# Multimorbidity and Chronic Pain Management with Opioids and Other Therapies Among Adults in the United States

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## Background

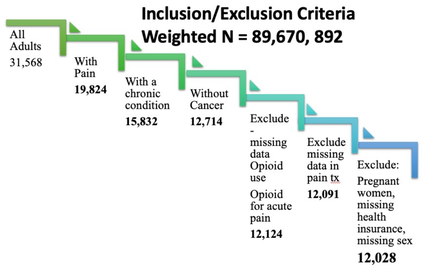
- Multimorbidity and chronic pain often co-exist.
- Multimorbidity has been associated with more than 90% of opioid-related hospitalizations.
- Managing pain with a multimodal approach that includes non-pharmacological treatment and non-opioid therapy is recommended to prevent serious risks associated with opioids.

## Objective

- Estimate the prevalence of types of pain treatment and analyze their associations with multimorbidity using a US nationally representative survey.

## Methods

Design: Cross-sectional
Data Source: National Health Interview Survey, 2020.
**N = 12,028**




**Chronic Pain Treatment type Categories:**

1) Opioid therapy +/- multimodal pain therapies (OPI)
2) Non-opioid monotherapy (No OPI + No MMTX)
3) Non-opioid multimodal pain treatment (No OPI + MMTX)
4) No pain treatment (No Pain Tx)

**Key variable: Multimorbidity** (Mmorb) was defined as the presence of two or more chronic conditions from a list of 14 commonly prevalent chronic conditions.
*Other independent variables* included age, sex, race, and ethnicity, Social Determinants of Health (SDoH), smoking, alcohol use, obesity, and pain severity.

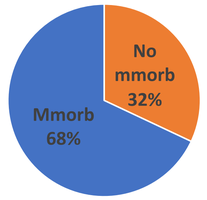
## Statistical Analysis

- Rao-Scott chi-square tests and multivariable multinomial logistic regressions were used to analyze the association of multimorbidity with types of pain treatment.

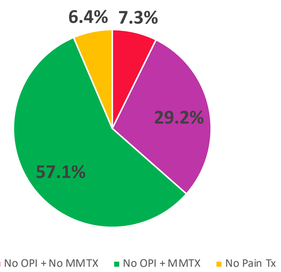
## Results

- Nearly 60.9 million adults (68.0%) had multimorbidity; 17.1 million (19.1%) reported severe pain, and 6.5 million (7.3%) used opioids for chronic pain.
- Only 57.0% used multimodal non-opioid therapies. The most common non-pharmacological treatment was exercise (57.2%), followed by mind-body therapies (20.6%) and massage (15.5%).
- A higher percentage of adults with multimorbidity reported severe pain (22.8% vs. 11.1%; p<0.001) and used opioids for chronic pain (9.2% vs. 3.2%; p< 0.001) compared to those without multimorbidity
- In adjusted multinomial logistic regressions with "pain treatment with monotherapy" as the reference group, adults with multimorbidity were more likely to use opioids (AOR= 1.63, 95% CI = 1.23 - 2.17) and more likely to use multimodal pain treatment without opioids (AOR= 1.15, 95% CI = 1.01 - 1.31)
- Severe pain was associated with opioid therapy (AOR = 19.36, 95% CI = 13.35 - 28.06), and non-opioid multimodal pain therapies (AOR= 1.33, 95% CI= 1.12 - 1.58)

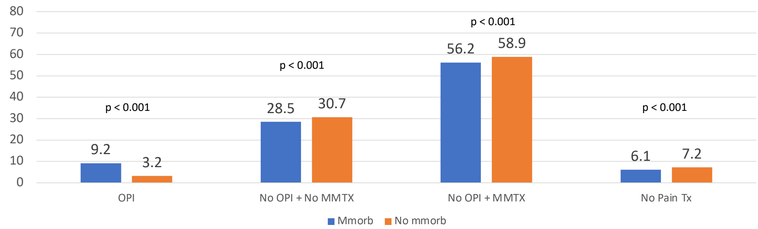
**Prevalence (Weighted %) of Multimorbidity**



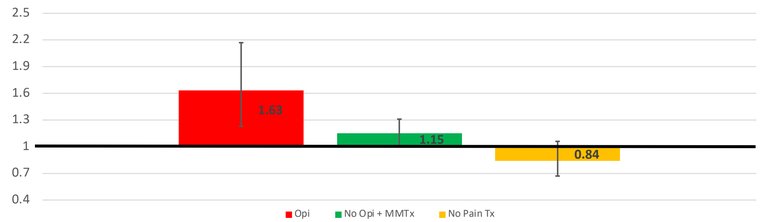

**Types of Pain Treatment (Weighted %)**



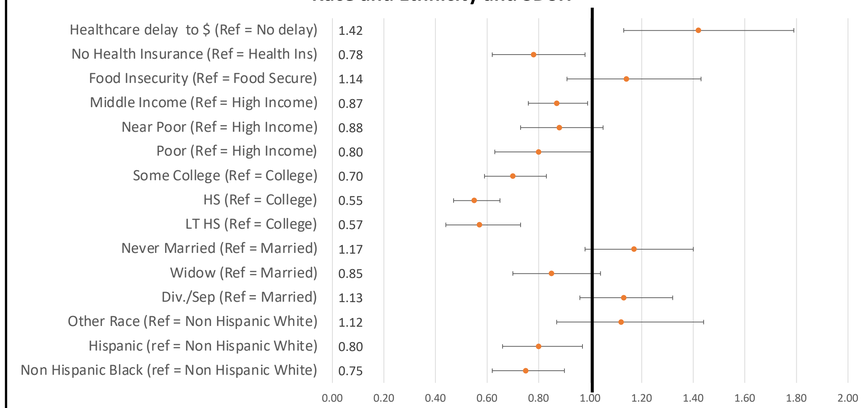

**Type of Pain Treatment (Weighted %) by Multimorbidity**




**AOR and 95% Confidence Intervals of Multimorbidity Multinomial Logistic Regression on Type of Pain Treatment**




**Adjusted Odds Ratios and 95% Confidence Intervals of Multimodal Pain treatment from Multinomial Logistic Regression Race and Ethnicity and SDoH**




## Conclusion

- Seven in 10 adults had multimorbidity. Approximately 1 in 2 adults used non-opioid multimodal pain treatment.
- Adults with multimorbidity were more likely to report severe pain and use opioids for pain management
- SDoH factors such as income and education level, and ethnic disparities were associated with lower odds of using multimodal pain treatment without opioids.

## Strengths and Limitations

**Strengths:**

- Nationally representative study with a large sample size
- Availability of SDoH
- Patient reported outcomes

**Limitations:**

- Cross-sectional study. Unable to determine causality
- Self-reported nature can lead to recall bias

## References


- Schug SA, Goddard C. Recent advances in the pharmacological management of acute and chronic pain. Ann Palliat Med 2014;3(4):263-275. doi: 10.3978/ j.issn.2224-5820.2014.10.02
- Scherer, M., Hansen, H., Gensichen, J. *et al.* Association between multimorbidity patterns and chronic pain in elderly primary care patients: a cross-sectional observational study. *BMC Fam Pract* **17**, 68 (2016). https://doi.org/10.1186/s12875-016-0468-1