

UCLA

UCLA Previously Published Works

Title

Sustained Increase of Sedative-Hypnotic Prescribing During the COVID-19 Pandemic in a Large Urban Health System: an Observational Study

Permalink

<https://escholarship.org/uc/item/9zc0g8gc>

Journal

Journal of General Internal Medicine, 36(11)

ISSN

0884-8734

Authors

Keller, Michelle S

Kiefer, Elizabeth

Campbell, Scott

et al.

Publication Date

2021-11-01

DOI

10.1007/s11606-021-06868-5

Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at

<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

Sustained Increase of Sedative-Hypnotic Prescribing During the COVID-19 Pandemic in a Large Urban Health System: an Observational Study



J Gen Intern Med 36(11):3618–20
DOI: 10.1007/s11606-021-06868-5
© Society of General Internal Medicine 2021

INTRODUCTION

The COVID-19 pandemic, its associated economic effects, episodes of striking violence against Black individuals, and record-breaking wildfires have resulted in significant mental health challenges in the USA. In April 2020, 45% of US adults reported that their mental health had been negatively impacted.¹ Isolation, job loss, and fears about infection have led to increases in anxiety, depression, and sleep disturbance.²

Cognitive-behavioral therapy, meditation, sleep hygiene, and selective serotonin reuptake inhibitors (SSRIs) are recommended first-line treatments for the management of anxiety and insomnia, with sedative-hypnotics such as benzodiazepines (e.g., alprazolam) and z-drugs (e.g., zolpidem) identified for short-term symptom relief.^{3,4} Long-term use of these medications is associated with adverse effects including cognitive impairment, motor vehicle crashes, and fractures, particularly among older adults.⁵ When taken concurrently with opioids, benzodiazepines increase the risk of overdose.⁶ Current guidance recommends limiting sedative-hypnotic prescriptions to short-term needs.

Given the rise in anxiety and sleep disturbance, our objective was to examine prescribing patterns in primary care from June 30, 2019, to September 27, 2020, in a large urban health system in Southern California. We highlight the effect on prescribing on major regional events, including the LA County “Safer at Home” order (March 19, 2020), the second statewide shutdown (July 1, 2020), and the start of a major fire burning near Los Angeles County, the Bobcat fire (September 6, 2020).

METHODS

Using electronic health record data, we included all prescriptions for sedative-hypnotics written by non-trainee internal medicine and family medicine providers in a network of

~100,000 insured patients (Medicare and private insurance). We excluded prescriptions for patients with cancer given different prescribing guidelines. To describe how prescribing changed over time, we fit a piecewise regression. We used monthly data on the total number of patients in the network to calculate weekly prescribing rates. Our primary outcome was prescriptions in each week per 1000 patients.

We used Cochran-Armitage tests to analyze trends over the study period for four prescribing metrics, including the proportion of prescriptions: (1) with a days’ supply of ≥ 10 ; (2) with new starts, defined as a new prescription for patients without a prior prescription in the last year; (3) for patients age ≥ 65 ; and (4) with authorized refills. Prescriptions with ≥ 10 days’ supply potentially reflect non short-term use.

RESULTS

Our piecewise regression (Fig. 1) showed rising slope in the prescribing rate from June 2019 to March 2020 (an increase of 0.05 prescriptions/1000 patients, 95%CI: 0.03 to 0.06), a general stabilization in slope from early-March to mid-July 2020 (-0.00 , 95%CI: -0.03 to 0.02), an increase in slope from mid-July to late-August 2020 (0.13 , 95%CI: 0.04 to 0.21), and a strong increase in September 2020 (0.21 , 95%CI: 0.01 to 0.42) (Fig. 1).

Table 1 shows trends over time for the four metrics. Notably, the proportion of prescriptions with a days’ supply ≥ 10 days increased after the first “Safer at Home” order and then leveled off. The proportion of prescriptions that represented new starts significantly decreased over time while those with authorized refills decreased significantly.

DISCUSSION

The events of 2020 led to substantial levels of anxiety, resulting in increasing sedative-hypnotic prescribing rates. Interestingly, we found rising prescription rates prior to the first “Safer at Home” statewide order, highlighting a need to address the potential overprescribing of sedative-hypnotics.

We also found a prominent increase in prescribing after the second state shutdown. Sustained stress may have led patients to request more sedative-hypnotics from already-stressed providers. Moreover, the bandwidth of primary care providers to

Received October 14, 2020

Accepted April 28, 2021

Published online May 13, 2021

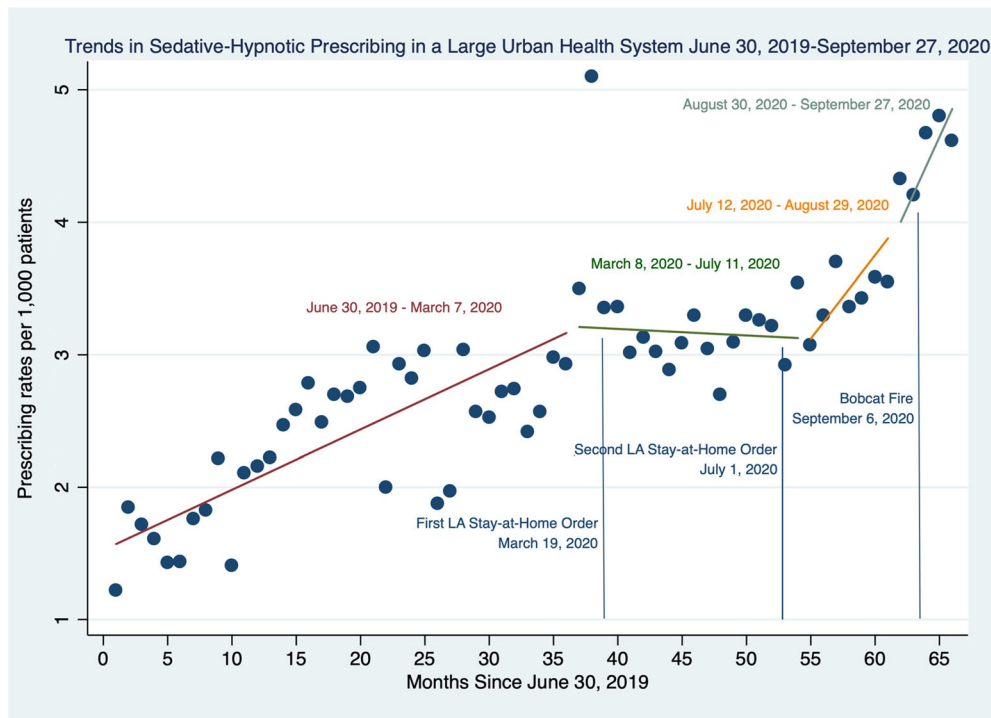


Figure 1 Fitted piecewise regression of weekly prescribing sedative-hypnotic prescribing rates in the primary care setting of a large urban health system over four periods from June 30, 2019, to September 27, 2020.

discuss, implement, and facilitate referrals for non-medication options was likely strained during 2020. Patients’ abilities to engage in behavioral approaches was likely also limited.

However, our findings show that while the prescribing rates increased, the proportion of prescriptions which were new starts decreased over time, as did the proportion of prescriptions with authorized refills. Primary care clinicians in the health system may have been prescribing one-time prescriptions for managing severe bouts of anxiety.

Clinicians should have a plan prior to prescribing sedative-hypnotics, encouraging patients to establish routines during chaotic times and offering non-pharmacologic alternatives to prevent long-term medication use. Limitations of this analysis include lack of medication fill data, data on indication, and detailed demographic data. Given that this is a fully insured population (Medicare/private insurance), the findings are less generalizable to non-insured or Medicaid populations.

Table 1 Trends in Total Sedative-Hypnotic Prescriptions, Prescribing Rates, and Four Prescribing Patterns in a Large Urban Health System in Southern California Over Four Time Periods

	June 30, 2019– March 7, 2020 (pre-COVID order)	March 8, 2020–July 11, 2020 (first LA County safer-at-home order)	July 12, 2020–August 29, 2020 (second shut- down in LA County)	August 30, 2020– September 27, 2020 (Bobcat fire)	Cochran- Armitage test for trend
Total prescriptions per week	Mean (SD) 233.38 (57.98)	323 (51.74)	359.71 (35.15)	458 (25.91)	–
Prescription rates per 1000 patients	2.35 (0.56)	3.24 (0.5)	3.61 (0.35)	4.58 (0.26)	–
Proportion of prescriptions with a days’ supply ≥10 days	0.75 (0.04)	0.82 (0.02)	0.81 (0.03)	0.81 (0.03)	<i>p</i> <0.001
Proportion of prescriptions that represent new starts	0.41 (0.19)	0.22 (0.06)	0.24 (0.03)	0.20 (0.01)	<i>p</i> <0.001
Proportion of prescriptions prescribed to patients 65 years or older	0.39 (0.05)	0.39 (0.03)	0.39 (0.04)	0.36 (0.03)	<i>p</i> =0.09
Proportion of prescriptions with refills	0.28 (0.05)	0.26 (0.03)	0.25 (0.02)	0.23 (0.02)	<i>p</i> <0.001

Michelle S. Keller, PhD, MPH^{1,2,3}
Elizabeth Kiefer, BBA³
Scott Campbell, MD⁴
Kristin Bradley, PharmD⁴
Rachel Mashburn, PharmD, MPH⁴
Mohini Bawa, PharmD⁴
Caroline Goldzweig, MD, MSHS⁴

¹Division of General Internal Medicine, Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, USA

²Department of Health Policy and Management, UCLA Fielding School of Public Health, Los Angeles, CA, USA

³Enterprise Information Systems, Cedars-Sinai Medical Center, Los Angeles, CA, USA

⁴Cedars-Sinai Medical Care Foundation, Los Angeles, CA, USA

Corresponding Author: Michelle S. Keller, PhD, MPH; Division of General Internal Medicine, Department of Medicine, Cedars-Sinai Medical Center, Los Angeles, CA, USA (e-mail: Michelle.keller@cshs.org).

Declaration:

Conflict of Interest: The authors report no conflicts of interest.

REFERENCES

1. **Panchal N, Kamal R, Orgera K, Cox C, Garfield R, Hamel L, et al.** The Implications of COVID-19 for Mental Health and Substance Use San Francisco, CA: Kaiser Family Foundation; 2020 [cited 2020 July 21, 2020]. Available from: <https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/>.
2. **Sher L.** COVID-19, anxiety, sleep disturbances and suicide. *Sleep Med.* 2020;70:124. <https://doi.org/10.1016/j.sleep.2020.04.019>.
3. Agency for Healthcare Research and Quality. Management of Insomnia Disorder in Adults: Current State of the Evidence. Rockville: Agency for Healthcare Research and Quality, 2017.
4. **Gautam S, Jain A, Gautam M, Vahia VN, Gautam A.** Clinical Practice Guidelines for the Management of Generalised Anxiety Disorder (GAD) and Panic Disorder (PD). *Indian J Psychiatry.* 2017;59(Suppl 1):S67-S73. <https://doi.org/10.4103/0019-5545.196975>.
5. **Brandt J, Leong C.** Benzodiazepines and Z-Drugs: An Updated Review of Major Adverse Outcomes Reported on in Epidemiologic Research. *Drugs in R&D.* 2017;17(4):493-507. <https://doi.org/10.1007/s40268-017-0207-7>.
6. **Park TW, Saitz R, Ganoczy D, Ilgen MA, Bohnert ASB.** Benzodiazepine prescribing patterns and deaths from drug overdose among US veterans receiving opioid analgesics: case-cohort study. *BMJ: Br Med J.* 2015;350:h2698. <https://doi.org/10.1136/bmj.h2698>.

Publisher's Note: Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.