Self-Reported Pain Severity and Opioid Utilization in Adult Patients with Spine-Related Problems

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SCAN ME

BACKGROUND

- The American College of Physicians guideline promotes the use of opioids for the short-term treatment of severe and unresponsive acute low back pain, common among patients with Spine-related disorders (SRD).[1]
- However, limited evidence exists regarding self-reported pain levels and the extent of opioid use for low back pain.

OBJECTIVE

- Evaluated the association between self-reported pain severity and opioid use among patients with SRD in the US.

METHODS

Study design

- This was a retrospective cross-sectional study.

Data collection/inclusion criteria

- This study utilized the 2018-2021 Medical Expenditure Panel Survey (MEPS) and included adult patients (age ≥ 18 years) with spine-related diagnoses based on the ICD-10 codes.[2]

Exposure variable (pain severity)

- Pain severity was part of SF-12 and addressed the extent of pain interference with normal work[3]

Outcome variable (opioid use)

- Opioid use was assessed using prescription fill data from the pharmacy files.

Statistical analysis

- Descriptive weighted analyses were used to examine the characteristics of patients with SRD.
- A multivariable logistic regression model was used to assess the odds of opioid use by pain severity levels while adjusting for covariates based on the Andersen Behavioral Model.

RESULTS

Table 1: Sample characteristics of patients with spine-related disorders, MEPS 2018-2021 (N=17.23m)

Variables	N = 17,226, 936 Total Weighted Frequency N	N = 831,102 (4.82) Opioid Users n (%)	N = 16,395,834 (95.18) Non-opioid users n (%)	P-value
Age group, years				
18-50	6421836 (37.28)	309847 (1.80)	6111990 (35.48)	
51-65	5485016 (31.84)	316463 (1.84)	5168553 (30.00)	
66-75	3248774 (18.86)	131218 (0.76)	3117557 (18.10)	
76-85	2071309 (12.02)	73574 (0.43)	1997735 (11.60)	0.1254
Gender				
Male	6995962 (40.61)	410267 (2.38)	6585696 (38.23)	
Female	10230974 (59.39)	420835 (2.44)	9810139 (56.95)	0.0103
Race/Ethnicity				
Hispanic	1599372 (9.28)	106082 (0.62)	1493290 (8.67)	
Non-Hispanic black	1552414 (9.01)	96870 (0.56)	1455544 (8.45)	
Non-Hispanic others	1134530 (6.59)	48823 (0.28)	1085707 (6.30)	
Non-Hispanic whites	12940619 (75.12)	579326 (3.36)	12361293 (71.76)	0.0657
Insurance type				
Private	11550024 (67.04)	484843 (2.81)	11065181 (64.23)	
Public	5215973 (30.28)	325091 (1.89)	4890882 (28.39)	
Uninsured	460940 (2.68)	21168 (0.12)	439772 (2.55)	0.0113
Region				
Northeast	2910019 (16.89)	88356 (0.51)	2821663 (16.38)	
Midwest	4012749 (23.29)	194292 (1.13)	3818457 (22.17)	
South	6051441 (35.13)	341852 (1.98)	5709589 (33.14)	
West	4252727 (24.69)	206602 (1.20)	4046124 (23.49)	0.0559
Education level[a]				
College or more	10917188 (63.37)	451089 (2.62)	10466099 (60.75)	
High school or less	6237874 (36.21)	374532 (2.17)	5863342 (34.04)	0.026
Income				
Poor/Negative	1824853 (10.59)	106578 (0.62)	1718276 (9.97)	
Near Poor	698266 (4.05)	63718 (0.37)	634548 (3.68)	
Low Income	1986483 (11.53)	157533 (0.91)	1828950 (10.62)	
Middle Income	4495496 (26.10)	215701 (1.25)	4279794 (24.84)	
High Income	8221838 (47.73)	287572 (1.67)	7934266 (46.06)	<.0001
Provider type[a]				
Facility	3053582 (17.73)	156851 (0.91)	2896730 (16.82)	
Person	3004251 (17.44)	96993 (0.56)	2907258 (16.88)	
Person-in-facility	8679273 (50.38)	454434 (2.64)	8224838 (47.74)	0.111
Year				
2018	7913094 (45.93)	340652 (1.98)	7572442 (43.96)	
2019	4520764 (26.24)	214254 (1.24)	4306511 (25.00)	
2020	2823620 (16.39)	175612 (1.02)	2648008 (15.37)	
2021	1969458 (11.43)	100584 (0.58)	1868874 (10.85)	0.2352
Activity of daily living (ADL) Limitation[a]				
No	16643990 (96.62)	780753 (4.53)	15863237 (92.08)	
Yes	558449 (3.24)	50349 (0.29)	508099 (2.95)	0.11
Instrumental Activity of Daily Living (IADL) Limitation[a]				
No	16058560 (93.22)	731694 (4.25)	15326866 (88.97)	
Yes	1128512 (6.55)	99408 (0.58)	1029104 (5.97)	0.03
Functional Limitation[a]				
No	12004250 (69.68)	462483 (2.68)	11541767 (67.00)	
Yes	5189041 (30.12)	368619 (2.14)	4820422 (27.98)	<.0001
Work Limitation[a]				
No	13481847 (78.26)	510805 (2.97)	12971043 (75.30)	
Yes	3686614 (21.40)	317416 (1.84)	3369198 (19.56)	<.0001
Number of comorbidities				
0	4687353 (44.37)	148558 (1.41)	4538795 (42.96)	
1	5531511 (52.36)	156751 (1.48)	5370089 (50.83)	
2+	345956 (3.27)	9291 (0.09)	336665 (3.19)	0.8954
Pain severity				
Extreme	971335 (5.64)	133793 (0.78)	837541 (4.86)	
High	2248826 (13.05)	169769 (0.99)	2079057 (12.07)	
Low	4377846 (25.41)	114487 (0.66)	4263359 (24.75)	
Moderate	2064636 (11.98)	108581 (0.63)	1956056 (11.35)	
None	4955515 (28.77)	146366 (0.85)	4809149 (27.92)	<.0001

a: variable contains missing values

Figure 1. Proportion of opioid users among SRD patients (MEPS data, 2018-2021)
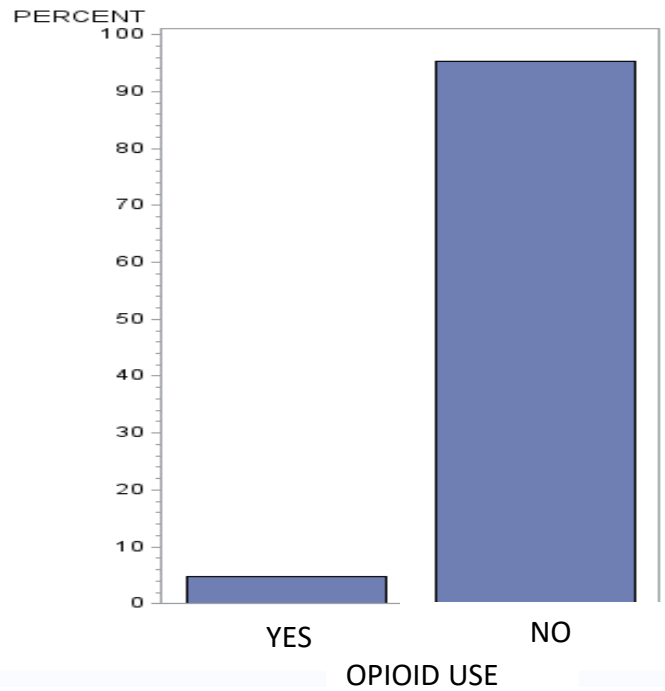
Overall, 4.82% of SRD patients used opioids

Table 2. Multivariable Analysis: Association between pain-severity and opioid use

Variables	Opioid Use
	OR (95% CI)
Self-reported pain severity	
Extreme	1.78 (1.20-2.64)*
High	2.00 (1.42-2.83)*
Moderate	1.44 (1.01-2.05)*
Low	Reference

*:P-value <0.05

Table 2 only displays the main independent variable; adjusting for age, sex, race, education, income, insurance type, region, marital status, year, ADLs, IADLs, and Elixhauser comorbidities

CONCLUSIONS

- This study found low opioid use, with one in twenty patients with SRD using opioids.
- The odds of receiving opioids were high with increased pain severity
- While the findings align with guideline recommendations, further research is needed to understand the long-term consequences of opioid use in SRD.

LIMITATIONS

- MEPS data relies on self-reported data, hence liable to recall bias
- This is cross-sectional in design, and therefore causality cannot be established.
- Only adjusted for variable available in the MEPS, and liable to residual confounding.

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