

# **Insomnia and Chronic Pain: Insights into Disease Severity and Pharmacological Treatments**

Aubrey Husak, Dr. Matthew Bair  
Indiana University School of Medicine

**Background and Hypothesis:** Sleep disturbances and chronic pain commonly occur together with an estimated prevalence of 40%-80% within the chronic pain population. Furthermore, these conditions appear to have a bi-directional relationship with compounding influence on progression and severity. The goal of this review is to answer 3 questions: 1) How does chronic pain severity and long-term pain duration change for patients with both chronic pain and sleep disturbances?, 2) What are common comorbidities seen in patients with chronic pain and sleep disturbances?, and 3) What are potentially effective pharmacological and non-pharmacological treatment options for both chronic pain and sleep disturbances?.

**Methods:** Ovid Medline and Pubmed were searched using the terms: sleep wake disorder, chronic pain, complex regional pain syndromes, fibromyalgia, treatment outcome, psychotherapy, complementary therapies, and therapeutics. Titles and abstracts were screened. Cohort, case-control, and cross-sectional studies, which assessed the difference in outcomes between individuals with chronic pain and those with comorbid chronic pain and sleep disturbances, were included. Randomized controlled trials were used to assess potentially effective treatment options for both insomnia and chronic pain.

**Results:** 16 studies were identified for the first question. These studies indicated that patients with both chronic pain and sleep disturbances are more likely to have greater pain severity, longer lasting pain, greater disability, and were less physically active than those without comorbid sleep disturbances. Additionally, 12 studies showed patients with chronic pain and sleep disturbances are more likely to have concurrent depression, catastrophizing, fatigue, anxiety, and suicidal ideation. Forty-three randomized controlled trials were identified that assessed treatment for both chronic pain and sleep disturbances. Pregabalin was the most frequently studied pharmacological treatment option and showed improvement in both pain and sleep. Cognitive behavioral therapy for insomnia showed long-term improvement in sleep for patients with chronic pain.

**Conclusion:** The results of these studies show the need for concurrent treatment for both sleep disturbances and chronic pain. Individuals with comorbid sleep disturbances and chronic pain have greater symptom severity, longer duration of symptoms, more disability, and additional comorbidities. Treatment may help to decrease symptom severity, duration, disability, and address comorbidities associated with chronic pain. Additionally, both pharmacologic and non-pharmacologic treatment options may be useful in the treatment of concurrent sleep disturbances and chronic pain.