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Pain and Opioid Use: Evidence for Integrating Acupuncture Into Treatment Planning

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Abstract

The epidemics of pain and opioid use pose unique challenges. Comprehensive approaches are required to address minds, bodies and spirits of individuals who live with pain and/or opioid use. The lack of an effective "quick fix" for either condition necessitates developing effective, innovative and multi-disciplinary avenues for treatment. This analytic article reviews epidemiological and demographic factors associated with pain and with opioid use and additional challenges posed by the Covid-19 epidemic. Several large-scale studies and meta-analyses have examined the role of acupuncture as a nonpharmacological approach to pain management as well as a component of comprehensive strategies to address opioid use disorder. We review and describe these in the context of safety, effectiveness, access and cost-related factors. With one in four U.S. hospitals as well as 88% of Veterans Health Administration facilities incorporating acupuncture, the feasibility of mobilizing and scaling up these treatment resources is being developed and demonstrated. We also identify potential facilitators and barriers to implementing acupuncture treatment. As part of a multi-disciplinary approach to pain management and/or opioid use disorder, we suggest that integrating acupuncture into treatment protocols may represent a viable strategy that is based on and consistent with public health principles.

Keywords

acupuncture, public health, opioid, pain

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Introduction

Opioid usage and physical pain are two deeply intertwined epidemics connected through networks of both correlation and causation. There is no "one size fits all" approach or "magic bullet" cure to address either opioid use disorder (OUD) or chronic pain. The need for flexible and comprehensive programming remains high and is fundamental to offering meaningful, efficacious and sustainable treatment options. Both pain and OUD impact the bodies, minds and spirits of affected individuals. Inter-professional teams offering multi-faceted approaches to treatment are often optimal for being associated with long-term recovery and relief. Developing public health approaches and strategies that can effectively address these challenges has become increasingly imperative.

As part of a comprehensive approach to treatment of individuals diagnosed with OUD as well as to pain management, acupuncture has demonstrated some potential as a safe, effective and non-pharmacological component of care. Acupuncture has been incorporated into pain

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management services by many health care organizations, hospitals and the Veterans Health Administration (VA). This article will review the scientific literature to describe the usefulness of acupuncture for controlling chronic pain as well as examine salient public health parameters such as access, acceptability, and cost-related factors that may be operating as facilitators or barriers to acupuncture care.

This paper focuses on using the perspective of public health to evaluate the incorporation of acupuncture into treatment planning for individuals living with chronic pain and/or OUD. The hallmarks of public health practice we highlight include access to care that includes availability; acceptability to patients as well as to providers and their networks of payers; favorable economic costs to the public and to third party payers, and a strong base of scientific evidence. These public health parameters are critical to any health policy discussion as well as to the implementation process.

Chronic Pain

According to the 2019 National Health Information Survey (NHIS), one-fifth (20.4%) of those interviewed reported chronic pain.[1] Pain was more prevalent in women than in men (21.7% vs. 20.4%). It is prevalent in all ethnicities and showed increasing prevalence with age. It is more prevalent in rural areas of the U.S. (28.1%) than in urban metropolitan areas (16.4%). Chronic pain was also associated with higher costs in treatment, clinical burden, societal and social toll, opioid use and poor mental health. The economic impact of chronic pain has also been described for the individual as well as on the societal level.[2] Overall, chronic pain negatively affects quality of life and individuals' ability to participate in work and recreational activities. Although addressing chronic pain with opioid treatment may impart short-term reduction of depression or anxiety, there is little evidence for long-term benefits.[3] Moreover, the use of opioids for pain management during COVID-19 has become questionable because of the immunosuppressive effects and the reduction of natural killer cells which can set the stage for progression of infection.[4] Therefore, it is advisable to approach pain with an additional psychosocial perspective that emphasizes reinforcing social networks[5] and multi-disciplinary rehabilitation (MBR – signifying multidisciplinary biopsychosocial rehabilitation) strategies at an early stage.[6] The MBR approach refers to treatment models that incorporate aspects of physical, psychological and social dimensions; each of these domains is relevant in addressing the complex nature of pain. Clinicians and healthcare providers involved in MBR studies come from at least two different disciplines such as physical therapy, pharmacy, or pain management backgrounds. MBR was reported to be better than usual care or at least as effective as usual care as evaluated at follow up of 12 months post-treatment in chronic pain.

Opioid Use

The availability of both prescribed and illicit opioids has become a significant public health crisis throughout the U.S. Socioeconomic factors and disparities in treatment play fundamental roles in contributing to the opioid crisis. Lack of educational and job opportunities and systemic racism provide a malignant synergy that heightens the risk of opioid use and death by overdose.[7–9] Addressing OUD requires coordinated efforts of the health care sector, community leaders, researchers, and all parts of the public health system.

Additional burdens on individuals who are struggling with OUD have been imposed by the Covid-19 pandemic. Those in treatment have been challenged by the closure of clinics as well as the decreased access to emergency department facilities.[10] These factors have particularly impacted access to medication-assisted treatment. Requirements for physical distancing and sheltering in place increased the isolation experienced by those who are trying to recover from OUD. Social isolation, already a potent factor to individuals who are vulnerable and marginalized, further accentuates the stigma of OUD and therefore, there is an urgency on the part of the public health community to address the additional risks to morbidity and mortality posed by the ongoing Covid-19 pandemic.[11]

Potential Roles for Acupuncture

Acupuncture involves stimulating specific points on the body with hair-thin sterile needles. In a review of acupuncture research evidence, Moffet[12] describes neurochemical changes such as endorphin production and autonomic mechanisms that may in part explain the physiological underpinnings of acupuncture effects.

Vickers et al.[13] used data from meta-analyses of studies on aspects of acupuncture analgesia. They concluded that acupuncture can be an effective approach to pain control in cases of chronic musculoskeletal pain, headache and osteoarthritis. Furthermore, treatment effects persist over time. Similar evidence of its effectiveness in the treatment of low back pain and headache and migraine were also reported in Cochrane reviews, meta-analyses and systematic reviews.[14] The evidence for acupuncture was consistent and taken from good quality studies. Acupuncture treatment has also demonstrated some benefit in knee osteoarthritis and acute low back pain.

Acupuncture analgesia has also been studied in group settings for individuals with chronic pain.[15] In a non-randomized, repeated measures quasi-experimental trial, acupuncture treatment offered in the group setting was effective in reducing pain severity, pain interference, and depression in patients with chronic neck, back, or shoulder pain or osteoarthritis. Benefit persisted throughout the 24-week follow up period despite no additional treatment. Similar benefits were observed with acupuncture in a group treatment setting for individuals with painful diabetic neuropathy.[16] Reduction of pain and improved quality of life, as well as reduced need for pain medication and increased involvement in self-care were reported. The benefits of group delivery of acupuncture include increasing access for medically underserved populations.[17] Acupuncture treatment has not only demonstrated its effectiveness in managing chronic pain, but has also been shown to be strongly associated with safety and patient tolerance, with serious adverse effects occurring in approximately one in 10,000 acupuncture treatments.[18]

Cost Considerations

Economic considerations have been evaluated in a number of cost-effectiveness and cost-benefit studies. Willich et al.[19] studied the use of acupuncture for individuals with chronic neck pain. Using internationally-recognized cost-effectiveness threshold levels, they concluded that acupuncture is a cost-effective approach to managing chronic neck pain. Similar cost-effectiveness of acupuncture treatments for chronic non-specific back pain was also reported in a meta-analysis by Taylor et al.[20] The authors reported that not only was acupuncture a cost-effective approach to pain management, but that it also demonstrated cost-effectiveness in addressing depression associated with chronic pain.

Cost effectiveness of acupuncture as an adjuvant care was also demonstrated in a study examining treatment for women experiencing low back pain associated with pregnancy.[21] In this randomized controlled study, the average total costs in the group receiving standard treatment alone were higher than those for the group receiving standard care plus acupuncture indicating the benefits of adding acupuncture to standard care.

Addressing OUD

Acupuncture has been used in the United States for at least 50 years as part of comprehensive treatment approaches to address substance use disorder.[22] It may have a role as an adjuvant in treatment of individuals with OUD as well. Effects of acupuncture treatment on decreasing depression and anxiety related to OUD are being investigated.[23]

Baker and Chang[24] conducted a systematic review of studies examining the use of auricular acupuncture (*viz*. using points located on the outer part of the ear) to address OUD. The authors conclude that integrating acupuncture into comprehensive recovery services favorably impacted treatment retention and completion as well as exerting favorable influences on morbidity and mortality of individuals in recovery from OUD. Similar benefits of acupuncture in treating OUD were reported in another systematic review by Chen et al.[25] This review identified specific symptoms of OUD that were associated with favorable responses following acupuncture treatment. These included decreasing the severity of withdrawal symptoms, reducing opioid cravings, promoting sleep, and mitigating anxiety and depression. It is important to note that the Veterans Administration (VA) medical system and the U.S. military recently included acupuncture in pain management and substance use disorders. A white paper by Fan et al. describes the national experience and refers to integrating acupuncture treatment as a form of nonpharmacological pain management and as an evidence-based adjunct to treatment of substance use disorders. The paper also cites cost-effectiveness as an important reason to implement acupuncture into treatment protocols.[26]

Accessibility of Acupuncture Treatment

Despite the efficacy of acupuncture and its cost-effectiveness in managing chronic pain, accessibility and affordability have been significant barriers to treatment for many chronic pain patients. These factors have begun to change, however.

Private insurers have been increasingly involved in providing coverage for acupuncture to their subscribers as part of ongoing attempts to increase accessibility to acupuncture treatment. However, there is a high degree of variability in coverage and data concerning coverage are not readily available.[27] Although coverage varies widely, some policies will reimburse for acupuncture treatment in the case of pain, nausea, or migraine headache.[28] Some Health Savings Accounts (HSAs) may be used to pay for treatment. Group visits may also contribute to increasing access to reimbursement for care.[29]

The U.S. Centers for Medicare and Medicaid (CMS) have recently begun to include acupuncture treatment as part of their coverage plans. CMS expanded Medicare coverage in 2020 to include acupuncture treatment for low back pain.[30] Under this coverage, consumers may receive up to 20 acupuncture treatments annually. Some states provide coverage for pain management to patients receiving Medicaid.[31]

As of 2006, approximately one in four U.S. hospitals were offering integrative health programming that

included acupuncture.[32] Demand for acupuncture services in hospitals throughout the country has increased in the past two decades, particularly in the area of pain management. Between 2011 and 2018 the availability of acupuncture within the Veterans Health Administration (VA) increased from 42% to 88% of VA health care centers, demonstrating that these services can be integrated into already existing facilities and can be appropriately scaled up to treat VA patients throughout the country.[33]

Notwithstanding the efforts by the U.S. government and the third party payers, acupuncturists and acupuncture services are still not accessible to all in the U.S. In a survey to determine number and distribution of acupuncturists in the United States, Fan et al.[26] determined that there were 37,886 licensed acupuncturists actively in practice as of 2018. A majority of acupuncture providers were in California, New York, Florida, Colorado, Washington, Oregon, Texas, New Jersey, Maryland and Massachusetts leaving many other states with very few acupuncturists.

Summary and Conclusion

The concurrent epidemics of pain and OUD each require broad and comprehensive approaches that are efficacious, feasible, accessible, affordable and acceptable to consumers, communities and to providers. Multidisciplinary services provided by treatment and support teams can offer promising innovative strategies that address mind, body and spiritual aspects of individuals affected by pain and/or OUD.

Acupuncture can be included as part of broad-based therapeutic strategies and, as a nonpharmacological approach to treatment, may represent an attractive option. The evidence-base for acupuncture encompasses studies that confirm clinical benefit, safety, and favorable cost outcomes for payers. The adoption of acupuncture in the Veterans Health Administration system has demonstrated the widespread acceptance of the value of this non-drug approach to managing pain and mitigating the need for opioid use. The capacity to scale up treatment, as shown by the VA system, provides an example of effective implementation of care.

Effective public health approaches take into consideration a range of essential factors: clinical and scientific evidence, safety, community acceptance and support, and cost considerations. The epidemic proportions of chronic pain and OUD necessitate national and urgent responses. Clinicians and policy-makers may want to re-evaluate current treatment practices in light of the findings from studies which examine the value of comprehensive mind, body and spirit approaches to pain management and/or opioid use. By addressing quality of life issues including psychological wellbeing and emotional status, as well as physical and pain-related functioning, clinicians, program planners and policy-makers have an opportunity to incorporate and implement comprehensive treatment planning. Using criteria based on promoting the public's health, we have an opportunity to address pain and suffering in a unique and meaningful way through integrating acupuncture care into the fabric of effective treatment.

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