

Opioid Use Patterns and Healthcare Use in Individuals with Comorbid Chronic Non-Cancer Pain and Obstructive Sleep Apnea

Apnea

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Objectives

- Preliminary evidence suggests that opioid use indicated for chronic pain may exacerbate obstructive sleep apnea (OSA)
- The purpose of the present study was to evaluate the association between opioid utilization and healthcare use (HCU) among individuals with comorbid chronic non-cancer pain (CNCP) and OSA

Methods

Study design: Retrospective, observational study

Data source and study sample

- We used a 10% random sample of commercially insured enrollees in the IQVIA™ Health Plan Claims Data
- We identified individuals (18-64 years of age) diagnosed with comorbid CNCP (back pain, neck pain, headache or arthritis) and OSA between 2007 – 2014
- All individuals were required to have at least 12 months of continuous medical and prescription drug coverage prior to and following OSA diagnosis

Primary independent variable

- We identified three groups of individuals based on opioid use patterns: chronic, acute, and no opioid use in the 12-months prior to index OSA diagnosis
- Chronic opioid use was defined as > 90 days of opioid use within a 12-month period with no gap in use of > 30 days prior to OSA diagnosis

Primary outcome measure and statistical analysis:

- Logistic regression models were used to identify the association between opioid use and binary outcomes of inpatient hospitalization and emergency department (ED) visits in the 12-months post OSA diagnosis
- Generalized linear models were used to identify the association between opioid use and HCU counts (physician office visits, outpatient visits, and prescription drug fills)
- Age, sex, Charlson comorbidity index (CCI) score, obesity diagnosis and use of preventive services (screenings and immunizations) were entered as covariates in the models

Results

Table 1: Demographic and clinical characteristics of sample by opioid exposure category

Variable	Chronic (N = 4,173) (9.1 %)		Acute (N = 15,538) (33.7 %)		None (N = 26,348) (57.2 %)	
	N	Col %	N	Col %	N	Col %
Age*						
18-25	19	0.5	234	1.5	412	1.6
26-35	208	5.0	1,248	8.0	1,941	7.4
36-45	764	18.3	3,303	21.3	5,486	20.8
46-55	1,716	41.1	5,755	37.0	9,811	37.2
56-64	1,466	35.1	4,998	32.2	8,698	33.0
Gender*						
Female	2,050	49.1	7,154	46.0	10,597	40.2
CCI score*						
0	1,637	39.2	8,100	52.1	16,120	61.2
1	1,231	29.5	4,418	28.4	6,501	24.7
2+	1,305	31.3	3,020	19.4	3,727	14.2
Obesity*						
Yes	1,304	31.3	4,731	30.5	6,306	23.9
CPAP use*						
Yes	796	19.1	2,921	18.8	5,104	19.4
Preventive service use*						
Yes	2,495	59.8	9,237	59.5	15,650	59.4

*Indicates significance at p < 0.05, CCI: Charlson Comorbidity Index, CPAP: Continuous Positive Airway Pressure

Results (continued)

- We identified 46,059 individuals with comorbid CNCP and OSA during our study period
- A higher proportion of chronic opioid users had inpatient and ED visits compared to acute or no opioid users

Figure 1: Proportion of individuals with healthcare use by opioid exposure category

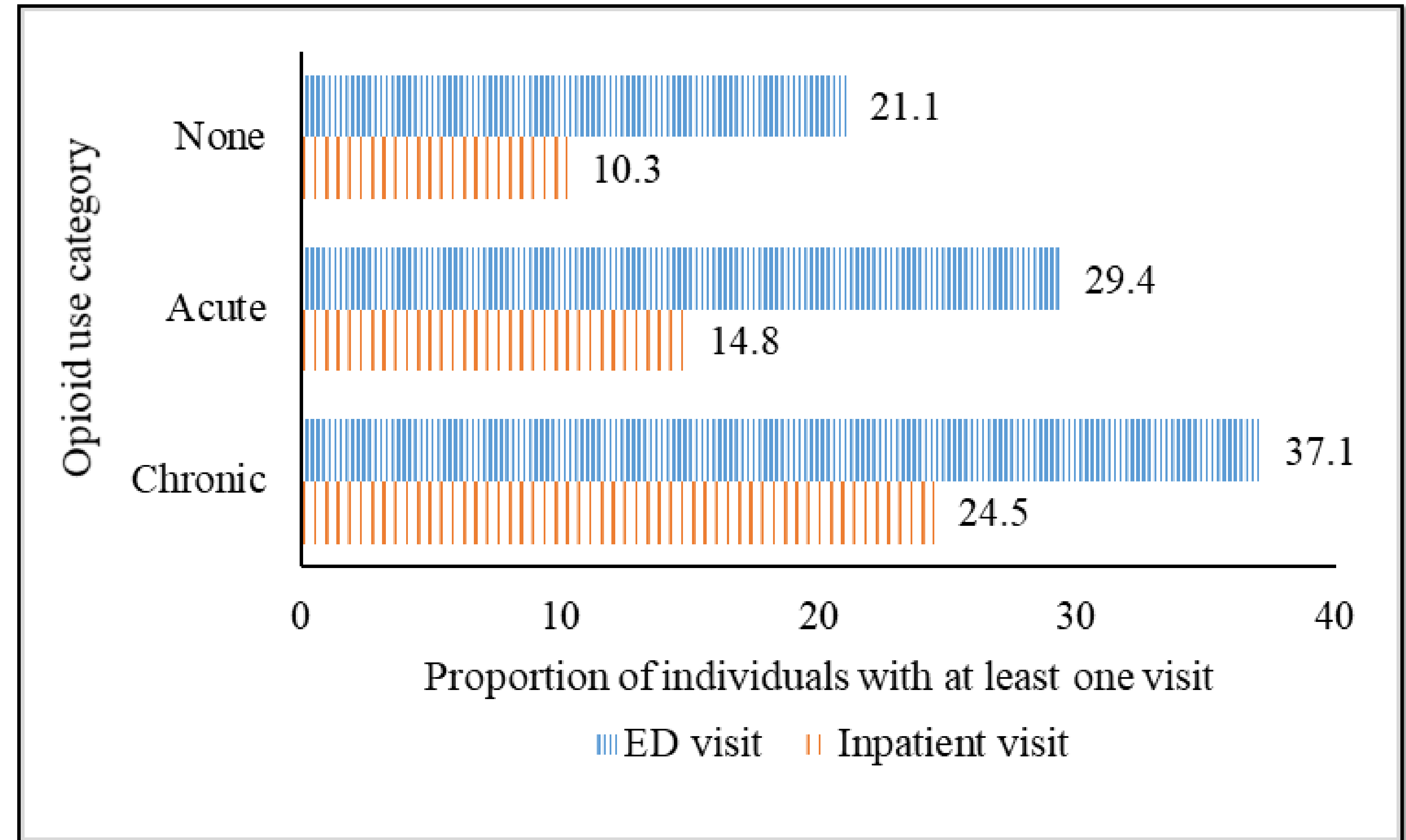
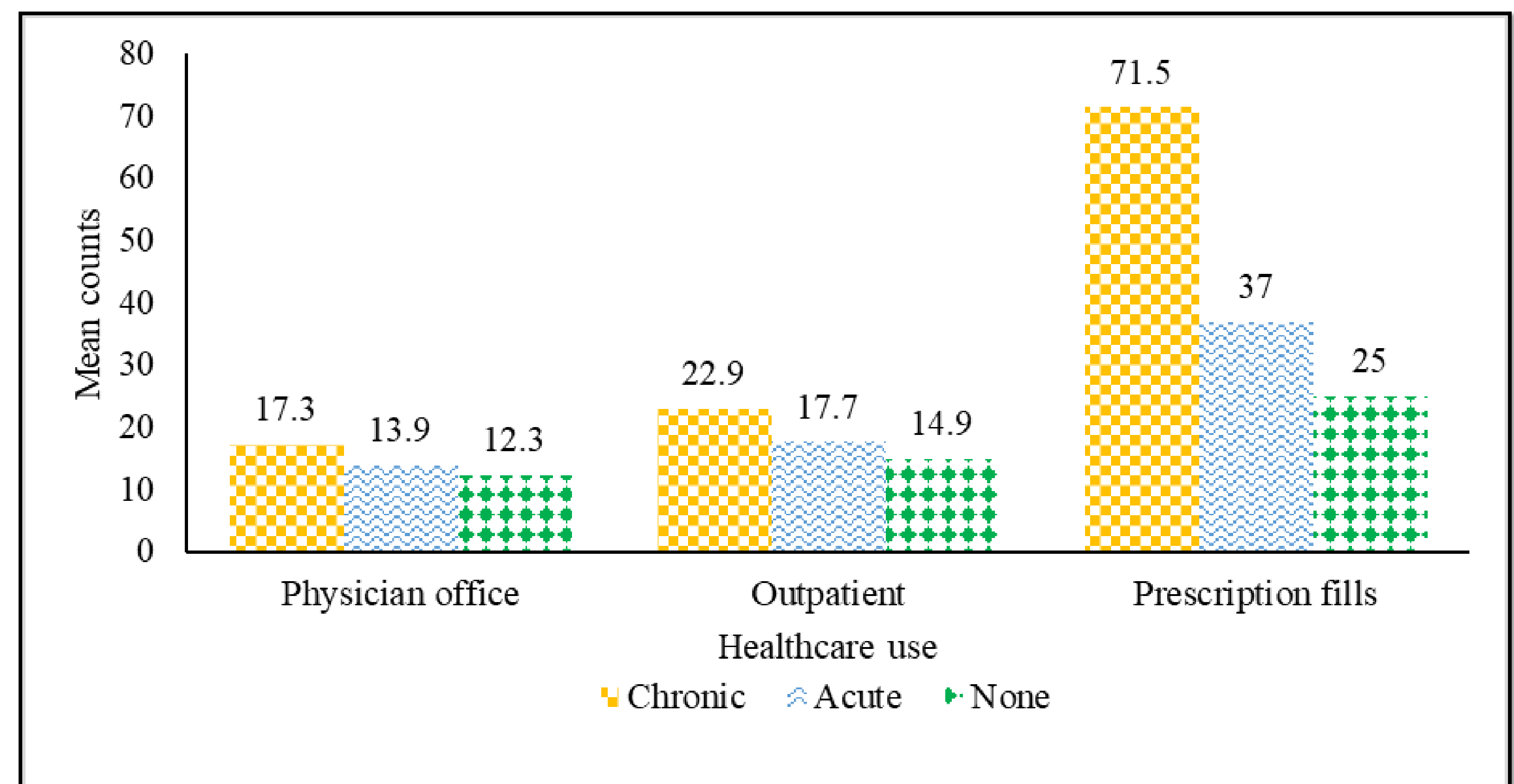


Figure 2: Mean counts of healthcare use by opioid exposure category



- Individuals with chronic opioid use displayed higher mean values for physician office visits, outpatient visits and prescription drug fills compared to acute and no opioid users

Table 2: Results from Logistic Regression and Generalized Linear Models

Logistic regression models for binary outcomes			
Healthcare Use	Acute vs no use AOR (95% CI)	Chronic vs no use AOR (95% CI)	Chronic vs acute use AOR (95% CI)
Inpatient visits	1.36 (1.27, 1.44)	2.32 (2.13, 2.52)	1.71 (1.57, 1.86)
ED visits	1.45 (1.38, 1.52)	1.95 (1.81, 2.09)	1.34 (1.25, 1.45)
Generalized linear models for count outcomes			
Healthcare Use	Acute vs no use IRR (95% CI)	Chronic vs no use IRR (95% CI)	Chronic vs acute use IRR (95% CI)
Physician office visits	1.11 (1.09, 1.12)	1.32 (1.29, 1.37)	1.20 (1.17, 1.24)
Outpatient visits	1.14 (1.12, 1.15)	1.32 (1.29, 1.37)	1.20 (1.17, 1.24)
Prescription drug fills	1.40 (1.37, 1.43)	2.52 (2.44, 2.59)	1.80 (1.74, 1.86)

- Relative to those with no opioid use and acute opioid use, individuals with chronic opioid use displayed increased odds of inpatient and ED visits
- Relative to those with no opioid use and acute opioid use, individuals with chronic opioid use displayed higher rates of office visits, outpatient visits and prescription drug fills

Conclusion

- This study provides evidence that chronic opioid exposure in individuals with comorbid CNCP and OSA is associated with increased HCU
- These findings can guide healthcare planners to target allocation of resources effectively toward this at-risk subgroup of OSA patients with CNCP

Acknowledgement

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