

Addressing Chronic Back Pain in Adults

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PURPOSE

- Reduce the number of opioid drug-related overdose deaths in U.S. adults.
- Reduce the incidence of major adverse opioid effects for adults with chronic back pain (CBP), such as tolerance, dependence, misuse, and addiction and overdose.
- Improve patient adherence to nonsteroidal versus opioid medications such as, ibuprofen or ketorolac.
- Improve overall quality of life for all U.S. adults who suffer from CBP, regardless of their socioeconomic status.
- Identify those at increased risk for CBP due to their socioeconomic status.
- Discover the most efficient way to manage CBP in adults.

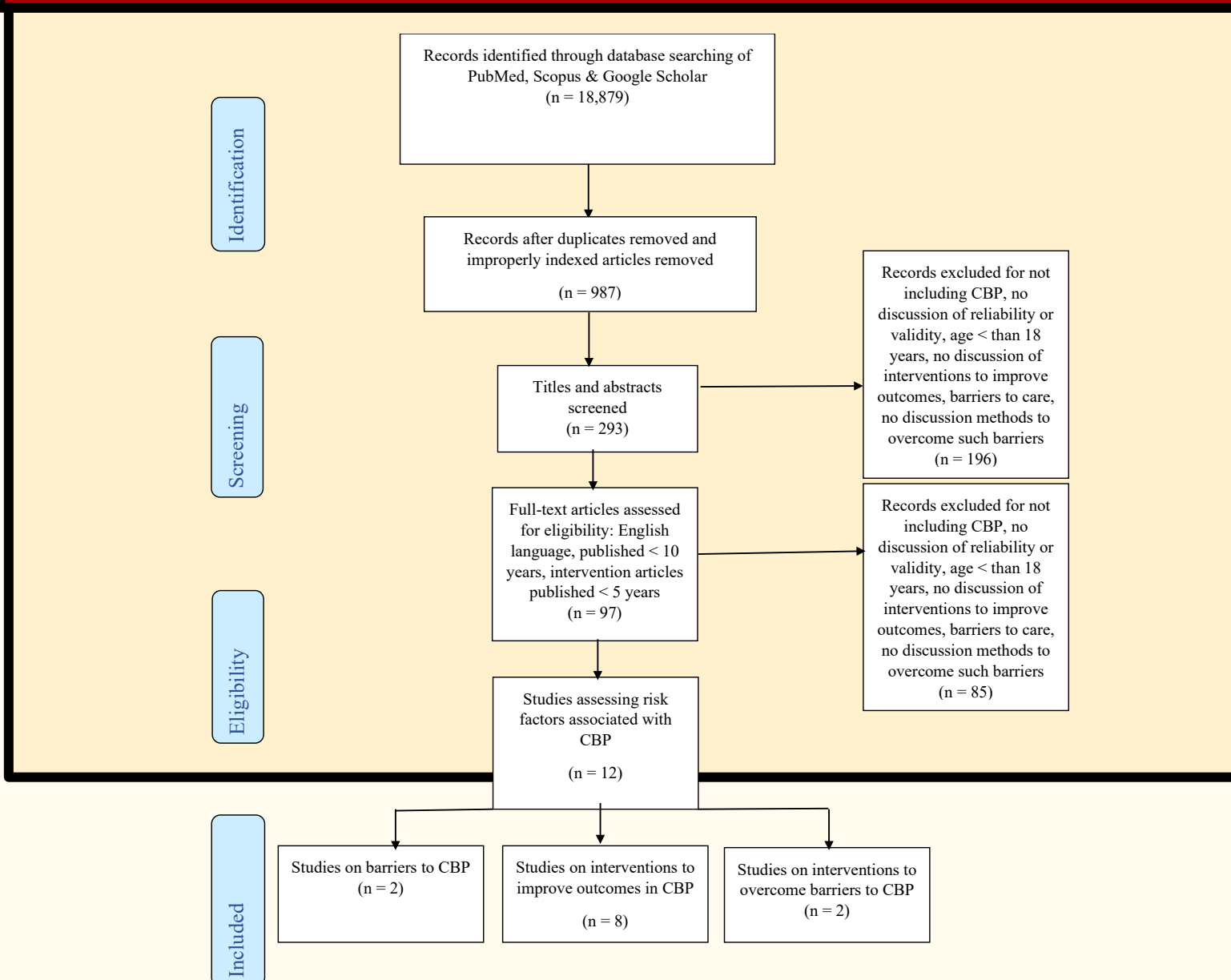
PICOT QUESTION

In adults hospitalized within an emergency department (**P**), how has the implementation of a nonsteroidal medication (**I**) versus an opioid medication (**C**) affected chronic back pain (**O**) from January to June 2023 (**T1**) and July to December 2023 (**T2**) following implementation?

SIGNIFICANCE

- Approximately 16 million (8%) of all adults suffer from persistent or chronic back pain (CBP) (Georgetown University, n.d.).
- Unfortunately, many people with CBP strictly rely upon opioid therapy.
- It is estimated that 1.6 million people had an opioid use disorder in 2019 (U.S. Department of Health and Human Services, 2021).
- In the late 90s, it was declared by pharmaceutical companies that people who do not become addicted to opioids and healthcare professionals began increasing the amount of prescriptions (U.S. Department of Health and Human Services, 2021).
- Healthcare providers now battle the widespread misuse of both prescription and non-prescription opioids (U.S. Department of Health and Human Services, 2021).
- Opioid use can lead to tolerance, dependence, misuse, addiction and overdose that may begin one week of their use (Mayo Clinic, 2021).
- Opioids are a major factor for accidental prescription drug-related overdose deaths in the U.S. (Mayo Clinic, 2021). This is an increasing problem.
- Opioid overdoses have resulted in over 42000 deaths in 2016, which was an increase from 2015 (U.S. Department of Health and Human Services, 2021).

SEARCH METHOD

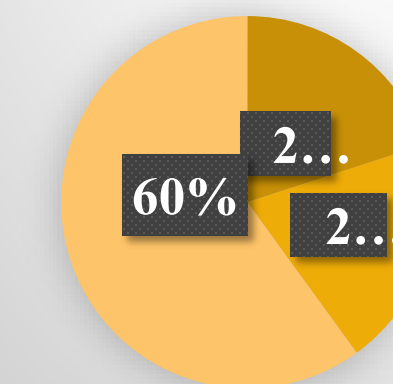


EVIDENCE BASED PRACTICE SUMMARY TABLE

Reference	Year of Publication	Type and Level of Evidence (LOE)	Quality of Evidence	Comments
Hall, A. M., Scurry, S. R., Pike, A. E., Albary, C., Richmond, H. L., Matthews, J., Toomey, E., Hayden, J. A. & Etchegary, H. (2019). Physician-reported barriers to using evidence-based recommendations for low back pain in clinical practice: A systematic review and synthesis of qualitative studies using the theoretical domains framework. <i>Implementation Science</i> , 14(49), 1-19. https://doi.org/10.1186/s13012-019-0884-4	2019	Systematic review, LOE I	GRADE A	- The review noted 14 studies that assessed physicians' perspective of adhering to more than one of the five target behaviors including: recommendations pertaining to in-clinic diagnostic assessments and providing a diagnosis of non-specific low back pain (n=9), providing advice on activity and rest (n=7), imaging investigations (n=11), medication (n=2), and referrals to treatment providers (n=8). - Five studies revealed referrals to conservative care was found to be influenced by environmental context and resources, such as long wait times or complete access to adjunct services (n=82). - Nine studies (n=198) revealed in-clinic diagnostics assessments affected physicians adopting the 5 guideline-recommendations. - The framework used allowed findings to reveal three main determinants for ordering imaging for low back pain: social influences, beliefs about consequences, and environmental context and resources.
Sittipornvorakul, E., Klinsophon, T., Sthawong, R. & Janwantanakul, P. (2018). The effects of walking intervention in patients with chronic low back pain: A meta-analysis of randomized controlled trials. <i>Musculoskeletal Science and Practice</i> , 34, 38-46. https://doi.org/10.1016/j.msksp.2017.12.003	2018	Meta-analysis of randomized controlled trials, LOE I	GRADE A	- Nine studies were included within the analysis. - This analysis noted supplementary high-quality studies to provide evidence that walking, which is easy to perform and highly accessible, can be recommended in the management of CBP. - Walking was found to reduce pain and disability. - A 95% CI was found in regards to walking being effective as other interventions to pain and disability reduction.
Krebs E. E., Gravelly, A., Nugent, S., Jensen, A. C., DeRome, B., Goldsmith, E. S., Kroenke, K., Bair, M. J. & Noorbalochi, S. (2018). Effect of opioid vs nonopioid medications on pain-related function in patients with chronic back pain or hip or knee osteoarthritis pain: The SPACE randomized clinical trial. <i>Journal of the American Medical Association</i> , 319(9), 872-882. https://doi.org/10.1001/jama.2018.0899	2018	Randomized controlled trial, LOE II	SORT B	- This study focused on the importance of limited evidence regarding long-term outcomes of opioids compared to nonopioid medications for CBP. - The groups did not significantly differ in pain-related function over 12 months, $p = 0.58$. - Pain was found to be significantly improved in the nonopioid group over 12 months, $p = 0.03$. - 95% CI was reported for adverse medication-related symptoms being more significant and more common in the opioid group in 12 months.
Gwan, C. U., Emara, A. K., Chughtai, N., Javed, S., Law, T. D., Wang, K. Y., Chughtai, M., O'gara, T. & Plate, J. F. (2021). Trends and risk factors for opioid administration for non-emergent lower back pain. <i>World Journal of Orthopedics</i> , 12(9), 700-709. https://doi.org/10.5312/wjvo.v12.i9.700	2021	Retrospective cohort study, LOE IV	SORT B	- The factors found to be significantly associated with being prescribed narcotics included age over 43 years, higher income, private insurance, obtainment of imaging in emergency department, and region of the U.S., $p < 0.05$. - Emergency departments in the Midwest, South, and West were more likely to prescribe opioids for non-emergent back pain in comparison to those in the Northeast, $p < 0.001$. - Overall, physician-directed patient education is required to minimize emergency department burden related to back pain.
Li, L., Chang, Y., Song, S., Losina, E., Costenbader, K. H. & Laidlaw, T. M. (2021). Impact of reported NSAID "allergies" on opioid use disorder in back pain. <i>The Journal of Allergy and Clinical Immunology</i> , 147(4), 1413-1419. https://doi.org/10.1016/j.jaci.2020.08.025	2021	Retrospective cohort study, LOE IV	SORT B	- This study had a 95% CI with a 1.34 odds ratio that revealed patients with nonsteroidal adverse drug reactions had a higher chance of developing opioid use disorder compared to those without nonsteroidal adverse drug reactions. - Factors for opioid use disorder included: younger age, male sex, Medicaid insurance, Medicare insurance, higher number of inpatient and outpatient visits, and comorbid anxiety and depression. - Patients with nonsteroidal adverse drug reactions had higher odds (odds ratio, 1.22) of a documented opioid prescription during the study period. This included a 95% CI.
Nunn, M. L., Hayden, J. A. & Magee, K. (2017). Current management practices for patients presenting with low back pain to a large emergency department in Canada. <i>BMC Medical Research Methodology</i> , 17(92), 1-8. https://doi.org/10.1186/s12891-017-1452-1	2017	Retrospective cohort study, LOE IV	SORT B	- Back pain was found to be the primary reason for why 3.2% of all adults present to the emergency department. - Therapeutic recommendations list acetaminophen and nonsteroidal medications as first-line and second-line agents, respectively. - This study utilized a complete description of patient characteristics, back pain descriptors, and use of health services for a random sample of non-urgent back pain patients presenting to the emergency departments.
Ussai, S., Miceli, L., Pisa, F. E., Bednarova, R., Giordano, A., Della Rocca, G. & Patelin, R. (2015). Impact of potential inappropriate NSAIDs use in chronic pain. <i>Drug Design Development and Therapy</i> , 9, 2073-2077. https://doi.org/10.2147/DDDT.S80686	2015	Retrospective cohort study, LOE IV	SORT B	- This study revealed the importance of profiling all patients to assess polypharmacy. - The availability of information regarding over-the-counter purchases allowed profiling of pain medications. - Findings reveal pain as one of the main reasons for medical consultation worldwide.
Katipoglu, B. & Kaykiziz, E. K. (2019). Research on the comparison of non-steroidal anti-inflammatory drugs (NSAID) and opioids in low back pain. <i>Disaster and Emergency Medicine Journal</i> , 4(1), 1-4. https://doi.org/10.5603/DEMJ.2019.0001	2019	Retrospective cohort study, LOE IV	SORT B	- Opioids were found to have fewer side effects than nonsteroidal medications in a short-term frame for managing CBP. Opioids can be used for CBP management in emergency services versus nonsteroidal medications. - Unfortunately, this study only involved statistically significant correlation between pain scores and genders of 75 mg of diclofenac sodium imide treatment applied and Pethidine hydrochloride applied patient groups, $p > 0.05$.
Carnide, N., Hogg-Johnson, S., Koehoorn, M., Furlan, A. D. & Côté, P. (2019). Relationship between early prescription dispensing patterns and work disability in a cohort of low back pain workers' compensation claimants: A historical cohort study. <i>Occupational and Environmental Medicine</i> , 76, 573-581. https://doi.org/10.1136/oemed-2018-105626	2019	Cohort study, LOE IV	SORT B	- This study included 55,571 workers' compensation claimants with back pain, which increases the study's power. - There was a 95% CI compared with claimants receiving nonsteroidal medications and/or skeletal muscle relaxants. The incidence rate ratio of benefit days was 1.09. - There was a 95% CI for weak opioids only and the incidence rate ratio for claimants dispensed strong opioids only or strong and weak opioids combined, respectively. - Findings suggest early opioid use leads to prolonged work disability compared with nonsteroidal and skeletal muscle relaxants.
Licciardone, J. C., Gatchel, R. J., Phillips, N. & Aryal, S. (2018). The pain registry for epidemiological, clinical, and interventional studies and innovation (PRECISION): Registry overview and protocol for a propensity score-matched study of opioid prescribing in patients with low back pain. <i>Journal of Pain Research</i> , 11, 1751-1760. https://doi.org/10.2147/JPR.S169275	2018	Observational cohort study, LOE IV	SORT B	- The inventory included within this study consisted of six common nonpharmacologic treatments such as, formal exercise therapy program, yoga, massage therapy, spinal manipulative therapy, acupuncture, and cognitive behavioral therapy. - The sample sizes were estimated to give an 80% statistical power to detect a <i>Cohen's d</i> as low as 0.35. - This study revealed biopsychosocial aspects of pain builds on concepts of determining the "right drug for the right patient at the right dose."
Husky, M. M., Farin, F. F., Compagnone, P., Ferminand, C. & Kovess-Masfety, V. (2018). Chronic back pain and its association with quality of life in a large French population survey. <i>Health and Quality of Life Outcomes</i> , 16, 195. https://doi.org/10.1186/s12955-018-1018-4	2018	Cross-sectional survey, LOE IV	SORT B	- The SF-36 Health survey within this study was reported to have good construct validity. There was high internal consistency (Cronbach alpha ranging from 0.85-0.94). - There was a high test-retest reliability within this study. - The SF-36 Health survey ensured measurement bias was decreased due to its standardized protocol. - This survey was conducted in France and included $n = 17249$, which assisted in a large study. - This survey focused on females, older age, lower education, and rural areas that were associated to be at increased risk for CBP. - CBP was found to be significantly associated with a reduced quality of life. - A 95% CI was determined regarding sociodemographic characteristics including age and persons with chronic back pain to have an increased risk for arthritis or rheumatism.
Peck, J., Urits, I., Peoples, S., Foster, L., Malla, A., Berger, A. A., Cornett, E. M., Kassen, H., Herman, J., Kaye, A. D. & Viswanath, O. (2021). A comprehensive review of over-the-counter treatment for chronic low back pain. <i>Pain and Therapy</i> , 10, 69-80. https://doi.org/10.1007/s40122-020-00209-w	2021	Review/overview of topic, LOE VII	SORT C	- Data used was from Cochrane reviews that are audited, which aids in ensuring validity of this review. - This review utilized meta-analyses, Cochrane reviews, and RCTs that were published within the last 5 years, therefore increasing the generalizability to the population. - The clinical guideline recommends over-the-counter analgesics be the first-line medication used and prescribed for non-specific back pain. - There was a narrow 95% CI regarding the beneficial use of nonsteroidal therapy in those with CBP. There was no specific medication that was significantly superior in its use than another. - There was a significant decrease in pain intensity in the ibuprofen and paracetamol vs ibuprofen only to treatment back pain group. There was a change in pain intensity ($p < 0.0001$) on day 10 for the ibuprofen alone group.

IDENTIFIED THEMES

% of Articles Including the Following 3 Themes:



- Barriers to CBP
- Interventions to overcome barriers in CBP

SYNTHESIS OF THE LITERATURE

- The level and quality of evidence (LOE) within the included studies can be located in the evidence-based table. The source of inclusion and exclusion criteria can be located in the PRISMA diagram.
- The study design and level of evidence included 12 sources: Systematic review and meta-analysis (level I, GRADE A), randomized controlled trials (level II, majority SORT B), cohort studies (level IV, SORT B) and review/overview (level VII, SORT C). Overall, the literature was of moderate quality.
- There was one theoretical framework utilized, specifically in regards to the interventions to barriers of CBP.
- Narrow 95% confidence intervals (CI) were present within five studies, increasing precision.
- There is a large amount of evidence that surrounds preventing opioid prescribing and use in those with CBP, if possible. This is revealed within nearly every study examined.
- A strong synthesis of this evidence has revealed a further need to include gender, minority, and socioeconomic disparities within

PRACTICE IMPLICATIONS

- People with CBP should begin their pharmacologic therapy with acetaminophen and nonsteroidal anti-inflammatory drugs, such as ibuprofen or naproxen.
- Other useful medicinal drug classes would include skeletal muscle relaxants and antispasmodics.
- Opioids should be avoided in the treatment of CBP when possible.
- Opioids should only be considered in the treatment of CBP when all other medication options have been exhausted.
- Providing nonpharmacologic therapies, such as rehabilitation or yoga, despite socioeconomic status, especially in conjunction with pharmacologic therapies.

CONCLUSION

- A significant limitation was found within this literature review. The majority of samples were homogeneous with women and minority groups being poorly reviewed in almost every study.
- Future research is needed with a focus on reviewing more women and diverse minority groups to increase the generalizability of studies.
- More randomized controlled trials need to be led to create more causal relationships regarding barriers existing for women and minority groups with CBP, as well as the interventions to overcome those barriers and the associated outcomes.

REFERENCES

1. Georgetown University. (n.d.). *Chronic back pain*. <https://hpi.georgetown.edu/backpain/#:~:text=Some%20million%20adults%20%E2%80%9C%20condition%20is%20the%20intended%20status.>
2. Mayo Clinic (2021). *Chronic pain: Medication decisions*. <https://www.mayoclinic.org/chronic-pain/medication-decisions/art-20360371>
3. U.S. Department of Health and Human Services (2021). *What is the U.S. opioid epidemic?* <https://www.hhs.gov/opioids/about-the-epidemic/index.html>