

Data supplement for Coughlin et al., Quality of Outpatient Depression Treatment in Patients With Comorbid Substance Use Disorder. Am J Psychiatry (doi: 10.1176/appi.ajp.2020.20040454)

## Appendix 1

**Included antidepressant medications:** amitriptyline, amoxapine, bupropion, citalopram, clomipramine, desvenlafaxine, desipramine, doxepin, duloxetine, escitalopram, fluoxetine, fluvoxamine, imipramine, isocarboxazid, maprotiline, mirtazapine, nefazodone, nortriptyline, paroxetine, phenelzine, protriptyline, sertraline, tranylcypromine, trimipramine, venlafaxine, selegiline, vilazodone, levomilnacipran, vortioxetine

**Psychotherapy CPT codes:** 90804, 90805, 90806, 90807, 90808, 90809, 90810, 90811, 90812, 90813, 90814, 90815, 90816, 90817, 90818, 90819, 90821, 90822, 90823, 90824, 90826, 90827, 90828, 90829, 90832, 90833, 90834, 90836, 90837, 90838, 90839, 90840, 90845, 90846, 90847, 90849, 90853

**TABLE S1. Model-adjusted depression treatment across specific substance use disorders<sup>a</sup>**

Variable	Antidepressant				Psychotherapy for Depression			
	Acute Phase (N=27,813)		Continuation Phase (N=27,813)		Acute Phase (N=52,455)		Continuation Phase (N=18,318)	
	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Alcohol use disorder	0.87***	0.80, 0.94	0.81***	0.75, 0.88	0.86***	0.81, 0.91	0.81***	0.72, 0.90
Opioid use disorder	0.74*	0.57, 0.95	0.79	0.61, 1.03	0.96	0.78, 1.17	0.93	0.64, 1.35
Cannabis use disorder	0.81**	0.70, 0.94	0.74***	0.63, 0.87	1.14*	1.01, 1.27	0.93	0.76, 1.13
Cocaine or other stimulant use disorder	0.81	0.66, 1.01	0.82	0.65, 1.03	0.78**	0.66, 0.92	0.98	0.72, 1.33
Other substance use disorder	0.84	0.63, 1.12	0.88	0.66, 1.19	0.71**	0.56, 0.89	1.28	0.85, 1.93
Age ≥65 (ref: 18–64 years)	0.97	0.90, 1.04	1.03	0.96, 1.11	0.75***	0.71, 0.79	0.94	0.86, 1.03
Gender (ref: male)	1.14***	1.06, 1.21	1.12***	1.05, 1.19	1.08**	1.02, 1.13	1.20***	1.11, 1.30
Race (ref: White)								
American Indian/Alaskan Native	0.74*	0.57, 0.95	0.87	0.67, 1.11	0.90	0.74, 1.09	0.98	0.70, 1.37
Asian/Pacific Islander/ Native Hawaiian	0.89	0.76, 1.05	0.85*	0.73, 0.99	1.02	0.91, 1.14	1.01	0.83, 1.22
Black	0.53***	0.50, 0.56	0.50***	0.47, 0.53	1.09***	1.04, 1.14	0.86***	0.80, 0.93
Multiracial	0.71**	0.58, 0.89	0.82	0.66, 1.01	1.16	0.98, 1.36	0.88	0.66, 1.16
Unknown	0.79***	0.71, 0.88	0.69***	0.63, 0.77	0.84***	0.77, 0.90	0.89	0.78, 1.02
Hispanic	0.74***	0.68, 0.80	0.78***	0.72, 0.85	1.10**	1.03, 1.17	0.89*	0.79–0.99
Elixhauser score								
1 vs. 0 comorbidities	1.10**	1.03, 1.17	1.15***	1.08, 1.22	0.91***	0.87, 0.95	0.98	0.91, 1.06
2 vs. 0 comorbidities	1.09*	1.00, 1.18	1.16***	1.07, 1.25	0.98	0.93, 1.04	1.08	0.98, 1.18
≥3 vs. 0 comorbidities	1.18***	1.08, 1.30	1.30***	1.19, 1.41	0.99	0.93, 1.05	0.99	0.89, 1.10
Geographic locality (ref: urban)	1.10**	1.03, 1.17	1.10**	1.04, 1.17	0.99	0.95, 1.03	1.01	0.94, 1.10
Service-connected disability	1.03	0.97, 1.08	1.03	0.98, 1.09	1.00	0.97, 1.04	1.06	0.99, 1.13
Homeless	0.76***	0.68, 0.84	0.69***	0.62, 0.78	1.06	0.98, 1.15	0.92	0.80–1.06
PTSD	0.98	0.93, 1.04	1.01	0.95, 1.07	0.47***	0.45, 0.50	0.77***	0.70–0.84
Anxiety disorder	1.02	0.97, 1.08	1.07*	1.01, 1.13	0.97	0.93, 1.01	0.81***	0.75, 0.87
Facility								
CBOC vs. VAMC	1.19***	1.13, 1.25	1.16***	1.10, 1.22	0.99	0.95, 1.02	0.97	0.91, 1.04
Other vs. VAMC	1.05	0.94, 1.17	1.07	0.96, 1.19	1.17***	1.08, 1.26	0.87*	0.76, 1.00
Distance >30 miles (ref: ≤30)	1.08*	1.00, 1.16	1.01	0.94, 1.08	0.81***	0.77, 0.85	0.78***	0.71, 0.86

<sup>a</sup> Patients were included in the models for adequate acute and continuation phase antidepressant treatment if they received an index antidepressant prescription (N=27,813 with complete data). All participants, after listwise deletion of missing data, were included in the acute phase psychotherapy model (N=52,455 with complete data), which required only a single therapy session. The continuation phase psychotherapy model included only those patients with an index therapy session (N=18,318). PTSD=posttraumatic stress disorder; CBOC=community-based outpatient clinic; VAMC=Veterans Administration Medical Center.

\*p<0.05. \*\*p<0.01. \*\*\*p<0.001.

**TABLE S2. Sensitivity analysis where any psychotherapy sessions, not just depression-specific sessions, were included in model**

Variable	Psychotherapy			
	Timely Initiation (N=52,455)		Adequate Continuation (N=23,850)	
	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Substance use disorder	1.03	0.98, 1.08	0.89**	0.82, 0.96
Age ≥65 (ref=18–64 years)	0.76***	0.72, 0.80	0.91*	0.84, 0.98
Gender (ref=Male)	1.02	0.97, 1.07	1.17***	1.09, 1.26
Race (ref=White)				
American Indian/Alaskan Native	0.91	0.77, 1.09	0.95	0.72, 1.26
Asian/Pacific Islander/ Native Hawaiian	1.03			
Black		0.92, 1.15	0.94	0.79, 1.11
Multi-racial	1.06**	1.02, 1.11	0.87***	0.81, 0.93
Unknown	1.09	0.93, 1.27	0.95	0.75, 1.21
Hispanic	0.86***	0.80, 0.93	0.87*	0.78, 0.98
Elixhauser score	1.16***	1.10, 1.24	0.88**	0.81, 0.97
1 vs. 0	0.85***	0.81, 0.89	1.00	0.93, 1.07
2 vs. 0	0.88***	0.84, 0.93	1.08	0.99, 1.17
≥3 vs. 0	0.89***	0.83, 0.94	1.02	0.93, 1.12
Geographic locality (ref=Non-rural)	0.98	0.94, 1.02	1.04	0.98, 1.12
Service-connected disability	1.07***	1.03, 1.11	1.05	1.00, 1.12
Homeless	1.02	0.94, 1.11	0.91	0.80, 1.02
PTSD	1.00	0.96, 1.05	0.90**	0.85, 0.96
Anxiety disorder	1.34***	1.29, 1.40	0.88***	0.83, 0.94
Facility				
CBOC vs. VAMC	1.02	0.98, 1.06	1.00	0.94, 1.05
Other vs. VAMC	1.16***	1.08, 1.26	1.01	0.90, 1.13
Distance >30 miles (ref=≤30)	0.81***	0.77, 0.85	0.79***	0.73, 0.86

<sup>a</sup> All participants, after listwise deletion of missing data, were included in the acute phase psychotherapy model (N=52,455 with complete data), which required one therapy session. The continuation phase psychotherapy model included only those patients with an initial therapy session (N=23,850). CBOC=community-based outpatient clinic; PTSD=post-traumatic stress disorder; VAMC=Veterans Administration Medical Center.

\*p<0.05. \*\*p<0.01. \*\*\*p<0.001.