



Chronic Pain Management and Accessibility in Rural America: A Narrative Review



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BACKGROUND

- Chronic pain, affecting 20.9% of U.S. adults in 2021, significantly impacts the quality of life of patients and may lead to depression, dementia, higher suicide risk, and substance use.
- Pain severity varies as about 50% of patients experience mild pain, 20% moderate pain, and 30% severe pain.
- Arthritis is the leading cause of chronic pain, affecting a third of patients, followed by sciatica, vertebral pain, traumatic injury, and muscle pain.
- Chronic pain costs the U.S. \$560 to \$635 billion annually in healthcare, lost work, and decreased wages.
- Rural populations face greater limitations due to physician shortages, poverty, distance from services, higher comorbidities, and unhealthy behaviors.
- This literature review aims to assess chronic pain management in the rural U.S., focusing on the nature of pain, management strategies, healthcare disparities, and access issues.

METHODS

- A comprehensive search of PubMed, Web of Science, and Google Scholar was conducted on January 15, 2024, using keywords related to “chronic pain,” “rural healthcare,” and “healthcare disparities” in the U.S.
- Articles from 2000 to 2024 published in English on chronic pain management in rural settings were included, while those on urban settings or non-English publications were excluded.
- The selection involved screening titles and abstracts, followed by a full review of relevant studies.
- Data were categorized into five themes: Chronic Pain in Rural Areas, Management Challenges, Current Strategies, Research Gaps, and Future Directions, providing a structured synthesis of findings.

RESULTS

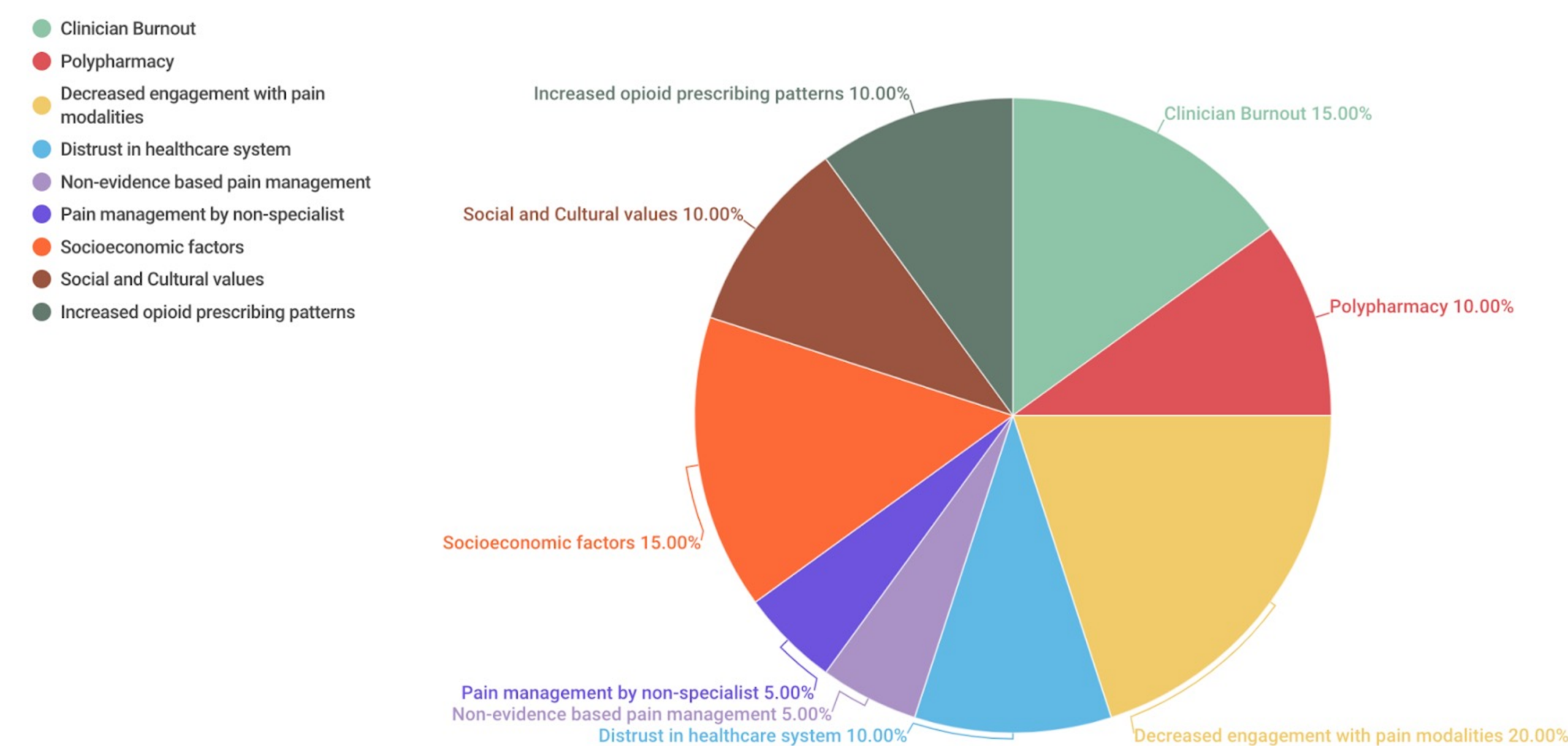


Figure 1. The most common themes characterizing literature about chronic pain management in rural America.

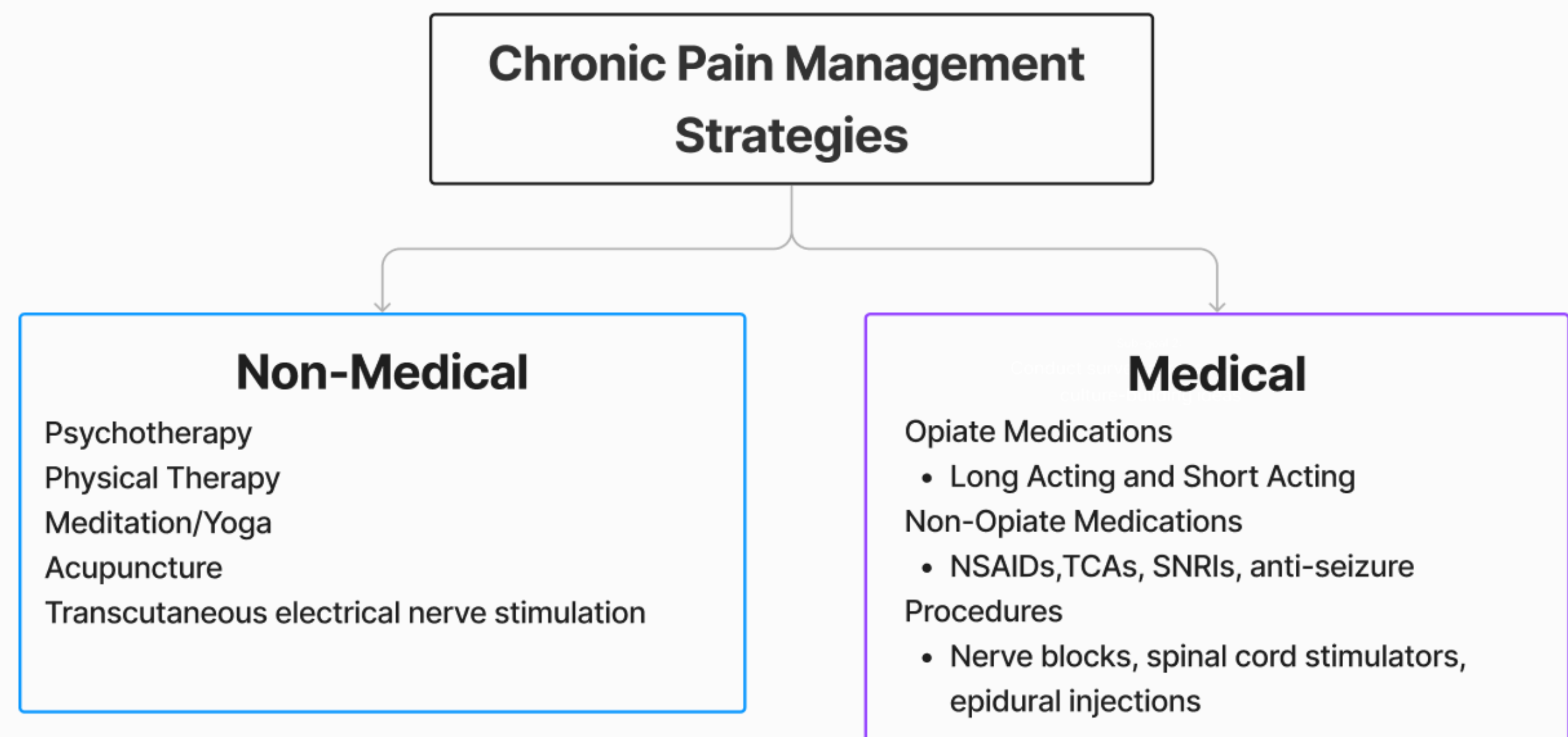


Figure 2. Summary of current evidence-based strategies for chronic pain management that could enhance access or management of pain in rural America.

DISCUSSION

- Our literature review of 14 studies highlights numerous factors contributing to the observed disparity in chronic pain prevalence between rural and urban populations.
- Barriers include a lack of pain medicine physicians and alternative pain providers, decreased utilization of available pain treatment modalities, inadequate provider knowledge of opioid prescription guidelines, and cultural differences.
- Rural populations are increasingly using nonmedical therapies and telehealth for pain management.
- Strategies such as educating providers on proper opioid prescribing practices, utilizing artificial intelligence, and developing novel pain treatments like neuromodulation prove promising in improving the efficacy and accessibility of care.

CONCLUSIONS

- Rural areas face barriers to chronic pain treatment, including provider shortages, limited treatment options, and cultural distrust of the medical system.
- Solutions include better opioid prescribing education, increased telehealth use, and new treatments like neuromodulation.

REFERENCES

- Smith TJ, Hillner BE. The Cost of Pain. *JAMA Netw Open*. 2019;2(4):e191532. doi:10.1001/jamanetworkopen.2019.1532
- Rafferty AP, Luo H, Egan KL, Bell RA, Gaskins Little NR, Imai S. Rural, Suburban, and Urban Differences in Chronic Pain and Coping Among Adults in North Carolina: 2018 Behavioral Risk Factor Surveillance System. *Prev Chronic Dis*. 2021;18:E13. doi:10.5888/pcd18.200352
- Eaton L, Langford D, Meins A, Rue T, Tauben D, Doorenbos A. Use of Self-Management Interventions for Chronic Pain Management: A Comparison Between Rural and Nonrural Residents. *Pain Manag Nurs*. 2018;19(1):8-13. doi:https://doi.org/10.1016/j.pmn.2017.09.004