Opioid Use in Patients with Fibromyalgia: A Retrospective Claims Analysis

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INTRODUCTION AND OBJECTIVES

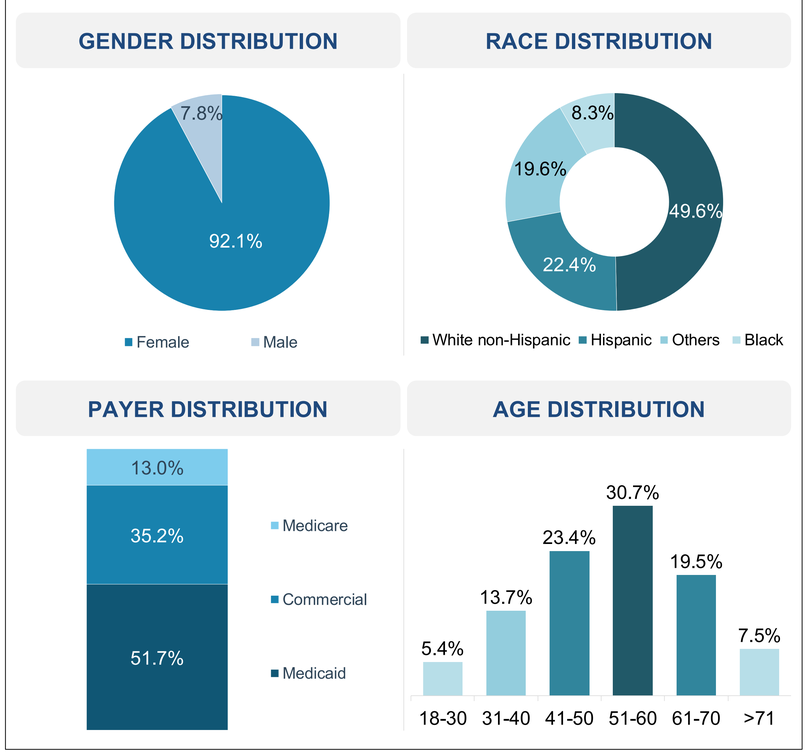
- Fibromyalgia (FM) is a long-term condition marked by widespread pain, fatigue, sleep issues, cognitive problems, and significant multisystem effects, which complicate diagnosis and treatment[1-4]. In the United States, FM impacts approximately 10 million adults[5] and is more common among women, who account for 75–90% of diagnosed cases[6]. Patients commonly present with multiple comorbidities – such as depression, anxiety, dorsalgia, and other musculoskeletal pain (e.g., joint pain and osteoarthritis), hypertensive disease, diabetes mellitus, and mobility-related issues such as gait abnormalities, falls, and fractures – contributing to clinical complexity and increased healthcare needs[1].
- Despite the availability of approved non-opioid pharmacologic therapies for FM[2,3], opioids continue to be widely prescribed for pain management in this population, raising concerns regarding safety, effectiveness, and alignment with evidence-based treatment guidelines[3,4]. In addition, benzodiazepines are often co-prescribed alongside opioids[4], a combination associated with increased risk of adverse outcomes, particularly among older adults and patients with sleep or psychiatric conditions[2,4].
- This study aimed to quantify opioid and benzodiazepine use in patients diagnosed with FM and to characterize patients by age, insurance coverage, and polypharmacy using a retrospective claims-based analysis.

METHOD

- This retrospective analysis used closed claims from the Symphony Health database (April 2021 - April 2024). Adults ≥18 with an FM diagnosis (M79.7 ICD-10-CM) who had continuous insurance for three years were included to ensure complete capture of medical encounters, pharmacy claims, and HCRU.
- Adult patients aged ≥18 years were included if they had a diagnosis of fibromyalgia, identified by the presence of ICD-10-CM code M79.7 recorded at any time during the study period.
- Opioid use was defined as the presence of ≥1 pharmacy claim for any opioid medication during the observation period.
- Benzodiazepine use was similarly identified based on ≥1 pharmacy claim for a benzodiazepine medication.
- Concomitant opioid and benzodiazepine use was defined as overlapping exposure to both medication classes during the study period.
- Medication exposure was further characterized using the medication possession ratio (MPR), calculated as the proportion of days within the assessment period covered by medication supply.
- Analyses focused on the third study year (2023–2024; Y3 cohort), representing the most recent and complete data available.
- Outcomes were summarized descriptively overall and stratified by age group, insurance coverage type, and polypharmacy patterns.

RESULTS

Figure 1. Patient characteristics, Year 3 cohort (N=261,776)



RESULTS

- A total of 261,776 adults with FM were included in the Year 3 (Y3; 2023–2024) cohort. The mean (SD) age was 52.3 (13.02) years, and the cohort was predominantly female (92.1%), with nearly half (49.6%) identifying as White, non-Hispanic **(Figure 1).**
- Among these patients with FM, 48.3% (n=126,391) were covered under Commercial or Medicare Advantage insurance.

Opioid use

- Among patients with Commercial or Medicare Advantage insurance (n=126,391), 40.2% were prescribed at least one opioid during the study period **(Table 1),** with most claims for tramadol (13.7%), followed by oxycodone (13.1%). Among Medicaid patients (n=135,385), 38.8% were prescribed at least one opioid, with most claims for oxycodone (15.7%), followed by tramadol (11.1%).
- The MPR for opioid use was 0.39 for Commercial or Medicare Advantage patients and 0.40 for Medicaid patients, indicating intermittent exposure **(Table 1).**

Opioid Use by Age Group and Payer Type

- Opioid use varied by age across all payer types, with the highest prevalence in older age groups: 18-25 years (20.9%), 61-65 years (43.1%), 66-70 years (39.2%), 71-75 years (38.5%), and >75 years (34.4%) **(Figure 2).**

Concomitant Opioid and Benzodiazepine Use

- Concomitant opioid and benzodiazepine use was observed in 19.1% of patients covered under Medicare Advantage or Commercial insurance. Among Medicaid patients, noncommitment use was 20.4% **(Table 1).**
- In age groups 61-65, 66-70, 71-75, and >75, concomitant opioid and benzodiazepine use was 20.7%, 17.9%, 16.4% and 15.6%, respectively **(Figure 3)**. Use was even higher among geriatric women with sleep issues (n=68,319) at 22.7%.

Table 1. Opioid Use Patterns, Year 3 cohort (N=261,776)

Percentage of Patients by Drug Class

	All patients	Medicare Advantage / Commercial	Medicaid
Any opioid drug	39.5	40.2	38.8
Oxycodone	14.5	13.1	15.7
Tramadol	12.4	13.7	11.1
Codeine	4.3	4.8	3.9
Morphine	2.4	1.8	2.9
Hydro-morphone	1.7	1.3	2.1
Bupreno-rphine	1.1	1.0	1.1

40 35 30 25 20 15 10 5

% of patients

Medication Possession Ratio

	All patients	Medicare Advantage / Commercial	Medicaid
Any opioid drug	0.40	0.39	0.40
Oxycodone	0.31	0.31	0.32
Tramadol	0.27	0.28	0.26
Codeine	0.13	0.12	0.15
Morphine	0.37	0.52	0.28
Hydro-morphone	0.14	0.22	0.10
Bupreno-rphine	0.50	0.48	0.51

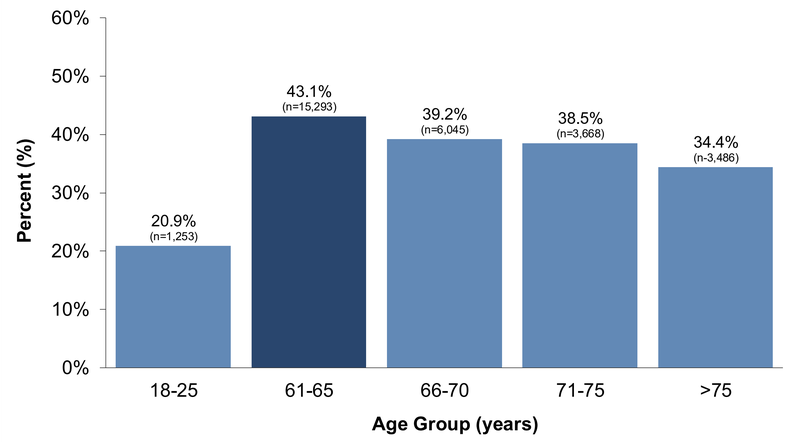
1.0 0.8 0.6 0.4 0.2 0.0

Medication Possession Ratio (MPR)

Footnote: Medicaid patients comprised 51.7% of the cohort (n=135,385). Opioid use patterns are presented by payer type for descriptive characterization; no statistical comparisons between payer groups were performed. Percentages represent patients with ≥1 prescription claim; MPR (medication possession ratio) indicates proportion of days with drug supply during the assessment year

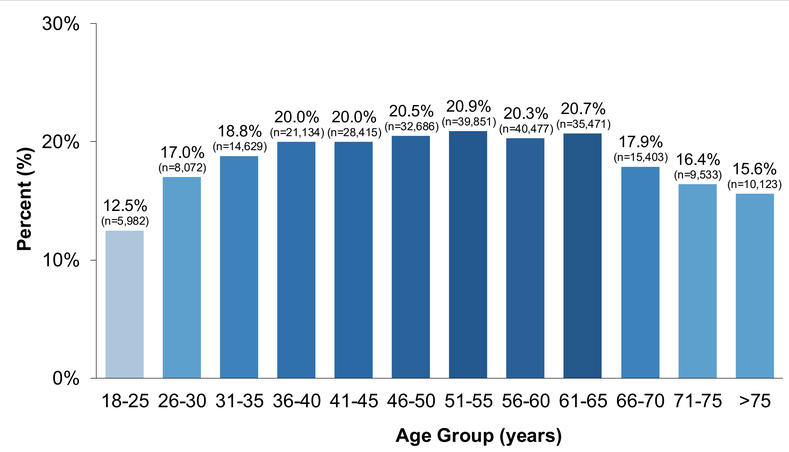
- Nearly **40% of FM patients use opioid drugs,** with oxycodone (14.5%) and tramadol (12.4%) being most common, and MPR suggest **moderate adherence patterns across all opioid types**
- **Opioid use patterns and possession ratios** remain relatively **consistent across payer types**

Figure 2. Opioid Use by Age Groups, Year 3 cohort (N=261,776)



The **highest opioid use is observed in patients aged 61-65 (43.1%),** whereas **younger adults aged 18-25 have a usage rate of 20.9%.**

Figure 3. Concomitant Opioid and Benzodiazepine Use by Age Group, Year 3 cohort (N=261,776)



Concomitant opioid and benzodiazepine use peaks at ~20% across middle-aged to elderly adults (36-65 years)

DISCUSSION

- Findings from the claims analysis highlight a substantial and persistent burden associated with opioid use among adults with FM. Despite long-standing guideline recommendations discouraging opioid therapy for FM[2,3,7-10], opioid prescribing remained common in the cohort, indicating a persistent disconnect between evidence-based guidance and real-world practice.
- Current guidelines recommend evidence-based, non-opioid management strategies, including FDA-approved pharmacological treatments such as pregabalin, duloxetine, and milnacipran, combined with multidisciplinary approaches incorporating patient education, exercise, and cognitive-behavioral therapy[2,3,7-10]. This persistent gap between recommended care and routine practice highlights the importance of safer, guideline-aligned FM management strategies.

CONCLUSIONS

Despite long-standing guidelines discouraging opioid use for FM, opioids remain widely prescribed, affecting approximately 40% of insured patients in this U.S. claims cohort. Nearly one in five patients – particularly older adults – received concurrent opioids and benzodiazepines, a combination associated with elevated safety risks. These findings underscore a substantial gap between guideline-recommended care and actual prescribing practices, highlighting the ongoing need for safer, effective, and guideline-concordant non-opioid treatment strategies, especially for older and medically complex patients with FM.

LIMITATIONS

- Analyses relied on administrative claims data, which do not capture clinical severity, symptom burden, or confirmed diagnoses and may be affected by coding inaccuracies or misclassification.
- Diagnoses, treatments, and outcomes were inferred from billing records rather than clinical assessment, which may result in under- or over-representation of certain conditions or events.

REFERENCES

1. Bilge U, Sari YE, Balcioglu H, Bilge NSY, Kasifoglu T, Kayhan M, et al. Prevalence of comorbid diseases in patients with fibromyalgia: A retrospective cross-sectional study. Cardiovasc Dis. 2018;155:30–5.
2. Winslow BT, Vandal C, Dang L. Fibromyalgia: Diagnosis and Management. Am Fam Physician. 2023;107(2):137–44.
3. Macfarlane GJ, Kronisch C, Dean LE, Atzeni F, Häuser W, Fluß E, et al. EULAR revised recommendations for the management of fibromyalgia. Annals of the Rheumatic Diseases. 2017;76(2):318.
4. Prevention CfDCa. Clinical practice guideline for prescribing opioids for pain 2022 [Available from: https://www.cdc.gov/mmwr/volumes/71/rr/rr7103a1.htm.
5. Chen JL, McKenzie-Brown AM. The Epidemiology and Prevalence of Fibromyalgia (FMS). In: Lawson MDE, Wallace MDMS, editors. Fibromyalgia: Clinical Guidelines and Treatments. Cham: Springer International Publishing; 2015. p. 1–21.
6. Association NF. About Fibromyalgia 2025 [updated 2025/12/05. Available from: https://www.fmaware.org/about-fibromyalgia/.
7. Martucci KT, MacNiven KH, Borg N, Knutson B, Mackey SC. Apparent effects of opioid use on neural responses to reward in chronic pain. Sci Rep. 2019;9(1):9633.
8. Turner JA, Shortreed SM, Saunders KW, LeResche L, Thielke S, Von Korff M. Does association of opioid use with pain and function differ by fibromyalgia or widespread pain status? Pain. 2016;157(10):2208–2216
9. Fitzcharles MA, Ste-Marie PA, Goldenberg DL, Pereira JX, Abbey S, Choiniere M, et al. Canadian Pain Society and Canadian Rheumatology Association recommendations for rational care of persons with fibromyalgia: A summary report. J Rheumatol. 2013;40(8):1388–1393.
10. American College of Rheumatology. Fibromyalgia. 2024. Available from: https://www.rheumatology.org/I-Am-A/Patient-Caregiver/Diseases-Conditions/Fibromyalgia

DISCLOSURES

EG, AW: Employee of Tonix Medicines, Inc.; holds stock and/or stock options in Tonix Pharmaceuticals Holding Corp

SPONSORSHIP

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