Eccleston C, Williams ACDC, Morley S. Psychological therapies for the management of chronic pain (excluding headache) in adults (Review). Cochrane Database of Systematic Reviews 2009; Issue 2. Art. No: CD007407.

Design: Meta-analysis of randomized clinical trials
Reviewed no change to conclusions October 2016 EW

PICOS:

- **Patient population**: Adults over 18 reporting pain of at least 3 months duration, not associated with malignant disease, excluding headache or migraine
- **Interventions**: Psychology interventions
- **Comparison interventions**: Placebo, other active treatment, treatment as usual, or waiting list control
- **Outcomes**: Pain, negative mood, and disability
- **Study types**: Randomized clinical trials based on an extant psychological model or framework, supervised by a health care professional qualified in psychology, having a psychological treatment with a definable psychotherapeutic content, with 10 or more participants in each treatment arm at the end of the treatment period

Search strategy and selection:

- Databases included MEDLINE, EMBASE, and Psychlit from inception through August 2008
- Cochrane Central Register of Controlled Trials (CENTRAL) was also searched
- A previous Cochrane Review had been published in 1999; the current search focused on the 10 years since that review
- At least 2 reviewers read all abstracts and were included on the basis of consensus
- A quality rating scale which was designed for psychological interventions for pain was used to assess the quality of treatment and the risk of bias in the included studies
- Studies which lacked definable psychotherapeutic content (e.g., education, instruction, or nonspecific support) were excluded; this judgment was difficult to apply and in some cases led to extended discussion between the three authors to reach a decision on inclusion
- 97 publications reported on 87 RCTs; after exclusion of studies which did not meet inclusion criteria or did not provide data in a form that allowed extraction for meta-analysis, 40 RCTs with 4781 participants were selected for inclusion, approximately half of them published after the Cochrane Review of 1999

Results:

- Two classes of psychological intervention were distinguished for purposes of the meta-analysis: Cognitive Behavioral Therapy (CBT) and Behavioral Therapy (BT)

- CBT involved treatments that include specific cognitive therapeutic content; BT includes purely behavioral technologies such as biofeedback
- Two classes of comparison were distinguished: Active Control (AC) and Treatment As Usual (TAU)
- AC involved treatment designed to change pain behavior such as physical therapy, education, or a medical regime, when patients randomized to AC all receive the same treatment
- TAU involves assignment to either a waiting list on which they are restricted from seeking other care, or to no other structured intervention, but are permitted to seek other care
- Two assessment time points were chosen: post-treatment (immediately following treatment), and follow-up (at least 6 months but not more than 12 months after the end of treatment)
- Therefore 8 contrasts were made for the two treatments (CBT or BT), the two control groups (AC or TAU), and the two time points (post-treatment and follow-up)
- Three outcomes were classified as pain, disability, and mood; therefore, 24 analyses were available, three for each contrast
- Effect sizes were summarized as standardized mean differences by extracting means, standard deviations, and sample sizes for post-treatment and follow-up; dichotomous outcomes (success/failure rates) were rarely reported and were not extracted for analysis [**Note**: standardized mean difference of 0.2 is generally considered a small effect, 0.5 a moderate effect, and 0.8 or greater a large effect]
- Overall, the evidence of effectiveness of CBT and BT was considered weak; for BT, there were too few trials to support any conclusions of its effect vs. active control
- CBT was compared with AC both for post-treatment and follow-up; no significant differences were obtained for pain; small but statistically significant effects were obtained for disability (standardized mean difference=0.16 for post-treatment and 0.21 for follow-up); for mood a small effect was obtained for follow-up (standardized mean difference=0.16)
- CBT was compared with TAU for the same outcomes as for AC; for pain, a small but statistically significant effect was seen post-treatment (standardized mean difference=0.19), and for follow-up, the effect was not significant
- CBT did not have a significant effect compared with TAU for disability, either post-treatment or at follow-up
- BT was compared with AC on the same outcome measures that were used for CBT; no significant differences were seen
- BT was compared with TAU on the same outcome measures; BT had a moderate effect on pain post-treatment (standardized mean difference=0.55); none of the other outcome comparisons were significant

Authors' conclusions:

- The evidence of effectiveness of CBT and BT is weak; most effect sizes are either statistically non-significant or small

- Behavioral change is complex, and most chronic pain patients have established patterns over a long period of time
- Good clinical outcomes cannot be expected from brief and dilute treatments delivered by inexperienced staff to severely distressed patients
- The design of adequate control groups remains problematic in this field; an ideal control is structurally equivalent to active treatment, and without such placebo controls the specific effects of treatment cannot be determined
- Trials may have been overly optimistic when statistical, rather than clinical significance was reported, but there is overall promise that CBT can effectively treat chronic pain in adults

Comments:

- The authors identify some of the key difficulties in the field; the phenomenon under investigation (human behavior) is more complex than trial methodology is equipped to deal with
- It appears that trials of CBT and BT have used outcome measures such as mean pain scores for the entire comparison groups; the proportions of patients with success (e.g., 50% improvement, or global impressions of change) have not been reported; the field may be lagging behind current preferences for reporting the outcomes of pain interventions
- Although there were a fairly large number of studies included for the meta-analyses, there is no mention of whether publication bias was considered or looked for
- As the authors mention, the treatment as usual or waiting list groups may have had some kinds of active interventions, making the problematic the distinctions between TAU and AC, which were used to form the comparisons
- Some of the results may be the result of artifact or inconsistencies in reporting rather than due to some scientific principle: for example, CBT had no effect on mood post-treatment, but did have a small effect at later follow-up; any explanation of this phenomenon in terms of a delayed psychological effect may be contrived
- Although the pooled effect sizes were mostly clinically small, even when statistically significant, the pooling of highly diverse CBT interventions (e.g., Buhrman 2004 studied an Internet-based self-help intervention and Carson 2005 a “loving-kindness meditation”) may produce a scientifically muddled analysis, and statistical tests of heterogeneity are not relevant to this issue
- The pain outcomes were derived from post-treatment and follow-up pain scores, rather than in terms of change from baseline, which is the usual way to judge the effectiveness of a pain intervention; this is not likely to introduce much bias, but is a limitation of the analysis

Assessment: Adequate for good evidence that CBT may reduce pain and disability in patients with chronic pain, but that the magnitude of the benefit is uncertain