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A Review of Effective Treatments for Patients With Co-Occurring Chronic Pain and Opioid Addiction

Connor C. Tripp, Eniko Rak, and Eileen Burker

Tripp, Connor C., is a graduate student in the Division of Clinical Rehabilitation and Mental Health Counseling at the University of North Carolina at Chapel Hill. She earned a bachelor's degree in psychology with a minor in alcohol and drug rehabilitation studies from East Carolina University.

Rak, Eniko, is a professor in the Division of Clinical Rehabilitation and Mental Health Counseling at the University of North Carolina at Chapel Hill. Her expertise is in health literacy in relation to quality of life outcomes in mental health and employment in individuals with chronic illnesses and disabilities.

Burker, Eileen, is the director of the Division of Clinical Rehabilitation and Mental Health Counseling at the University of North Carolina at Chapel Hill. She is a clinical psychologist with experience in pain management. She is currently a clinical psychologist on UNC Hospital's Heart and Lung Transplant Teams.

Abstract

Chronic pain is a highly prevalent condition in adults in the United States, commonly treated with pain relief medication. Long-term use of opioid treatment increases the risk of opioid use disorder. Integrative health treatments, which include cognitive behavioral therapy and mindfulness-based therapies, have the potential to lower the intensity of chronic pain in these patients. Replacing medication with these two therapies or combining these therapies with opioid substitution therapies, such as buprenorphine, could provide a more effective approach and can prevent opioid use disorders. This paper will review literature examining the efficacy of these two therapies, with or without opioid substitution, in treating co-occurring chronic pain and opioid addiction.

Keywords: chronic pain, cognitive behavior therapy, mindfulness treatments, opioid addiction, opioid use disorder, opioid substitution, buprenorphine

Chronic pain is a growing public health concern affecting 30% of the adult population in the United States alone (Dansie & Turk, 2013). Chronic pain is defined as nonmalignant pain disorder lasting at least three months, and causing impairments to daily functioning (American Psychiatric Association, 2013). Common chronic pain diagnoses include fibromyalgia, chronic migraines, and chronic low back pain. The

experience of chronic pain is subjective and is shaped by various biomedical, psychosocial, and behavioral factors (Dansie & Turk, 2013). The most common treatment for chronic pain is long-term opioid therapy (Garland, Froeliger, Zeidan, Partin, & Howard, 2013). Prescription opioid misuse and addiction is now a rising concern, as opioid induced dopaminergic transmissions strongly reinforce the reward properties associated with opioids while diminishing sensitivity to natural rewards (Garland et al., 2013). Patients begin to catastrophize their pain symptoms, resulting in cravings and a loss of control (Garland et al., 2013).

Several emotional and behavioral risk factors were found to be associated with opioid use disorder in individuals experiencing chronic pain (Garland et al., 2013). Cognitive behavioral therapy (CBT) and mindfulness-based therapies have been shown to effectively treat chronic pain with and without opioid therapy (Okifuji & Turk, 2015). There is emerging empirical support for the use of CBT and mindfulness-based therapies to treat substance use disorders, such as opioid use disorder (Carroll & Onken, 2005). The authors of this paper aim to provide an in-depth examination of the literature to describe opioid use disorders associated with chronic pain, discuss the benefits of CBT and mindfulness-based therapies, and identify gaps to inform future research and clinical practice.

Chronic Pain and Opioids

History

During the late 20th century, physicians were hesitant to use opioid therapy due to fear that patients may develop pharmacological tolerance, or a progressive need for higher doses to achieve the same effect (Alam & Juurlink, 2016). During the 1980s and early 1990s, opioids were rarely used as treatment for chronic pain. Despite a lack of evidence supporting benefits of long-term opioid therapy, prescriptions flourished in the late 1990s (Alam & Juurlink, 2016). As physicians became comfortable prescribing opioids for acute pain in patients diagnosed with cancer, pharmaceutical manufacturers, with financial connections to many professional organizations, began advocating for use in non-cancer patients experiencing chronic pain (Alam & Juurlink, 2016).

The use of chronic opioid therapy has increased dramatically over the last three decades, following the acceptance of prescription opioids for nonmalignant pain (Merrill et al., 2012). A nationally representative survey indicated that rates of medical appointments resulting in opioid prescriptions increased from 8% in 1980 to 16% in 2000 (Caudill-Slosberg, Schwartz, & Woloshin, 2004). Consequently, complications related to prescription opioids also increased (Merrill et al., 2012). Currently, opioid misuse and addiction is a major public health concern. A recent report showed that of all patients being treated for chronic pain with long-term opioid therapy, 21–29% experience opioid misuse, and 8–12% experience addiction, with minimal treatment benefit (Alam & Juurlink, 2016). Misuse involves the development of contextual dependence, which is associated with craving and habitual opioid use (Garland et al., 2013). The term addiction means that the individual meets criteria outlined in the *Diagnostic and Statistical Manual for Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association, 2013) for a substance use disorder (Ballantyne & Mao, 2003). An estimated 60% of patients with nonmalignant pain are being prescribed opioids, and 20% of these patients are identified

as long-term users, using the drugs for several years (Gatchel, McGeary, McGeary, & Lippe, 2014). There is a growing need for research to further identify biobehavioral risk factors linking chronic pain with opioid use disorders (Garland et al., 2013).

Treatment Initiation

Opioid therapy starts with a short-term treatment to eliminate acute pain, following a surgery, trauma, or an exacerbating health condition (Ballantyne & Mao, 2003). If pain persists, an assessment will determine if it is chronic. Ideally, addiction screening should take place before any opioid treatment occurs. Before initiating treatment, it is also suggested that physicians consider potential negative effects of prescription opioid therapy such as loss of libido, dependence, and a decreased likelihood of returning to work. Patients should also be made aware of the risks of opioid therapy. Patients start with low doses that are gradually increased until they reach effectiveness (Ballantyne & Mao, 2003).

Risks

Research has shown that with available interventions for chronic pain, only 30–40% of pain is relieved in half of the patients receiving treatment (Dansie & Turk, 2013). When given higher doses to reach better outcomes, patients are at risk for opioid misuse, overdose, overdose death, fractures (in elderly), opioid-related emergency room visits, and opioid use disorder (Merrill et al., 2012). This is especially true when chronic pain co-occurs with depression (Merrill et al., 2012). There is a growing body of research that shows a strong correlation between mental health, addiction, and higher doses of opioid prescriptions (Merrill et al., 2012).

Opioid use disorders are difficult to diagnose in patients with chronic pain who are being treated with long-term opioid therapy (Garland et al., 2013). Addiction criteria are not applicable to these patients. For example, these patients are unable to reduce or discontinue use because it is part of their treatment. They also spend a substantial amount of time using, obtaining, and thinking about their drugs (Garland et al., 2013). In response to these conflicts, the American Pain Society developed a new set of criteria for opioid use disorders for patients with chronic pain, which include impaired control over opioid use, continued use despite harm, compulsive opioid use, and cravings (Garland et al., 2013). These patients may also sell their medications or use oral formulas intravenously (Garland et al., 2013). It is common for patients to increase the amount of medication they take without direction from their provider. Patients often report unauthorized dose escalation as a means to compensate for initial under-treatment for their pain, which the American Pain Society considers a risk factor for developing an opioid use disorder (Garland et al., 2013).

Neurobiological evidence shows that long-term opioid use can actually exacerbate pain (Borsook & Kalso, 2013). A vicious cycle is initiated when changes to the brain caused by opioids interact with changes caused by chronic pain. Functional magnetic resonance imaging has been used to test the effects of opioids on the brains of healthy individuals (Garland et al., 2013). These deficits, combined with deficits caused by chronic pain, may result in a loss of cognitive control, which is needed to cope with even low intensity pain (Garland et al., 2013). This phenomenon can lead patients to become dependent on opioid medications (Garland et al., 2013).

Implications

Gradually, cues develop that trigger drug use, leading to misuse and abuse. The mere sight of the pill bottle or feelings of pain, regardless of severity, and even stress become associated with taking medication and trigger dopamine releases that cause patients to begin habitual use (Garland et al., 2013). This can cause dopamine systems to become less sensitive to natural rewards such as sex, social interaction, and food (Garland et al., 2013). As the dependence becomes more severe, a patient's threshold for pain and ability to experience pleasure from regular activities decreases (Garland et al., 2013). Eventually, patients become hypervigilant and anxiety about future pain can serve as a trigger to use prescription opioids (Garland et al., 2013). At this point, using opioids is no longer a conscious decision but a habit that causes patients to lose the ability to measure their actual pain levels (Garland et al., 2013).

There is potential for legal issues for patients with opioid use disorders. Many chronic pain patients believe that they are being undertreated. In order to get the medication, they resort to illegal acts. There are patients who face charges for theft and smuggling of opioids and prescription forging (Cepeda, Fife, Chow, Mastrogiovanni, & Henderson, 2013). Many are unaware their behaviors are illegal. Unlicensed Internet pharmacies make it easy for patients to obtain different medications. Doctor shopping, the act of obtaining the same prescription from different physicians (Cepeda et al., 2013), is also common in this population. By using different pharmacies and paying with cash, patients are able to procure medications (Cepeda et al., 2013). A patient convicted of a crime related to drug-seeking behaviors can face very serious criminal charges (Cepeda et al., 2013).

Many patients feel shame regarding their use of opioids because of the stigma that comes with opioid use disorders. Therefore, they are reluctant to seek treatment or disclose the extent of their use. Side effects of prescription opioids can cause a lot of physical and emotional distress, especially when occurring with a chronic pain condition (Garland et al., 2013). However, addiction is a serious problem because patients are unable to control the use of opioid medications. Despite continued social, health, and legal issues, individuals struggle and develop severe conditions necessitating therapy (Garland et al., 2013). Treatments that reduce or eliminate risk of chemical addictions must be considered and used.

The Manifestation and Complexity of Chronic Pain

Chronic pain is a rising public health concern, currently affecting 20–30% of the population in Western countries (Dansie & Turk, 2013), costing the United States an estimated 550 to 625 billion dollars per year (Dansie & Turk, 2013). This condition is very expensive for society, the individual, and their significant others. Individuals with chronic pain often experience lost productivity at work, fees for legal services, and high treatment expenses (Dansie & Turk, 2013).

The experience of chronic pain is subjective. Individual differences make chronic pain conditions hard to describe and treat (Fillingim et al., 2014). When assessing for chronic pain conditions, clinicians are expected to take a multi-axial approach (Dansie & Turk, 2013).

Multiple factors elicit pain sensation beyond tissue and structural damage such as emotional, environmental, and social factors (Beck & Clapp, 2011). Chronic pain disorders have been consistently predicted by premorbid psychosocial functioning often associated with altered neurosensory processing (Filligim et al., 2014). Changes to the central nervous system can affect several brain systems that control reward, aversion, and behavioral reinforcement. This is thought to affect the emotional aspects of pain (Borsook & Kalso, 2013). Anxiety, depression, and addiction are common comorbid conditions with many chronic pain disorders (Borsook & Kalso, 2013). There is also evidence of a connection between chronic pain and psychological trauma (Beck & Clapp, 2011).

Emotional states, such as anxiety, anger, and depression, are believed to affect the perception and understanding of pain symptoms (Dansie & Turk, 2013). Individuals with chronic pain disorders and comorbid anxiety often believe that pain is a warning sign for danger, which can exacerbate symptoms (Borsook & Kalso, 2013). Depression very commonly coincides with chronic pain disorders. Depression can be both a cause and consequence of chronic pain. This is due to significant alterations in regions of the central nervous system associated with emotional experiences (Borsook & Kalso, 2013). Both depression and chronic pain are known to cause loss of interest and reduced participation in activities, fatigue, weight gain or loss, decreased libido, appetite changes, and sleep disturbances (Dansie & Turk, 2013). These are also well-known side effects of medications used to treat chronic pain, such as opioids (Dansie & Turk, 2013). There are significant emotional and physiological changes associated with chronic pain that are highly responsive to CBT and mindfulness approaches.

Cognitive Behavioral Therapy

Cognitive Behavioral Therapy for Chronic Pain

Over the past few decades, research started exploring alternative treatments for chronic pain (Burns et al., 2015). CBT has received significant attention (Burns et al., 2015). CBT incorporates cognitive and behavioral modalities to address maladaptive coping mechanisms in patients with chronic pain (Okifuji & Turk, 2015). The goal of CBT is to promote the use of self-control and self-management strategies to modify destructive cognitions and behaviors (Burns et al., 2015). When patients feel a sense of control over their pain, activity in regions of the brain responsible for attention to pain and emotional responses to pain is decreased (Okifuji & Turk, 2015). CBT leads to a modification of the cognitive-affective appraisal of pain (Okifuji & Turk, 2015). When patients gained feelings of self-efficacy, they believed they were capable of improving their conditions. These patients reported a reduction in pain intensity.

CBT for chronic pain includes patient education, self-management training, and cognitive and behavioral skills training (Davis, Zautra, Wolf, Tennen, & Yeung, 2015). In patient education, clinicians help patients understand their pain and stress response system. Patients are taught to recognize triggers to pain and distress (Okifuji & Turk, 2015). Patients learn coping, problem solving, and communication skills (Okifuji & Turk, 2015). The goal is to teach patients to deal with environmental and social stressors that may trigger or aggravate the pain experience (Okifuji & Turk, 2015).

One very important factor in CBT is teaching patients to transfer skills acquired in therapy to everyday life. Applying the skills they have learned in a clinical setting to a home or work setting can be challenging. Clinicians encourage their patients to use their skills at home and record their experiences (Okifuji & Turk, 2015). This helps clinicians and patients understand how different social and environmental factors influence their patients' symptoms of pain and emotion so that they can better address symptoms (Okifuji & Turk, 2015). When patients gain an understanding of their symptoms and are able to apply the skills they have learned in therapy, they gain a sense of self-efficacy and improved self-management skills (Burns et al., 2015).

Researchers examined the effects of CBT for patients experiencing chronic back pain (Ehde, Dillworth, & Turner, 2014). In this population, CBT showed positive effects in treating pain, reducing the number of activities avoided in anticipation of pain and improving quality of life. Studies examining behavioral treatments for chronic headaches showed 30–60% reduction in headache episodes (Ehde et al., 2014). A recent study done on an outpatient pain treatment program that paired CBT with exercise, showed an increase in patients' self-efficacy for managing pain, a decrease in pain and pain-related distress, a decrease in depression and fear-avoidance behaviors, and an increase in functional ability (Ehde et al., 2014).

Cognitive Behavioral Therapy for Opioid Use Disorder

CBT for substance use disorders are based on social learning theories and principles of operant conditioning (Carroll & Onken, 2005). Substance abuse therapies focus on understanding drug use in the context of antecedents and consequences of abuse incidents. CBT provides skills training in which individuals learn to recognize situations or emotional states in which they feel most vulnerable. They learn skills to avoid these feelings and situations. For situations or feelings that are unavoidable, CBT teaches a range of behavioral and cognitive strategies to improve coping skills (Carroll & Onken, 2005).

CBT uses learning-based approaches to target maladaptive behaviors as well as motivational and cognitive barriers to change (McHugh, Hearon, & Otto, 2010). Substances are powerful reinforcers of behavior. CBT reduces the effects of the reinforcers by building skills to facilitate abstinence. CBT aims to illustrate situations in which nondrug activities can be rewarded. Although there is no specific protocol for CBT, structure is very important in treating substance use disorders (McHugh et al., 2010). Skills training, rehearsal, and functional analyses help clinicians determine which behaviors need to be targeted and what skills are most helpful.

Skills training targets competencies such as interpersonal skills, emotion regulation, and problem solving (McHugh et al., 2010). Interpersonal skills training is important because it helps clients repair damaged relationships and increase their ability to use social supports and communicate effectively. Emotion regulation skills training helps clients work on distress tolerance and coping (McHugh et al., 2010). Problem-solving exercises also help with emotion regulation. Problem-solving exercises teach clients to use social supports and engage in pleasurable activities, such as exercise, to cope with stress. In goal setting, counselors help clients set treatment goals as well as long-term goals. Delaying long-term goals in order to gain short-term pleasures is very common in individuals with substance use disorders (McHugh et al., 2010). Long term

goal setting in therapy can be very beneficial to clients who are trying to learn to live sober lives.

There is emerging empirical support for the use of CBT in treating substance use disorders, including opiate use disorder. The effects of CBT have proven to be durable in studies with a 6-month follow up (Carroll & Onken, 2005). Clients who receive CBT further continue to improve after treatment (Carroll & Onken, 2005). When compared to other treatments, such as contingency management, CBT is the only treatment that shows potential for improvement after treatment (Carroll & Onken, 2005).

Mindfulness-Based Therapy

Mindfulness-Based Therapy for Chronic Pain

Mindfulness-based therapies aim to gain awareness of one's bodily functions, sensations, feelings, thoughts, perceptions, and surroundings (Lee, Crawford, & Hickey, 2014). The goal of mindfulness is to better understand and direct one's own feelings and thoughts (Lee et al., 2014). Patients are expected to strengthen attentional control and improve emotional regulation (Davis et al., 2015). In patients who are experiencing chronic pain, mindfulness will help patients notice and recognize cues to regulate their responses to pain and stress (Davis et al., 2015).

Catastrophizing is one of the symptoms of chronic pain that mindfulness-based therapies can reduce (Kaiser, Mooreville, & Kannan, 2015). Patients learn to adopt a nonjudgmental mindset, allowing them to decrease negative emotional reactivity (Davis et al., 2015). After learning to control their appraisals of pain sensations, patients often experience a reduction in the severity of their pain (Davis et al., 2015). Patients also report a decrease in feelings of fatigue and anxiety (Kaiser et al., 2015).

There are different mindfulness-based therapies. The most effective for chronic pain is mindfulness-based stress reduction, and it has been shown to be effective in reducing anxiety, improving psychological well-being, gaining feelings of control over pain, and creating a higher acceptance of pain (Kaiser et al., 2015).

Mindfulness-Based Therapy for Opioid Use Disorder

Mindfulness-based therapies promote the awareness of triggers, as well as cognitive and affective processes, in order to increase a client's ability to tolerate challenging cognitive, affective, and physical experiences (Witkiewitz, Lustyk, & Bowen, 2013). Mindfulness promotes the adaptation of a nonjudgmental attitude toward distressing phenomena, adaptive changes in one's thought patterns, and changes in attitudes about one's thoughts (Chiesa & Serretti, 2014). These changes help clients enhance their ability to accept distress in present experiences, which can help reduce substance use behavior as a means to suppress and reduce negative emotional responses (Chiesa & Serretti, 2014). Clinicians teach clients to let themselves experience events and feelings rather than trying to escape them. Mindfulness-based therapies are unlike CBT because rather than teaching clients to avoid stimuli, these therapies help clients become aware of their own habits, unconscious emotional states, and bodily sensations that can lead them to use or relapse (Chiesa & Serretti, 2014).

Recent findings show that mindfulness-based therapies may lead to changes in brain regions responsible for attentional focus on distress (Chiesa & Serretti, 2014).

Mindfulness promotes a shift in the processing of events by past associations to a more present-moment awareness and experiential processing (Witkiewitz et al., 2013). Connectivity between certain regions of the brain, enhanced by mindfulness interventions, can help clients filter information and stop inappropriate emotional and behavioral responses (Witkiewitz et al., 2013). This is thought to help reduce impulsive behaviors associated with opioid use disorders. Even brief mindfulness interventions have been shown to increase a client's ability to inhibit their own reactivity when faced with craving-related stimuli (Chiesa & Serretti, 2014). Mindfulness is very effective in aftercare programs following residential or intensive treatment for opioid use disorder (Witkiewitz et al., 2013).

The purpose of this research was to examine the literature on the combined benefits of two treatments for individuals with chronic pain and co-occurring opioid use disorder. The following research questions were answered:

1. What are the pain management and addiction treatment outcomes when combining mindfulness-based treatments and CBT for individuals with a dual diagnosis of chronic pain and opioid addiction?
 - a. Can mindfulness and CBT together treat chronic pain without any medication?
 - b. What are the treatment benefits of combining mindfulness and CBT with opioid substitution therapy (e.g. buprenorphine) to treat co-occurring chronic pain and opioid use disorder?
2. What are the implications of these findings for rehabilitation counselors and mental health counselors?

Current Treatments: Opioid Replacement Therapy

Currently, clinicians treating patients for co-occurring chronic pain and opioid use disorder typically use opioid replacement therapy, most commonly buprenorphine. There are numerous benefits associated with this treatment option, including implications for using opioid replacement therapy.

Typically, for patients identified as at-risk for misusing prescription opioids, a multimodal plan for frequent monitoring of prescribed opioids is used (Becker, Merlin, Manhapra, & Edens, 2016). Depending on which options seem most appropriate for each individual, this plan can include opioid adherence monitoring, development of an opioid adherence contract between the patient and the provider, compliance training, and cognitive behavioral substance misuse counseling (Garland et al., 2014). For patients who are identified as having an opioid use disorder, opioid replacement therapy and psychotherapeutic substance use treatment is recommended (Becker et al., 2016).

There have been multiple studies on ways to effectively implement opioid replacement therapy for the treatment of co-occurring chronic pain and opioid use disorder (Blondell et al., 2010; Neumann et al., 2013). At one point, it was considered standard care to discontinue the use of any opioids and provide patients with behavioral counseling as soon as they were identified as having an opioid use disorder (Blondell et al., 2010). The goal of this treatment was to address analgesic failure associated with long-term opioid use by strategic treatment interruption (Blondell et al., 2010). Patients

would then use non-opioid medications for pain relief and receive additional services such as physical therapy and behavioral counseling (Blondell et al., 2010). Opioid maintenance therapy was presented as an alternative to this method by replacing a short-acting opioid with a long-acting opioid, buprenorphine, to provide relief from pain and decrease the risk for medication misuse (Blondell et al., 2010). Considering its ability to decrease risk for respiratory depression and opioid misuse, with little to no effect on sex hormones or the immune system, buprenorphine is considered a safe alternative to short-acting opioids (Rosenblum et al., 2012).

Studies assessing whether buprenorphine should be given as a taper, with the ultimate goal of abstinence, or as a long-term maintenance treatment for co-occurring chronic pain and opioid use disorder have shown consistent results (Blondell et al., 2010; Weiss et al., 2011). The use of buprenorphine as a maintenance treatment for patients with co-occurring chronic pain and opioid use disorder elicits better outcomes than opioid discontinuation or use of buprenorphine as a quick taper. Studies also show that patients with chronic pain and opioid use disorders can be more successful and use less buprenorphine by split dosing or giving smaller doses multiple times a day rather than one big dose (Blondell et al., 2010). Therefore, it is recommended that patients being treated for pain and opioid use disorder maintain an extended buprenorphine regimen (Weiss et al., 2011). Buprenorphine treatment is more successful when given over a period of 12–24 weeks, reducing withdrawal symptoms experienced and allowing for a more gradual adjustment than rapid buprenorphine tapering (Weiss et al., 2011).

Buprenorphine maintenance treatment may be complimented by psychotherapeutic interventions to help clients gain a sense of control over pain and addiction symptoms, which may then allow for tapering off of buprenorphine. An integrative treatment approach incorporating mindfulness and CBT has the potential to enhance treatment outcomes for patients with chronic pain and opioid use disorder.

CBT and Mindfulness

As mentioned previously, cognitive behavioral interventions are needed to help patients improve pain tolerance and efficacy to manage opioid use and prevent addiction or relapse (Neumann et al., 2013). Early research studies conducted by the Veterans Administration have supported the combination of CBT and mindfulness treatments for people with co-occurring disorders such as substance use disorders with co-occurring chronic pain and Hepatitis C (Dahl, Wilson, & Nilsson, 2004; Ilgen et al., 2011). However, there are few behavioral interventions to date targeting co-occurring behavioral health conditions, such as substance use disorders, with chronic pain conditions (Barrett & Chang, 2016).

While research is limited, available literature does support the combination of mindfulness and CBT for co-occurring chronic pain and opioid use disorder, motivating efforts to develop a multimodal approach that integrates the two treatments (Garland et al., 2013). Mindfulness Oriented Recovery Enhancement (MORE) represents an effort in this direction (Garland et al., 2013). MORE, developed by Dr. Eric Garland, represents an integrative approach to treating co-occurring chronic pain and opioid misuse; combining techniques from mindfulness-based interventions, cognitive behavior therapy, and positive psychology (Garland et al., 2013). By teaching patients to interpret their

emotional experiences and cravings in a nonjudgmental manner, the mindfulness component aims to make pain more bearable and decrease emotional reactivity and catastrophizing. This will lead to an increase in acceptance, allowing patients to process craving and pain experiences without responding with an addictive behavior (Garland et al., 2013). Mindfulness training helps raise awareness, decrease attentional pain, and decrease substance-related attentional bias. Multiple principles and methods of positive psychology are also integrated into this approach (Garland et al., 2013). Specifically, patients are taught to savor pleasant experiences, thereby decreasing pain hypervigilance and the fear of pain (Garland et al., 2013). Cognitive behavioral techniques are used to challenge maladaptive thoughts that contribute to the exacerbation of pain experiences and addictive behaviors (Garland et al., 2013). This allows patients to enhance their ability to cope with pain and reduce substance misuse (Garland et al., 2013).

Clinical trials examining the efficacy of MORE in combination with maintenance medication for patients with co-occurring chronic pain and opioid use disorder have shown reductions in pain-related functional interference, attentional bias, cravings, and desire for opioid medications (Garland et al., 2014). These trials also showed increases in participants' perceived control over pain, with over half of participants no longer meeting criteria for an opioid use disorder (Garland et al., 2014).

Pain severity was also decreased in patients receiving MORE treatment, which is interesting considering that a large number of participants had conditions of organic etiology, such as arthritis and degenerative joint diseases (Garland et al., 2014). These results suggest MORE treats the psychological overlay of chronic pain conditions while also reducing the impact of chronic pain on a patient's functional capacity (Garland et al., 2014).

A recent literature review identifying behavioral interventions for the treatment of chronic pain with comorbid behavioral health conditions, such as depression and substance use disorders, found that MORE was the only intervention deemed effective for treating co-occurring chronic pain and substance use disorders (Barrett & Chang, 2016). MORE was the only behavioral intervention in which participants experienced reductions in pain severity (Barret & Chang, 2016). Another intervention reviewed was acceptance and commitment therapy, which also combines CBT and mindfulness, for treating co-occurring chronic pain and depression (Barrett & Chang, 2016). This intervention also showed positive results for reducing pain and behavioral health symptoms (Barrett & Chang, 2016). Mindfulness-based cognitive therapy has yielded positive results in decreasing pain intensity and increasing pain acceptance for individuals with chronic pain diagnoses; however, further research is needed to assess its effects on co-occurring behavioral health symptoms (Igna et al., 2014). Although there is little research to date, there is consensus that CBT and mindfulness-based interventions do show promise for treating chronic pain and comorbid behavioral health conditions (Barrett & Chang, 2016), and these claims should be further tested in research.

CBT and Mindfulness With Opioid Replacement Therapy

Increasing concern for rising prevalence of opioid misuse and opioid-related deaths of patients treated for chronic pain has highlighted the need for new behavioral interventions that can address both conditions. Current practices for treating clients who

are identified to be at risk for misusing medicines or developing substance use disorders include increasing opioid adherence monitoring, developing contracts between patients and clinicians for opioid adherence, attending substance use counseling, discontinuing opioid medications, or using opioid replacement medication such as buprenorphine (Garland et al., 2014; Neumann et al., 2013). However, researchers have stressed the importance of developing integrated treatment options. Although research on behavioral interventions for this population are limited, there is support for the integration of CBT and mindfulness-based interventions. The goal is to encourage nonjudgmental acceptance, restructure maladaptive and automatic thoughts, decrease attentional bias towards pain and substance cravings, increase healthy participation in activities, and implement coping strategies, such as relaxation exercises, to increase perceived control over pain experiences and substance use (Garland et al., 2014). MORE, a behavioral intervention designed to treat co-occurring chronic pain and opioid use disorder by combining CBT and mindfulness, has been effective in reducing pain and substance use symptoms when complemented by the opioid replacement therapy, buprenorphine (Garland et al., 2014). Research suggests integrated approaches similar to MORE will likely yield the best possible outcomes for patients experiencing co-occurring chronic pain and substance use disorders.

Discussion

The prevalence of co-occurring chronic pain and opioid use disorder is high in the United States, with major negative consequences for the individual and society (Dansie & Turk, 2013). Treatment for people with co-occurring chronic pain and opioid use disorder can be controversial. This paper highlighted evidence in favor of an integrative treatment model, considering the biopsychosocial aspects of these conditions, combining CBT and mindfulness techniques, with or without medication-assisted therapy, specifically buprenorphine.

Based on this review of the literature, patients experiencing co-occurring chronic pain and opioid use disorder should not discontinue medications. Research predicts better outcomes for patients using buprenorphine as an opioid maintenance therapy rather than using buprenorphine on a taper with the end goal of abstinence or discontinuing medication altogether (Weiss et al., 2011). A multimodal approach, such as MORE, has been shown to decrease functional impairments caused by both chronic pain and opioid use disorders (Garland et al., 2014). Patients with a variety of chronic pain diagnoses experienced decreases in pain severity, decreases in opioid cravings, and increases in perceived control over pain and opioid use after being treated with MORE and maintenance medications (Garland et al., 2014).

Rehabilitation counselors and mental health counselors providing services to clients with co-occurring chronic pain conditions and opioid use disorders can connect clients with physicians providing buprenorphine maintenance treatment. Cognitive behavioral techniques can be used with clients to address maladaptive thoughts that lead to pain catastrophizing and addictive behaviors (Garland et al., 2014). Implementing mindfulness techniques into treatment can help clients gain awareness of their emotional and physical experiences, and accept them in an open, nonjudgmental manner (Garland et al., 2014). Manualized treatments combining CBT and mindfulness techniques, such as

MORE, can be used by mental health counselors, rehabilitation counselors with a mental health caseload, rehabilitation counselors working in mental health counseling facilities, or rehabilitation counselors working in hospital settings serving this population. Rehabilitation counselors and mental health counselors implementing these treatments must acquire proper training in both CBT and mindfulness. Rehabilitation counselors and mental health counselors should also have knowledge of opioid replacement treatments and medication management associated with psychological treatments. According to this review of the literature, connecting with physicians who can provide necessary medications and clinicians who can provide a combination of cognitive behavioral and mindfulness-based techniques provides patients with an integrative treatment approach that will elicit the best outcomes for those experiencing co-occurring chronic pain and opioid use disorders.

Although research to date has supported the use of MORE as an intervention for co-occurring chronic pain and opioid use disorder, this intervention is still new and empirical studies supporting its benefits is limited. Future research is needed to further test the efficacy of this treatment and similar treatments for this population. Research should focus on long-term outcomes associated with integrated CBT and mindfulness treatment by conducting long-term follow-ups with participants who have completed treatment (Garland et al., 2014). Because it is such a major growing public health concern, research on treatments for co-occurring chronic pain and opioid use disorder should be prioritized to help providers effectively serve this population.

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