Medicine by the Numbers

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Remote Delivery of Psychological Therapies May Improve Chronic Pain

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Details for This Review

Study Population: Adults 18 years and older with chronic pain (e.g., musculoskeletal, neuropathic) from nine countries, including six studies from the United States; patients with cancer, headaches, or migraines were excluded

Efficacy End Points: Pain intensity, functional disability, quality of life

Harm End Points: Adverse events

Narrative: Chronic pain, with or without tissue damage, is an unpleasant sensory and emotional experience that lasts for more than three months. It disrupts an individual's ability to engage in their everyday life, occupation, and social relationships, with a resultant reduction in overall quality of life.[1] The estimated prevalence of chronic pain in the United States is 18% to 35%, and it increases with age.[2,3] Psychological therapies are a key component of chronic pain treatment; however, there are multiple barriers to receiving face-to-face psychological therapies, including geographic restrictions, scarcity of resources, and cost. Remotely delivered psychological therapies (i.e., internet or smartphone apps based on psychological theory or with recognizable psychotherapeutic content) may increase patient access, reduce costs, and improve patient outcomes.[4,5]

A 2023 Cochrane review evaluated the effectiveness of technology-based delivery of psychological therapies compared with usual treatment (i.e., the standard support typically available) or active control (e.g., education, online discussion boards) for the management of chronic pain in adults.[6] The review included 32 randomized controlled trials (nine countries, including six studies in the United States) with 4,924 adult participants (average age of 48 years). Primary outcomes were pain intensity, functional disability, quality of life, and adverse events. The review included 25 studies of technology-based cognitive behavior therapy (CBT) and seven studies of technology-based acceptance and commitment therapy delivered by a clinically trained psychologist.[6] Mindfulness-based and relaxation-based interventions were not included. Studies involving more than 30% direct contact time with a clinician were also excluded.

THE NUMBERS

Benefits

1 in 8 had at least 30% improvement in pain intensity immediately after cognitive behavior therapy

1 in 35 had at least 50% improvement in pain intensity immediately after cognitive behavior therapy

Harms

Conclusions about potential harms could not be reliably drawn

Moderate-certainty evidence in the Cochrane review showed that participants receiving remote CBT were more likely to have reduced pain intensity immediately after treatment compared with treatment as usual (standardized mean difference = −0.28; 95% CI, −0.39 to −0.16) or active control (standardized mean difference = −0.28; 95% CI, −0.52 to −0.04). Moderate-certainty evidence demonstrated that participants receiving CBT were more likely to achieve a 30% improvement in pain intensity immediately after treatment compared with treatment as usual (risk ratio [RR] = 2.15; 95% CI, 1.62 to 2.85; absolute risk difference = 13%; number needed to treat = 8). Low-certainty evidence showed that patients receiving CBT may be more likely to achieve a 50% improvement in pain intensity immediately after treatment compared with usual treatment (RR = 2.31; 95% CI, 1.14 to 4.66; absolute risk difference = 3%; number needed to treat = 35).

The review reported with low-certainty evidence that CBT may demonstrate a small beneficial improvement in functional disability compared with treatment

The NNT Group Rating System

Green	Benefits greater than harms
Yellow	Unclear benefits
Red	No benefits
Black	Harms greater than benefits

as usual (standardized mean difference = −0.38; 95% CI, −0.53 to −0.22) immediately after treatment. No significant improvement in functional disability was seen when comparing CBT with active control immediately; significant improvement in functional disability was also not seen at follow-up when comparing CBT with treatment as usual.

Although based on low-certainty evidence, including only one small study of patients with fibromyalgia, immediately after treatment more patients in the CBT group experienced adverse events (e.g., increased pain) compared with those receiving treatment as usual (RR = 6.00; 95% CI, 2.2 to 16.40; absolute risk difference = 28.6%; number needed to harm = 3).

The review found no significant difference in quality of life between CBT and treatment as usual or active controls. There was limited research and uncertain evidence regarding technology-based acceptance and commitment therapy for treatment of chronic pain. There were also little or uncertain data regarding technology-based CBT for treatment of chronic pain.

Caveats: Because of the limited numbers of studies including other remote treatments, only results for online delivery of CBT were presented, although these interventions were not standardized. Other mind-body interventions such as mindfulness-based interventions and relaxation techniques, which have evidence to support improvement in chronic pain, were not included. Further, the authors excluded studies in which controls used standard, in-person psychological therapies.

The overall quality of evidence was considered low given risk of bias, lack of blinding, and overall confounders. Confounders included heterogenous types of chronic pain, including chronic back pain, fibromyalgia, hip osteoarthritis, knee arthritis, rheumatoid arthritis, spinal cord injury, and vestibulodynia. Treatment as usual may have additionally included elements of active treatment such as psychotherapy, physiotherapy, pharmacotherapy, and patient education. The evidence was too uncertain for conclusions on functional disability, quality of life, or adverse events.

Conclusions: We chose a color recommendation of yellow (more data are needed) for this intervention in treating chronic pain. Effectiveness and harm outcomes data were insufficient to extrapolate and apply broadly, given the heterogeneity and confounders in the included studies with uncertain evidence. Additional research studies focused on remote delivery of psychotherapy will be helpful to further assess treatment of chronic pain.

This series is coordinated by Christopher W. Bunt, MD, *AFP* assistant medical editor, and the NNT Group.

A collection of Medicine by the Numbers published in *AFP* is available at https://www.aafp.org/afp/mbtn.

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