

WHITE PAPER

Obesity and GLP-1 Drugs

A Claims-Based Analysis

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Summary

Obesity is a common and serious disease. In recent years, a new class of medications for obesity has become available: glucagon-like peptide-1 (GLP-1) receptor agonists. In this report, FAIR Health delves into its repository of over 51 billion commercial healthcare claim records, the nation's largest such database, to examine trends in obesity and GLP-1 drug prescriptions among adult patients during the period 2019-2024. This study focuses on trends in diagnosis of overweight, obesity and type 2 diabetes, as well as GLP-1 drugs and other obesity treatment options (including bariatric surgery and behavioral health services). The key findings include the following:

- From 2019 to 2024, the percentage of adult patients with a diagnosis of overweight or obesity increased from 10.4 percent in 2019 to 15.7 percent in 2024, a relative increase of 50.7 percent. As discussed below in the Results section, many adult patients who are overweight or obese may not receive a medical diagnosis of overweight or obesity.¹
- The percentage of adult patients prescribed any type of GLP-1 drug increased from 0.9 percent of patients in 2019 to 4.0 percent of patients in 2024, a relative increase of 363.7 percent.
- Among all adult patients prescribed a GLP-1 drug, the percentage who had an overweight or obesity diagnosis and no type 2 diabetes diagnosis increased from 3.7 percent in 2019 to 16.5 percent in 2024, a relative increase of 344.4 percent.
- Over two percent of adult patients now take a GLP-1 drug to treat overweight or obesity. Among all adult patients, the percentage who had an overweight or obesity diagnosis and were prescribed a GLP-1 drug increased from 0.30 percent in 2019 to 2.05 percent in 2024, a relative increase of 586.7 percent. The percentage who received an overweight or obesity diagnosis but no type 2 diabetes diagnosis increased 1,960.9 percent, from 0.03 percent to 0.67 percent.
- The percentage of younger adults (aged 18-39) prescribed a GLP-1 drug increased from 0.19 percent in 2019 to 1.33 percent in 2024, a relative increase of 587.8 percent.
- Diagnoses of pancreatitis increased from 0.17 percent in the year before the first GLP-1 drug prescription to 0.31 percent in the year after for patients who did not have a type 2 diabetes diagnosis. This was an increase of over 80 percent, the largest percent increase among the co-occurring diagnoses examined.
- From 2019 to 2024, the percentage of adult patients who had bariatric surgery decreased from 0.12 percent in 2019 to 0.07 percent in 2024, a relative decrease of 41.8 percent.
- From 2019 to 2024, among all adult patients with an overweight or obesity diagnosis, the percentage who were prescribed a GLP-1 drug but did not have bariatric surgery increased from 2.5 percent in 2019 to 11.2 percent in 2024, a relative increase of 339.5 percent.
- In 2024, over 80 percent of patients with an overweight or obesity diagnosis did **not** receive a GLP-1 prescription, bariatric surgery or behavioral health service. Only 11.2 percent of such patients received a GLP-1 prescription, 6.3 percent received behavioral health services and 0.28 percent had bariatric surgery.
- The use of behavioral health services decreased dramatically for patients prescribed GLP-1 drugs during the study period. Out of all patients with an overweight or obesity diagnosis who were prescribed a GLP-1 drug, the percentage of patients who had behavioral health services related to their condition declined from 2019 to 2024. In 2019, 47.2 percent of such patients had

¹ Sara N. Bleich, Octavia Pickett-Blakely and Lisa A. Cooper, "Physician Practice Patterns of Obesity Diagnosis and Weight-Related Counseling," *Patient Education and Counseling* 82, no. 1 (2011): 123-29, <https://doi.org/10.1016/j.pec.2010.02.018>.

behavioral health services, but in 2024, only 12.4 percent of patients did, a relative decrease of 73.7 percent.

Background

Obesity is a common and serious disease that affects more than two in five American adults.² It is defined in adults as having a body mass index (BMI) of 30 or higher, whereas overweight is defined as having a BMI of 25 or higher but less than 30.³ Having a BMI of 40 or higher is considered severe or morbid obesity.⁴ Obesity increases the risk of such health conditions as type 2 diabetes, cardiovascular disease, musculoskeletal disorders (e.g., osteoarthritis) and certain cancers.⁵

In recent years, a new class of medications for obesity has become available: glucagon-like peptide-1 (GLP-1) receptor agonists.⁶ These GLP-1 drugs are analogs of a naturally occurring hormone that stimulates secretion of insulin (a hormone that decreases blood sugar levels), inhibits secretion of glucagon (a hormone that increases blood sugar levels) and inhibits appetite and food intake.^{7,8} GLP-1 is broken down quickly in humans, but GLP-1 drugs are longer lasting.⁹

The Food and Drug Administration (FDA) approved the first GLP-1 drug, Byetta (exenatide), for the treatment of type 2 diabetes in 2005.¹⁰ Since then, other GLP-1 drugs have been introduced, including three approved for weight management in patients who are obese or who are overweight with at least one weight-related comorbid condition: Saxenda (liraglutide; approved 2014), Wegovy (semaglutide; approved 2021) and a dual glucose-dependent insulinotropic polypeptide (GIP) receptor and GLP-1 drug, Zepbound (tirzepatide; approved 2023).^{11, 12, 13, 14}

GLP-1 drugs are increasingly prescribed. From 2020 to 2022, the volume of GLP-1 prescriptions grew 300 percent.¹⁵ Just over half (53.8 percent) of patients taking a GLP-1 drug in 2022 had a history of type

² "Adult Obesity Facts," Centers for Disease Control and Prevention (CDC), May 14, 2024, <https://www.cdc.gov/obesity/adult-obesity-facts/index.html>.

³ "Data, Trends, and Maps Definitions and Sources: Obesity and Weight Status," CDC, October 21, 2024, <https://www.cdc.gov/dnpao-data-trends-maps/database/definitions.html>.

⁴ "Adult BMI Categories," CDC, March 19, 2024, <https://www.cdc.gov/bmi/adult-calculator/bmi-categories.html>.

⁵ "Obesity: Health Consequences of Being Overweight," World Health Organization, March 1, 2024, <https://www.who.int/news-room/questions-and-answers/item/obesity-health-consequences-of-being-overweight>.

⁶ "GLP-1 Agonists," Cleveland Clinic, last reviewed July 3, 2023, <https://my.clevelandclinic.org/health/treatments/13901-glp-1-agonists>.

⁷ Jens Juul Holst, "From the Incretin Concept and the Discovery of GLP-1 to Today's Diabetes Therapy," *Frontiers in Endocrinology* 10 (2019): 260, <https://doi.org/10.3389/fendo.2019.00260>.

⁸ "Glucagon," Cleveland Clinic, last reviewed January 21, 2025, <https://my.clevelandclinic.org/health/articles/22283-glucagon>.

⁹ Holst, "From the Incretin Concept and the Discovery of GLP-1 to Today's Diabetes Therapy."

¹⁰ "GLP-1 Agonists," Cleveland Clinic.

¹¹ "Update on FDA's Ongoing Evaluation of Reports of Suicidal Thoughts or Actions in Patients Taking a Certain Type of Medicines Approved for Type 2 Diabetes and Obesity," US Food and Drug Administration, January 11, 2024, <https://www.fda.gov/drugs/drug-safety-and-availability/update-fdas-ongoing-evaluation-reports-suicidal-thoughts-or-actions-patients-taking-certain-type>.

¹² "Saxenda (liraglutide) injection 3 mg [prescribing information]," Novo Nordisk, revised November 2024, <https://www.novo-pi.com/saxenda.pdf>.

¹³ "Wegovy (semaglutide) injection 2.4 mg [prescribing information]," Novo Nordisk A/S, revised November 2024, <https://www.novo-pi.com/wegovy.pdf>.

¹⁴ "Zepbound—tirzepatide injection, solution [prescribing information]," Eli Lilly and Company, revised December 2024, <https://uspl.lilly.com/zepbound/zepbound.html#pi>.

¹⁵ Sanjula Jain, Katie Patton, Austin Miller et al., 2023 *Trends Shaping the Health Economy: Value for Money*, Trilliant Health, 2023, <https://www.trillianthealth.com/hubfs/2024%20Website%20Redesign/Reports/2023%20Annual%20Report%20FINAL.pdf>.

2 diabetes, suggesting that the remainder of patients taking the drug did so for other indications, including obesity.¹⁶ A poll in 2024 found that 12 percent of adults had taken a GLP-1 drug, and 6 percent were currently taking one.¹⁷

The most common side effects of GLP-1 drugs are gastrointestinal symptoms, principally nausea but also vomiting, diarrhea and constipation.^{18,19} Less common but more serious side effects include pancreatitis, gastroparesis, bowel obstruction, gallstone attacks and bile duct blockage.²⁰ Weight lost due to GLP-1 drugs may be regained if the drugs are stopped.^{21,22}

GLP-1 drugs have been associated with cardiovascular benefit.²³ One such drug, Wegovy, is indicated for reducing the risk of major adverse cardiovascular events in adults with cardiovascular disease and either obesity or overweight.²⁴ GLP-1 drugs also are under study for potential benefits related to depression and anxiety,²⁵ Alzheimer's disease, Parkinson's disease, osteoarthritis, substance use disorders and nonalcoholic fatty liver disease.²⁶

There is evidence that bariatric surgery, a type of operation to modify the stomach and intestines to treat obesity,²⁷ is being performed less as GLP-1 drugs become more commonly used. A cross-sectional study of privately insured patients found a relative 105.6 percent increase in patients prescribed GLP-1 drugs as anti-obesity medications from 2022 to 2023, with a relative 8.7 percent decrease in patients receiving bariatric surgery during the same period.²⁸

The US Preventive Services Task Force (USPSTF) recommends intensive, multicomponent behavioral interventions for adults with obesity.²⁹ Many of the effective behavioral weight loss interventions

¹⁶ Jain et al., 2023 *Trends Shaping the Health Economy*.

¹⁷ Alex Montero, Grace Sparks, Marley Presiado and Liz Hamel, "KFF Health Tracking Poll May 2024: The Public's Use and Views of GLP-1 Drugs," KFF, May 10, 2024, <https://www.kff.org/health-costs/poll-finding/kff-health-tracking-poll-may-2024-the-publics-use-and-views-of-glp-1-drugs/?source=email>.

¹⁸ Theodosios D. Filippatos, Thalia V. Panagiotopoulou and Moses S. Elisaf, "Adverse Effects of GLP-1 Receptor Agonists," *Review of Diabetic Studies* 11, no. 3-4 (2014): 202-30, <https://pubmed.ncbi.nlm.nih.gov/26177483/>.

¹⁹ Lisa Catanese, "GLP-1 Diabetes and Weight-Loss Drug Side Effects: 'Ozempic Face' and More," Harvard Health Publishing, February 5, 2024, <https://www.health.harvard.edu/staying-healthy/glp-1-diabetes-and-weight-loss-drug-side-effects-ozempic-face-and-more>.

²⁰ Catanese, "GLP-1 Diabetes and Weight-Loss Drug Side Effects."

²¹ Sadiya S. Khan, Chiadi E. Ndumele and Dhruv S. Kazi, "Discontinuation of Glucagon-Like Peptide-1 Receptor Agonists," *JAMA* 333, no. 2 (2025): 113-14, <https://doi.org/10.1001/jama.2024.22284>.

²² Kersten Bartelt, Chris Mast, Joe Deckert, Matthew Gracianette and Brendan Joyce, "Many Patients Maintain Weight Loss a Year After Stopping Semaglutide and Liraglutide," Epic Research, January 23, 2024, <https://www.epicresearch.org/articles/many-patients-maintain-weight-loss-a-year-after-stopping-semaglutide-and-liraglutide>.

²³ Lamija Ferhatbegović, Denis Mršić and Amra Macić-Džanković, "The Benefits of GLP1 Receptors in Cardiovascular Diseases," *Frontiers in Clinical Diabetes and Healthcare* 4 (2023): 1293926, <https://doi.org/10.3389/fcdhc.2023.1293926>.

²⁴ "Wegovy (semaglutide) injection 2.4 mg [prescribing information]," Novo Nordisk A/S.

²⁵ Anna Miller, Brendan Joyce, Kersten Bartelt and Joe Deckert, "Most GLP-1 Medications Correlated with a Lower Likelihood of Anxiety and Depression Diagnoses," Epic Research, February 6, 2024, <https://www.epicresearch.org/articles/most-glp-1-medications-correlated-with-a-lower-likelihood-of-anxiety-and-depression-diagnoses>.

²⁶ Kristin Allen, Paul Lovoy and Marilyn N. Bulloch, "Five Unexpected New Uses for GLP-1 Receptor Agonists," *Pharmacy Times—Pharmacy Practice in Focus: Health Systems* 13, no. 3 (May 2024), <https://www.pharmacytimes.com/view/five-unexpected-new-uses-for-glp-1-receptor-agonists>.

²⁷ "Bariatric Surgery Procedures," American Society for Metabolic and Bariatric Surgery, accessed April 3, 2025, <https://asmbs.org/patients/bariatric-surgery-procedures/>.

²⁸ Kevin Lin, Ateev Mehrotra and Thomas C. Tsai, "Metabolic Bariatric Surgery in the Era of GLP-1 Receptor Agonists for Obesity Management," *JAMA Network Open* 7, no. 10 (2024): e2441380, <https://doi.org/10.1001/jamanetworkopen.2024.41380>.

²⁹ US Preventive Services Task Force (USPSTF), *Weight Loss to Prevent Obesity-Related Morbidity and Mortality in Adults: Behavioral Interventions*, final recommendation statement, September 18, 2018, <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/obesity-in-adults-interventions>.

considered by the USPSTF involved a combination of dietary changes and increased physical activity.³⁰ Behavioral health services also are relevant to patients using GLP-1 drugs to treat obesity because of evidence that patients on such drugs have an elevated risk of psychiatric disorders, including major depression, anxiety and suicidal behavior.³¹

In this report, FAIR Health delves into its repository of over 51 billion commercial healthcare claim records, the nation's largest such database, to examine trends in obesity and GLP-1 drug prescriptions among adult patients during the period 2019-2024. This study focuses on trends in diagnosis of overweight, obesity and type 2 diabetes, as well as GLP-1 drugs and other obesity treatment options (including bariatric surgery and behavioral health services).

Methodology

Overweight or obesity and type 2 diabetes diagnoses were identified in a cohort of patients in FAIR Health longitudinal claims data from January 1, 2019, to December 31, 2024, using ICD-10 diagnosis codes that appeared in the first through sixth diagnosis code positions on the claims. Only claims with codes beginning with E66 were tagged as having a positive diagnosis for overweight or obesity; the mere presence of a Z diagnosis code stating a BMI that qualified for that diagnosis was not sufficient. Patients were included with a diagnosis of overweight or obesity only in the years when that diagnosis appeared in connection with any medical service they received. Morbid, or severe, obesity was defined by the code E66.01. Codes beginning with E11 were included for type 2 diabetes. Claims from workers' compensation were excluded. Claims from contributors who did not give data for the entirety of a given year were excluded from that year. Patients who were enrolled only for a month were still counted in the denominator for the year.

GLP-1 prescriptions were identified from a subset of data contributors who gave linkable medical and prescription claims data from January 1, 2019, to December 31, 2024, using National Drug Code (NDC) codes identifying these drugs.

Bariatric surgeries were identified using a combination of ICD-10 procedure codes and CPT^{®32} codes related to bariatric surgery that were accompanied by specific ICD-10 diagnosis codes related to obesity appearing in the first through fourth positions on the claim.

Behavioral health services were identified using CPT and HCPCS codes for these services—including psychotherapy, nutrition therapy and other interventions—on claim lines where overweight or obesity was listed as a diagnosis in the first through sixth positions on the claim. To be included, the service must have been billed with an obesity-specific diagnosis code.

For purposes of this study, geography was based on imputed home state of the patient. This value is unique on an annual basis and imputed based on the patient's claims data. Age and gender were also imputed based on the most commonly occurring age in each patient's claims for each calendar year and the most commonly occurring gender in each patient's claims for the study period. All results were limited to adult patients, i.e., those aged 18 and older.

³⁰ USPSTF, *Weight Loss to Prevent Obesity-Related Morbidity and Mortality in Adults*.

³¹ Edy Kornelius, Jing-Yang Huang, Shih-Chang Lo, Chien-Ning Huang and Yi-Sun Yang, "The Risk of Depression, Anxiety, and Suicidal Behavior in Patients with Obesity on Glucagon Like Peptide-1 Receptor Agonist Therapy," *Scientific Reports* 14 (October 18, 2024): 24433, <https://doi.org/10.1038/s41598-024-75965-2>.

³² CPT © 2024 American Medical Association (AMA). All rights reserved.

To capture potential side effects, professional and facility claims were pulled for patients from the index date of GLP-1 prescription (the first date it appeared in the data) to 364 days before to identify the time period before, and 365 days forward to identify the time period after.

Limitations

The data used in this report comprise claims data for commercially insured patients who are covered by insurers and third-party administrators who voluntarily participate in FAIR Health's data contribution program. Medicare Advantage (Medicare Part C) enrollees from contributing insurers are included, but not participants in Medicare Parts A, B and D.³³ In addition, data from Medicaid, CHIP and other state and local government insurance programs are not included, nor are data collected regarding uninsured patients.

This is an observational report based on the data FAIR Health receives from private payors regarding care rendered to covered patients. Home state of patients is imputed based on the patient's claims data each year. Prescription data are limited to a subset of data contributors who gave linkable medical and prescription claims data.

The report was not subject to peer review.

³³ FAIR Health also receives the entire collection of claims for traditional Medicare Parts A, B and D under the Centers for Medicare & Medicaid Services Qualified Entity Program, but those data are not a source for this report.

Results

Overweight and Obesity Trends

From 2019 to 2024, the percentage of adult patients with a diagnosis of overweight or obesity increased 50.7 percent, from 10.4 percent in 2019 to 15.7 percent in 2024 (figure 1). Figure 1 also shows a subset of these patients who were diagnosed with morbid obesity. The percentage of adult patients with morbid obesity climbed from 3.1 percent in 2019 to 5.2 percent in 2024, a relative increase of 70.9 percent.

These percentages differ from what has been reported in other data. For example, the Centers for Disease Control and Prevention (CDC) found that 40.3 percent of adults over 20 were obese while 9.4 percent were severely (morbidly) obese during the period 2021-2023.³⁴ Notably, the CDC used data from surveys of the general population, while FAIR Health data include only commercially insured patients. In addition, many adult patients who are overweight or obese may not obtain any care in the year and/or receive a medical diagnosis of overweight or obesity;³⁵ thus, they are underrepresented in medical claims-based data.

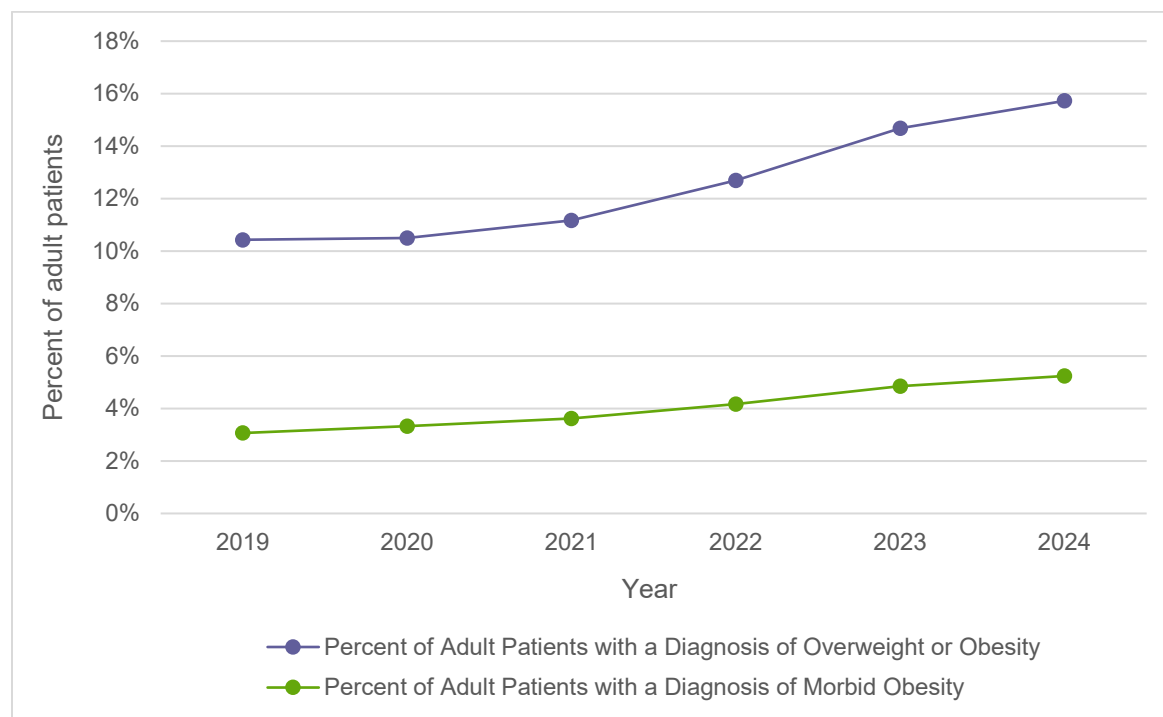


Figure 1. Percent of adult patients by diagnosis and year, 2019-2024

³⁴ Samuel D. Emmerich, Cheryl D. Fryar, Bryan Stierman and Cynthia L. Ogden, *Obesity and Severe Obesity Prevalence in Adults: United States, August 2021–August 2023*, National Center for Health Statistics (NCHS) Data Brief, no 508 (2024), <https://www.cdc.gov/nchs/products/databriefs/db508.htm>.

³⁵ Sara N. Bleich, Octavia Pickett-Blakely and Lisa A. Cooper, "Physician Practice Patterns of Obesity Diagnosis and Weight-Related Counseling," *Patient Education and Counseling* 82, no. 1 (2011): 123-29, <https://doi.org/10.1016/j.pec.2010.02.018>.

The percentage of adult patients with an overweight or obesity diagnosis varied by age and over the study period (figure 2). In 2019, the age group 50-64 had the highest percentage of patients with overweight or obesity diagnoses (13.0 percent). The same age group had the highest percentage in 2023 and 2024, and the percentage increased each year (18.1 percent in 2023 and 19.3 percent in 2024). However, in 2020, 2021 and 2022, the age group 65-74 had the highest percentage of patients among those with an overweight or obesity diagnosis. In the age groups 50 and over, there was a consistent upward trend in every year from 2019 to 2024. In every age group, there was a percent increase from 2019 to 2024 (table 1).

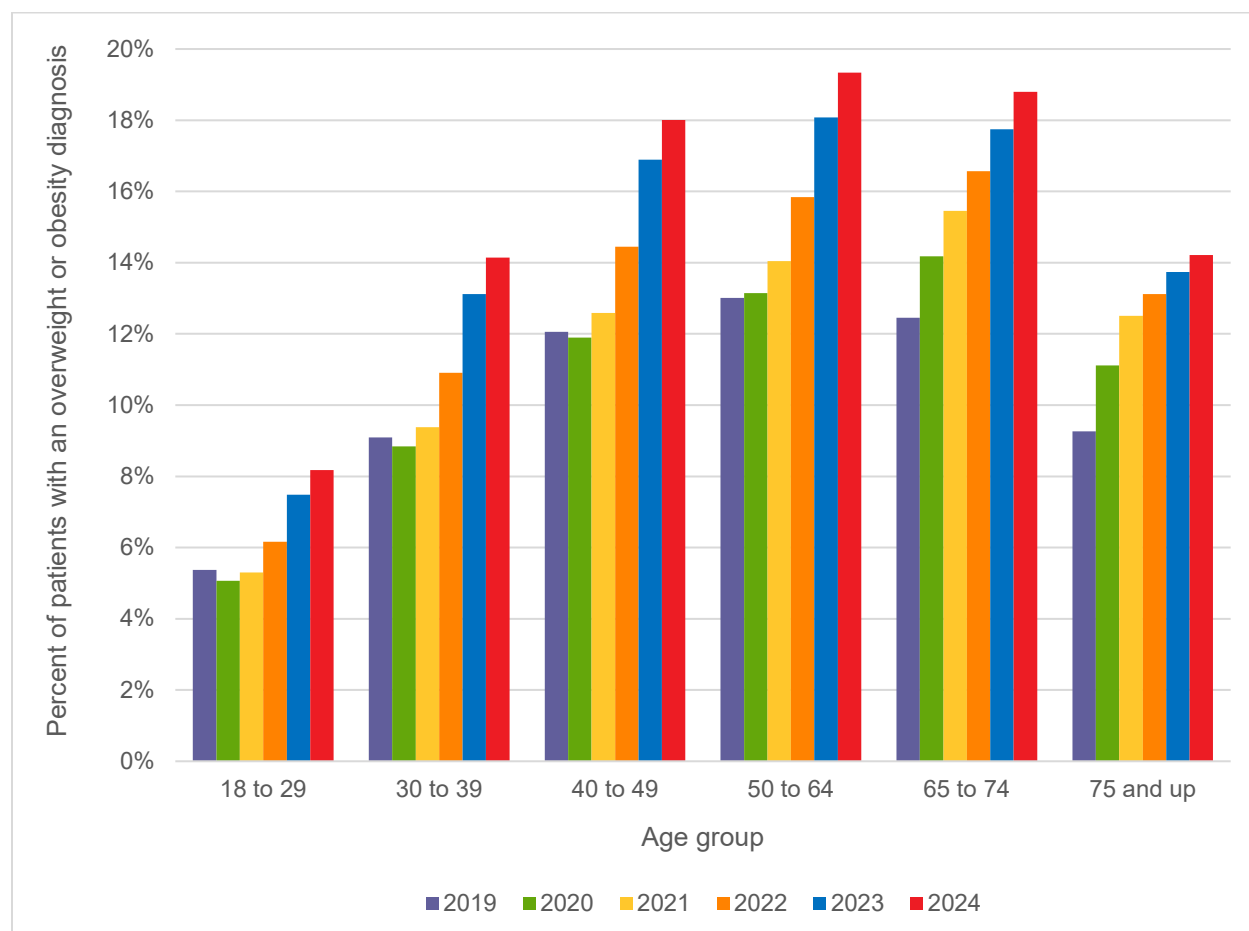


Figure 2. Percent of patients with an overweight or obesity diagnosis by age group and year, 2019-2024

Table 1. Percent of patients with an overweight or obesity diagnosis by age group and year with percent change, 2019-2024

Age Group	2019	2024	Percent Change
18 to 29	5.4%	8.2%	52.2%
30 to 39	9.1%	14.1%	55.6%
40 to 49	12.1%	18.0%	49.3%
50 to 64	13.0%	19.3%	48.5%
65 to 74	12.5%	18.8%	50.9%
75 and up	9.3%	14.2%	53.5%

Figure 3 shows the percentage of medical claim lines for professional services rendered via telehealth in each year from 2019 to 2024. The percentage of medical claim lines for telehealth services with a primary diagnosis of overweight or obesity exceeded those for primary diagnoses other than overweight or obesity throughout the study period. Both rose sharply in 2020 as telehealth became a popular venue of care during the COVID-19 pandemic, then both fell in 2021, though not to pre-pandemic levels. Over the study period, claim lines for telehealth services associated with a primary diagnosis of overweight or obesity climbed from 0.3 percent of all medical claim lines in 2019 to 10.3 percent in 2024, a relative increase of 3,483.3 percent. By comparison, telehealth services for primary diagnoses other than overweight or obesity increased from 0.1 percent in 2019 to 4.4 percent in 2024, a 3,235.7 percent rise.

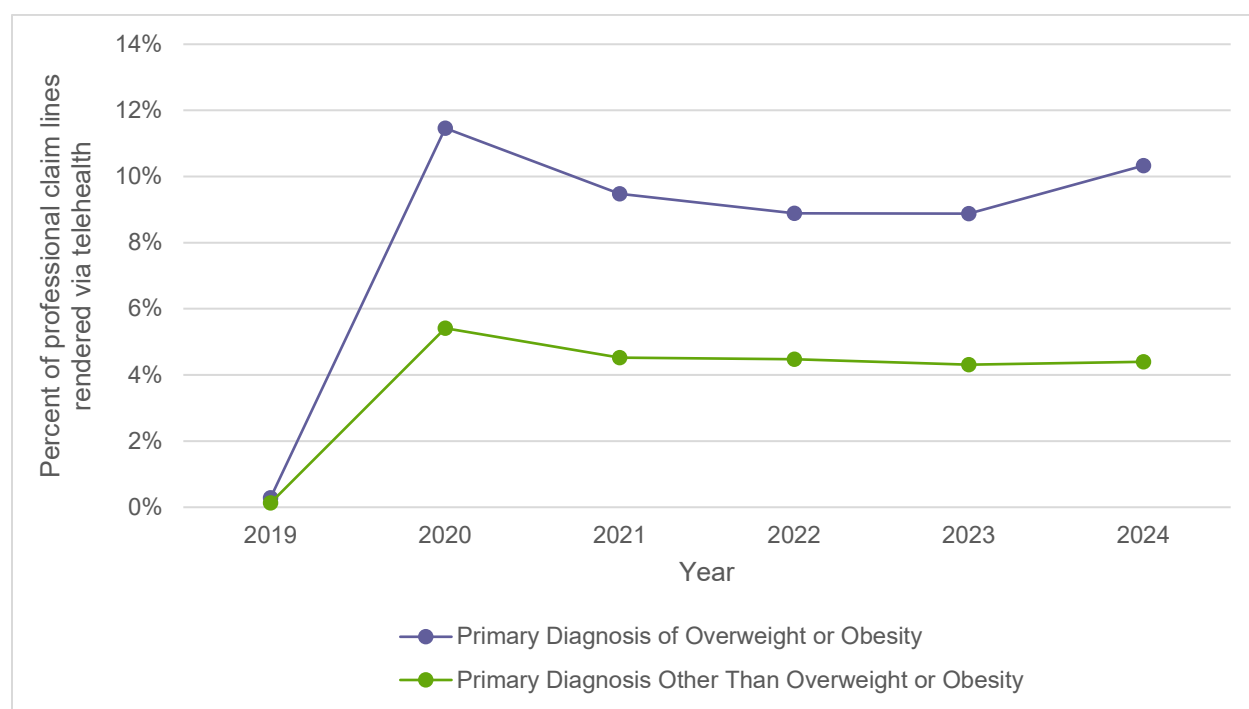


Figure 3. Percent of professional claim lines rendered via telehealth by diagnosis and year, 2019-2024

Out of all telehealth claim lines, the percentage of claim lines associated with an overweight or obesity diagnosis climbed from 2019 to 2024 (figure 4). In 2019, the percentage of telehealth claim lines for overweight or obesity was 1.5 percent, but in 2024, it was 3.5 percent, a relative increase of 126.9 percent.

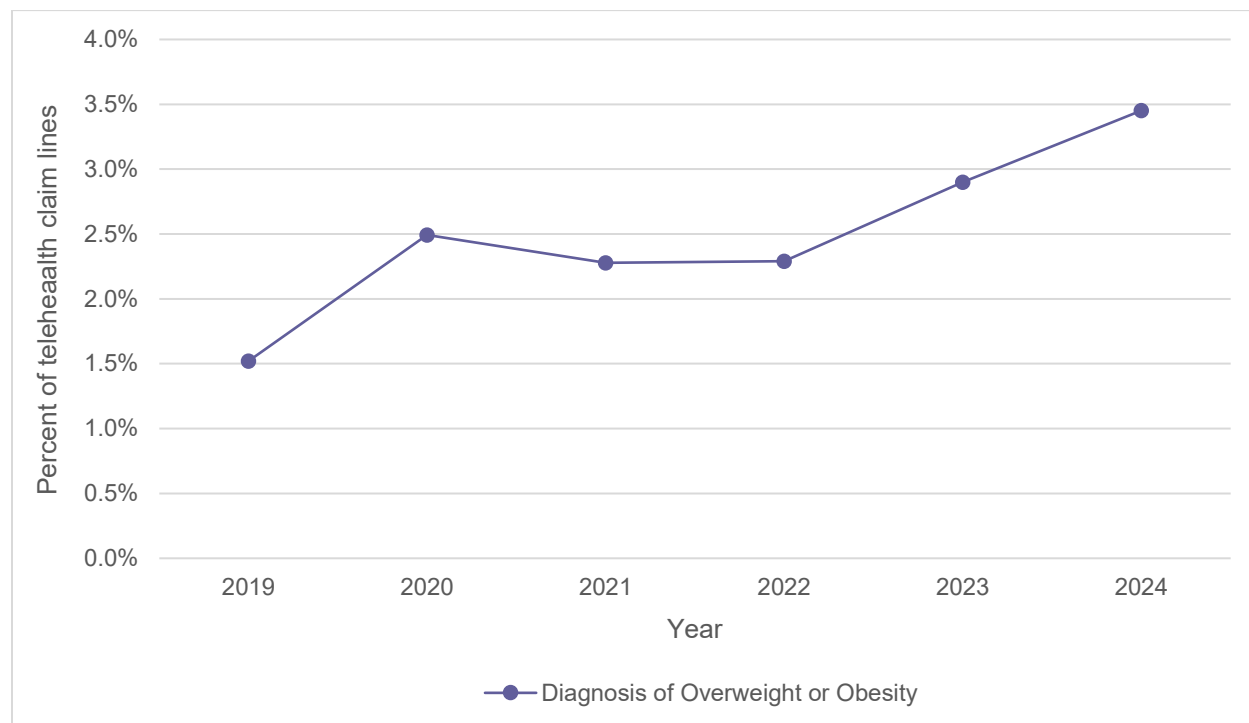


Figure 4. Overweight or obesity claim lines for telehealth services as a percentage of all telehealth claim lines

Type 2 Diabetes Trends

The percentage of adult patients who had a diagnosis of type 2 diabetes was relatively stable from 2019 to 2021 and then rose steadily from 2022 to 2024 (figure 5). In 2019, the percentage of such patients was 9.7 percent; it dropped to 9.5 percent in 2021, then rose to 11.7 percent in 2024, an overall relative increase of 21.2 percent (2019-2024). In 2023, 10.9 percent of adult patients had a type 2 diabetes diagnosis. This aligns closely with the CDC's finding of 11.3 percent prevalence of diagnosed diabetes in adults aged 20 and older from 2021 to 2023.³⁶

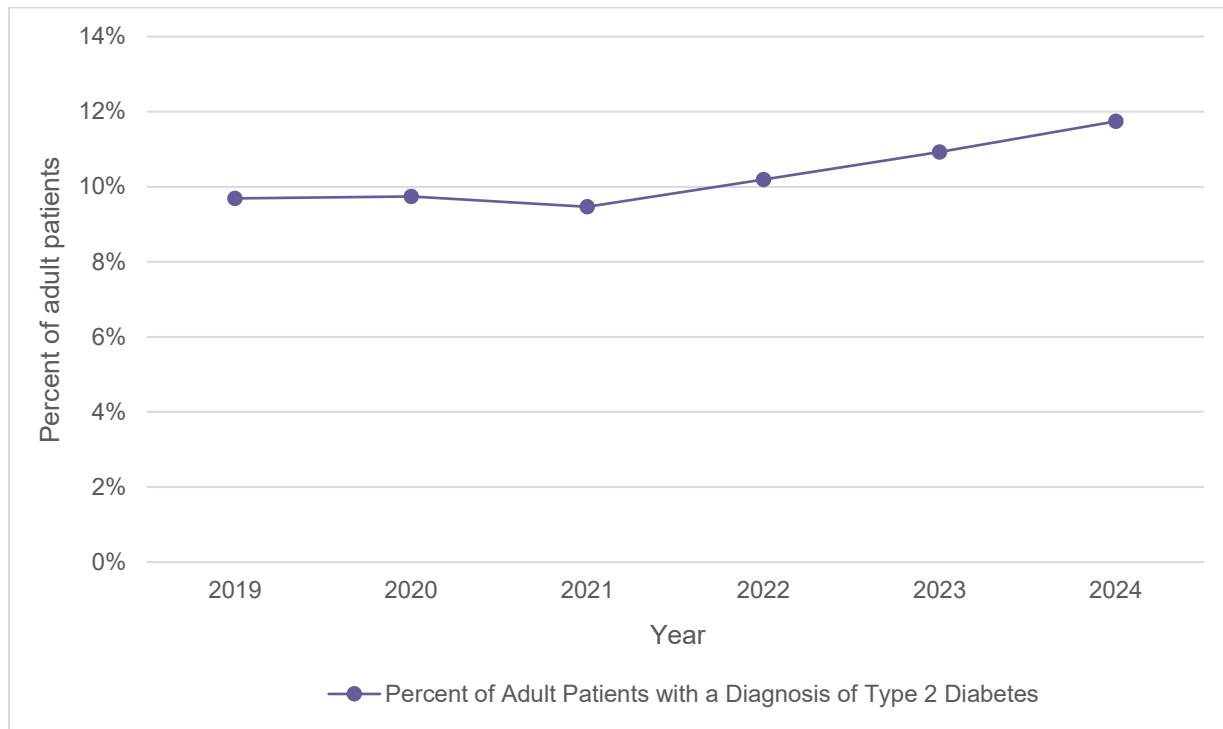


Figure 5. Adult patients with a type 2 diabetes diagnosis as a percentage of all adult patients by year, 2019-2024

³⁶ Jane A. Gwira, Cheryl D. Fryar and Qiuping Gu, *Prevalence of Total, Diagnosed and Undiagnosed Diabetes in Adults: United States, August 2021–August 2023*, NCHS Data Brief, no. 516 (2024), <https://www.cdc.gov/nchs/products/databriefs/db516.htm>.

The percentage of adult patients with a type 2 diabetes diagnosis varied by age, with the percentage of diagnoses in each age group increasing over the study period (figure 6, table 2). The older age groups had the highest percentage of such patients: Over 20 percent of patients in the age groups 65-74 and 75 and older had a type 2 diabetes diagnosis in every year of the study. The youngest age groups had the smallest percentage of patients. Nevertheless, the youngest age groups showed the largest increases over the study period. Type 2 diabetes diagnoses in the age group 18-29, for example, rose from 1.0 percent of patients in 2019 to 1.3 percent in 2024, a relative increase of 26.8 percent. Similarly, in the age group 30-39, type 2 diabetes diagnoses rose from 2.8 percent to 3.6 percent, a 26.7 percent increase. By comparison, among the oldest patients (aged 75 and older), type 2 diabetes diagnoses rose from 23.8 percent to 28.0 percent over the same period, an increase of 17.6 percent.

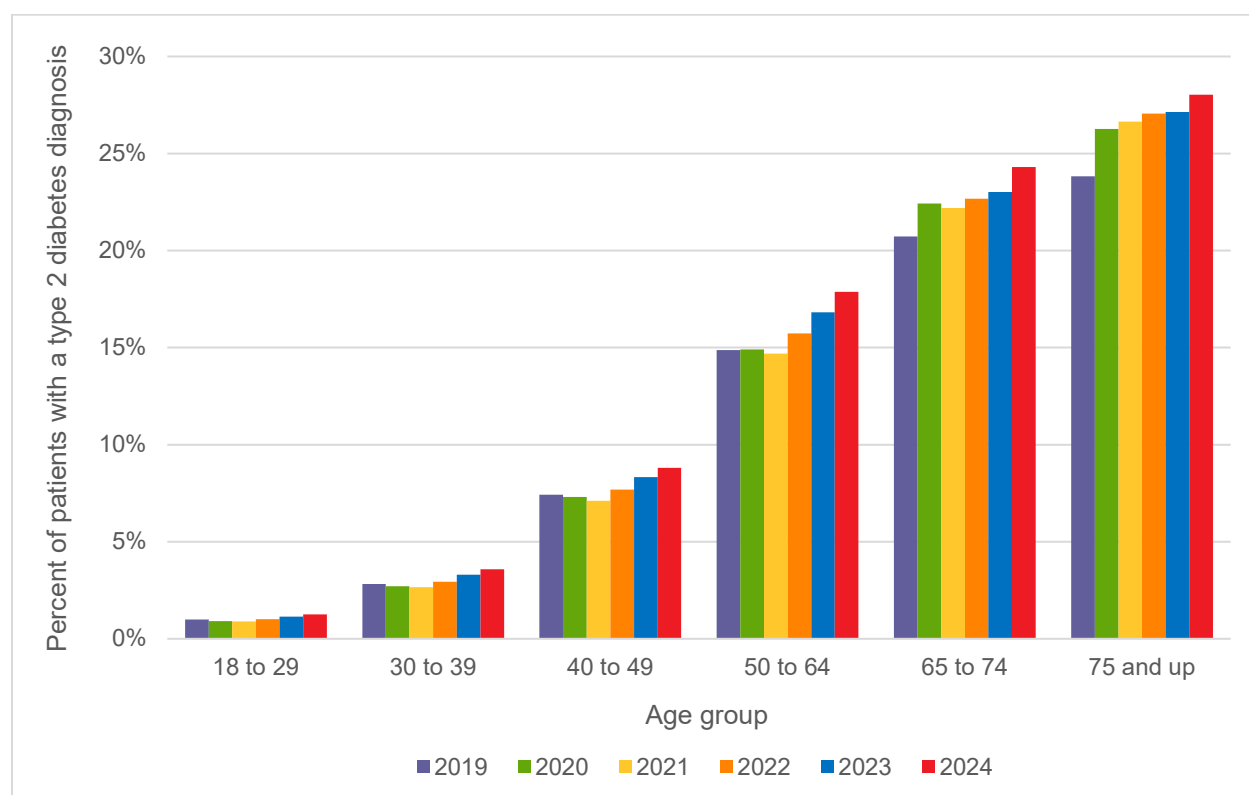


Figure 6. Percent of adult patients with a type 2 diabetes diagnosis by age group and year, 2019-2024

Table 2. Percent of adult patients with a type 2 diabetes diagnosis by age group and year, with percent change, 2019-2024

Age Group	2019	2024	Percent Change
18 to 29	1.0%	1.3%	26.8%
30 to 39	2.8%	3.6%	26.7%
40 to 49	7.4%	8.8%	18.5%
50 to 64	14.9%	17.9%	20.2%
65 to 74	20.7%	24.3%	17.3%
75 and up	23.8%	28.0%	17.6%

The percentage of adult patients with a type 2 diabetes diagnosis in 2024 varied by state, ranging from 15.5 percent in West Virginia to 4.8 percent in Montana (figure 7). The five states with the highest percentage of patients with a type 2 diabetes diagnosis, from highest to lowest, were West Virginia, Mississippi, Louisiana, Alabama and South Carolina. Three of these top five states were among the CDC's five states with the highest prevalence of diagnosed diabetes in 2022: West Virginia, Mississippi and Alabama.³⁷ The five states in the FAIR Health data with the lowest percentage of patients with a diagnosis of type 2 diabetes, from lowest to highest, were Montana, Colorado, Utah, Oregon and Vermont. Once again, three of these five states also were among the five states with the lowest prevalence in the CDC's 2022 dataset: Vermont, Montana and Colorado.³⁸

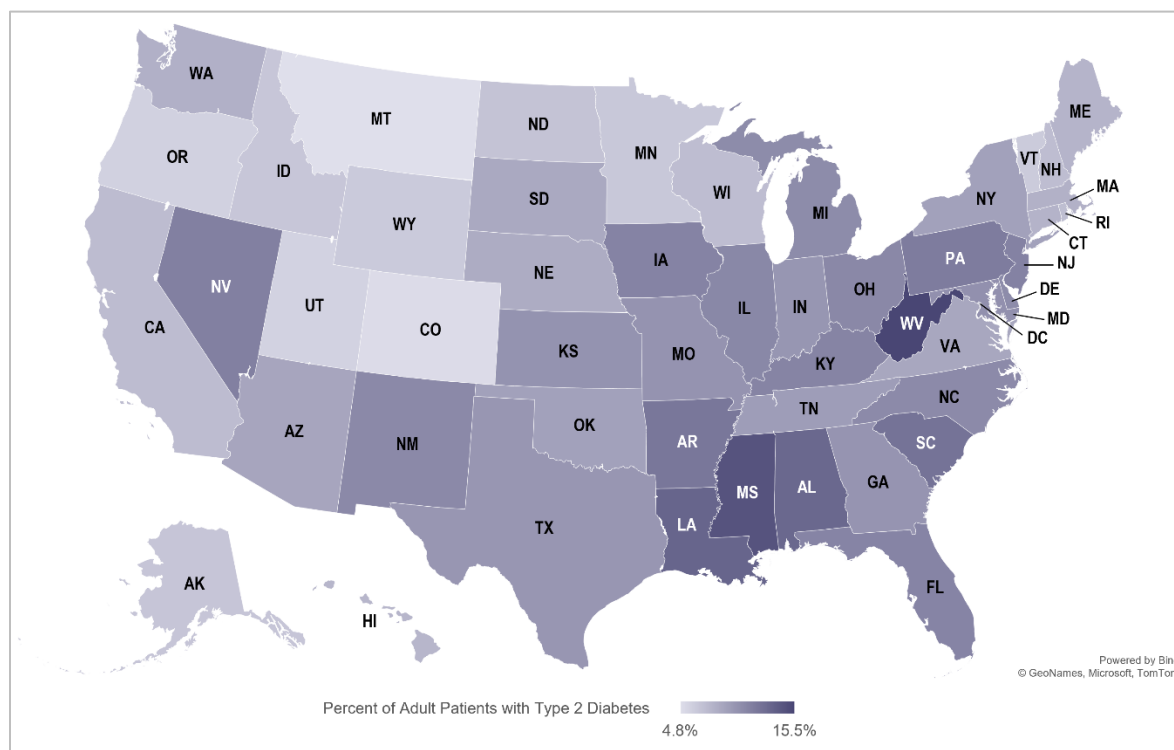


Figure 7. Adult patients with a type 2 diabetes diagnosis as a percentage of all adult patients by state, 2024

³⁷ CDC, "Diagnosed Diabetes – Total, Adults Aged 18+ Years, Age-Adjusted Percentage, Natural Breaks, All States," United States Diabetes Surveillance System, accessed April 8, 2025, <https://gis.cdc.gov/grasp/diabetes/diabetesatlas-surveillance.html#>

³⁸ CDC, "Diagnosed Diabetes."

GLP-1 Drugs

The percentage of adult patients prescribed a GLP-1 drug increased from 2019 to 2024 (figure 8). For any type of GLP-1 drug, the relative increase was 363.7 percent, from 0.9 percent of patients in 2019 to 4.0 percent of patients in 2024. For Ozempic (semaglutide), a GLP-1 drug indicated for type 2 diabetes, the increase was from 0.1 percent to 2.0 percent (a 1,504.4 percent rise) during the same period. Mounjaro (tirzepatide), also indicated for type 2 diabetes, was not prescribed to any adult patients in the period 2019-2021. That changed in 2022 when 0.1 percent of patients had a prescription, coinciding with Mounjaro's approval by the FDA in 2022.³⁹ By 2024, the percentage of patients with a Mounjaro prescription had risen to 0.9 percent; the increase from 2022 to 2024 was 785.5 percent. Saxenda, Wegovy and Zepbound are all indicated for overweight or obesity. The percentage of patients prescribed any of these three GLP-1 drugs increased from 0.03 percent in 2019 to 0.68 percent in 2024, a 2,029.1 percent rise. The large increase in prescriptions for these three GLP-1 drugs for overweight and obesity aligns with increasing public interest from 2017 to 2024 as demonstrated by other research.⁴⁰

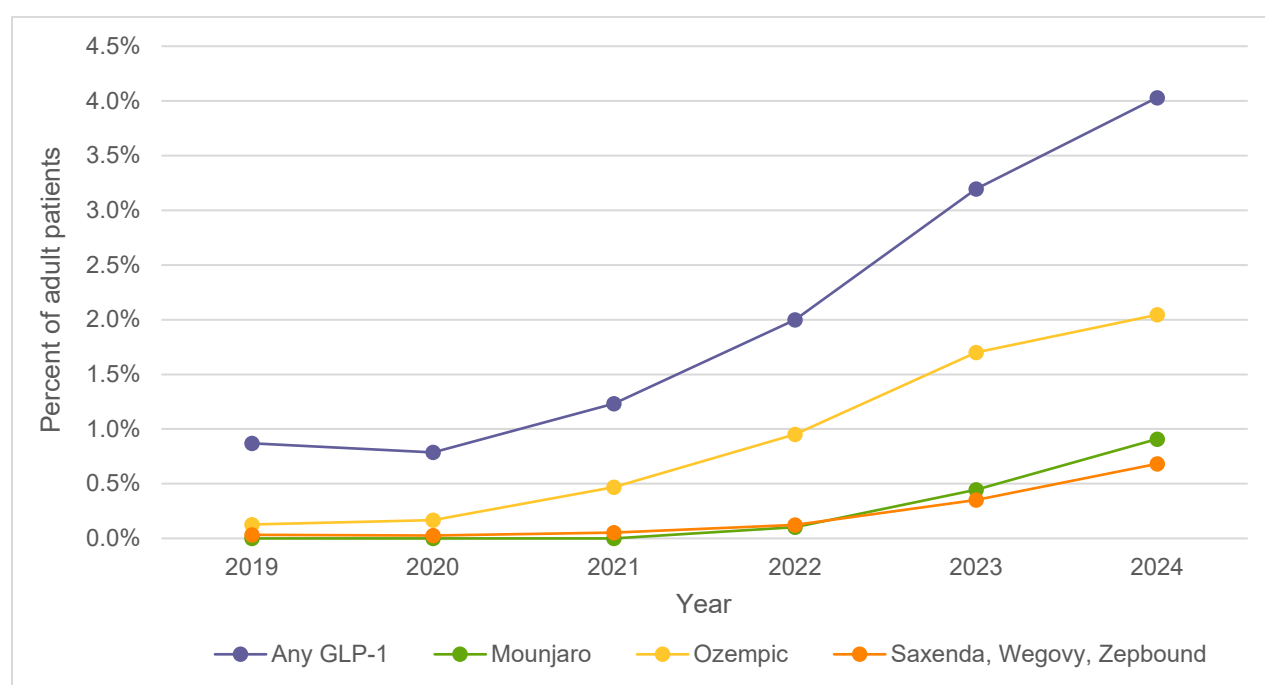


Figure 8. Percent of adult patients prescribed a GLP-1 drug by drug brand name and year, 2019-2024

³⁹ PR Newswire, "FDA Approves Novel, Dual-Targeted Treatment for Type 2 Diabetes," March 13, 2022, <https://www.prnewswire.com/news-releases/fda-approves-novel-dual-targeted-treatment-for-type-2-diabetes-301547265.html>.

⁴⁰ Philipp Berning, Rishav Adhikari, Adrian E. Schroer et al., "Longitudinal Analysis of Obesity Drug Use and Public Awareness," *JAMA Network Open* 8, no. 1 (2025): e2457232, <https://doi.org/10.1001/jamanetworkopen.2024.57232>.

Figure 9 shows what percentage of adult patients who were prescribed a GLP-1 drug had which diagnoses by year. The percentage of patients who were prescribed a GLP-1 drug and who had only a type 2 diabetes diagnosis declined from 40.7 percent in 2019 to 30.1 percent in 2024, a relative decrease of 26.0 percent. Concurrently, the percentage of patients who were prescribed a GLP-1 drug and had only an overweight or obesity diagnosis increased from 3.7 percent in 2019 to 16.5 percent in 2024, a 344.4 percent rise. These data support the findings of other researchers who showed GLP-1 drug use increased more than threefold from 2018 to 2022 in adult patients without type 2 diabetes.⁴¹ In the FAIR Health data, the percentage of patients prescribed a GLP-1 drug with both an overweight or obesity diagnosis and a type 2 diabetes diagnosis increased 17.4 percent (rising from 30.4 percent in 2019 to 35.7 percent in 2024).

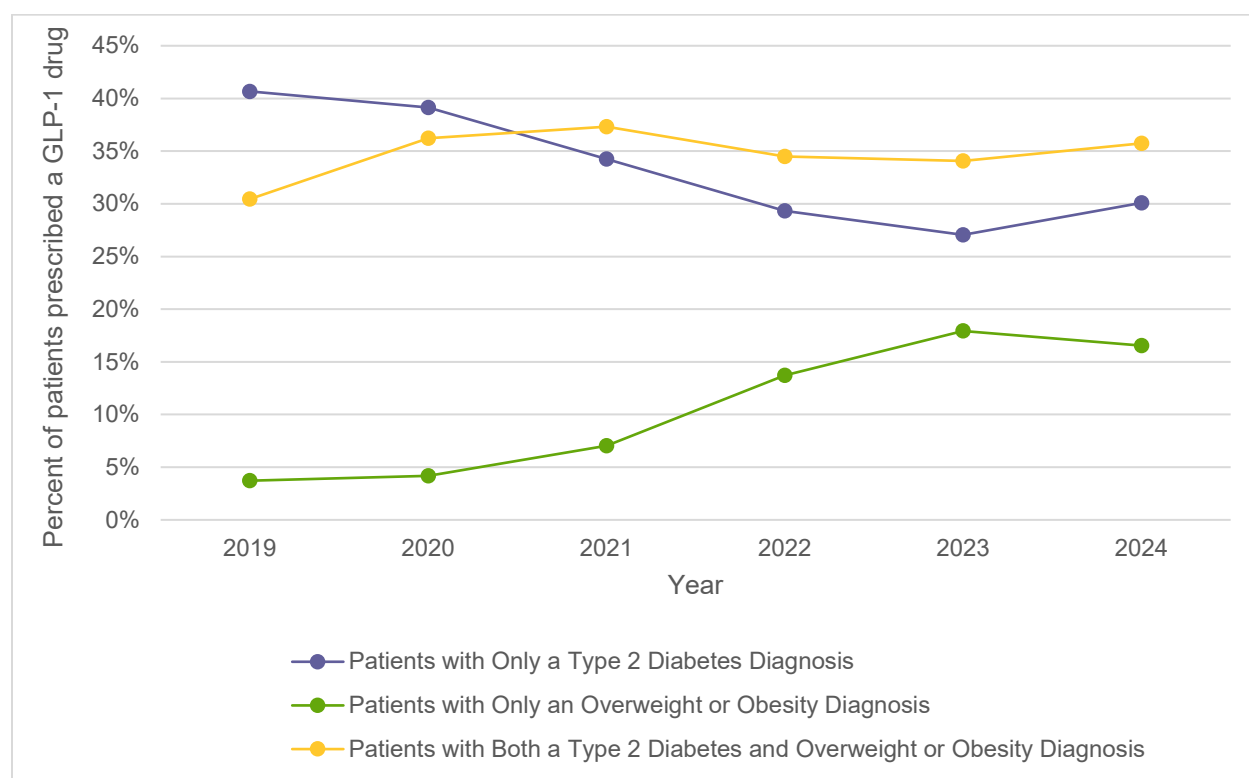


Figure 9. Percent of adult patients prescribed a GLP-1 drug by diagnosis and year, 2019-2024

⁴¹ Cade Shadbolt, Jasmin Elkin, Chris Schilling, Xinyang Hua, Peter F. M. Choong and Michelle M. Dowsey, "National Trends in Glucagon-Like Peptide-1 Receptor Agonist Use in Adults Without Diabetes, 2018 to 2022," *Annals of Internal Medicine* (April 1, 2025), <https://doi.org/10.7326/ANNALS-24-02878>.

Over two percent of adult patients now take a GLP-1 drug to treat overweight or obesity (figure 10). Among all adult patients, the percentage who had an overweight or obesity diagnosis and were prescribed a GLP-1 drug increased from 0.30 percent in 2019 to 2.05 percent in 2024, a relative increase of 586.7 percent. The percentage who received an overweight or obesity diagnosis but no type 2 diabetes diagnosis increased 1,960.9 percent, from 0.03 percent to 0.67 percent.

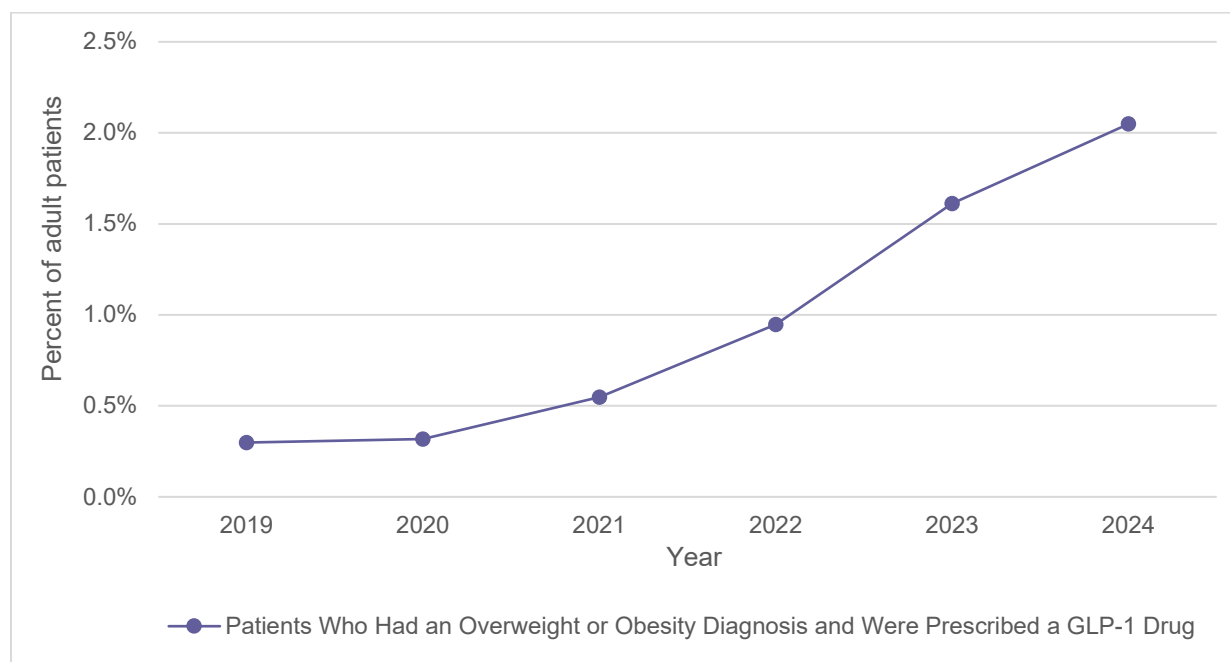


Figure 10. Percent of adult patients who had an overweight or obesity diagnosis and were prescribed a GLP-1 drug, 2019-2024

The percentage of adult patients prescribed a GLP-1 drug varied by age group in 2024 (figure 11). The overall percentage of patients prescribed a GLP-1 drug in 2024 was 4.0 percent, as represented by the horizontal line. This corresponded closely to the percentage of patients in the age group 40-49 (4.1 percent). The age group 65-74 had the highest percentage of patients prescribed a GLP-1 drug (6.3 percent), and the age group 50-64 had the second highest percentage of patients (6.2 percent). The age group 18-29 had the lowest percentage of patients prescribed a GLP-1 drug (0.7 percent).

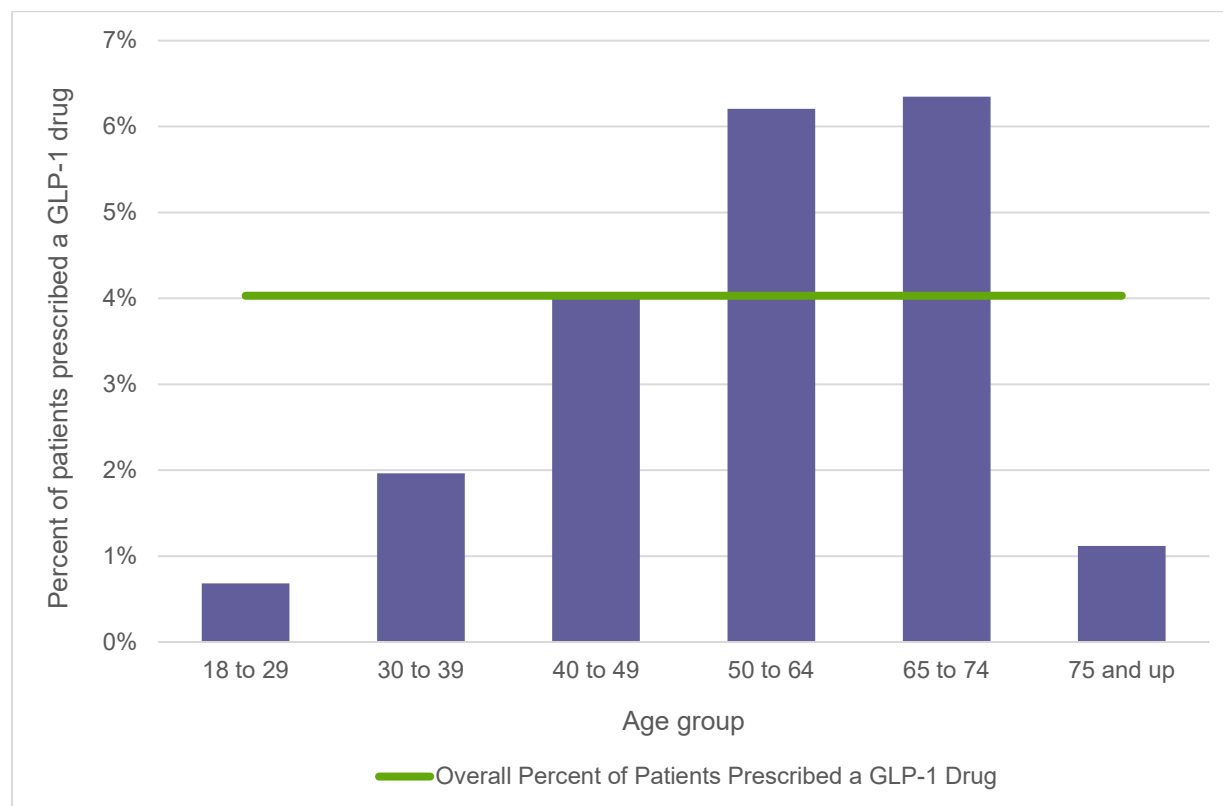


Figure 11. Percent of adult patients prescribed a GLP-1 drug by age group, 2024

The percentage of younger adults (aged 18-39) prescribed a GLP-1 drug increased from 2019 to 2024 (figure 12). In 2019, 0.19 percent of such patients were prescribed a GLP-1 drug and in 2024, the percentage was 1.33 percent, a relative increase of 587.8 percent. The percentage of older adults prescribed a GLP-1 drug also increased during this period, but to a lesser extent. Among adults aged 40 to 64, the increase was 350.7 percent; among adults aged 65 and older, it was 309.6 percent (table 3).

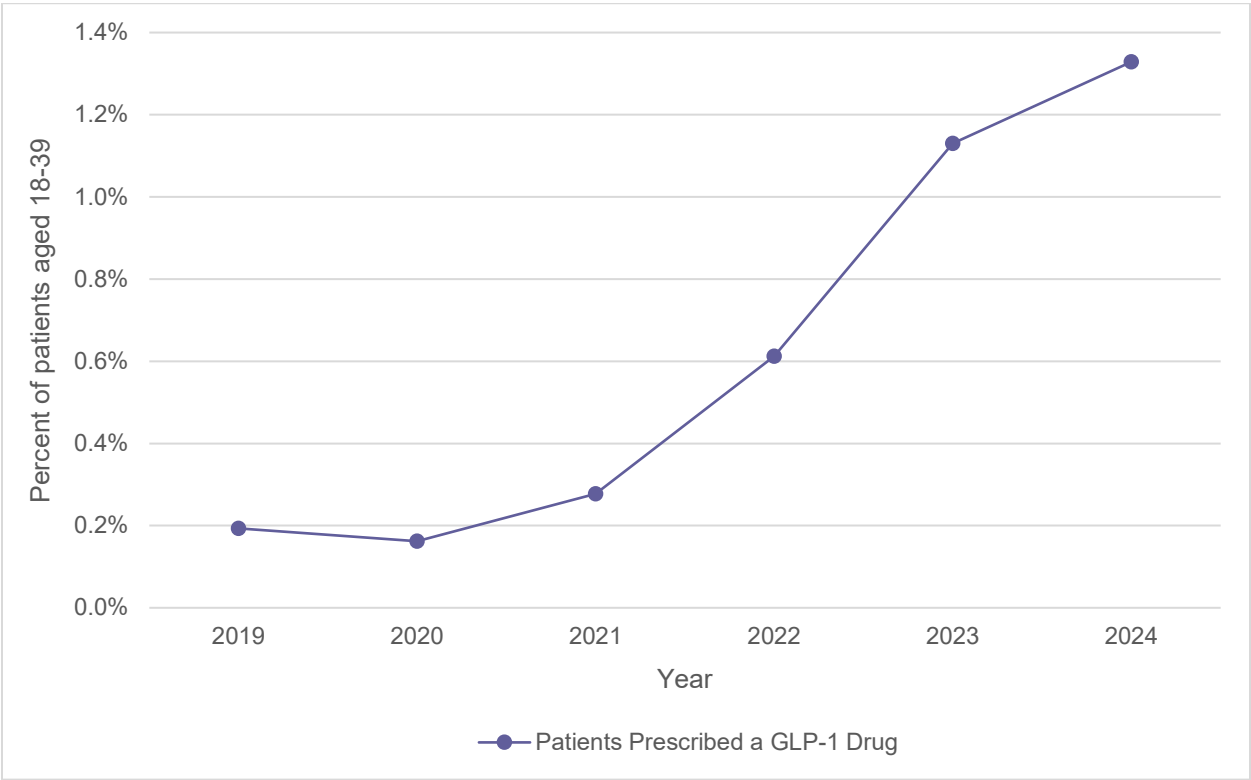


Figure 12. Percent of patients aged 18 to 39 prescribed a GLP-1 drug by year, 2019-2024

Table 3. Percent of patients prescribed a GLP-1 drug by age group and year, with percent change, 2019-2024

Age Group	2019	2024	Percent Change
18 to 39	0.19%	1.33%	587.8%
40 to 64	1.20%	5.41%	350.7%
65 and up	1.25%	5.10%	309.6%

Several selected diagnoses that co-occurred with a GLP-1 drug prescription increased in adult patients in the 12 months after the first GLP-1 prescription (table 4). These diagnoses have been identified in other studies as potential GLP-1 drug side effects.^{42,43,44,45,46,47,48} The data in the table exclude patients with a type 2 diabetes diagnosis. The data span the year before and the year after patients were first prescribed a GLP-1 drug in 2023 (the index date). Among the co-occurring diagnoses examined, the largest increasing co-occurring diagnosis observed in patients was pancreatitis, though its prevalence remained low; during the year before their first GLP-1 drug prescription, the percentage of patients with pancreatitis was 0.17 percent, but during the year after, that percentage had grown to 0.31 percent, a relative increase of 80.1 percent. Other diagnoses with low prevalence but relatively large increases included hypotension (increased 80.1 percent), malnutrition (75.6 percent), dehydration (70.2 percent) and intestinal blockage (52.5 percent). Nausea and vomiting increased from 2.4 percent in the year before the index date to 3.6 percent in the year after the index date, a 50.1 percent increase. Of the diagnoses in this table, the diagnosis with the highest prevalence during the year after the index date was digestive system issues (15.1 percent of patients), though this also had the highest prevalence during the year before the index date (12.2 percent); the difference between the two was a 23.4 percent increase.

Table 4. Selected diagnoses that co-occurred before and after first GLP-1 drug prescription (index date) among patients without a type 2 diabetes diagnosis, 2022-2024

Diagnosis	Before Index Date of GLP-1	After Index Date of GLP-1	Percent Change
Pancreatitis	0.17%	0.31%	80.11%
Hypotension	0.57%	1.03%	80.10%
Malnutrition	0.05%	0.10%	75.57%
Dehydration	0.27%	0.46%	70.18%
Intestinal Blockage	0.18%	0.27%	52.51%
Nausea and Vomiting	2.40%	3.60%	50.05%
Kidney Failure	1.57%	2.27%	44.20%
Appendicitis	0.13%	0.18%	35.95%
Gallbladder Diseases, Disorders and Gallstones	1.38%	1.84%	33.01%
Digestive System Issues	12.24%	15.09%	23.35%
Retinal Detachments and Breaks	0.34%	0.42%	22.64%
Eye Infections and Issues	8.70%	10.61%	22.04%
Abdominal and Pelvic Pain and Tenderness	9.77%	11.60%	18.73%

⁴² Daniel J. Drucker, "Efficacy and Safety of GLP-1 Medicines for Type 2 Diabetes and Obesity," *Diabetes Care* 47, no. 11 (2024): 1873-88, <https://doi.org/10.2337/dci24-0003>.

⁴³ Yan Xie, Taeyoung Choi and Ziyad Al-Aly, "Mapping the Effectiveness and Risks of GLP-1 Receptor Agonists," *Nature Medicine* 31 (January 20, 2025): 951-62, <https://doi.org/10.1038/s41591-024-03412-w>.

⁴⁴ Sarah Casella and Katelyn Galli, "Appendicitis: A Hidden Danger for GLP-1 Receptor Agonists?," *Journal of Pharmacy Technology* 40, no. 2 (2023): 108-11, <https://doi.org/10.1177/87551225231216638>.

⁴⁵ Sandra Christensen, Katie Robinson, Sara Thomas and Dominique R. Williams, "Dietary Intake by Patients Taking GLP-1 and Dual GIP/GLP-1 Receptor Agonists: A Narrative Review and Discussion of Research Needs," *Obesity Pillars* 11 (September 2024): 100121, <https://doi.org/10.1016/j.obpill.2024.100121>.

⁴⁶ "Saxenda (liraglutide) injection 3 mg [prescribing information]," Novo Nordisk.

⁴⁷ "Wegovy (semaglutide) injection 2.4 mg [prescribing information]," Novo Nordisk A/S.

⁴⁸ "Zepbound—tirzepatide injection, solution [prescribing information]," Eli Lilly and Company.

Treatment Options

The percentage of adult patients who had bariatric surgery decreased from 2019 to 2024 (figure 13). In 2019, 0.12 percent of patients had the surgery, whereas in 2024, 0.07 percent of patients had the surgery, a relative decrease of 41.8 percent. Despite the overall decline, from 2020 to 2022, there was an increase in the percentage of patients getting bariatric surgery, rising from 0.08 to 0.10 percent (26.0 percent increase), likely due to a rebound in elective bariatric surgery after it declined at the start of the COVID-19 pandemic in 2020.⁴⁹ This was followed by another decline from 2022 to 2024, a 33.7 percent drop.

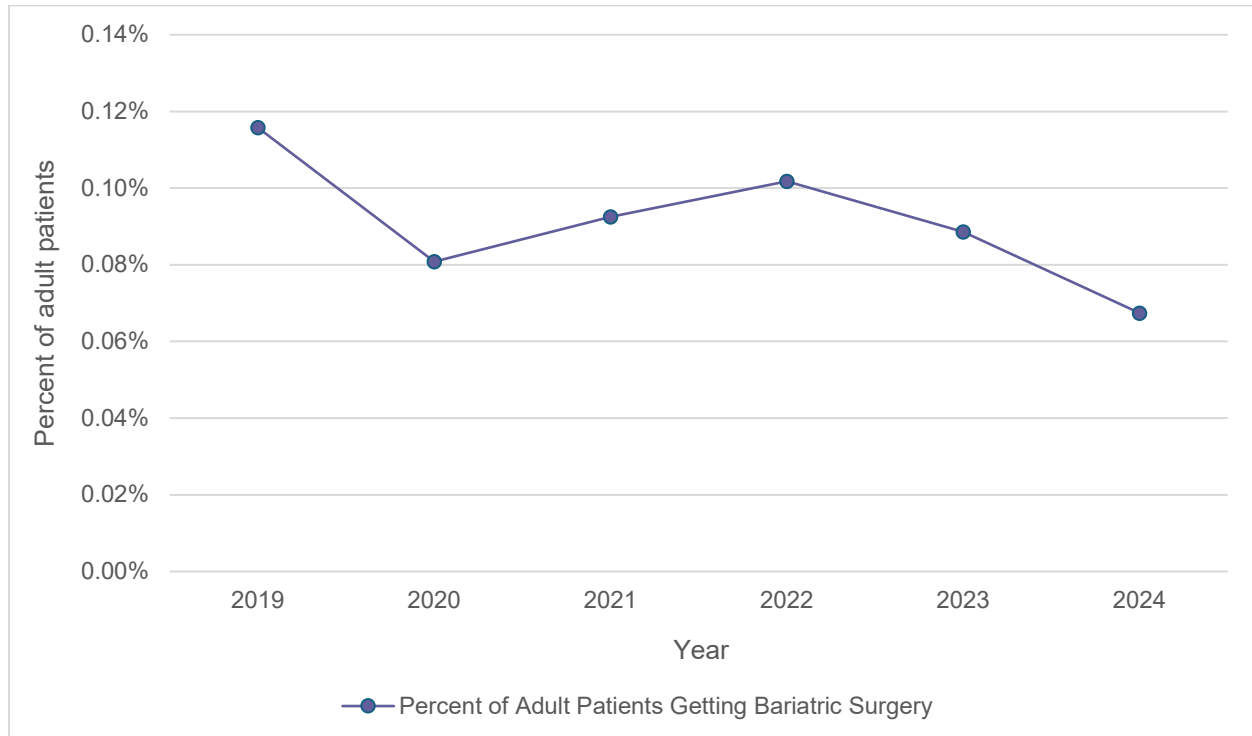


Figure 13. Percent of adult patients who had bariatric surgery by year, 2019-2024

⁴⁹ Kevin Verhoeff, Valentin Mocanu, Jerry Dang et al., "Effect of the COVID-19 Pandemic on Bariatric Surgery in North America: A Retrospective Analysis of 834,647 Patients," *Surgery for Obesity and Related Diseases* 18, no. 6 (2022): P803-11, <https://doi.org/10.1016/j.soard.2022.03.012>.

Figure 14 shows 2019-2024 trends in the percentage of adult patients with a diagnosis of overweight or obesity who were prescribed a GLP-1 drug (patients who did and did not have bariatric surgery are compared) and patients who had bariatric surgery but were not prescribed a GLP-1 drug. Among all adult patients with an overweight or obesity diagnosis, the percentage who were prescribed a GLP-1 drug but did not have bariatric surgery increased from 2.5 percent in 2019 to 11.2 percent in 2024, a relative increase of 339.5 percent. In contrast, the percentage of such patients who had bariatric surgery but were not prescribed a GLP-1 drug declined from 0.6 to 0.3 percent, a 55.4 percent decrease over the same period. This inverse relationship aligns with other literature that shows an increase in the prescription of GLP-1 drugs from 2022 to 2023 accompanied a decline in bariatric surgery rates.⁵⁰ The percentage of patients who were prescribed a GLP-1 drug and who also had bariatric surgery was low throughout the study period, but increased from 0.02 percent of patients to 0.04 percent, a 114.3 percent rise.

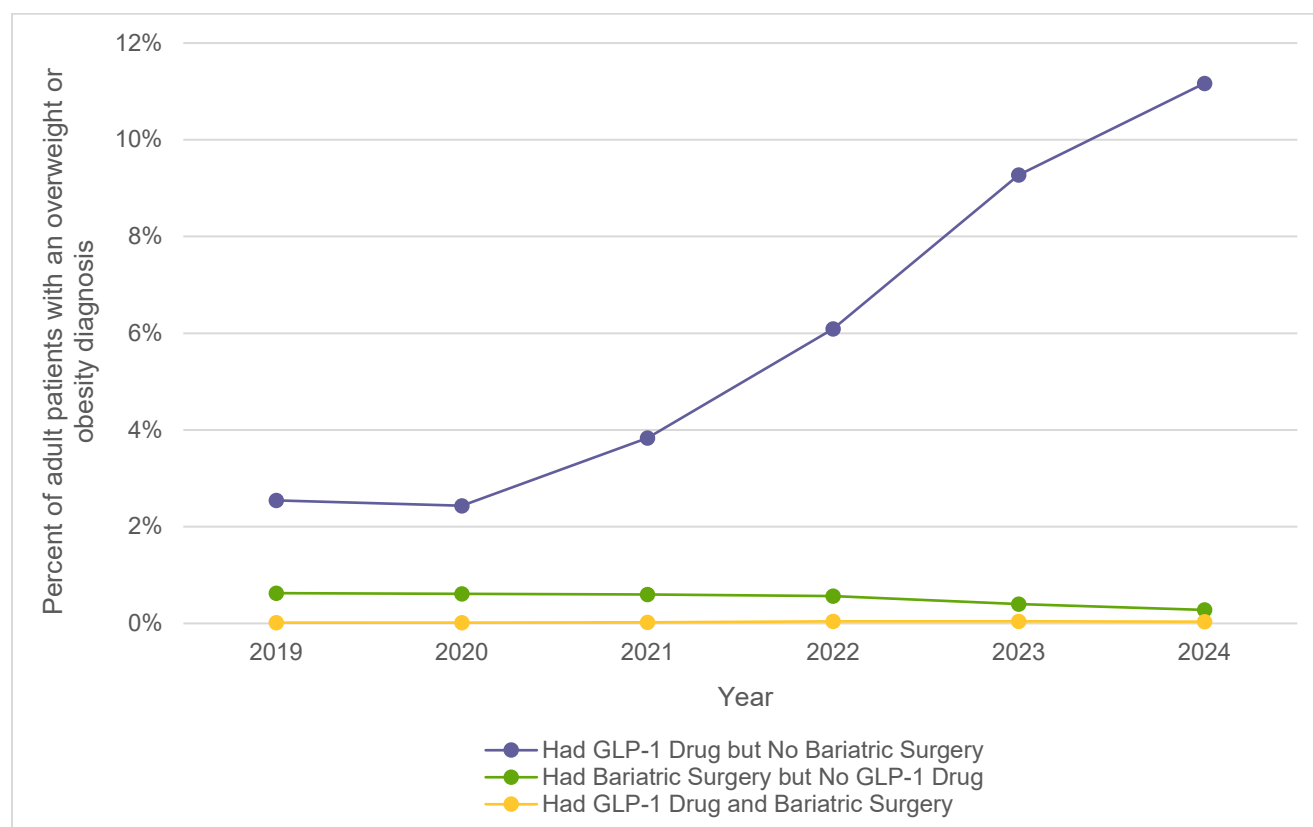


Figure 14. Percent of adult patients with an overweight or obesity diagnosis by GLP-1 drug prescription and/or bariatric surgery, 2019-2024

⁵⁰ Kevin Lin, Ateev Mehrotra and Thomas C. Tsai, "Metabolic Bariatric Surgery in the Era of GLP-1 Receptor Agonists for Obesity Management," *JAMA Network Open* 7, no. 10 (2024): e2441380, <https://doi.org/10.1001/jamanetworkopen.2024.41380>.

The percentage of adult patients with an overweight or obesity diagnosis who received behavioral health services increased from 5.7 percent in 2019 to 6.3 percent in 2024, a relative increase of 10.9 percent (figure 15). Behavioral health services related to these diagnoses include obesity-specific services, such as face-to-face behavioral counseling for obesity, 15 minutes, but also encompass any psychiatric or psychotherapeutic service where overweight or obesity is listed on the claim. The percentage of patients with an overweight or obesity diagnosis who had a behavioral health service and were also prescribed a GLP-1 drug increased over the study period as well. In 2019, 1.2 percent of such patients received both services and in 2024, 1.4 percent did so, an increase of 15.6 percent.

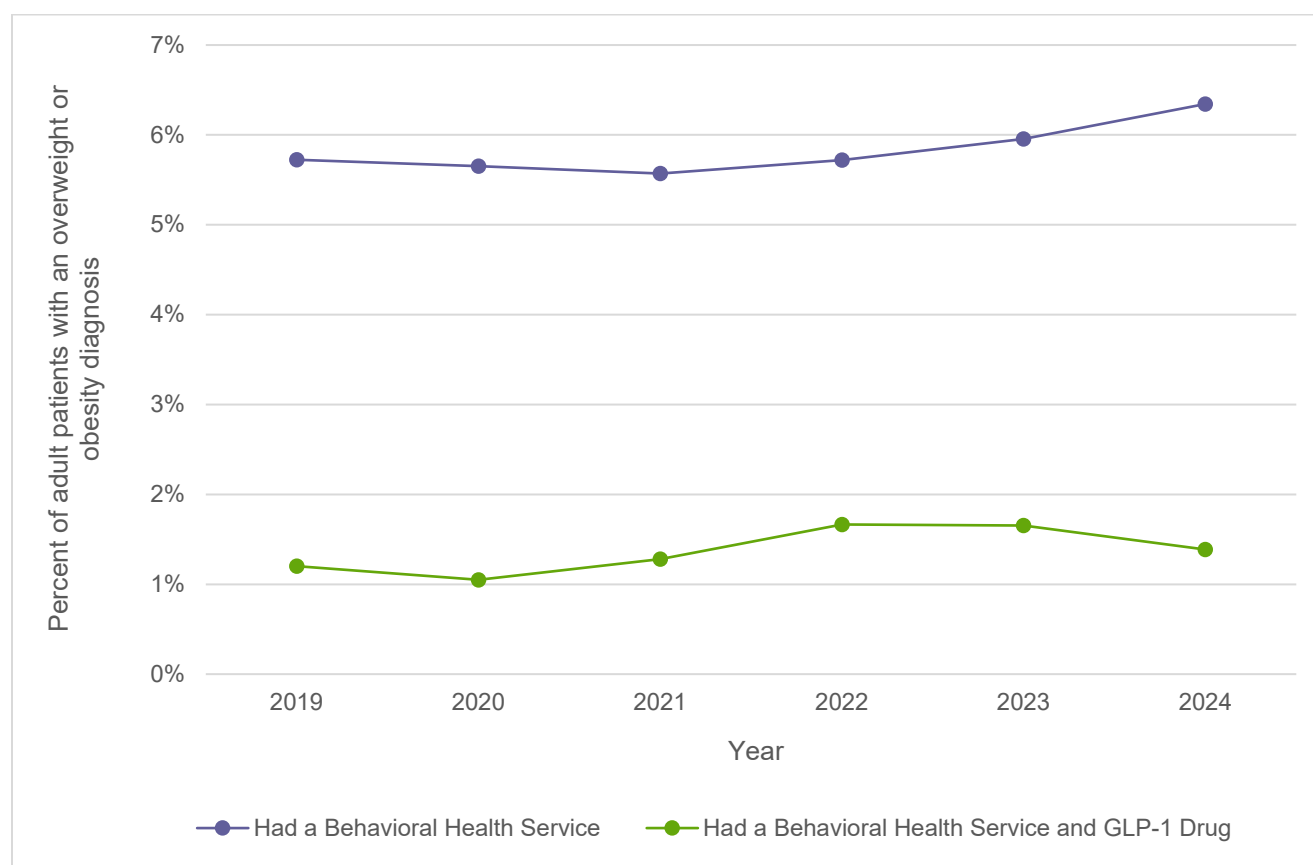


Figure 15. Percent of adult patients with an overweight or obesity diagnosis who had a behavioral health service, or a behavioral health service with a GLP-1 drug prescription, by year, 2019-2024

Both figures 14 and 15 illustrate the relatively low percentages of patients with an overweight or obesity diagnosis who received treatment in 2024 in the form of a GLP-1 drug prescription (11.2 percent, figure 14), bariatric surgery (0.3 percent, figure 14) or behavioral health service (6.3 percent, figure 15).

Whereas the population in figure 15 is patients with an overweight or obesity diagnosis, the population in figure 16 is patients with an overweight or obesity diagnosis who were prescribed a GLP-1 drug. Out of all such patients, the percentage of patients who had behavioral health services related to their condition declined from 2019 to 2024 (figure 16). In 2019, 47.2 percent of such patients had behavioral health services, but in 2024, only 12.4 percent of patients did, a relative decrease of 73.7 percent.

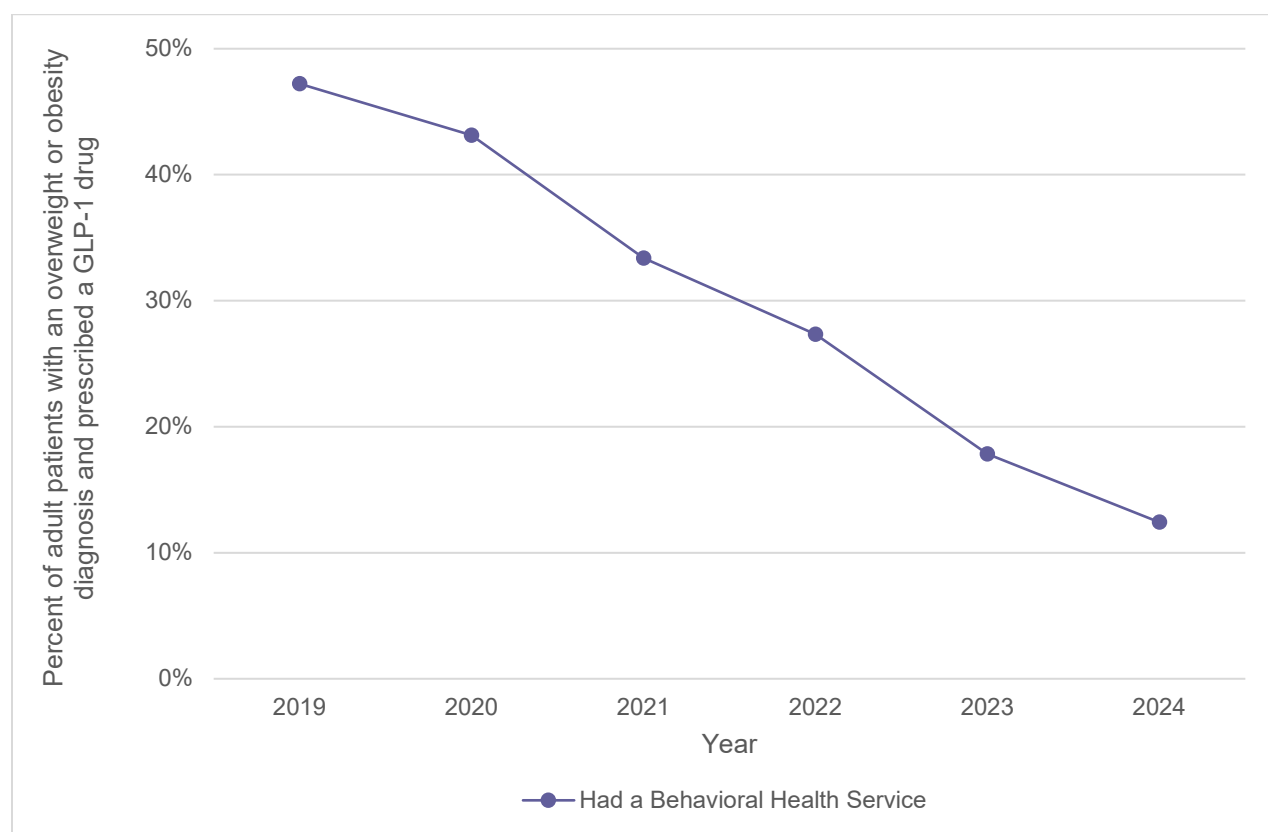


Figure 16. Percent of adult patients with an overweight or obesity diagnosis and who were prescribed a GLP-1 drug, by whether they had a behavioral health service by year, 2019-2024

Conclusion

This study of obesity and GLP-1 drugs makes several noteworthy findings. From 2019 to 2024, the percentage of adult patients with a diagnosis of overweight or obesity increased 50.7 percent, and the percentage of adult patients prescribed any type of GLP-1 drug increased 363.7 percent. Among all adult patients prescribed a GLP-1 drug, the percentage who had an overweight or obesity diagnosis and no type 2 diabetes diagnosis increased 344.4 percent. Among all adult patients, the percentage who had an overweight or obesity diagnosis and were prescribed a GLP-1 drug increased 586.7 percent. The percentage of younger adults (aged 18-39) prescribed a GLP-1 drug increased 587.8 percent.

Among co-occurring diagnoses examined, pancreatitis had the largest increase (80.1 percent) in patients without a type 2 diabetes diagnosis in the year after they were first prescribed a GLP-1 drug in 2023 as compared to the year before.

From 2019 to 2024, the percentage of adult patients who had bariatric surgery decreased 41.8 percent. Among all adult patients with an overweight or obesity diagnosis, the percentage who were prescribed a GLP-1 drug but did not have bariatric surgery increased 339.5 percent.

Out of all patients with an overweight or obesity diagnosis, relatively few received a GLP-1 drug prescription (11.2 percent), bariatric surgery (0.3 percent) or behavioral health services (6.3 percent) in 2024. Out of all patients with an overweight or obesity diagnosis who were prescribed a GLP-1 drug, the percentage of patients who had behavioral health services related to their condition declined 73.7 percent from 2019 to 2024.

The findings in this report have implications for stakeholders across the healthcare spectrum, especially patients with a diagnosis of overweight or obesity and patients prescribed GLP-1 drugs. The study is also important for the providers who care for these patients, as well as payors and policy makers. FAIR Health hopes that these findings will be starting points for further research on obesity and GLP-1 drugs.

About FAIR Health

FAIR Health is a national, independent nonprofit organization dedicated to bringing transparency to healthcare costs and health insurance information through data products, consumer resources and health systems research support. FAIR Health qualifies as a public charity under section 501(c)(3) of the federal tax code. FAIR Health possesses the nation's largest collection of commercial healthcare claims data, which includes over 51 billion claim records and is growing at a rate of about 4 billion claim records a year. FAIR Health licenses its commercial data and data products—including benchmark modules, data visualizations, custom analytics and market indices—to commercial insurers and self-insurers, employers, providers, hospitals and healthcare systems, government agencies, researchers and others. Certified by the Centers for Medicare & Medicaid Services (CMS) as a national Qualified Entity, FAIR Health also receives data representing the experience of all individuals enrolled in traditional Medicare Parts A, B and D, which accounts for a separate collection of over 51 billion claim records; FAIR Health includes among the commercial claims data in its database, data on Medicare Advantage enrollees. FAIR Health can produce insightful analytic reports and data products based on combined Medicare and commercial claims data for government, providers, payors and other authorized users. FAIR Health's free, award-winning, national consumer website is available in English (fairhealthconsumer.org) and Spanish (fairhealthconsumidor.org). For more information on FAIR Health, visit fairhealth.org.

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