

Table e-5. Factors associated with AMO based on nested multivariable binary logistic regression models: opioid AMO

	Odds Ratio (95% CI)				
Variable	Demographic Model	Headache Characteristics of Respondents	Psychiatric Comorbidities	Resource Use	Preventive Medication
Age (5-year intervals)	1.07 (1.03, 1.12)	1.10 (1.05, 1.16)	1.11 (1.06, 1.17)	1.14 (1.08, 1.19)	1.13 (1.08, 1.19)
Female	0.79 (0.61, 1.03)	0.56 (0.42, 0.75)	0.61 (0.46, 0.81)	0.66 (0.49, 0.87)	0.67 (0.5, 0.89)
White race	0.78 (0.57, 1.08) ^a	—	—	—	—
Income (≥\$50,000)	0.73 (0.57, 0.94)	0.91 (0.7, 1.18) ^a	—	—	—
Employed	0.53 (0.41, 0.67)	0.61 (0.47, 0.79)	0.62 (0.48, 0.8)	0.62 (0.48, 0.8)	0.61 (0.47, 0.79)
≥4-year college degree	0.77 (0.6, 0.99)	0.86 (0.66, 1.12) ^a	—	—	—
Migraine diagnosis by physician	—	1.23 (0.93, 1.63) ^a	—	—	—
MIDAS ≥11 (moderate-severe disability)	—	2.17 (1.53, 3.08)	2.02 (1.42, 2.87)	1.91 (1.33, 2.73)	1.89 (1.32, 2.71)
Allodynia presence (ASC ≥3)	—	2.15 (1.61, 2.88)	2.08 (1.55, 2.78)	2.00 (1.49, 2.68)	1.93 (1.44, 2.6)
MHDs					
5–9	—	1.81 (1.25, 2.63)	1.86 (1.28, 2.69)	1.75 (1.21, 2.55)	1.71 (1.17, 2.49)
10–14	—	3.09 (2.09, 4.56)	3.05 (2.07, 4.5)	2.90 (1.96, 4.30)	2.87 (1.93, 4.25)

≥15	—	3.76 (2.64, 5.35)	3.61 (2.53, 5.15)	3.49 (2.44, 5.00)	3.43 (2.4, 4.91)
Currently consulting a specialist^b	—	3.16 (2.33, 4.29)	3.35 (2.47, 4.53)	2.80 (2.05, 3.83)	2.36 (1.7, 3.27)
MIBS					
Mild (1–2)	—	1.32 (0.75, 2.32)	1.32 (0.75, 2.31)	1.25 (0.71, 2.21)	1.25 (0.71, 2.2)
Moderate (3–4)	—	2.61 (1.6, 4.26)	2.48 (1.52, 4.05)	2.38 (1.45, 3.89)	2.28 (1.39, 3.74)
Severe (≥5)	—	4.50 (2.93, 6.89)	3.94 (2.56, 6.08)	3.52 (2.27, 5.46)	3.32 (2.14, 5.17)
Depression (PHQ-9 ≥10)	—	—	1.57 (1.13, 2.18)	1.69 (1.28, 2.23)	1.68 (1.27, 2.23)
Anxiety (GAD-7 ≥10)	—	—	1.28 (0.94, 1.75) ^a	—	—
ED/UC use in past 6 months for any reason	—	—	—	1.69 (1.22, 2.33)	1.69 (1.22, 2.33)
ED/UC use in past 6 months for headache	—	—	—	2.14 (1.46, 3.15)	2.00 (1.36, 2.94)
Use of preventive medication	—	—	—	—	1.84 (1.34, 2.52)

AMO, acute medication overuse; ASC, Allodynia Symptom Checklist; ED, emergency department; GAD-7, Generalized

Anxiety Disorder 7-item scale; MHDs, monthly headache days; MIBS, Migraine Interictal Burden Scale; MIDAS, Migraine

Disability Assessment; PHQ-9, 9-item Patient Health Questionnaire; UC, urgent care.

^aIndicates nonsignificance ($p > 0.05$).

^b*Specialist* was defined as a neurologist, pain, or headache specialist.