Impact of GLP-1A Treatment on Eating Disorder Incidence: A Comparative, Real World Data Study in Patients with and without pre-existing Mental Health Conditions

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OBJECTIVES

In recent years, glucagon-like peptide-1 agonist (GLP-1A) medications have gained popularity by mimicking GLP-1, which triggers insulin release from the pancreas, block glucagon secretion into the bloodstream, and increasing satiety in patients[1]. Additionally, one in five U.S. adults are estimated to experience mental illness[2], with between 14% and 20% experiencing an eating disorder (ED) by 40 years of age[3]. With satiety being affected in patients and emerging research supporting GLP-1A in the treatment of mental health conditions, this study aims to ascertain if eating disorder diagnosis following GLP-1A treatment differs between patients with or without mental health diagnoses prior to their treatment. Understanding this correlation is crucial, especially given the rising use of GLP-1A in weight management, as a cost-effective alternative to insulin[4].

METHODS

The TriNetX Dataworks-USA federated network of de-identified health data was used to identify overweight[a] patients treated with three or more records of at least one GLP-1A medication[b] that resulted in transformation to normal weight[c] between 2022 and 2023. Two cohorts of patients were compared – one having prior history of a mental health diagnosis[d] (Cohort 1) and another cohort without prior diagnosis (Cohort 2). Lucid extracts were utilized to generate cohort characteristics (Figure 2). Populations were propensity score matched for sex, race, ethnicity, age at index, thyroid conditions, and type 1 or 2 diabetes to prevent confounding. Cohorts were followed and analyzed for the outcome of eating disorder diagnosis[e].

Figure 1. Cohort Criteria flowchart

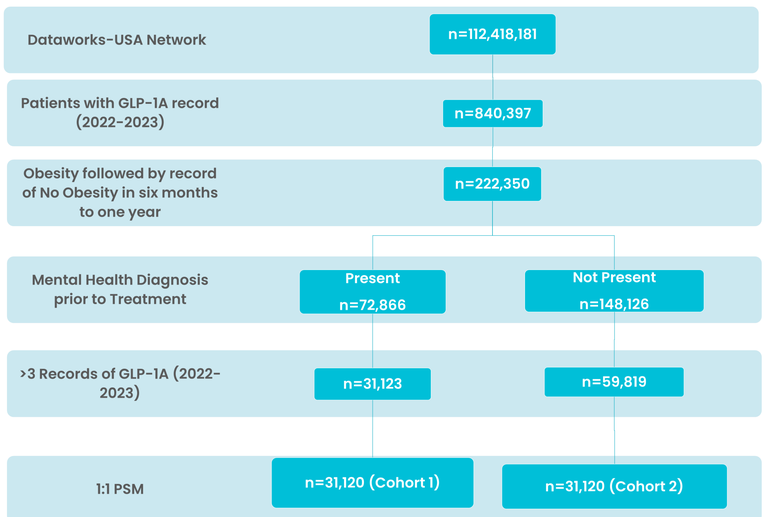


Figure 2. Cohort Characteristics

	Age at Index	Female (%)	Male (%)	Unknown (%)
Cohort 1	51.05+/-13.35	12,565 (73.8%)	3,367 (19.8%)	1,084 (6.4%)
Cohort 2	51.73+/-13.27	17,615 (60.9%)	9,638 (33.3%)	1,695 (5.9%)

	HBA1c >6%*	EGFR <70mL/min*	Mental Health Visit*	Bariatric Surgery*	Diabetes Mellitus**	Thyroid Conditions**
Cohort 1	8,853 (52%)	9,767 (57.4%)	751 (4.4%)	16 (0%)	9,444 (55.5%)	5,599 (32.9%)
Cohort 2	10,478 (36.2%)	6,013 (20.8%)	217 (0.7%)	20 (0%)	16,560 (57.2%)	6,602 (22.8%)

*Measured one day to 365 days after index event
**Measured anytime before to 365 days after index event

Figure 3. Cohort Statistics for Risk of ED diagnosis

	Patients in Cohort	Patients with ED diagnosis	Risk (%)
Cohort 1	31,120	384	1.23%
Cohort 2	31,120	160	0.51%

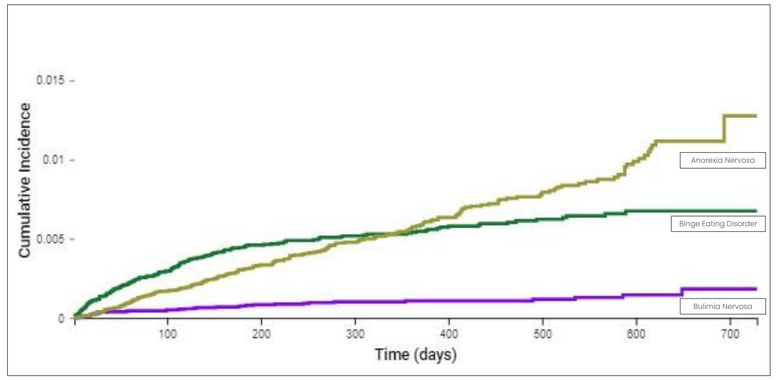
Risk Ratio	P-value
2.4 (1.997,2.884)	<0.0001

Figure 4. Sex-specific Statistics of ED diagnosis of Females and Males in Cohort 1

	Patients in Cohort	Patients with ED diagnosis	Risk (%)
Female	7,278	92	1.26%
Male	7,278	79	1.09%

Risk Ratio	P-value
1.165 (0,864, 1.57)	0.317

Figure 5. Aalen-Johansen curve for ED diagnosis in Cohort 1



RESULTS

- After propensity score matching, 384 patients in Cohort 1 and 160 patients in Cohort 2 had record of an eating disorder diagnosis in their EHR within two years of starting GLP-1A treatment (Figure 3).
  - Kaplan-Meier survival analysis yielded hazard ratio of 2.37, indicating that the rate of diagnosis of eating disorders was higher in Cohort 1 than Cohort 2, consistent with the measure of association results.
- Females have slightly higher risk of developing an eating disorder after starting treatment compared to males, in Cohort 1 (Figure 4).
- In Cohort 1, anorexia made up the largest share of eating disorders diagnosed (201/384 patients) in the two years following start of GLP-1A treatment, with a cumulative incidence of 1.275% at the end of the time window (Figure 5).

CONCLUSIONS

- Findings suggest that overweight patients with pre-existing mental health conditions are more susceptible to developing eating disorders following GLP-1A treatment compared to those without mental health history.
- Although women are at a slightly elevated risk of developing an ED, the difference between biological sex is statistically insignificant, indicating little variation in diagnosis between sexes.
- This observation highlights need for further research into implications of GLP-1A medication use in individuals with pre-existing mental health conditions, particularly regarding impact on ED development, which may have substantial economic benefits if addressed proactively[5].

a. BMI greater than or equal to 35 kg/m^2 or Overweight and obesity (ICD-10-CM E66).
b. Semaglutide (1991302), dulaglutide (1551291), tirzepatide (2601723), exenatide (60548), liraglutide (475968), albiglutide (1534763), lixisenatide (1440051).
c. BMI within 18.5-24.5 kg/m^2 or exclusion of E66.
d. Bipolar disorder (F31), Depressive episode (F32), Major depressive disorder (F33), Generalized anxiety disorder (F41.1), or Borderline personality disorder (F60.3).
e. Anorexia nervosa (F50.0 or R63.0), Bulimia nervosa (F50.2), or Binge eating disorder (F50.81).

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1. Cleveland Clinic. (n.d.). GLP-1 Agonists. https://my.clevelandclinic.org/health/treatments/13901-glp-1-agonists
2. Mental health by the numbers. NAMI. (n.d.). https://www.nami.org/mhstats
3. Ward ZJ, Rodriguez P, Wright DR, Austin SB, Long MW. Estimation of Eating Disorders Prevalence by Age and Associations With Mortality in a Simulated Nationally Representative US Cohort. JAMA Netw Open. 2019;2(10):e1912925. doi:10.1001/jamanetworkopen.2019.12925
4. Yang, C.-Y., Chen, Y.-R., Ou, H.-T., & Kuo, S. (2021). Cost-effectiveness of GLP-1 receptor agonists versus insulin for the treatment of type 2 diabetes: A real-world study and systematic review. Cardiovascular Diabetology, 20(1). https://doi.org/10.1186/s12933-020-01211-4
5. Samnaliev, M., Noh, H. L., Sonneville, K. R., & Austin, S. B. (2015). The economic burden of eating disorders and related mental health comorbidities: An exploratory analysis using the U.S. Medical Expenditures Panel Survey. Preventive Medicine Reports, 2, 32–34. https://doi.org/10.1016/j.pmedr.2014.12.002