComparator: traditional CBT group treatmentBoth groups used the same treatment manualDuration of treatment: 7 weeksNumber of followups: 1Duration of study: 14 months | TS-QOL (THI, TRQ, VAS)Depression (HADS-D)Anxiety (HADS-A)Sleep (ISI)Loudness (VAS) | Both groups had improved, and there were few differences between them. The effect size for the Internet treatment was d = 0.73 (95% CI = 0.16 to 1.30) and for the group treatment was d = 0.64 (95% CI = 0.07 to 1.21). The Internet treatment consumed less therapist time and was 1.7 times as cost-effective as the group treatment.Adverse Events: NR |
| Kröner-Herwig,93 1995Germany | Baseline sample: Total n = 95;TCT1 n = 7;TCT2 n = 8;Yoga n = 9; WLC n = 19Setting: Dept. of AudiologyMean age (SD): Total: 46.8y (11.5);TCT1: 44.7 y(12.7); TCT2: 48.5 y(10.6);Yoga: 50.0 y (12.6); WLC: 47.3 y (7.9)Gender: TCT1: 57% male; TCT2: 50% male;Yoga: 67% male; WLC: 63% malePresumed etiology of tinnitus: idiopathicDuration of tinnitus: Mean 4.5 y (range 6m to 20y)Severity of tinnitus: >4 on a 10 point scaleNumber of dropouts:TCT1 n=3; TCT2 n=2; Yoga n=1; WLC n=3Reasons for dropouts: NRAudiological factors: hearing ability enough to allow communication in a group settingComorbidities: hearing deficits with 56% | CBTTinnitus Coping Training: TCT1 and TCT2 to Cntrl for therapist effect – training consisted of Patient Education (1 session); CBT (sessions 2 to 10)Yoga (Hathayoga) – special yogic exercises to foster relaxation and adequate body perceptionComparator: Wait List Cntrl (WLC)Duration of treatment: 10- 2 hour sessionsNumber of followups: end of treatment, 3 month followupDuration of study: 22 weeks | Loudness (Diary)Sleep(Diary, TQ subscale\*)G-QOL(TQ, Bef-Skala, Bes-Liste\*)Depression (Dep-Skala)TS-QOL(Diary, TQ\*) | TS-QOL: reduced psychological impairment German version of the TQ *F*(1,32)=4.43, p ≤0.04Statistical analyses showed effects favoring the TCT treatment in comparison to the Cntrl and yoga treatment. The TCT-treated patients reported more satisfaction with the training than the yoga group.Adverse Events: NR |
| Kröner-Herwig,13 2003Germany | Baseline sample: Total n = 95;Int Grp1 n = 43;Int Grp2 n = 16;Int Grp3 n = 16; Cntrl n = 20Setting: varied by treatment armMean age (SD): Total: 46.8y (11.5);IntGrp1: 44.7 y(12.7); IntGrp2: 48.5 y(10.6);IntGrp3: 50.0 y (12.6); Cntrl: 47.3 y (7.9)Gender: Total: 48.4% male;IntGrp1: 44.2% male; IntGrp2: 58.8% male;IntGrp3: 46.7% male; Cntrl: 50% malePresumed etiology: Idiopathic, exclude Moribus MeniereDuration of tinnitus: NRSeverity: Subjective annoyance >40 on 9 scales assessing disruptiveness of tinnitusNumber of dropouts: Int Grp1 n = 13; Int Grp2 n = 4; Int Grp3 n = 4; Cntrl n = 0Reasons for dropouts: NRComorbidities: NR | CBTTinnitus Coping Therapy (TCT); Education; Relaxation TherapyInt Grp1: TCT= detailed training manual provided guidelines for 11 sessions Int Grp2: Minimal Contact-Education (MC-E) comprised 2 education sessions regarding tinnitus etiology, 4 weeks self-help exerciseInt Grp3: Minimal Contact-Relaxation (MC-R) 4 sessions; educational, verbal relaxation; discussionsComparator: Wait-list CntrlDuration of treatment: Int Grp1: 11 sessions 90-120 minutes; Int Grp2: 2 sessions (4 weeks); Int Grp3: 4 sessionsNumber of followups: Int Grp1: 3 followups (immediately post-treatment 6 and 12 months after treatment); Int Grp2 and Int Grp3: 1 followup (immediately post-treatment) Duration of study: NR | Depression (ADS)G-QOL (SCL-90R)TS-QOL (TDI, TQ\*, TC cope subscales)Loudness (Diary) | TSQOL: WLC group (*F*(1,34)=6.79, p <0.01) on the TEI; TQ=NSThere is no significant superiority of TCT relative to the combined MC treatments in subjective change.Concluded that the CBT outpatient group training of tinnitus shows good efficacy in reducing the negative impact of tinnitus on the person’s life by improving coping and reducing the threatening character of tinnitus.Adverse Events: NR |
| Malouff,952010Australia | Baseline sample: Total n = 162 Interven n = 84; Cntrl n = 78Setting: Internet online participationMean age (SD): Interven 1: 57.3y (13.7); Cntrl: 57.8y (13.3)Gender: Interven: 51% male; Cntrl: 60.3% male Presumed etiology of tinnitus: IdiopathicDuration of tinnitus: NRSeverity of tinnitus: NRNumber of dropouts n = 35; Interven: n = 29 (35%); Cntrl n = 8 (10%)Reasons for dropouts: NRAudiological factors: NRComorbidities: NR | Participants received a book based on cognitive-behavioral principles, including educational information on tinnitus, cognitive reappraisal and restructuring, relaxation and stress management techniques, attention Cntrl techniques, use of self-instruction, making lifestyle changes, and maintaining gains. A brief letter asking participants to read the book and to follow the suggestions it contained in the subsequent 6 weeks. Comparator: WLCDuration of Treatment: 2 monthsNumber of followups: 2m, 4m, 12mDuration of study: NR | G-QOL (GPQ-12)TS-QOL (TRQ) | Individuals in the Interven condition who completed the post-assessment experienced a significant reduction in tinnitus distress from pre-Interven to post-Interven (p =.0001].The between-groups difference in the rates of reliable change, although in the hypothesized direction, was not statistically significant (p =.15).Intention-to-treat analyses showed no significant effect for between-groups analyses, but did show a significant effect for the 1-year follow-up pre–post analysis.Adverse Events: None |
| Rief,1042005Germany | Baseline sample: Total n= 42Interven n = 22; Cntrl n = 20Setting: University psychotherapy outpatient clinicMean age (SD):Interven: 45.5y (12.8); Cntrl: 48.0y (15.3)Gender: Interven: 59.1% male; Cntrl: 40.0% malePresumed etiology of tinnitus: NRDuration of tinnitus: Interven: 4.5 y (5.3); Cntrl: 8.3 y (7.7)Severity of tinnitus: (VAS out of 10) Interven: 6.5 (1.7); Cntrl: 5.9 (1.6)Number of dropouts: 1Interven n = 0; Cntrl n = 1Reasons for dropouts: discontinued IntervenAudiological factors: hearing problems (57%)Comorbidities: depressive disorder: 36.4% 1st Interven group; 35.0% wait list group | CBTTraining consisted of 1 pre-assessment session, 7 treatment sessions, and a final session summarizing Interven strategies and conducting post-assessment.Training was manual-guided, included handouts (basic information on ear and the hearing system; information processes involved in tinnitus; the vicious circle of tinnitus annoyance, muscular reactivity, and selective attention; and aspects of tinnitus maintenance, modulating factors,etc.).Comparator: Waiting-list Cntrl Setting: outpatient clinic Duration of Treatment: 8 weeksNumber of followups: 1 (6 months)Duration of study: October 2002 to November 2003 | TS-QOL(TQ)G-QOL (HRLS\*, GSI, SCL-90R)Loudness (diary) | On most tinnitus specific variables, patients in the treatment group improved significantly more than patients on the Wait List Cntrl. Main effect sizes for tinnitus-specific variables were up to 0.89.Adverse events: Participants did not report any adverse events |
| Scott,7 1985Sweden | Baseline sample: Total n=24; Interven=12; Cntrl=12Setting: Department of Audiology, Hospital Mean age: 52.6Interven: 50.9 y; Cntrl: 54.3 yGender: Total: 43.4% maleInterven: 41.6% male; Cntrl: 45.5% malePresumed etiology of tinnitus: IdiopathicDuration of tinnitus: mean 9.4y (1-23 years)Severity of tinnitus: grade 2 or 3 (Klockhoff & Lindblom)Number of dropouts: 2 Cntrl group, womenReasons for dropouts: NR Audiological factors: All had some form of hearing impairmentComorbidities: no retrocochlear lesions suspected | Relaxation Therapy vs wait listThe treatment comprised 10 one-hour sessions over 3 weeks: relaxation training, training of self-control by distraction exercises with the aim of reducing the discomfort from tinnitus, and application of the method in situations associated with tinnitus. Comparator: WLCDuration of treatment; 10 to 11 weeksNumber of follow ups: 1Duration of study: NR | Depression (Self-report R) TS-QOL (Self-report D) Loudness (Self-report D) | TS-QOL: A significant effect on both direct (group x time interaction: *F*(1,21)=6.01, p <0.05) and retrospective measures (group x time interaction: *F*(1,21)=7.92, p <0.01) Adverse Events: 8 (38%) reported an increase of negative effects of the intensive self-monitoring on the loudness of and discomfort from their tinnitus.14/15 patients reported a general reduction of dizziness, headache and troublesome muscle tension. |
| Weise,14 2008Germany | Baseline sample: Total n = 111Setting: Outpatient treatment center for psychological IntervensMean age (SD):  Interven: 49.5 y (11.83);  Cntrl: 52.9 y (11.92)Gender:  Interven: 55.8% male  Cntrl: 55.9% malePresumed etiology: IdiopathicDuration of tinnitus: >6 monthsSeverity of tinnitus: High tinnitus annoyance Number of dropouts: Interven n = 15; Cntrl n= 20Reasons for dropouts:Interven: incomplete (4), discontinued Interven (7), refused follow-up assessment (4); Cntrl=1 incomplete (1), discontinued waiting period (7), discontinued Interven (7), refused follow-up assessment (5)Comorbidities: Depression  | Biofeedback-based CBTInterven: 12 sessions of 20 mins. of biofeedback training combined with 20 mins of CBT. Treatment over 3 months. Comparator: Waitlist group measured at initiation, 3 months later, then had the Interven and measured again after Interven (6 months).Duration of treatment: 3 monthsNumber of follow ups: 1 (6 months)Duration of study: 9 months | Loudness (VAS)Sleep (VAS\*, TQ-sub)G-QOL (GSI SCL-90-R)Depression (BDI)TS-QOL (TQ\*, VAS, TRSS catastrophizing, TRCS helplessness) | For the TQ and the tinnitus diary, the MANOVA showed a statistically significant group effect, *F*(13, 97) = 2.84, *p* <.01; a significant time effect, *F*(13, 97) = 14.75, *p* <.001; and a significant interaction for Time x Group, *F*(13, 97) = 5.16, *p* <.001 for the completer analysis.Improvements were maintained over a 6-month follow-up period in which medium-to-large effect sizes were observed. Adverse Events: Majority of the patients did not experience negative side effects caused by the treatment |
| Westin,112, 2011Sweden  | Baseline sample: n = 64Interven1 (ACT): n = 22; Cntrl (WLC): n = 22; Interven2 (TRT): n = 20Setting: Audiology departmentMean age (SD): Interven1: 53.5 years (12.84) Cntrl: 49.59 years (11.86)Interven2: 48.95 (14.3)Gender: 53.1% male Presumed etiology of tinnitus: IdiopathicDuration of tinnitus: Mean 8.3 y (SD 7.3)Severity of tinnitus: score ≥30 on THINumber of dropouts: 4Reasons for dropouts: NRAudiological factors: 12.8 dB hearing level (SD=7.1) for better earComorbidities: n=49: rheumatological conditions (n=35), cardiovascular conditions (n=10), respiratory conditions or allergy (n=10), mild to moderate depression (n=9), gastroenterological conditions (n=6), sleep problems (n=6), cancer (n=5), endocrinological conditions (n=6), skin disease (n=2). | CBTAcceptance and Commitment Therapy (ACT)ACT: max 10 weekly individual sessions of 60 minutesTRT: one 2.5 hr individual consultation session, 30 min follow-up session over telephone, wearable sound generators used min 8 hrs/day for 18 monthsWLC started CBT treatment after 10 weeks  Duration of treatment: 10 weeks to 18 months Number of follow ups: 3Duration of study: 18 months | Sleep (ISI)TS-QOL(THI)Anxiety (HADS-A)Depression (HADS-D)G-QOL (QOLI) | A comparison between the active treatments, including all assessment points, revealed significant differences in favor of ACT regarding tinnitus impact (Cohen’s d = 0.75) and problems with sleep. No significant main effects were found. On QOL, anxiety or depression no time, group or interaction effects were found..Adverse Events: None |
| Zachriat,1132004Germany | Baseline sample: Total n = 77TCT n = 27; HT n = 30EDU n = 20Setting: University Psychology departmentMean age (SD): TCT: 53.8y (11.8); HT: 51.6y (11.0);EDU: 56.1y(10.6)Gender: TCT: 59.3% male; HT: 66.7% male; EDU: 74.0% malePresumed etiology of tinnitus: idiopathic Duration of tinnitus: ≥3 months (range 4 to 324 m)Severity of tinnitus: TQ ≥ 25Number of dropouts: TCT n = 2; HCT n = 1; EDU n = 3Reasons for dropouts: NRAudiological factors: NRComorbidities: no treatable organic disease | HT: Habituation-based treatment, 5 sessions – counseling concentrating on education of factors having an impact on tinnitus and training in sound generator use for ≥6 hours per dayTCT: tinnitus coping training, 11 sessions, 90 to 120 minutes in groups of 6 to 8 – relaxation exercises, use of attention distraction strategies; coping techniquesEDU: (Cntrl): educational Interven, 1 session informing about physiology and psychology of tinnitusDuration of treatment: 15 weeksNumber of followups: 3 to 27 weeks, 53 weeks, 18 to 21 monthsDuration of study: NR | G-QOL (VEV)TS-QOL(TQ, TCQ, JQ, Diary)Loudness (Diary) | Findings reveal highly significant improvements in both tinnitus coping training and habituation-based treatment in comparison with the Cntrl group. While tinnitus coping training and habituation-based treatment do not differ significantly in reduction of tinnitus disability, improvement in general well-being and adaptive behavior is greater in tinnitus coping training than habituation-based treatment.Adverse events: NR |

\*Indicates the test used to measure outcomes which were selected to represent the domain in the forest plots (and subsequent SOE decisions)
**Abbreviations:** A/E = Adverse events; AMT = active motor threshold; Bef-Skala = Befindlichkeits-Skala; Bes-Liste = Beschwerden-Liste; CBT = cognitive behavioral treatment; Ctrl = Control; Dep-Skala = Depressivitäts-Skala; ENT = ear, nose and throat; grp = group; G-QOL = global quality of life; HADS = Hospital Anxiety and Depression Scale; interven = Intervention; month = month; ISI = Insomnia Severity Index; N/A = not applicable; NR = not reported; OSI-R = Occupational Stress Inventory- Revised; QOL = quality of life; RCT = randomized controlled trial; SD = standard deviation; TCT = Tinnitus Coping Therapy; THI = Tinnitus Handicap Inventory; TMJ = temporal mandibular joint; TRCS = Tinnitus-Related Control Scale; TRSS = Tinnitus-related Self-Statements Scale; TS = tinnitus specific; TSQ = Tinnitus Severity Questionnaire; VAS = visual analog scale; week = week; WLC = wait list Cntrl; yr = year