

# Likelihood of Osteoarthritis Among Users of Anti-Obesity Medications

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# BACKGROUND

Obesity is a prevalent health issue linked to a higher risk of osteoarthritis (OA).<sup>1,2</sup> Excess weight places mechanical stress on joints and triggers metabolic inflammation, contributing to OA development.<sup>3,4</sup> New anti-obesity medications (AOMs) including tirzepatide (Zepbound) and semaglutide (Wegovy) injection show promise for weight management, but their effect on OA risk is unclear.<sup>5,6</sup>

### OBJECTIVES

The potential impact of newly-approved AOMs on risk of OA among patients with obesity in the United States was assessed.

## METHODS

#### Setting

Retrospective cohort study using 2022-2024 Kythera data, with an identification period from November 1 to December 31, 2023, a 12-month baseline, and a 6-month follow-up (**Figure 1**).

#### Sample

Patients with obesity in two cohorts:

- **AOM cohort**: Evidence of tirzepatide (Zepbound) or semaglutide (Wegovy) use during the identification period, with the first AOM claim considered the index date
- Non-AOM cohort: No evidence of prescribed AOM use, with random index dates assigned for matching; a 1% random sample was assessed.

Detailed inclusion and exclusion criteria are outlined in Figure 1.

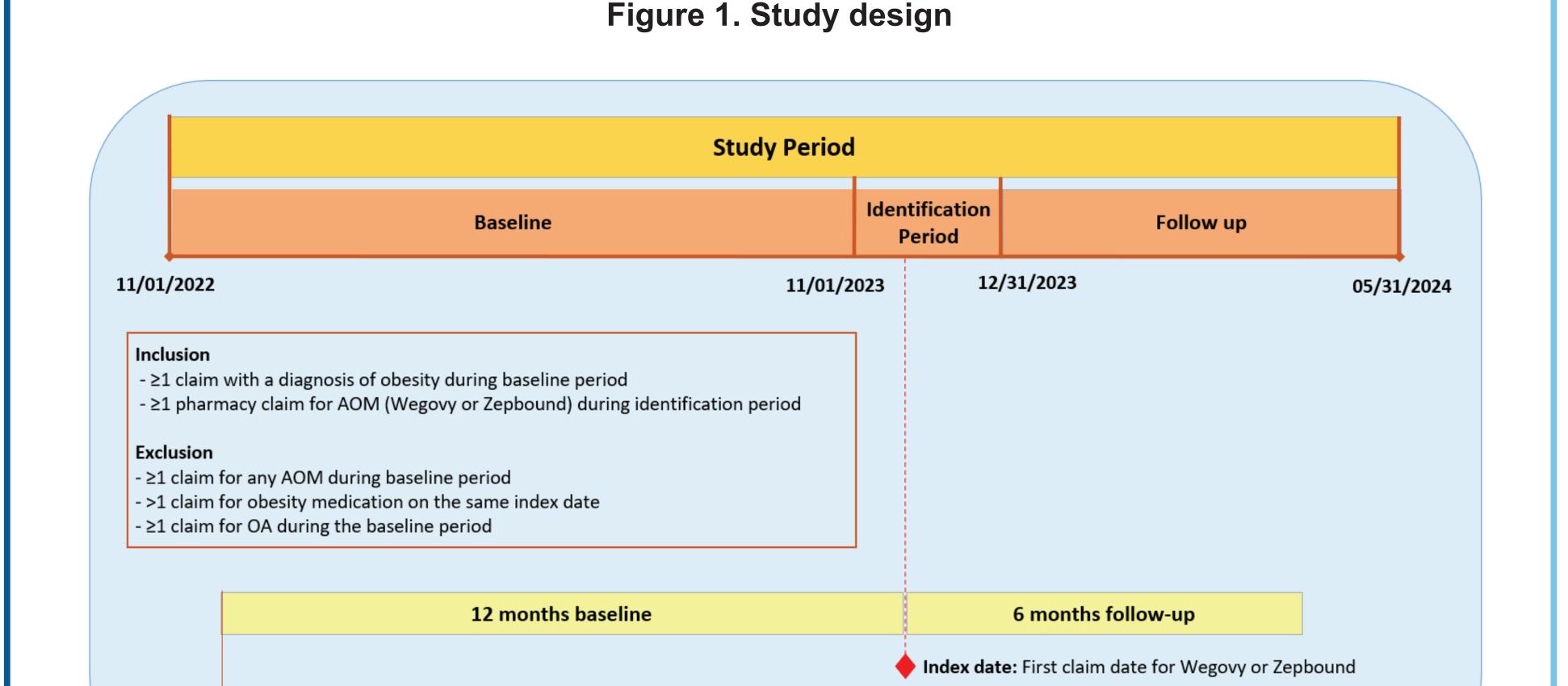
#### Outcomes

Risk of OA during the follow-up period was assessed.

#### **Analysis**

- Descriptive analysis of sociodemographic and clinical characteristics was performed.
- Cox regression was employed to examine OA risk and AOM use, adjusting for demographics, comorbidities, and socioeconomic factors, with additional analyses comparing outcomes between patients with tirzepatide and semaglutide use.

# METHODS (cont'd)



Continuous Enrollment

AOM: anti-obesity medication; OA: osteoarthritis

# RESULTS

We identified 21,819 patients with obesity and AOM use (19,087 semaglutide, 2,732 tirzepatide) and 85,018 without AOM use who met the inclusion criteria. Patients in the AOM cohort were generally younger, with an average age of 45.15 years, and predominantly female (77.62%). Despite their younger age, they exhibited a higher prevalence of comorbidities compared to the non-AOM cohort, including elevated rates of chronic obstructive pulmonary disease (COPD) (12.58%) and anxiety (28.57%) (**Table 1**).

The unadjusted incidence of osteoarthritis was significantly lower in the AOM cohort (2.99%) compared to the non-AOM cohort (14.43%, p<0.0001). Subgroup analysis of patients in the AOM cohort showed that the incidence of OA was higher in the semaglutide group at 3.08%, vs 2.42% in the tirzepatide group, but was not found to be significant (p=0.0584) (**Table 1**).

After adjusting for sociodemographic and clinical characteristics, OA risk was 37% lower in AOM users vs non-users (HR=0.63, p<0.0001) (**Table 2**). The adjusted risk of OA was 23% higher for Wegovy users compared to Zepbound users (HR=1.23, p=0.1126); the difference was not statistically significant.

# RESULTS (cont'd)

Table 1. Baseline characteristics of the study and comparison cohorts

	AOM Cohort (Wegovy or Zepbound) (N = 21,819)		Non-AOM Cohort (N = 85,798)		p-value	SMD			
Characteristics	N/Mean	%/SD	N/Mean	%/SD					
Age	45.15	12.23	51.07	18.26	0.0000	0.3440			
Age Group: 18-40	7,608	34.87%	19,125	22.29%	0.0000	0.2931			
Age Group: 41-60	11,701	53.63%	32,937	38.39%	0.0000	0.3117			
Age Group: 61-80	2,296	10.52%	26,249	30.59%	0.0000	0.4624			
Age Group: 80+	29	0.13%	3,512	4.09%	0.0000	0.2229			
Gender									
Male (%)	4,883	22.38%	36,256	42.26%	0.0000	0.4147			
Female (%)	16,936	77.62%	49,540	57.74%	0.0000	0.4147			
Comorbidity Scores									
Charlson Comorbidity Score (≥ 2)	1,529	7.01%	4,403	5.13%	0.0000	0.0822			
Chronic Disease Score (≥ 2)	11,208	51.37%	6,920	8.07%	0.0000	1.3070			
Elixhauser Score (≥ 2)	13,734	62.95%	13,564	15.81%	0.0000	1.2035			
SES									
Low	6,050	27.73%	28,729	33.48%	0.0000	0.1232			
Medium	7,082	32.46%	27,715	32.30%	0.6614	0.0033			
High	8,262	37.87%	27,551	32.11%	0.0000	0.1223			
Baseline Osteoarthritis-related Comorbidities									
Cerebrovascular Disease	186	0.85%	344	0.40%	0.0000	0.0645			
Peripheral Vascular Disease	475	2.18%	1,255	1.46%	0.0000	0.0568			
COPD	2,744	12.58%	3,089	3.60%	0.0000	0.4016			
Depression	4,786	21.94%	3,266	3.81%	0.0000	0.7171			
Metabolic Disorders	857	3.93%	300	0.35%	0.0000	0.3504			
Visual Disturbances	351	1.61%	320	0.37%	0.0000	0.1573			
Hearing Loss	170	0.78%	197	0.23%	0.0000	0.0943			
Anxiety	6,233	28.57%	3,446	4.02%	0.0000	0.9142			
Migraine	1,760	8.07%	809	0.94%	0.0000	0.4751			
Gout	402	1.84%	274	0.32%	0.0000	0.1934			
Fibromyalgia	395	1.81%	225	0.26%	0.0000	0.2052			
Polymyalgia Rheumatica	7	0.03%	26	0.03%	0.8934	0.0010			
Incidence									
Osteoarthritis	653	2.99%	12,382	14.43%	0.0000	0.3541			

AOM: anti-obesity medication; COPD: chronic obstructive pulmonary disease; SES: socioeconomic status; SD: standard deviation; SMD: standardized mean difference

Table 2. Cox regression results for time to OA

HR			Conf	Conf. Interval		
Yes 0.63 0.58 0.69 0.0000 No 1.00 1.00 1.00 1.00  haracteristics  Age Group: 18-40 0.15 0.13 0.17 0.0000 Age Group: 61-60 0.95 0.88 1.02 0.1550 Age Group: 61-80 1.00 1.00 1.00 1.00  ender  Female 1.31 1.26 1.36 0.0000 Male 1.00 1.00 1.00 1.00  morbidity Scores  Charlson Comorbidity Score (≥ 2) 1.26 1.16 1.38 0.0000  Chronic Disease Score (≥ 2) 0.71 0.67 0.75 0.0000  Elixhauser Score (≥ 2) 0.71 0.67 0.75 0.0000  Medium 1.09 1.04 1.14 0.0001 High 1.00 1.00 1.00 1.00  Medium 1.09 1.04 1.14 0.0001 High 1.00 1.00 1.00 1.00  morbidities  Cerebrovascular Disease 1.11 0.98 1.26 0.0781 Peripheral Vascular Disease 1.11 0.98 1.26 0.0781 Peripheral Vascular Disease 1.11 0.98 1.26 0.0781 Peripheral Vascular Disease 0.81 0.63 1.02 0.0781 Peripheral Vascular Disease 1.11 0.98 1.26 0.1158 COPD 0.99 0.91 1.09 0.994 Depression 1.05 0.96 1.16 0.2656 Metabolic Disorders 0.78 0.60 1.01 0.0569  Visual Disturbances 0.97 0.76 1.23 0.7827 Hearing Loss 0.82 0.59 1.12 0.2131 Anxiety 0.77 0.70 0.84 0.0000  Fibromyalgia 2.08 1.71 2.54 0.0000		HR			p-value	
No 1.00 1.00 1.00 1.00 1.00 haracteristics  Age Group: 18-40 0.15 0.13 0.17 0.0000 Age Group: 41-60 0.95 0.88 1.02 0.1550 Age Group: 61-80 2.21 2.07 2.37 0.0000 Age Group: 61-80 1.00 1.00 1.00 1.00 Age Group: 61-80 1.00 1.00 1.00 Age Group: 61-80 1.00 1.00 1.00 Age Group: 61-80 1.00 1.00 1.00 Age Group: 80+ 1.00 1.00 1.00 1.00 Age Group: 80+ 1.16 1.38 0.0000 Age Group: 80+ 1.16 1.38 0.0000 Age Group: 80+ 1.16 1.38 0.0000 Age Group: 80+ 1.10 1.067 0.75 0.0000 Age Group: 80+ 1.10 1.05 1.15 0.0000 Age Group: 80+ 1.10 1.05 1.15 0.0000 Age Group: 80+ 1.10 1.05 1.15 0.0000 Age Group: 80+ 1.10 1.00 1.00 1.00 Age Group: 80+ 1.10 1.00 1.00 Age Group: 80+ 1.11 0.98 1.26 0.158 COPD 0.99 0.91 1.09 0.994 Age Group: 80+ 1.11 0.98 1.26 0.158 COPD 0.99 0.91 1.09 0.994 Age Group: 80+ 1.11 0.98 1.26 0.158 COPD 0.99 0.91 1.09 0.994 Age Group: 80+ 1.11 0.98 1.26 0.158 Age Group: 80+ 1.11 0.11 0.11 0.11 0.11 0.11 0.11 0.	reatment					
No 1.00 1.00 1.00 1.00 1.00 haracteristics  Age Group: 18-40 0.15 0.13 0.17 0.0000 Age Group: 41-60 0.95 0.88 1.02 0.1550 Age Group: 61-80 2.21 2.07 2.37 0.0000 Age Group: 61-80 1.00 1.00 1.00 1.00 Age Group: 61-80 1.00 1.00 1.00 Age Group: 61-80 1.00 1.00 1.00 Age Group: 61-80 1.00 1.00 1.00 Age Group: 80+ 1.00 1.00 1.00 1.00 Age Group: 80+ 1.16 1.38 0.0000 Age Group: 80+ 1.16 1.38 0.0000 Age Group: 80+ 1.16 1.38 0.0000 Age Group: 80+ 1.10 1.067 0.75 0.0000 Age Group: 80+ 1.10 1.05 1.15 0.0000 Age Group: 80+ 1.10 1.05 1.15 0.0000 Age Group: 80+ 1.10 1.05 1.15 0.0000 Age Group: 80+ 1.10 1.00 1.00 1.00 Age Group: 80+ 1.10 1.00 1.00 Age Group: 80+ 1.11 0.98 1.26 0.158 COPD 0.99 0.91 1.09 0.994 Age Group: 80+ 1.11 0.98 1.26 0.158 COPD 0.99 0.91 1.09 0.994 Age Group: 80+ 1.11 0.98 1.26 0.158 COPD 0.99 0.91 1.09 0.994 Age Group: 80+ 1.11 0.98 1.26 0.158 Age Group: 80+ 1.11 0.11 0.11 0.11 0.11 0.11 0.11 0.	Yes	0.63	0.58	0.69	0.0000	
Age Group: 18-40         0.15         0.13         0.17         0.0000           Age Group: 41-60         0.95         0.88         1.02         0.1550           Age Group: 61-80         2.21         2.07         2.37         0.0000           Age Group: 80+         1.00         1.00         1.00           Tenale         1.31         1.26         1.36         0.0000           Male         1.00         1.00         1.00         1.00           Male         1.00         1.00         1.00         1.00           Male         1.00         1.00         1.00         1.00           Male         1.00						
Age Group: 41-60 0.95 0.88 1.02 0.1550 Age Group: 61-80 2.21 2.07 2.37 0.0000 Age Group: 80+ 1.00 1.00 1.00 1.00  Female 1.31 1.26 1.36 0.0000 Male 1.00 1.00 1.00  Male 1.38 0.0000  Chronic Disease Score (≥ 2) 0.71 0.67 0.75 0.0000  Elixhauser Score (≥ 2) 0.45 0.42 0.47 0.0000  Elixhauser Score (≥ 2) 1.10 1.05 1.15 0.0000  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  morbidities  Cerebrovascular Disease 0.81 0.63 1.02 0.0781  Peripheral Vascular Disease 1.11 0.98 1.26 0.1158  COPD 0.99 0.91 1.09 0.994  Depression 1.05 0.96 1.16 0.2656  Metabolic Disorders 0.78 0.60 1.01 0.569  Visual Disturbances 0.97 0.76 1.23 0.7827  Hearing Loss 0.82 0.59 1.12 0.2131  Anxiety 0.77 0.70 0.84 0.000  Migraine 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Characteristics					
Age Group: 61-80 2.21 2.07 2.37 0.0000 Age Group: 80+ 1.00 1.00 1.00 1.00  Female 1.31 1.26 1.36 0.0000 Male 1.00 1.00 1.00 1.00  Male 1.00 1.00 1.00 1.00  Male 1.10 1.67 0.75 0.0000  Elixhauser Score (≥ 2) 0.71 0.67 0.75 0.0000  Elixhauser Score (≥ 2) 1.26 1.16 1.38 0.0000  Medium 1.10 1.05 1.15 0.0000  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  Medium 1.09 1.04 1.14 0.0001  Medium 1.09 1.04 1.14 0.0001  Medium 1.09 1.00 1.00 1.00  Medium 1.00 1.00 1.00  Medium 1.00 1.00 1.00 1.00 1.00  Migraine 0.87 0.76 1.23 0.7827  Hearing Loss 0.82 0.59 1.12 0.2131  Anxiety 0.77 0.70 0.84 0.0000  Migraine 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Age Group: 18-40	0.15	0.13	0.17	0.0000	
Age Group: 80+ 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.	Age Group: 41-60	0.95	0.88	1.02	0.1550	
Female 1.31 1.26 1.36 0.0000 Male 1.00 1.00 1.00 1.00  morbidity Score (≥ 2) 1.26 1.16 1.38 0.0000  Charlson Comorbidity Score (≥ 2) 0.71 0.67 0.75 0.0000  Elixhauser Score (≥ 2) 0.45 0.42 0.47 0.0000  Medium 1.00 1.05 1.15 0.0000  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  momorbidities  Cerebrovascular Disease 0.81 0.63 1.02 0.0781  Peripheral Vascular Disease 1.11 0.98 1.26 0.1158  COPD 0.99 0.91 1.09 0.9094  Depression 1.05 0.96 1.16 0.2656  Metabolic Disorders 0.78 0.60 1.01 0.0569  Visual Disturbances 0.97 0.76 1.23 0.7827  Hearing Loss 0.82 0.59 1.12 0.2131  Anxiety 0.77 0.70 0.84 0.0000  Migraine 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Age Group: 61-80	2.21	2.07	2.37	0.0000	
Female	Age Group: 80+	1.00	1.00	1.00		
Male       1.00       1.00       1.00         comorbidity Scores         Charlson Comorbidity Score (≥ 2)       1.26       1.16       1.38       0.0000         Chronic Disease Score (≥ 2)       0.71       0.67       0.75       0.0000         EIIxhauser Score (≥ 2)       0.45       0.42       0.47       0.0000         ES         Low       1.10       1.05       1.15       0.0000         Medium       1.09       1.04       1.14       0.0001         High       1.00       1.00       1.00       1.00         Omorbidities         Cerebrovascular Disease       0.81       0.63       1.02       0.0781         Peripheral Vascular Disease       0.81       0.63       1.02       0.0781         Peripheral Vascular Disease       1.11       0.98       1.26       0.1158         COPD       0.99       0.91       1.09       0.9094         Depression       1.05       0.96       1.16       0.2656         Metabolic Disorders       0.78       0.60       1.01       0.0569         Visu	Gender					
Charlson Comorbidity Scores (≥ 2)         1.26         1.16         1.38         0.0000           Chronic Disease Score (≥ 2)         0.71         0.67         0.75         0.0000           Elixhauser Score (≥ 2)         0.45         0.42         0.47         0.0000           ES         US           Low         1.10         1.05         1.15         0.0000           Medium         1.09         1.04         1.14         0.0001           High         1.00         1.00         1.00         1.00           Omorbidities           Cerebrovascular Disease         0.81         0.63         1.02         0.0781           Peripheral Vascular Disease         1.11         0.98         1.26         0.1158           COPD         0.99         0.91         1.09         0.9094           Depression         1.05         0.96         1.16         0.2656           Metabolic Disorders         0.78         0.60         1.01         0.0569           Visual Disturbances         0.97         0.76         1.23         0.7827           Hearing Loss         0.82         0.59         1.12         0.2131           Anxiety<	Female	1.31	1.26	1.36	0.0000	
Charlson Comorbidity Score (≥ 2) 1.26 1.16 1.38 0.0000 Chronic Disease Score (≥ 2) 0.71 0.67 0.75 0.0000 Elixhauser Score (≥ 2) 0.45 0.42 0.47 0.0000  ES  Low 1.10 1.05 1.15 0.0000 Medium 1.09 1.04 1.14 0.0001 High 1.00 1.00 1.00  Comorbidities  Cerebrovascular Disease 0.81 0.63 1.02 0.0781 Peripheral Vascular Disease 1.11 0.98 1.26 0.1158  COPD 0.99 0.91 1.09 0.994  Depression 1.05 0.96 1.16 0.2656 Metabolic Disorders 0.78 0.60 1.01 0.0569  Visual Disturbances 0.82 0.97 0.76 1.23 0.7827  Hearing Loss 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Male	1.00	1.00	1.00		
Chronic Disease Score (≥ 2) 0.71 0.67 0.75 0.0000  Elixhauser Score (≥ 2) 0.45 0.42 0.47 0.0000  ES  Low 1.10 1.05 1.15 0.0000  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  Comorbidities  Cerebrovascular Disease 0.81 0.63 1.02 0.0781  Peripheral Vascular Disease 1.11 0.98 1.26 0.1158  COPD 0.99 0.91 1.09 0.904  Depression 1.05 0.96 1.16 0.2656  Metabolic Disorders 0.78 0.60 1.01 0.0569  Visual Disturbances 0.82 0.59 1.12 0.2131  Anxiety 0.77 0.70 0.84 0.0000  Migraine 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Comorbidity Scores					
Elixhauser Score (≥ 2) 0.45 0.42 0.47 0.0000  ES  Low 1.10 1.05 1.15 0.0000  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  Cerebrovascular Disease 0.81 0.63 1.02 0.0781  Peripheral Vascular Disease 1.11 0.98 1.26 0.1158  COPD 0.99 0.91 1.09 0.9094  Depression 1.05 0.96 1.16 0.2656  Metabolic Disorders 0.78 0.60 1.01 0.0569  Visual Disturbances 0.97 0.76 1.23 0.7827  Hearing Loss 0.82 0.59 1.12 0.2131  Anxiety 0.77 0.70 0.84 0.000  Migraine 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Charlson Comorbidity Score (≥ 2)	1.26	1.16	1.38	0.0000	
Low 1.10 1.05 1.15 0.0000  Medium 1.09 1.04 1.14 0.0001  High 1.00 1.00 1.00 1.00  Cerebrovascular Disease 0.81 0.63 1.02 0.0781  Peripheral Vascular Disease 1.11 0.98 1.26 0.1158  COPD 0.99 0.91 1.09 0.9094  Depression 1.05 0.96 1.16 0.2656  Metabolic Disorders 0.78 0.60 1.01 0.0569  Visual Disturbances 0.97 0.76 1.23 0.7827  Hearing Loss 0.82 0.59 1.12 0.2131  Anxiety 0.77 0.70 0.84 0.0000  Migraine 0.87 0.73 1.02 0.0868  Gout 1.30 1.05 1.61 0.0169  Fibromyalgia 2.08 1.71 2.54 0.0000	Chronic Disease Score (≥ 2)	0.71	0.67	0.75	0.0000	
Low       1.10       1.05       1.15       0.0000         Medium       1.09       1.04       1.14       0.0001         High       1.00       1.00       1.00         comorbidities         Cerebrovascular Disease       0.81       0.63       1.02       0.0781         Peripheral Vascular Disease       1.11       0.98       1.26       0.1158         COPD       0.99       0.91       1.09       0.9094         Depression       1.05       0.96       1.16       0.2656         Metabolic Disorders       0.78       0.60       1.01       0.0569         Visual Disturbances       0.97       0.76       1.23       0.7827         Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Elixhauser Score (≥ 2)	0.45	0.42	0.47	0.0000	
Medium       1.09       1.04       1.14       0.0001         High       1.00       1.00       1.00         comorbidities         Cerebrovascular Disease       0.81       0.63       1.02       0.0781         Peripheral Vascular Disease       0.81       0.63       1.02       0.0781         COPD       0.99       0.91       1.09       0.9094         Depression       1.05       0.96       1.16       0.2656         Metabolic Disorders       0.78       0.60       1.01       0.0569         Visual Disturbances       0.97       0.76       1.23       0.7827         Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	ES					
High         1.00         1.00         1.00           comorbidities           Cerebrovascular Disease         0.81         0.63         1.02         0.0781           Peripheral Vascular Disease         1.11         0.98         1.26         0.1158           COPD         0.99         0.91         1.09         0.9094           Depression         1.05         0.96         1.16         0.2656           Metabolic Disorders         0.78         0.60         1.01         0.0569           Visual Disturbances         0.97         0.76         1.23         0.7827           Hearing Loss         0.82         0.59         1.12         0.2131           Anxiety         0.77         0.70         0.84         0.0000           Migraine         0.87         0.73         1.02         0.0868           Gout         1.30         1.05         1.61         0.0169           Fibromyalgia         2.08         1.71         2.54         0.0000	Low	1.10	1.05	1.15	0.0000	
Cerebrovascular Disease         0.81         0.63         1.02         0.0781           Peripheral Vascular Disease         1.11         0.98         1.26         0.1158           COPD         0.99         0.91         1.09         0.9094           Depression         1.05         0.96         1.16         0.2656           Metabolic Disorders         0.78         0.60         1.01         0.0569           Visual Disturbances         0.97         0.76         1.23         0.7827           Hearing Loss         0.82         0.59         1.12         0.2131           Anxiety         0.77         0.70         0.84         0.0000           Migraine         0.87         0.73         1.02         0.0868           Gout         1.30         1.05         1.61         0.0169           Fibromyalgia         2.08         1.71         2.54         0.0000	Medium	1.09	1.04	1.14	0.0001	
Cerebrovascular Disease         0.81         0.63         1.02         0.0781           Peripheral Vascular Disease         1.11         0.98         1.26         0.1158           COPD         0.99         0.91         1.09         0.9094           Depression         1.05         0.96         1.16         0.2656           Metabolic Disorders         0.78         0.60         1.01         0.0569           Visual Disturbances         0.97         0.76         1.23         0.7827           Hearing Loss         0.82         0.59         1.12         0.2131           Anxiety         0.77         0.70         0.84         0.0000           Migraine         0.87         0.73         1.02         0.0868           Gout         1.30         1.05         1.61         0.0169           Fibromyalgia         2.08         1.71         2.54         0.0000	High	1.00	1.00	1.00		
Peripheral Vascular Disease       1.11       0.98       1.26       0.1158         COPD       0.99       0.91       1.09       0.9094         Depression       1.05       0.96       1.16       0.2656         Metabolic Disorders       0.78       0.60       1.01       0.0569         Visual Disturbances       0.97       0.76       1.23       0.7827         Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Comorbidities					
COPD       0.99       0.91       1.09       0.9094         Depression       1.05       0.96       1.16       0.2656         Metabolic Disorders       0.78       0.60       1.01       0.0569         Visual Disturbances       0.97       0.76       1.23       0.7827         Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Cerebrovascular Disease	0.81	0.63	1.02	0.0781	
Depression         1.05         0.96         1.16         0.2656           Metabolic Disorders         0.78         0.60         1.01         0.0569           Visual Disturbances         0.97         0.76         1.23         0.7827           Hearing Loss         0.82         0.59         1.12         0.2131           Anxiety         0.77         0.70         0.84         0.0000           Migraine         0.87         0.73         1.02         0.0868           Gout         1.30         1.05         1.61         0.0169           Fibromyalgia         2.08         1.71         2.54         0.0000	Peripheral Vascular Disease	1.11	0.98	1.26	0.1158	
Metabolic Disorders       0.78       0.60       1.01       0.0569         Visual Disturbances       0.97       0.76       1.23       0.7827         Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	COPD	0.99	0.91	1.09	0.9094	
Visual Disturbances       0.97       0.76       1.23       0.7827         Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Depression	1.05	0.96	1.16	0.2656	
Hearing Loss       0.82       0.59       1.12       0.2131         Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Metabolic Disorders	0.78	0.60	1.01	0.0569	
Anxiety       0.77       0.70       0.84       0.0000         Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Visual Disturbances	0.97	0.76	1.23	0.7827	
Migraine       0.87       0.73       1.02       0.0868         Gout       1.30       1.05       1.61       0.0169         Fibromyalgia       2.08       1.71       2.54       0.0000	Hearing Loss	0.82	0.59	1.12	0.2131	
Gout     1.30     1.05     1.61     0.0169       Fibromyalgia     2.08     1.71     2.54     0.0000	Anxiety	0.77	0.70	0.84	0.0000	
Fibromyalgia         2.08         1.71         2.54         0.0000	Migraine	0.87	0.73	1.02	0.0868	
	Gout	1.30	1.05	1.61	0.0169	
Polymyalgia Rheumatica 1.57 0.79 3.15 0.2001		2.08	1.71	2.54	0.0000	
	Polymyalgia Rheumatica	1.57	0.79	3.15	0.2001	

COPD: chronic obstructive pulmonary disease; HR: hazard ratio; OA: osteoarthritis

## CONCLUSION

AOM use was associated with a 37% lower adjusted risk of OA compared to non-use. Although no significant difference in OA risk reduction was observed between patients using semaglutide (Wegovy) and tirzepatide (Zepbound), both medications demonstrated a lower OA risk. These results suggest that AOMs not only support weight management but may also help reduce the risk of developing OA in individuals with obesity.

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