

Long-Term Outcomes of Fibromyalgia Patients with and Without Insomnia: A Real-World Cohort Study

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Objectives

- Fibromyalgia (FM) affects 5-10 million adults (2-4% of the population) in the United States.^{1,2}
- FM affects more women and middle-aged patients.
- Insomnia is a core feature of FM.³⁻⁶
- Recent RWE on long-term outcomes of Insomnia among large cohorts of FM is limited.

Study Goal: To assess the clinical and economic burden of insomnia at 1 and 3 years after index discharge in FM patients.

Methods

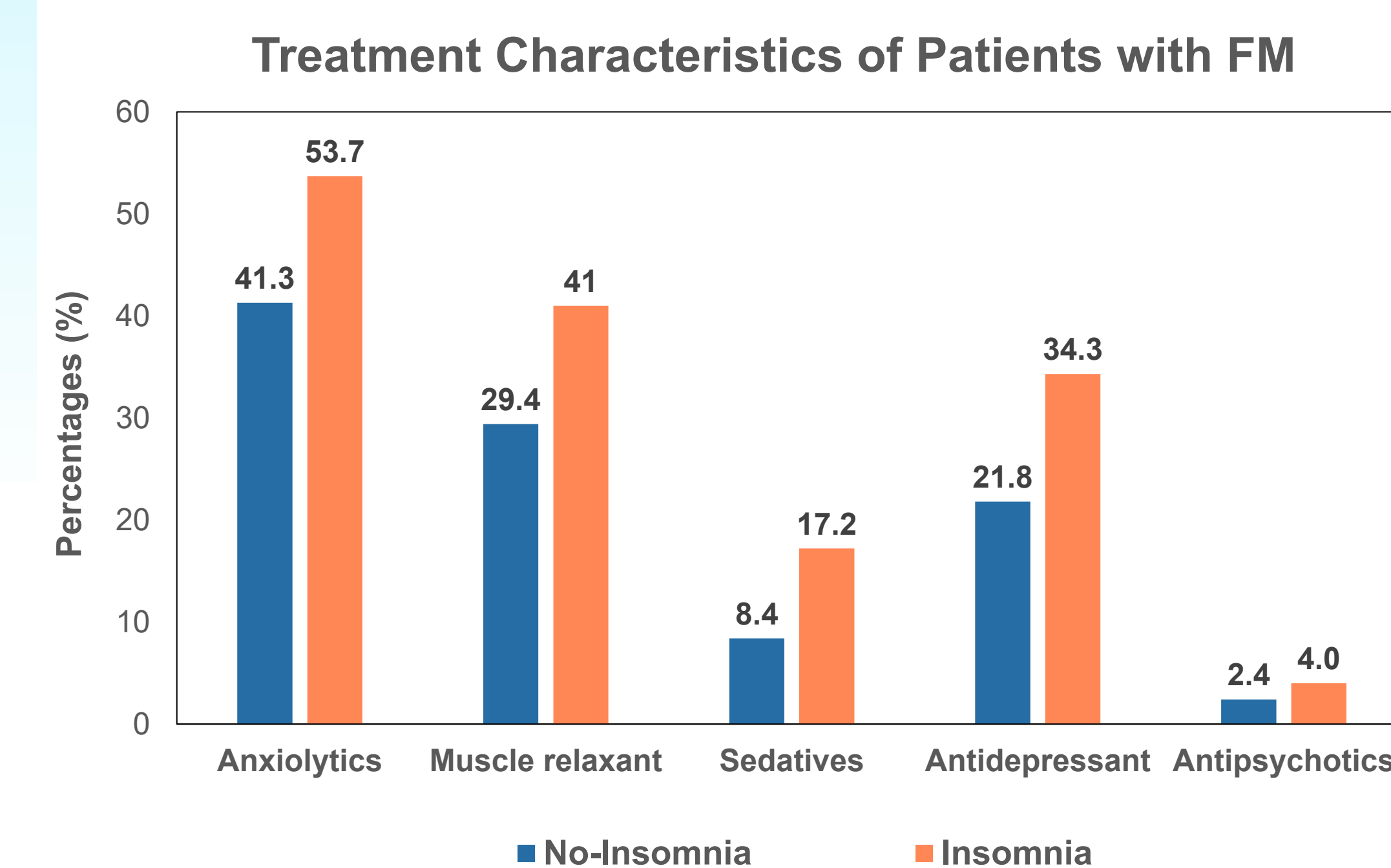
- Study Design:** Retrospective matched cohort study
- Data Sources:** HIPAA compliant, statistically de-identified Premier Healthcare Database (PHD), a large, all-payer administrative database from a large network of US-based hospitals
- Patient Selection Criteria:** Adult inpatients with primary diagnosis of FM (ICD-10-CM code: M79.7) between 01/01/2018 and 12/31/2024
- Exposure:** Diagnosis of Insomnia (ICD-10-CM: G47.0%, F51.0%) following FM diagnosis
- Index visit:** Earliest diagnosis of insomnia
- Outcomes:** Clinical events, revisits, and cost within 1-year and 3-years following index discharge
- Analysis:** Matched cohorts (with and without Insomnia) created using propensity score matching. Outcomes compared between the two cohorts by regression analysis

Results

- Among 7,422 patients with FM, the prevalence of Insomnia was 10%
- Following 1:3 matching, a total of 2,960 patients with FM (54 years median age, 19% Black, 95% female, 4% Hispanic, 44% on Medicare, 7% with Charlson Comorbidity Index [CCI] ≥ 4) from 119 hospitals were included
- Covariates balanced by propensity score matching (ASMD < 0.10) and baseline characteristics shown by Insomnia status (Yes: 749, No: 2,211) in Table 1

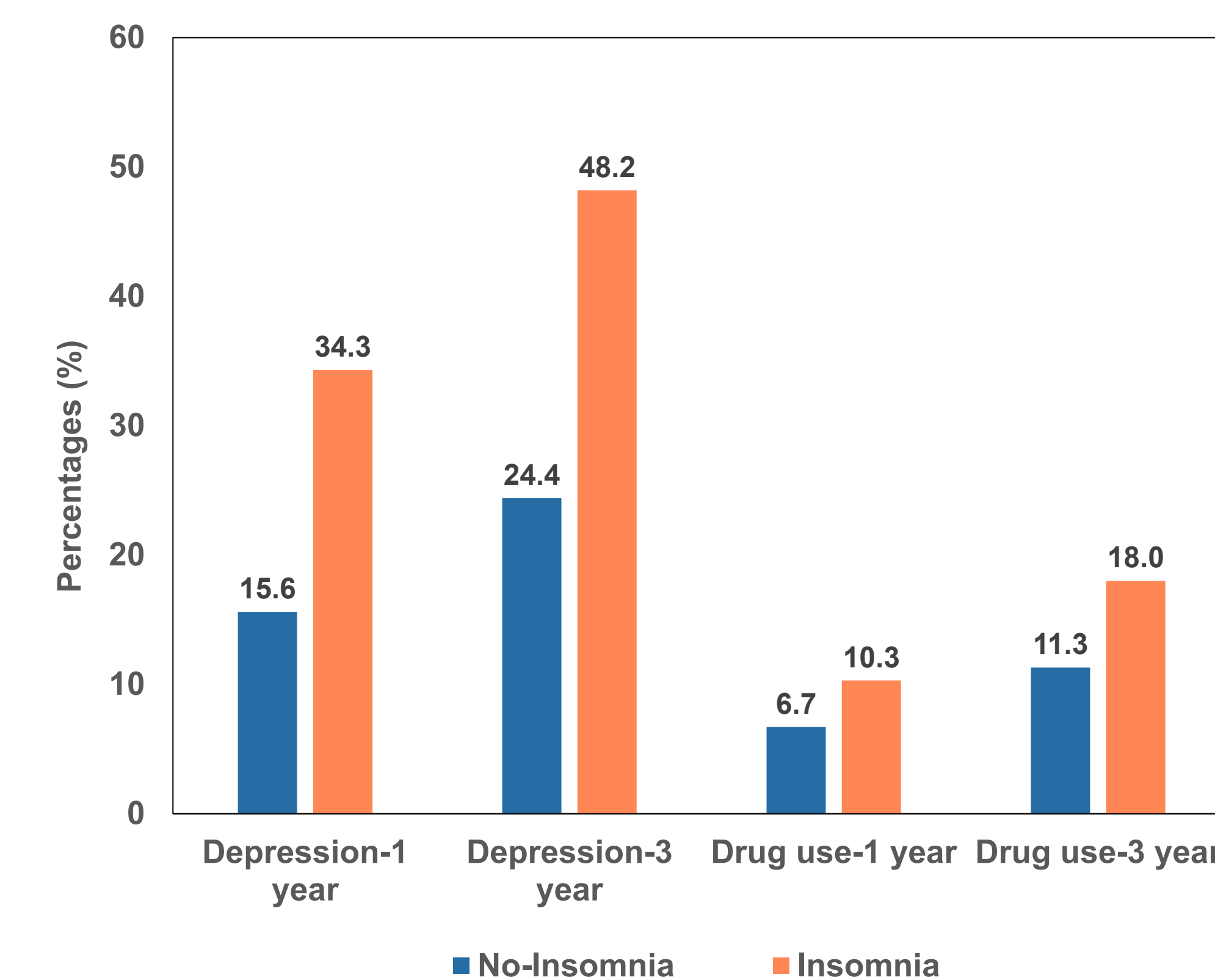
Table 1. Baseline Characteristics of Patients with FM By Insomnia Status

Characteristics	After Propensity Score Matching		ASMD	p-value
	No-Insomnia N=2211	Insomnia N=749		
Age				0.6
18-39	344 (15.6%)	128 (17.1%)	0.047	
40-59	1,116 (50.5%)	374 (49.9%)	0.014	
60-74	669 (30.3%)	215 (28.7%)	0.036	
75+	82 (3.7%)	32 (4.3%)	0.029	
Sex				0.3
Female	2,115 (95.7%)	710 (94.8%)	0.040	
Male	96 (4.3%)	39 (5.2%)	0.040	
Race				0.4
White	1,622 (73.4%)	531 (70.9%)	0.041	
Black	414 (18.7%)	151 (20.2%)	0.021	
All Others	175 (7.9%)	67 (8.9%)	0.037	
Ethnicity				0.3
Hispanic	92 (4.2%)	38 (5.1%)	0.045	
Non-Hispanic	1,823 (82.5%)	599 (80.0%)	0.064	
Unknown	296 (13.4%)	112 (15.0%)	0.044	
Payor				0.4
Medicare	985 (44.5%)	326 (43.5%)	0.031	
Medicaid	583 (26.4%)	200 (26.7%)	0.013	
Commercial Insurance	563 (25.5%)	186 (24.8%)	0.009	
Other/Unknown	80 (3.6%)	37 (4.9%)	0.064	
Hospital Bed				0.8
1 to 299	901 (40.8%)	295 (39.4%)	0.021	
300 to 499	370 (16.7%)	128 (17.1%)	0.014	
500+	940 (42.5%)	326 (43.5%)	0.010	
Hospital Region				0.7
Midwest	819 (37.0%)	275 (36.7%)	0.003	
Northeast	630 (28.5%)	203 (27.1%)	0.032	
South	632 (28.6%)	229 (30.6%)	0.037	
West	130 (5.9%)	42 (5.6%)	0.008	
Teaching Status				0.8
Teaching	1,421 (64.3%)	485 (64.8%)	<0.001	
Non-teaching	790 (35.7%)	264 (35.2%)	<0.001	
Population served				>0.9
Urban	2,033 (91.9%)	688 (91.9%)	0.008	
Rural	178 (8.1%)	61 (8.1%)	0.008	
CCI score				0.3
0	1,215 (55.0%)	396 (52.9%)	0.024	
1-3	854 (38.6%)	294 (39.3%)	0.008	
4+	142 (6.4%)	59 (7.9%)	0.030	

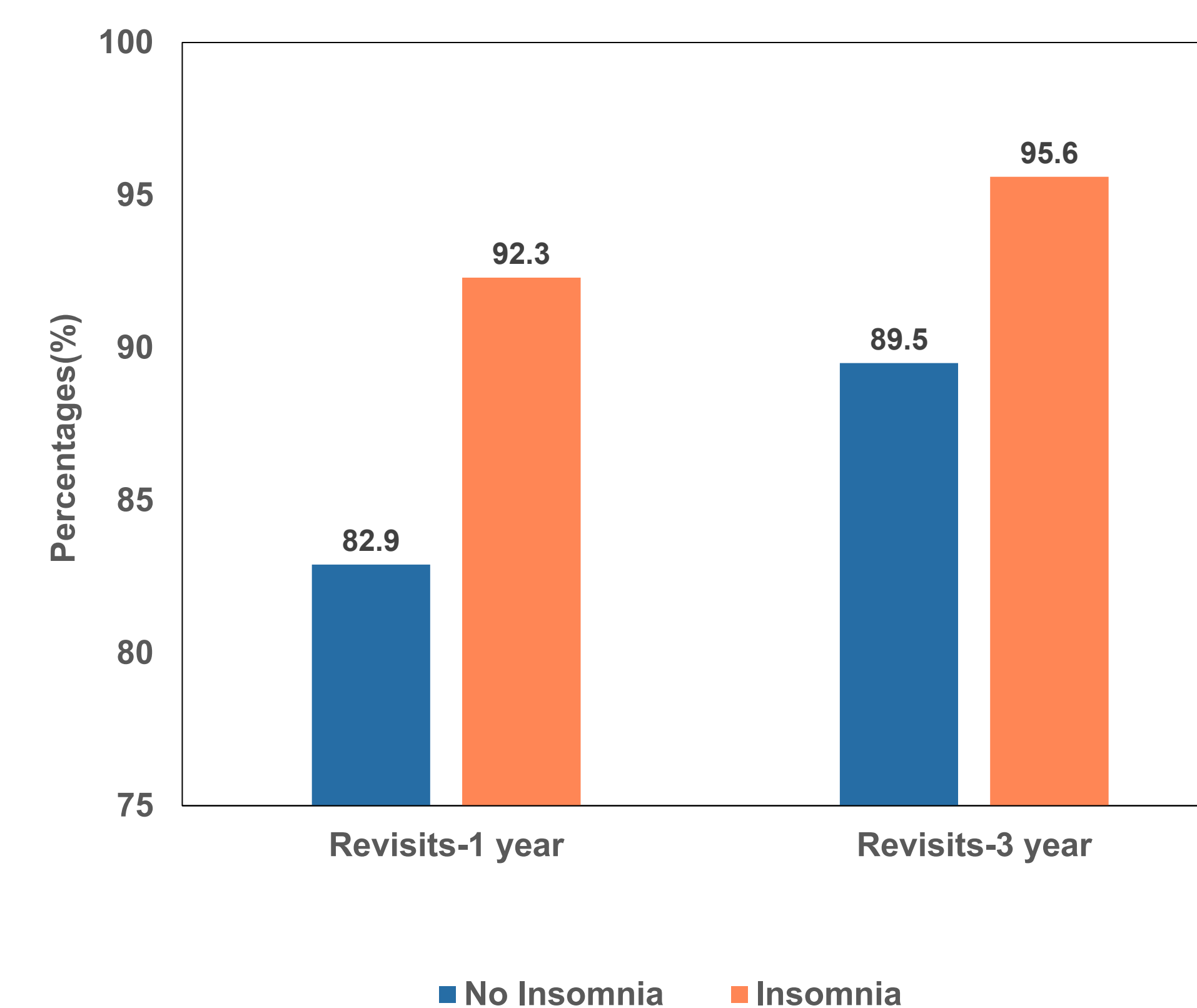


Results

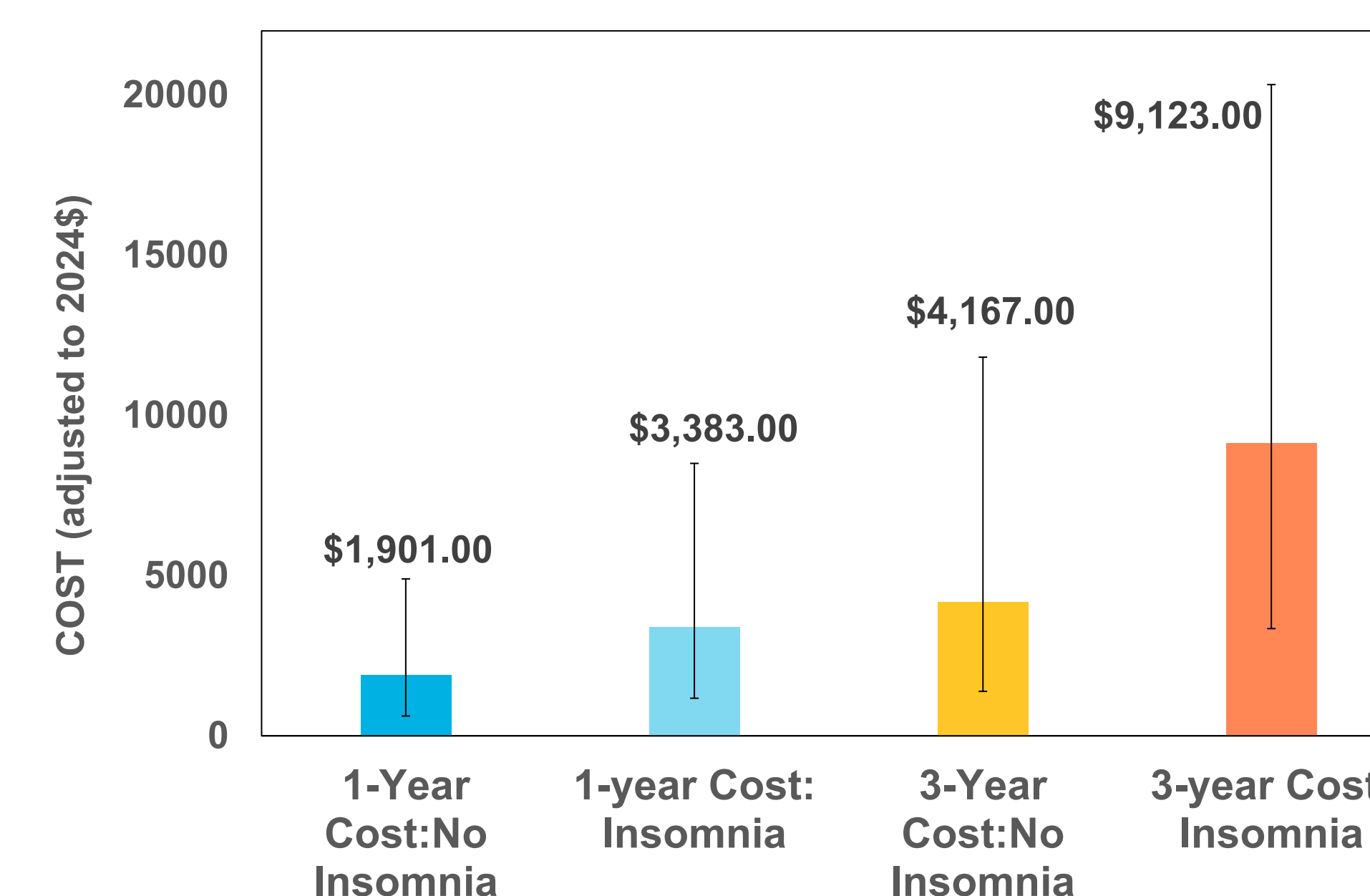
Long-term Clinical Outcomes



Revisits at 1-year & 3-years of Index Discharge



Median (IQR) Total Revisit Cost (\$)



- Antidepressants:** 33% vs. 22% (p < 0.001)
- Anxiolytics:** 54% vs. 41% (p < 0.001)

Outcomes within 1-year after index discharge

- Patients with vs. without insomnia:
 - Drug use:** 10% vs. 7% (p < 0.002)
 - Depression:** 34% vs. 16% (p < 0.001)
 - Median Revisits:** 5 vs. 7 (p < 0.001)
 - Revisit cost:** \$3,383 vs. \$1,901, (p < 0.001)

Outcomes within 3-years after index discharge

- Patients with vs. without insomnia:
 - Outpatient service use:** OR (95% CI) = 1.8 (1.5 - 2.1)
 - Total revisit cost:** \$9,123 vs. \$4,167, (p < 0.001)

Strengths & Limitations

- Strength:** Provided long-term RWE on clinical and economic burden of patients with FM and Insomnia.
- Limitation:** Patients were not followed across different health systems. Functional impairment, QOL not evaluated.

Conclusion

In patients with FM, insomnia is associated with increased long-term mental morbidity, cost and higher use of ambulatory services.

References

- <https://www.niams.nih.gov/health-topics/fibromyalgia>
- <https://archive.cdc.gov/arthritis/types/fibromyalgia.htm>
- <https://pmc.ncbi.nlm.nih.gov/articles/PMC3691959/>
- <https://www.medrxiv.org/content/10.1101/2024.10.28.24316268v1.full.pdf>
- <https://pubmed.ncbi.nlm.nih.gov/24290442/>
- <https://pubmed.ncbi.nlm.nih.gov/18576297/>

Acknowledgement

All authors contributed to and approved the presentation.

Disclosures: All authors are employees of Premier Inc. This is an internally-funded study.