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Introduction

Buprenorphine is a medication approved by the U.S. Food and Drug Administration (FDA) to treat opioid use disorder (OUD). There were concerns that the COVID-19-related restrictions would interfere with the in-person prescribing of buprenorphine. In response to the COVID-19 public health emergency declaration, the Drug Enforcement Administration (DEA), partnering with the Substance Abuse and Mental Health Services Administration (SAMHSA), adopted policies to relax buprenorphine prescribing regulations [1], authorizing practitioners to prescribe buprenorphine to existing patients via telemedicine (as of Mar 16, 2020) and new patients via telephone without first having an in-person or telemedicine visit (as of Mar 31, 2020)[2]. This study evaluated the significance of the immediate changes in buprenorphine prescribing in Kentucky after the implementation of the new federal policies on buprenorphine prescribing for OUD treatment.

Methods

The study used data for all dispensed prescriptions for buprenorphine products approved by the Food and Drug Administration for the treatment of OUD (excluding Sublocade) to calculate different measures for buprenorphine prescribing. The study period was from Jan 1, 2019 to Dec 31, 2020. Data were provided by the Kentucky All Schedule Prescription Electronic Reporting (KASPER) program. KASPER tracks all prescriptions for controlled substances that are dispensed in the state. We calculated 3 monthly measures:

- 1) number of dispensed prescriptions for buprenorphine products approved for OUD treatment;
- 2) number of unique patients with a dispensed prescription for buprenorphine for treatment of OUD; and
- 3) average days supply per a dispensed prescription for buprenorphine for OUD treatment

Segmented regression analyses were conducted to evaluate the effect of the changes in the COVID-19-related prescribing policy on three study measures.

Results: Changes in the Number of Buprenorphine Prescriptions

The estimated number of buprenorphine prescriptions non-significantly increased ($p=0.14$) from Jan 2019 ($n=89528$) to Mar 2020, with an average increase in 384 prescriptions per month. An estimated decrease with 1317 prescriptions was observed in Apr 2020 (compared to the estimated count in Mar 2020, $p=0.719$). There was no significant change in the rate of increase before and after April 2020 ($p=0.362$). After Apr 2020, the estimated change in the number of buprenorphine prescriptions was an average increase of 930 prescriptions per month (Table 1).

Table 1. Estimates from the Segmented Regression Analysis of the Number of Monthly Buprenorphine Prescriptions in Kentucky, 2019-2020

Variable	Estimate	Standard		P-value
		Error		
Intercept	89528	2239.00		<.001
Time (month)	383.57	246.23		0.135
Policy implementation (April 2020)	-1317	3614.00		0.719
Time after the policy implementation	546.65	586.14		0.362

References

- [1]. COVID-19 Information Page. (n.d.). Retrieved March 16, 2021, from Usdoj.gov website: <https://www.deaddiversion.usdoj.gov/coronavirus.html>
- [2]. Usdoj.gov. Accessed March 17, 2021. [https://www.deaddiversion.usdoj.gov/GDP/\(DEA-DC-022\)\(DEA068\)%20DEA%20SAMHSA%20buprenorphine%20telemedicine%20\(Final\)%20+Esign.pdf](https://www.deaddiversion.usdoj.gov/GDP/(DEA-DC-022)(DEA068)%20DEA%20SAMHSA%20buprenorphine%20telemedicine%20(Final)%20+Esign.pdf)

Results: Segmented Regression Analyses

Figure 1. Segmented Regression Analysis of the Number of Dispensed Buprenorphine Prescriptions for OUD Treatment, by Month, Kentucky, 2019-2020

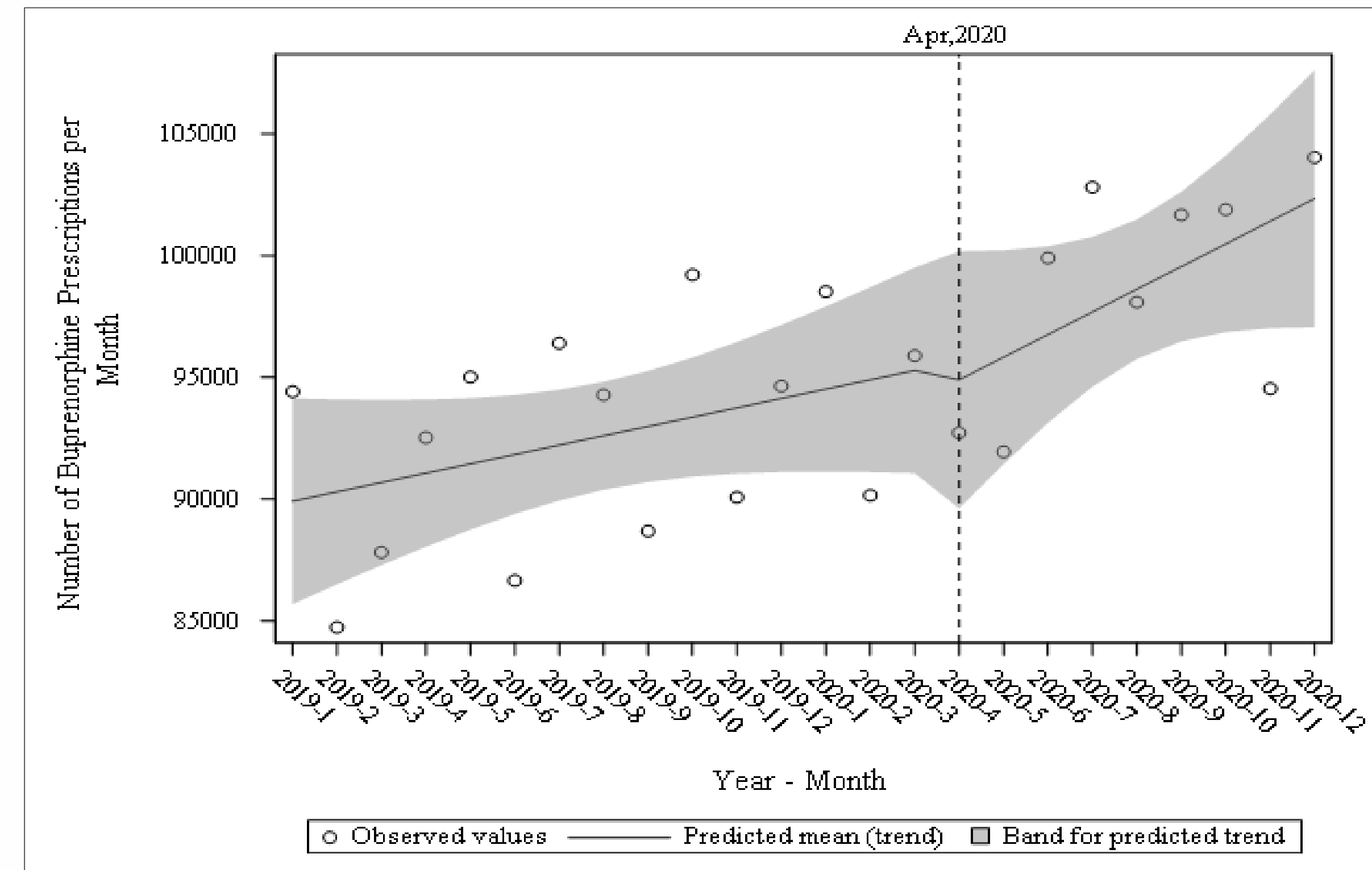


Figure 2. Segmented Regression Analysis of the Number of Unique Patients with Dispensed Buprenorphine for OUD Treatment, by Month, Kentucky, 2019-2020

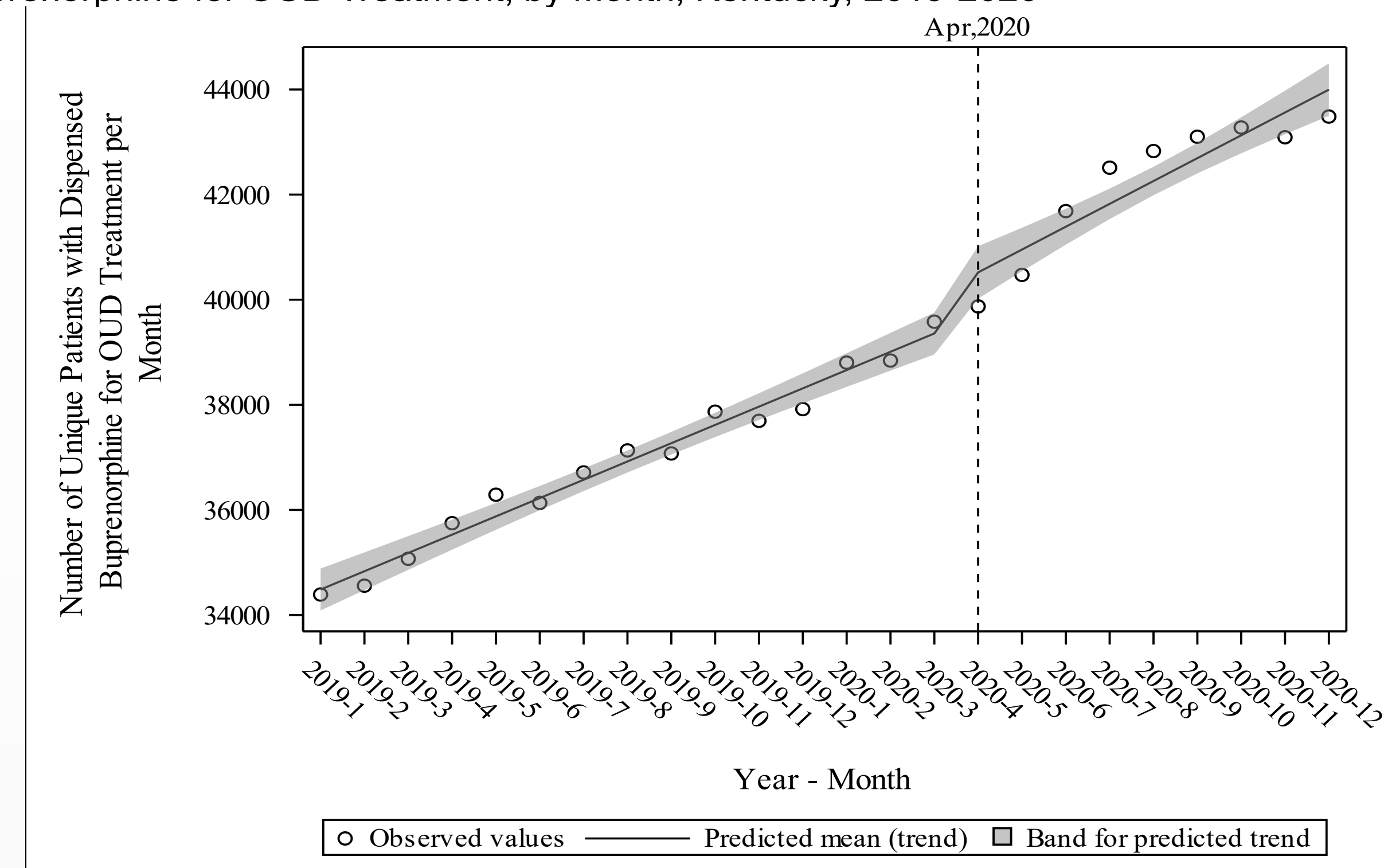
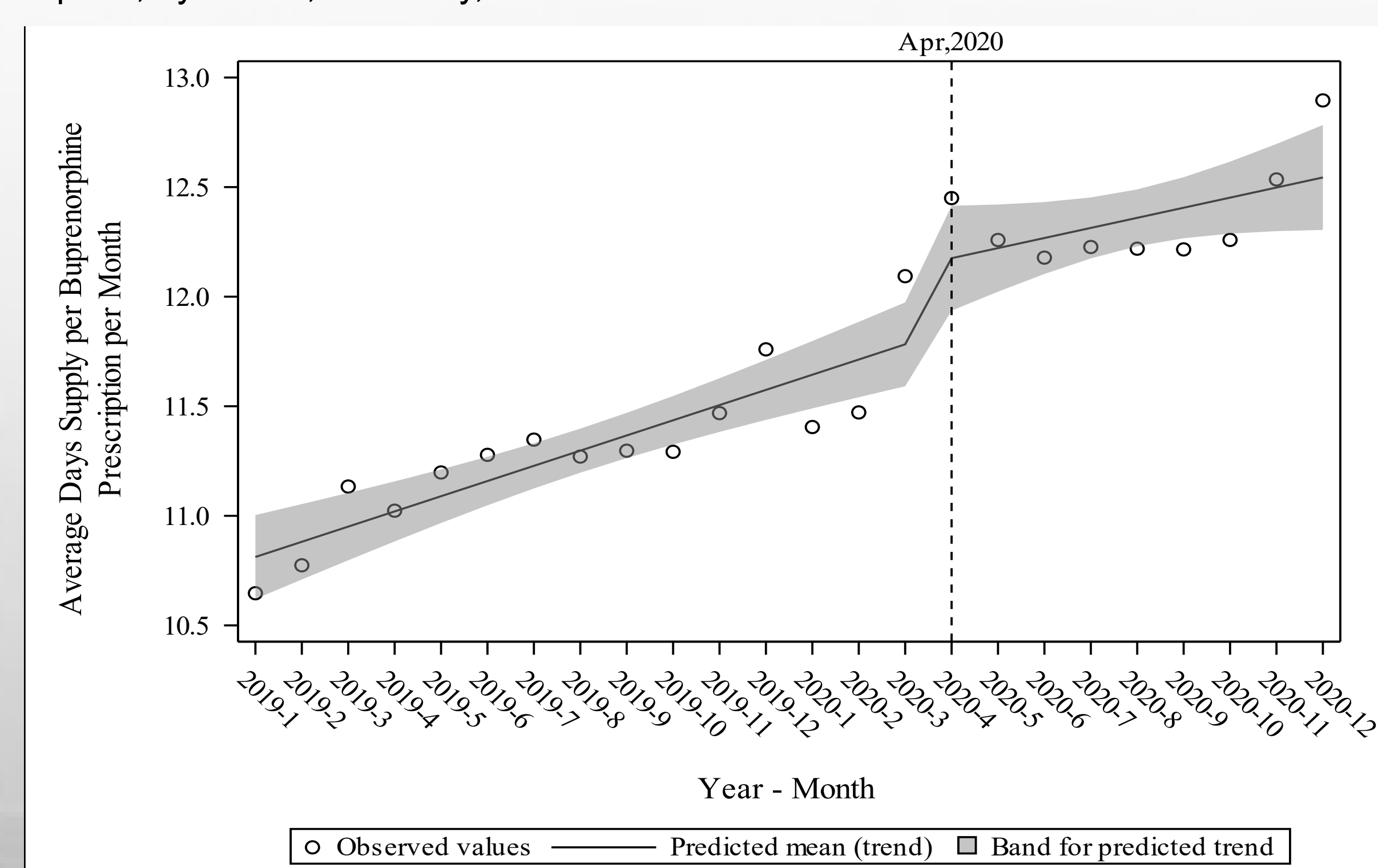


Figure 3. Segmented Regression Analysis of the Average Days Supply per Buprenorphine Prescription, by Month, Kentucky, 2019-2020



Results: Changes in the Number of Unique Patients

The estimated number of unique patients with dispensed prescriptions for buprenorphine significantly increased ($p<0.001$) from Jan 2019 ($n=34,173$) to Mar 2020, with an average increase in 348 patients per month. A significant increase with 728 patients was estimated in Apr 2020 (compared to the estimated count in Mar 2020, $p=0.046$). There was no significant change in the slopes of the regression lines before and after Apr 2020 ($p=0.133$). After Apr 2020, the estimated change in the number of unique patients was an average increase of 435 patients per month (Table 2).

Table 2. Estimates from the Segmented Regression Analysis of the Number of Unique Patients with OUD prescribed for Buprenorphine per Month in Kentucky, 2019-2020

Variable	Estimate	Standard		P-value
		Error		
Intercept	34137	211.43		<.001
Time (month)	348.00	23.25		<.001
Policy implementation (April 2020)	728.03	341.32		0.045
Time after the policy implementation	86.67	55.36		0.133

Results: Changes in the Average Days Supply per Prescription

The estimated average days supply per buprenorphine prescription significantly increased ($p<0.001$) from Jan 2019 ($n=10.8$) to Mar 2020, with an average increase of 0.07 days per prescription every month. An immediate increase of 0.35 days was estimated in Apr 2020 (compared to the estimated average in Mar 2020, $p=0.047$). There was no significant change in monthly increase before and after April 2020 ($p=0.392$). After Apr 2020, the estimated change of average days supply per prescription was an average increase of 0.05 days per prescription monthly (Table 3).

Table 3. Estimates from the Segmented Regression Analysis of the average days of supply per Buprenorphine prescription per Month in Kentucky, 2019-2020

Variable	Estimate	Standard		P-value
		Error		
Intercept	10.74	0.10		<.001
Time (month)	0.07	0.011		<.001
Policy implementation (April 2020)	0.35	0.168		0.047
Time after the policy implementation	-0.02	0.027		0.392

Conclusions

In Apr 2020 (the month after the COVID-19 emergency declaration), there was a decline in the number of dispensed buprenorphine prescriptions for treatment of OUD. However, the prescribers remedied the decline by increasing the days supply per prescription. These findings suggest that the federal policies authorizing the initiation and continuation of buprenorphine treatment via telemedicine may have successfully maintained patients' access to buprenorphine treatment during the COVID-19 Pandemic in Kentucky.

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