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GLP-1 Receptor agonist use and attempted access in individuals with and without lifetime eating disorders: The role of diagnostic history, BMI, and medication motivation

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Abstract

Background

Glucagon-like peptide-1 receptor agonist medications (GLP-1RAs) have revolutionized management of type-2 diabetes and obesity and are increasingly widespread. In eating disorders (ED), where dietary restriction is a triggering and maintaining factor, concerns have been raised regarding risks related to GLP-1RAs.

Methods

We studied self-reported prescribed, unprescribed, and attempted use in 5882 individuals with various lifetime EDs compared to 1322 controls, stratified by highest lifetime body mass index (BMI) following drug indication thresholds (above 30 or above 27 with complications, e.g. hypertension). Logistic regression models using single-diagnosis- and mutually adjusted models was used, and prescription for T2D was used as a covariate to control for purely medically motivated use.

Results

Lifetime atypical anorexia nervosa, bulimia nervosa, and binge eating disorder were generally associated with higher engagement compared to controls. Anorexia nervosa was associated with lower engagement in participants with lifetime BMI above 30, but higher engagement in BMI strata below 30 and below 27. Sex-separated analyses suggested higher engagement in males with lifetime anorexia nervosa also in higher-weight strata. Avoidant-restrictive food intake disorder did not differ from controls on any outcome. While weight loss was the primary motivation for engagement, a notable proportion cited management of binge eating even though that is not among the approved indications.

Conclusions

Findings suggest that lifetime ED is associated with heightened drug-seeking and inappropriate use in some individuals, and support recent calls for increased monitoring of ED history and symptoms in relation to GLP-1RA treatment.

Introduction

The global emergence of glucagon-like peptide-1 receptor agonists (GLP-1RAs) has transformed the treatment landscape for obesity and type 2 diabetes (T2D), with substantial effects on weight loss, glycemic control, and cardiometabolic health (1–7). By suppressing appetite, enhancing satiety, and influencing reward-related processes, these medications have rapidly gained widespread use, including in populations beyond their primary indications (1, 8, 9). In Sweden, at the end of 2024, > 810 000 individuals had been prescribed these medications with a relatively even gender distribution (9). While the pharmacological

effects are beneficial for metabolic outcomes, important questions have been raised regarding potential consequences for mental health, particularly eating disorders (EDs)(10–13).

GLP-1RA and EDs

EDs are characterized by disturbances in eating behavior and weight regulation, often involving restrictive eating, binge eating, and/or compensatory behaviors (14). Because the GLP-1RAs reduce hunger and enhance satiety, they may pose a risk in relation to EDs in which dietary restriction is a central maintaining factor linked to both weight loss and binge/purge behaviors (15). Notably, disordered eating is common among individuals with overweight and obesity (16), and preliminary evidence suggests that overweight individuals with pre-existing mental health conditions are more susceptible to developing EDs following GLP-1RA treatment (17). This is particularly relevant given that motivations for GLP-1RA use, such as weight loss or appetite control, may overlap with core features of ED psychopathology. At the same time, the physiological effects of GLP-1RAs may differentially influence ED subtypes. Early studies suggest that GLP-1RA reduction of hunger, food-related reward, and cravings, so called “food noise” (i.e., constant internal chatter about food and eating), may help control binge eating, at least short-term while taking the medications (1, 8, 18). However, in Sweden, GLP-1RAs are currently only approved for the treatment of T2D and obesity (BMI ≥ 30) or overweight (BMI ≥ 27) with weight-related comorbidity, not for binge-eating symptoms (19). In addition, appetite suppression and facilitation of negative energy balance may exacerbate restrictive eating patterns or trigger relapse in individuals with a restrictive ED history or in genetically vulnerable individuals (10–12, 17, 20, 21).

Research gap and study rationale

However, empirical evidence on the relationship between GLP-1RA use and ED symptoms is limited. More specifically, research examining GLP-1RAs in relation to EDs with respect to detailed symptom profiles, illness trajectories, and patient motivations is of great importance. Large-scale, deeply phenotyped datasets are needed to clarify how GLP-1RA use relates to different forms of ED pathology, and whether these associations vary depending on factors such as body mass index (BMI) or reasons for medication use (e.g., weight loss, binge eating, T2D). A recent survey study found that substantially more individuals with EDs both used and misused GLP-1RA medication than has been reported for the general population (22). However, that study did not include a control group and had a modest sample size (*N* = 436). Another study found that screening positive for an ED in primary care was associated with interest in and attempts to access these medications to lose weight, especially in female participants (23). However, that study could not differentiate between types of ED diagnoses. The Eating Disorders Genetics Initiative 2 (EDGI2) data collection, an ongoing international study designed to comprehensively phenotype individuals with lifetime EDs and unaffected controls (24), provides a unique opportunity in this regard. The Swedish arm of EDGI2 (EDGI2-SE) includes individuals with current or past EDs, and offers detailed information on ED history, symptomatology, BMI trajectories, and treatment-related factors (24). It also includes questions on GLP-1RA use, unsuccessful attempts to obtain the medication, motivations for use, and how participants accessed the medication (e.g., through a physician’s prescription or other sources).

The present study examines associations between self-reported GLP-1RA use (prescribed, unprescribed, and attempted use) and ED history in EDGI2-SE participants, taking into account highest lifetime BMI, compared to controls. In addition, we investigate whether such associations differ by type of ED history, as well as by stated reason for taking or seeking the medications. By integrating information on ED subtype, BMI, GLP-1RA use and motivation for use, this study seeks to advance understanding of how GLP-1RA engagement intersects with ED pathology. Further, where statistical power allows, we investigate sex differences, since women are more likely to develop EDs, seek weight loss interventions, and have obesity with psychological consequences, while men more often suffer from T2D (25–28).

Method

Study design and participants

This cross-sectional study with retrospective lifetime assessments used questionnaire data from EDGI2-SE (24). EDGI2-SE includes participants aged 16 years and older residing in Sweden. For the present study, we included all EDGI2-SE participants who had completed the core ED assessment, the body weight history items, and the Sweden-specific GLP-1RA items, N = 7204 (5882 cases, 1322 controls, mean age = 36.2; 90.0% female). Lifetime ED were identified based on self-reported lifetime DSM-5 ED criteria assessed with the ED100K.v4 (29), which captures lifetime anorexia nervosa (AN), atypical AN (AAN), bulimia nervosa (BN), binge-eating disorder (BED), and avoidant/restrictive food intake disorder (ARFID), including transdiagnostic symptom features. Henceforth, when referring to “cases” we refer to these self-reported screened ED diagnoses. Since EDGI2 is centrally aimed at genetic data collection, controls are participants designed to be “super healthy” in an ED context (“clean” controls); limited to a lifetime BMI between 18.5 and 30 and without a lifetime history of any ED symptoms according to ED100K screening criteria (n = 661). Thus, EDGI2 controls are not representative of the general population, especially regarding GLP-1RA where BMI is central. In addition, EDGI2 controls were not allowed to have been *prescribed* GLP-1RAs for weight loss or binge eating and were not allowed to have *used* GLP-1RA without prescription for any other reason either. Therefore, we combined these clean controls with the “subclinical control” cohort (n = 2207); individuals screened for inclusion in EDGI2, who may have had some ED symptom(s) but did not reach diagnostic level. This group was larger than the clean controls, which may have been due to recruitment materials mentioning ED and therefore attracting people with an above-average interest in this topic. We then randomly selected a subsample from the subclinical controls to equal *n* in the clean controls and used this combined subsample as our comparison group. Table 1 shows the BMI group distribution and GLP-1RA prescription in the separate and combined control groups. To gauge this combined control group for representativeness in relation to the general population, we compared with Eurostat (https://ec.europa.eu/eurostat/en/, accessed Aug 18, 2026) data on general population BMI distribution in 2025 in Sweden, where 1.2% were underweight, 45.7% normal weight, 36% overweight, and 17.1% obese, highly similar to the combined control group but distinct from the separate control groups. Likewise, according to a recent YouGov report (30), 7.5% of Swedish households reported using or having used GLP-1RA medication, comparable to 7.0% of the combined controls.

Table 1
Comparison of clean controls, subclinical controls, and final controls in terms of age, sex, BMI, and (attempted) use of GLP-1RA.

N			**Clean controls**	**Subclinical controls**	**Final controls**
			661	**661**	**1,322**
Age in years		M (SD)	31.6 (11.9) years	36.7 (12.3) years	34.1 (12.4) years
Sex	female	n (%)	436 (66.0%)	536 (81.1%)	972 (73.5%)
	male	n (%)	224 (33.9%)	125 (18.9%)	349 (26.4%)
	intersex	n (%)	< 5	0	< 5
Current BMI		M (SD)	23.8 (2.3)	28.9 (7.0)	26.3 (5.8)
Lowest adult BMI		M (SD)	21.3 (1.8)	23.1 (4.8)	22.2 (3.7)
Highest lifetime BMI		M (SD)	25.1 (2.5)	32.1 (8.3)	28.6 (7.1)
Highest lifetime BMI	> 30	n (%)	0	377 (57.0%)	377 (28.5%)
	≤ 30	n (%)	661 (100.0%)	284 (43.0%)	945 (71.5%)
	≤ 27	n (%)	490 (74.1%)	196 (29.7%)	686 (51.9%)
	≤ 25	n (%)	333 (50.4%)	131 (19.8%)	464 (35.1%)
GLP-1RA prescription	Never	n (%)	661 (100.0%)	569 (86.1%)	1,230 (93.0%)
	T2D	n (%)	0	8 (1.2%)	8 (0.6%)
	Weight loss	n (%)	0	84 (12.7%)	84 (6.4%)
	Binge eating	n (%)	0	14 (2.1%)	14 (1.1%)
GLP-1RA use without prescription	Never	n (%)	661 (100.0%)	607 (91.8%)	1,268 (95.9%)
	T2D	n (%)	0	< 5	< 5
	Weight loss	n (%)	0	50 (7.6%)	50 (3.8%)
	Binge eating	n (%)	0	9 (1.4%)	9 (0.7%)

Note. Final control group includes equal numbers of clean controls and subclinical controls.

N			Clean controls	Subclinical controls	Final controls
			661	**661**	**1,322**
Unsuccessful attempt to obtain GLP-1RA	Never	n (%)	659 (99.7%)	591 (89.4%)	1,250 (94.6%)
	T2D	n (%)	0	< 5	< 5
	Weight loss	n (%)	< 5	53 (8.0%)	54 (4.1%)
	Binge eating	n (%)	< 5	28 (4.2%)	29 (2.2%)

Note. Final control group includes equal numbers of clean controls and subclinical controls.

INSERT Table 1 HERE

Procedure

Participants have been recruited continuously to EDGI2-SE beginning in 2025 through a combination of national media campaigns, social media outreach, university/community advertisements, patient/interest organizations, and dissemination through clinician networks in public and private ED services. Interested individuals accessed the study through the secure EDGI2-SE web portal (www.edgi.se), where they received written study information and provided informed consent using Swedish electronic identification (BankID). Following consent, participants completed the online EDGI2 assessment battery administered through the secure survey platform. The assessment includes a mandatory core questionnaire covering demographic information, ED history, psychiatric symptoms, treatment history, and weight history, followed by optional and country-specific sections. The GLP-1RA questions were included in EDGI2 in response to the rapidly increasing public and clinical relevance of these medications. Questionnaires were self-administered and could be completed in multiple sittings to reduce participant burden. Data were stored in de-identified form and linked through unique participant study IDs. For the present study, only participants who had completed the ED100K lifetime ED assessment, BMI-related items, and the Swedish GLP-1RA section at the time of data extraction were eligible for inclusion.

Measures

ED history: Lifetime ED cases were derived from the ED100K.v4 algorithm (24, 29). Participants may meet criteria for more than one ED diagnosis across the lifespan, thus non-mutually exclusive lifetime diagnostic endorsement was reported and examined, except for AN and AAN which were mutually exclusive. For illustration, we also reported descriptive statistics for “clean” lifetime ED screening diagnoses (i.e. those who only ever met criteria for one type of ED). The ED100K shows acceptable diagnostic accuracy as compared to clinician assessed diagnoses, with high sensitivity for AN and broadly defined binge eating but slightly lower for BN/BED (31).

Body mass index history: Participants report both their current height and weight as well as their height and weight at their highest lifetime body weight and lowest adult body weight. These data are used to calculate: current BMI, reflecting body mass at the time of study participation; lifetime highest BMI; and lifetime lowest BMI. Given the centrality of body weight to both GLP-1RA prescription patterns and ED psychopathology, BMI intervals were analyzed in relation to GLP-1RA-use and ED diagnostic history. The BMI thresholds were selected to reflect clinically relevant weight categories and treatment indications: >25 kg/m² (upper limit of the normal-weight range), > 27 kg/m² (overweight, and a potential indication for GLP-1RA treatment when weight-related comorbidities are present), and > 30 kg/m² (obesity, and a standard indication for GLP-1RA treatment (19)).

GLP-1RA use and attempted access: A specific questionnaire section developed for EDGI2 assesses lifetime GLP-1RA exposure. Participants were asked whether they had:

1. (a) ever used a GLP-1RA medication prescribed by a medical professional,
2. (b) ever used a GLP-1RA medication without prescription, and/or
3. (c) unsuccessfully attempted to obtain GLP-1RA medication (only an option in EDGI2-SE).

Participants also reported the primary motivation for GLP-1RA use or attempted use (e.g., weight loss, binge-eating reduction, or to treat T2D). Based on these responses, six GLP-1RA use outcomes corresponding to all combinations of GLP-1RA prescription status (prescribed use, unprescribed use, attempted access) and eating-related motivation for (attempted) GLP-1RA use (weight loss, binge-eating reduction) were created.

Statistical analysis

Analyses were conducted in several sequential steps. Descriptive statistics summarized demographic characteristics, ED history, BMI, and GLP-1RA exposure patterns in the total sample and separately for each lifetime ED screening diagnosis and controls.

We applied logistic regression models within a generalized estimating equations (GEE) framework with robust standard errors to estimate the association between lifetime ED screening diagnoses and GLP-1RA use. First, lifetime ED screening diagnoses (AN, AAN, BN, BED, ARFID) were regressed separately (henceforth referred to as single-diagnosis models) on each of six GLP-1RA use outcomes corresponding to all combinations of GLP-1RA engagement (prescribed use, unprescribed use, attempted access) and motivation (weight loss, binge-eating reduction). In a second step, we regressed all lifetime ED screening diagnoses simultaneously on each GLP-1RA use outcome in a mutually adjusted model.

All models were adjusted for age, sex, and prescribed GLP-1RA use for T2D (to control for medically motivated and sanctioned use not directly related to ED symptomatology) and applied separately in four BMI groups (no BMI restriction, highest lifetime BMI > 30 kg/m^2, highest lifetime BMI ≤ 30 kg/m^2, highest lifetime BMI ≤ 27 kg/m^2). Statistical power also allowed models for attempted access to GLP-1RAs as the outcome in individuals with a highest lifetime BMI ≤ 25 kg/m^2. All regression estimates are presented as odds ratios (ORs) with 95% confidence intervals (CI). All p-values were adjusted for multiple comparisons within each model (single-diagnosis models, mutually adjusted model) and each GLP-1RA use outcome (prescribed use,

unprescribed use, attempted access) using the false discovery rate (FDR). Given that all questions in the screening survey were mandatory, we did not have any missing data. EDGI2-SE has been approved by the Swedish Ethical Review Authority (DNR: 2023-00254-02). The present study constitutes a secondary analysis of de-identified EDGI2-SE phenotypic data.

Sensitivity analyses: Demographic characteristics, ED history, and BMI, as well as GLP-1RA engagement patterns, were calculated for a subsample of individuals with one lifetime ED only. This was to gauge whether “single syndrome” psychopathology was associated with different results than the mixed diagnosis groups. We further applied single-diagnosis and mutually adjusted models adjusted for age and prescribed GLP-1RA use for T2D stratified by sex to assess whether findings from the sex-specific samples were consistent with the findings from the full sample. P-values were adjusted for multiple comparisons within each model (single-diagnosis model, mutually adjusted model), each sex (female, male) and each GLP-1RA use outcome (prescribed use, unprescribed use, attempted access) using FDR.

Exploratory analyses: We further fitted single-diagnosis models for each ED in the full sample adjusted for age, sex, and prescribed GLP-1RA use for T2D, and included the sex x ED interaction term to assess whether the association between ED and GLP-1RA use differed by sex (interaction model). We did not correct for multiple comparisons in the exploratory analyses.

Results

Sample characteristics

Descriptive data are presented in Table 2. The total sample comprised 7204 participants, including 1322 controls and 5882 with lifetime ED. Diagnostic categories were non-mutually exclusive. The mean age was 36.2 years (*SD* = 12.2), with similar distributions across groups. The sample was predominantly female (90.0%), with higher proportions in ED groups (92.5–96.7%) than controls (74.4%). Mean current BMI was 26.8 (*SD* = 7.0), lowest in those with lifetime AN (*M* = 22.7, *SD* = 5.0) and highest in BED (*M* = 30.3, *SD* = 7.4); controls averaged 26.3 (*SD* = 5.7). Lifetime BMI differences followed a similar pattern, with mean lowest adult BMI in AN of 16.6 (*SD* = 2.2) and mean highest lifetime BMI in BED of 34.7 (*SD* = 8.3). Overall, 43.9% reported a highest lifetime BMI > 30, ranging from 20.2% in AN to 68.9% in BED. When restricting our sample to only include participants with a single lifetime ED (*n* = 4,265), a largely similar pattern emerged (Table S1). Age remained comparable across groups, but there were slightly more males in the restricted sample (13.1% vs 10.0% in the total sample). However, BMI differences were slightly more pronounced: AN showed lower current BMI (21.9 vs. 22.7), whereas BED showed higher current BMI (32.2 vs. 30.3). Lifetime BMI differences were similarly accentuated, with higher maximum BMI in BED (36.2 vs. 34.7). Group patterns thus remained largely stable, though BMI contrasts were somewhat more marked in the restricted sample.

Table 2
Descriptive information on demographics and BMI for the total sample.

N			Total sample	AN	AAN	BN	BED	ARFID	Controls
			7,204	**2,318**	**1,816**	**2,243**	**2,584**	**1,214**	**1,322**
Age in years		M (SD)	36.2 (12.2) years	34.4 (12.9) years	37.1 (11.4) years	37.9 (11.2) years	38.5 (11.1) years	34.8 (11.2) years	34.6 (12.7) years
Sex	female	n (%)	6,484 (90.0%)	2,241 (96.7%)	1,686 (92.8%)	2,105 (93.8%)	2,390 (92.5%)	1,144 (94.2%)	984 (74.4%)
	male	n (%)	717 (10.0%)	77 (3.3%)	129 (7.1%)	137 (6.1%)	192 (7.4%)	70 (5.8%)	337 (25.5%)
	intersex	n (%)	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Current BMI		M (SD)	26.8 (7.0)	22.7 (5.0)	28.5 (6.7)	28.8 (7.4)	30.3 (7.4)	26.9 (7.5)	26.3 (5.7)
Lowest adult BMI		M (SD)	20.6 (4.4)	16.6 (2.2)	21.8 (3.4)	21.3 (4.4)	22.1 (4.6)	20.4 (4.5)	22.1 (3.6)
Highest lifetime BMI		M (SD)	30.5 (8.3)	26.0 (6.1)	33.3 (8.0)	33.3 (8.4)	34.7 (8.3)	31.1 (8.9)	28.5 (6.9)
Highest lifetime BMI	> 30	n (%)	3,164 (43.9%)	468 (20.2%)	1,065 (58.6%)	1,339 (59.7%)	1,780 (68.9%)	585 (48.2%)	379 (28.7%)
	≤ 30	n (%)	4,040 (56.1%)	1,850 (79.8%)	751 (41.4%)	904 (40.3%)	804 (31.1%)	629 (51.8%)	943 (71.3%)
	≤ 27	n (%)	3,006 (41.7%)	1,581 (68.2%)	445 (24.5%)	602 (26.8%)	486 (18.8%)	481 (39.6%)	679 (51.4%)
	≤ 25	n (%)	2,169 (30.1%)	1,280 (55.2%)	248 (13.7%)	373 (16.6%)	271 (10.5%)	338 (27.8%)	476 (36.0%)

Note. Eating disorder groups are not mutually exclusive. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder.

INSERT Table 2 HERE

GLP-1RA use and attempts

Table 3 shows GLP-1RA use patterns for the total sample and for each ED separately. GLP-1RAs had been prescribed to 13.8% (*n* = 995) of the total sample. Prescription proportions varied across groups, with the highest frequency observed in BED, followed by BN and AAN, and lower frequencies in controls and AN. Across all groups, weight loss was the predominant indication for prescription use (over 88% across

groups). Notable proportions (particularly within ED groups) reported prescriptions for binge eating (approximately 26–32% across ED groups vs. 15.2% in controls).

Table 3
GLP-1RA engagement (prescription, non-prescribed use, unsuccessful attempt) for each eating disorder group and controls.

GLP-1RA prescription	**N**	**Yes**	**Diabetes**	**Weight loss**	**Binge eating**	**No**
Total sample	7,204	995 (13.8%)	96 (9.6%)	912 (91.7%)	264 (26.5%)	6,209 (86.2%)
AN	2,318	144 (6.2%)	9 (6.2%)	127 (88.2%)	45 (31.2%)	2,174 (93.8%)
AAN	1,816	345 (19.0%)	28 (8.1%)	320 (92.8%)	106 (30.7%)	1,471 (81.0%)
BN	2,243	439 (19.6%)	38 (8.7%)	410 (93.4%)	134 (30.5%)	1,804 (80.4%)
BED	2,584	602 (23.3%)	62 (10.3%)	560 (93.0%)	169 (28.1%)	1,982 (76.7%)
ARFID	1,214	158 (13.0%)	19 (12.0%)	141 (89.2%)	50 (31.6%)	1,056 (87.0%)
Controls	1,322	92 (7.0%)	8 (8.7%)	84 (91.3%)	14 (15.2%)	1,230 (93.0%)
GLP-1RA use without prescription	N	Yes	Diabetes	Weight loss	Binge eating	No
Total sample	7,204	483 (6.7%)	28 (5.8%)	430 (89.0%)	157 (32.5%)	6,721 (93.3%)
AN	2,318	106 (4.6%)	< 5	88 (83.0%)	46 (43.4%)	2,212 (95.4%)
AAN	1,816	165 (9.1%)	< 5	150 (90.9%)	62 (37.6%)	1,651 (90.9%)
BN	2,243	180 (8.0%)	11 (6.1%)	163 (90.6%)	66 (36.7%)	2,063 (92.0%)
BED	2,584	240 (9.3%)	17 (7.1%)	220 (91.7%)	81 (33.8%)	2,344 (90.7%)
ARFID	1,214	77 (6.3%)	6 (7.8%)	65 (84.4%)	25 (32.5%)	1,137 (93.7%)
Controls	1,322	54 (4.1%)	< 5	50 (92.6%)	9 (16.7%)	1,268 (95.9%)
Unsuccessful attempt to obtain GLP-1RA	N	Yes	Diabetes	Weight loss	Binge eating	No

Note. Eating disorder groups are not mutually exclusive. Percentages in columns *Diabetes*, *Weight loss*, and *Binge eating* describe the proportion of individuals who endorsed the item for a specific reason out of all individuals who endorsed the item. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder.

GLP-1RA prescription	N	Yes	Diabetes	Weight loss	Binge eating	No
Total sample	7,204	894 (12.4%)	22 (2.5%)	749 (83.8%)	347 (38.8%)	6,310 (87.6%)
AN	2,318	267 (11.5%)	< 5	219 (82.0%)	89 (33.3%)	2,051 (88.5%)
AAN	1,816	306 (16.9%)	6 (2.0%)	261 (85.3%)	132 (43.1%)	1,510 (83.1%)
BN	2,243	408 (18.2%)	8 (2.0%)	340 (83.3%)	180 (44.1%)	1,835 (81.8%)
BED	2,584	464 (18.0%)	12 (2.6%)	388 (83.6%)	199 (42.9%)	2,120 (82.0%)
ARFID	1,214	151 (12.4%)	6 (4.0%)	128 (84.8%)	64 (42.4%)	1,063 (87.6%)
Controls	1,322	72 (5.4%)	< 5	54 (75.0%)	29 (40.3%)	1,250 (94.6%)

Note. Eating disorder groups are not mutually exclusive. Percentages in columns *Diabetes*, *Weight loss*, and *Binge eating* describe the proportion of individuals who endorsed the item for a specific reason out of all individuals who endorsed the item. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder.

INSERT Table 3 HERE

Non-prescribed use of GLP-1RA was reported by 6.7% of the sample. As with prescription use, frequency was highest in BED and AAN, and lowest in AN and controls. Weight loss again represented the primary motivation (over 83% across groups). Among those who reported GLP-1RA use without prescription, a relatively large proportion reported use for binge eating, particularly in AN, AAN, and BN, compared to substantially fewer controls.

Attempts to obtain GLP-1RA without success were reported by 12.4% of the sample, with the highest proportions in BN and BED and the lowest proportion in controls. Weight loss was still the dominant reason for attempting to access GLP-1RA treatment (over 82% across groups). A substantial proportion also reported attempts related to binge eating, particularly in BN and AAN.

Analyses restricted to participants with a single lifetime ED diagnosis showed patterns largely consistent with the total sample (Table S2). Prescription rates were slightly lower (11.1% vs. 13.8%).

In summary, across prescribed use, non-prescribed use, and unsuccessful attempts, a consistent pattern was observed: GLP-1RA use and demand were higher in the group with lifetime ED compared to controls, particularly in groups with a history of BED and AAN. Weight loss was the primary driver of GLP-1RA use and attempts across all groups.

Sex differences in GLP-1RA use and attempts

Findings in female participants only showed patterns largely consistent with the total sample (Table S3). Among male participants (n = 729), GLP-1RA prescription was reported by 12.8% (Table S4), which was comparable to females (13.9%). However, patterns across diagnostic groups differed, with relatively high prescription rates observed across several ED groups (approximately 23–26% in AN, AAN, BN, and BED), suggesting a more even distribution across diagnoses compared to females where BED clearly dominated. Non-prescribed use (7.7%) and unsuccessful attempts (12.2%) were broadly similar in prevalence to females and showed comparable group patterns overall. However, and notably, individuals with a history of AN stood out, showing substantially higher levels of GLP-1RA engagement than observed in females. Among men with AN, 26.0% reported prescription use, 26.0% non-prescribed use, and 31.2% unsuccessful attempts, contrasting with consistently low rates in AN in the female subsample (4–11%). This pattern suggests that men with AN may have greater access to GLP-1RA medications, both via prescriptions and via other routes, than women with comparable diagnoses. Across all indicators, weight loss remained the primary motivation, with binge eating as a secondary reason, particularly within ED groups.

Associations between lifetime ED, GLP-1RA use and motivation for such in the total sample

Figures 1–3 and Tables S6 and S7 show results from single-diagnosis models (i.e., separate regressions that did not adjust for presence of other lifetime EDs) as well as mutually adjusted models examining associations between lifetime ED diagnoses and GLP-1RA outcomes.

Descriptive data on GLP-1RA engagement for each BMI group separately are shown in Table S5.

INSERT FIGURES 1–3 HERE

No BMI restriction: In the single-diagnosis models, BED, BN, and AAN were associated with significantly higher odds of GLP-1RA prescription, non-prescribed use, and unsuccessful attempts for weight loss (OR = 1.60–2.98, all q = < 0.001) and binge eating (OR = 1.58–3.08, q = 0.028-<0.001). The only exception was non-prescribed GLP-1RA use for weight loss, where the BN group did not differ significantly from controls (OR = 1.29, q = 0.057). In contrast, the lifetime AN group showed significant negative effects (i.e., less GLP-1RA use) on GLP-1RA prescription, and non-prescribed use for weight loss (OR = 0.32–0.85, all q = < 0.001) and GLP-1RA prescription and attempted access for binge eating (OR = 0.45–0.71, q = 0.020-<0.001). In the mutually adjusted models (i.e., all lifetime EDs included simultaneously), associations were attenuated but generally remained in the same direction (OR = 0.42–2.64, q = 0.120-<0.001), indicating shared variance across diagnoses.

Lifetime BMI > 30: In the subgroup with BMI > 30, patterns were more variable. In the single-diagnosis models, BED and BN were significantly more likely than controls to get GLP-1RA prescribed for weight loss (OR = 1.24–1.46, q = 0.024-<0.001) and binge eating, the latter being true also for AAN (OR = 1.49–1.59, q = 0.010 – 0.005). AN, AAN, and BN were more likely to have attempted access for weight loss (OR = 1.31–1.43, q = 0.014 – 0.003), and AAN, BN, and BED for binge eating (OR = 1.40–1.68, q = 0.034 – 0.001) compared to controls. However, those with lifetime EDs were not more likely to use GLP-1RAs without prescription. After adjustment for other lifetime ED diagnoses, AAN showed the most consistent associations across outcomes (OR = 1.56–1.76, q = 0.036-<0.001). Interestingly, AN was also associated with higher odds of non-

prescribed GLP-1RA use for binge eating (OR = 2.04, q = 0.036) and of unsuccessful attempts motivated by both weight loss (OR = 1.75, q = < 0.001) and binge eating (OR = 1.79, q = 0.010).

Lifetime BMI ≤ 30: Associations remained in the same general direction but were more heterogeneous. In the single models, AAN and BED were significantly more likely than controls to get GLP-1RA prescribed for weight loss (OR = 1.86–2.24, q = 0.049 – 0.006), and BN and BED for binge eating (OR = 3.12–3.63, q = 0.006 – 0.001). BN and BED reported significantly more unsuccessful attempts for weight loss (OR = 2.48–2.50, all q = < 0.001) and AAN, BN, and BED for binge eating (OR = 1.94–3.48, q = 0.003-<0.001). After adjustment, AAN, BN, and BED were no longer significantly associated with GLP-1RA prescriptions while BN and BED remained significantly associated with attempted use for weight loss (OR = 1.61–1.82, q = 0.038 – 0.007) and BED for binge eating (OR = 2.21, q = 0.010). For AN and AAN the positive associations became significant also for non-prescribed use for both weight loss (OR = 2.74–2.79, q = 0.036 – 0.033) and binge eating (OR = 4.21–5.54, q = 0.036 – 0.014).

Lifetime BMI ≤ 27: In the single diagnosis model, BN was the only group with a higher likelihood of being prescribed GLP-1RA for binge eating (OR = 5.04, q = 0.035). AN reported significantly higher unprescribed use for weight loss (OR = 4.34, q = 0.010). AN, BN, and BED had higher odds of attempted access for weight loss (OR = 1.83–2.57, q = 0.005-<0.001) and AAN, BN, and BED for binge eating (OR = 1.94–5.79, q = 0.047-<0.001). In the adjusted model, AN and AAN were still more likely to report unprescribed use for weight loss (OR = 5.60–8.94, q = 0.049 – 0.003) and AAN only for binge eating (OR = 6.18, q = 0.036). AN and AAN remained significantly associated with higher attempted access for weight loss (OR = 2.42–2.76, q = 0.020 – 0.002) and BN for binge eating (OR = 3.79, q = 0.001).

Lifetime BMI ≤ 25: Due to limited sample size (*n* = 2,169), results are only described for unsuccessful attempts. In the single-diagnosis models, AN, BN, and BED showed significantly higher odds of attempting to obtain GLP-1RA for weight loss (OR = 2.27–4.80, q = 0.005-<0.001) and BN and BED for binge eating (OR = 5.23–6.34, all q = < 0.001). Associations were attenuated in the adjusted models, and patterns were less clearly differentiated, suggesting more heterogeneous and less diagnosis-specific associations in this subgroup. However, AN still showed higher odds of attempting to obtain GLP-1RA for weight loss (OR = 5.63, q = 0.002) and BN for binge eating (OR = 3.50, q = 0.007).

Across BMI subgroups, the overall pattern of higher use of and attempts to receive GLP-1RA in the ED groups remained stable but became increasingly heterogeneous at lower BMI levels. Associations were most clearly differentiated in individuals with higher BMI, whereas lower BMI subgroups showed less distinct diagnosis-specific effects and greater variability. Overall, associations were generally more consistent for weight loss-related outcomes, whereas binge eating-related outcomes showed greater heterogeneity across diagnoses, with stronger and more consistent associations observed for BN and BED.

Stratification and interaction by sex

Results from the single-diagnosis models stratified by sex are presented in Figs. 4–6 and Tables S8 and S9. Results from the interaction model are presented in Tables S10 and S11. Sex-specific ED effects calculated from the interaction model are presented in Tables S12 and S13. In the following, results from single-diagnosis models stratified by sex and sex x ED interaction effects from the interaction model are presented.

INSERT FIGURES 4–6 HERE

All BMIs: Findings from the female-only model were largely consistent with those from the full sample. In contrast, findings from the male-only model presented significant diversions. For prescribed GLP-1RA use, males with AN showed an association in the opposite direction to that observed in females, with significantly higher odds of prescribed use for binge eating (OR = 3.93, q = 0.013). The sex x ED interaction indicated a significant difference of this association between females and males (OR = 9.92, p = < 0.001). For BED, odds ratios were larger in males than females, but the direction of association remained the same and the difference was not statistically significant. Similar patterns were observed for both unprescribed and attempted GLP-1RA use.

Lifetime BMI > 30: As in the sample comprising individuals within all BMI groups, findings from the female-only model aligned with the findings from the full sample. Odds ratios in males did not significantly differ from odds ratios in females, except for AN for unprescribed GLP-1RA use for binge eating (OR = 8.20, p = 0.004) and for BED for weight loss-related prescribed and unprescribed GLP-1RA use (OR = 1.93–2.38, p = 0.048 – 0.045).

Lifetime BMI ≤ 30: Findings from the female-only model still largely aligned with those from the full sample except for non-significant associations of AN with prescribed and unprescribed GLP-1RA use for weight loss and binge eating. Significant sex x interaction terms indicated statistically significant differences between females and males, with males presenting stronger associations of AN with prescribed, unprescribed, and attempted GLP-1RA use for weight loss (OR = 8.43–32.84, p = 0.001-<0.001) and prescribed and unprescribed use for binge eating (OR = 16.77–23.07, p = 0.006 – 0.001). Females and males also significantly differed for attempted use in BN for weight loss (OR = 3.43, p = 0.024).

Discussion

The present study examined GLP-1RA use, including prescribed use, non-prescribed use, and unsuccessful attempts to obtain these medications, across individuals with and without a lifetime ED. Overall, GLP-1RA use and demand were consistently higher among individuals with lifetime ED compared to controls, with the most pronounced patterns observed in lifetime binge eating-type diagnoses (BN and BED) and AAN. Notably, GLP-1RA use and demand were observed even among individuals who had never had a BMI fulfilling medical indications thresholds, including among those with restrictive EDs. Indeed, there was a descriptive trend such that effects were larger for unprescribed and attempted use in lifetime AN in the lower BMI groups, which is a concerning pattern. In addition, sex-specific analyses indicated that patterns of GLP-1RA use differed in men, with a more even distribution across diagnoses and unexpectedly high engagement among men with a lifetime history of AN. The attenuation observed after adjusting the models for other lifetime ED diagnoses suggests that part of the associations reflect clinical features shared across ED diagnoses, likely due to the substantial diagnostic overlap and crossover characteristic of EDs. However, the persistence of most associations indicates that individual ED diagnoses also contribute unique variance to GLP-1RA engagement, consistent with previous research (22).

GLP-1RA engagement in binge eating-type EDs

Across models, BED and BN showed strong and consistent associations with GLP-1RA prescription, non-prescribed use, and unsuccessful attempts. Weight loss was the primary motivation for GLP-1RA use and attempts to obtain them across all groups, reflecting the established role of these medications in obesity treatment (5, 7, 18). However, reduction of binge eating also emerged as a substantial motivation among individuals with BED and BN, despite the absence of an approved indication for treating binge-eating symptoms (18). Although preliminary studies suggest that GLP-1RAs may reduce binge-eating frequency in individuals with binge-eating symptoms (1, 8, 18), the evidence remains limited and insufficient to support routine clinical use for this indication. Nevertheless, these emerging findings may partly explain why individuals with binge-eating disorders appear to seek GLP-1RAs not only for weight loss, but also as a strategy to manage binge-eating symptoms. The persistence of these associations after adjustment for co-occurring ED diagnoses further suggests that engagement with GLP-1RAs is particularly linked to disorders characterized by binge-eating symptomatology.

GLP-1RA engagement in restrictive EDs

A more concerning finding was the substantial engagement with GLP-1RAs among individuals with lifetime restrictive EDs. Although AN generally showed weaker and more variable associations than BED and BN, individuals with lifetime AAN consistently demonstrated high levels of GLP-1RA prescription, unprescribed use, and unsuccessful attempts at obtaining the medications. Unlike AN, individuals with AAN typically present with the same restrictive cognitive and behavioral features but are not underweight and often have a history of substantial weight loss from a higher body weight (14, 32, 33). This may increase both the clinical relevance and availability of GLP-1RAs compared with AN, although the mechanisms underlying the present associations remain unclear.

Importantly, individuals with a history of restrictive EDs (both AN and AAN) were represented among both GLP-1RA users and those attempting to obtain these medications even within lower BMI strata (BMI < 27), where GLP-1RAs would generally not be indicated except for T2D (19). Although prescription rates in these BMI groups were low, non-prescribed use and particularly unsuccessful attempts remained elevated compared with controls, suggesting that GLP-1RAs are being sought outside standard prescribing frameworks and that demand extends to individuals for whom treatment would typically be considered inappropriate. This is reminiscent of a recent study showing that screening positive for ED was associated with increased use and attempts to obtain these medications without contact with a doctor (23). Further, we found that weight loss remained the predominant motivation, but binge eating was also reported by a substantial proportion of participants, despite the lack of an approved indication for this use. One possible interpretation is that, for some individuals with AN or AAN, GLP-1RAs may be incorporated into the ED itself, functioning as another means of facilitating dietary restriction and weight control. This possibility warrants further investigation.

The pattern among men showed a proportionally higher prescription rate across diagnoses and the associations for AN were considerably stronger, with men with lifetime AN showing markedly higher levels of prescribed use, non-prescribed use, and unsuccessful attempts. Although speculative, this pattern may

reflect differences in the recognition and assessment of ED history and current symptoms in men, who have historically been underrepresented in ED research and may be less readily identified in clinical settings (34).

These findings suggest that individuals with restrictive EDs, and especially men with AN, may have relatively greater access to GLP-1RAs than expected based on clinical considerations. Given the appetite-suppressing and weight-reducing effects of these medications, and as has been pointed out by others (10–13), this raises concerns about potential misuse or harm in populations characterized by restrictive eating and low weight. The patterns also point to a mismatch between current prescribing guidelines and real-world use and distinctly underscore the need for increased clinical awareness and clearer guidance regarding GLP-1RA use in individuals with EDs. A recent study showed that discourse in pro-ED social media communities integrate and normalize GLP-1RA use for weight loss, suggesting that these medications may be deliberately sought to promote ED psychopathology (35).

GLP-1RA engagement in ARFID

In this study, ARFID was the only ED that consistently showed no association with GLP-1RA engagement in either the total sample or any of the BMI groups. DSM-5 precludes weight/shape concerns as a primary motivation for food restriction/avoidance in ARFID (14) —a significant divergence from the “traditional” EDs. If body image is the main driver of GLP-1RA engagement in individuals with EDs, the absence of an association in ARFID is thus to be expected. However, about two thirds of individuals with ARFID in our study reported sufficient weight- and shape-related symptoms to meet the screening threshold for at least one other ED. Presumably, individuals with this mixed presentation would report stronger GLP-1RA engagement than controls. The absence of an association in the full ARFID group could suggest that those with the mixed presentation are fundamentally different from those with “traditional” lifetime EDs alone in terms of their GLP-1RA engagement. Alternatively, an association in individuals with the mixed presentation is too small to detect, having been attenuated by the inclusion of individuals with lifetime ARFID only. Findings for single-diagnosis and mutually adjusted models were however highly similar, arguing against this interpretation.

An unmet treatment need or an “ED behavior?

Across all analyses, unsuccessful attempts to obtain GLP-1RAs were more common in the ED group, suggesting a gap between demand and access. This consistent pattern across diagnoses (except ARFID) and BMI strata indicates a potential unmet experienced treatment need among individuals with an ED history, where treatment-seeking may be driven by weight-loss concerns, binge-eating symptoms, or both. Whether this behavior reflects ED-related cognitions, medical indications for GLP-1RA treatment, or other factors cannot be determined from the present data and warrants further investigation. For example, one possibility is that developing overweight/obesity over time may re-trigger ED in individuals not provided adequate guidance on avoiding relapse.

Strengths and limitations

Strengths of this study include the large sample size, inclusion of multiple ED diagnoses, and the simultaneous examination of prescribed use, non-prescribed use, and unsuccessful attempts, providing a comprehensive picture of GLP-1RA engagement. The use of both unadjusted and mutually adjusted models

further allowed differentiation between shared and diagnosis-specific effects. Limitations include reliance on retrospective self-reported data on ED symptoms, from which diagnoses were algorithmically derived, and GLP-1RA medication use, which may introduce bias due to e.g. desirability bias (shame or hesitation to admit accessing medication outside appropriate channels). The cross-sectional design precludes causal inference, and some subgroup analyses, particularly at lower BMI levels, were limited by smaller sample sizes and greater uncertainty in estimates. Further, the survey did not include information on when GLP-1RA was taken/sought, meaning that we do not know when in relation to ED symptoms this occurred. This limits our ability to go beyond descriptive associations and draw conclusions about direction of effect. Finally, our control group represented an approximation based on available data. Although similar to publicly available general population data, future research sampling representative non-ED controls is needed.

Clinical implications

The present findings highlight the need for clearer guidance on GLP-1RA use in individuals with current or previous EDs, as also detailed in recent consensus-based recommendations (36). Given the substantial use and treatment-seeking observed across ED groups, screening for ED psychopathology before GLP-1RA treatment initiation and monitoring of ED symptoms throughout treatment should be a central part of routine clinical care. The high number of unsuccessful attempts to obtain GLP-1RAs further suggests that clinicians are likely to encounter patients actively seeking these medications, including individuals for whom treatment is clearly inappropriate. This underscores the importance of careful assessment of treatment expectations and motivations, and close collaboration between obesity, diabetes, and primary care, and ED services. As the evidence base for GLP-1RAs in EDs continues to evolve, clinical practice will need to balance emerging therapeutic opportunities against the potential risk of exacerbating ED psychopathology in vulnerable individuals.

Conclusions

In conclusion, GLP-1RA use and demand are elevated among individuals with EDs, particularly those with binge eating-type diagnoses. While weight loss remains the primary motivation, binge eating also appears to be an important driver. The findings further highlight concerning patterns of use and treatment-seeking among individuals with restrictive EDs and lower lifetime BMIs, and especially men with AN. Longitudinal studies are now needed to clarify the clinical role, safety, and risk-benefit profile of GLP-1RAs in ED populations and to inform evidence-based clinical guidance.

Declarations

Competing Interests

CMB receives royalties from Pearson Education Inc.

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Author Contribution

All authors participated in data collection planning and design; EFM, AB, LD, LH, and YL planned analyses and LH performed statistical analyses. EFM wrote the first manuscript draft, and all authors contributed to final editing. CMB and LMT secured funding.

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Data Availability

The datasets analyzed in the current study will be made available in the CEDIX repository, hosted by the Centre for Eating Disorders Innovation at the Department of Medical Epidemiology and Biostatistics, Karolinska institutet, Stockholm, Sweden. The database is being prepared and is estimated to be ready during 2027. Data will be available for request via a website for research use.

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Figures

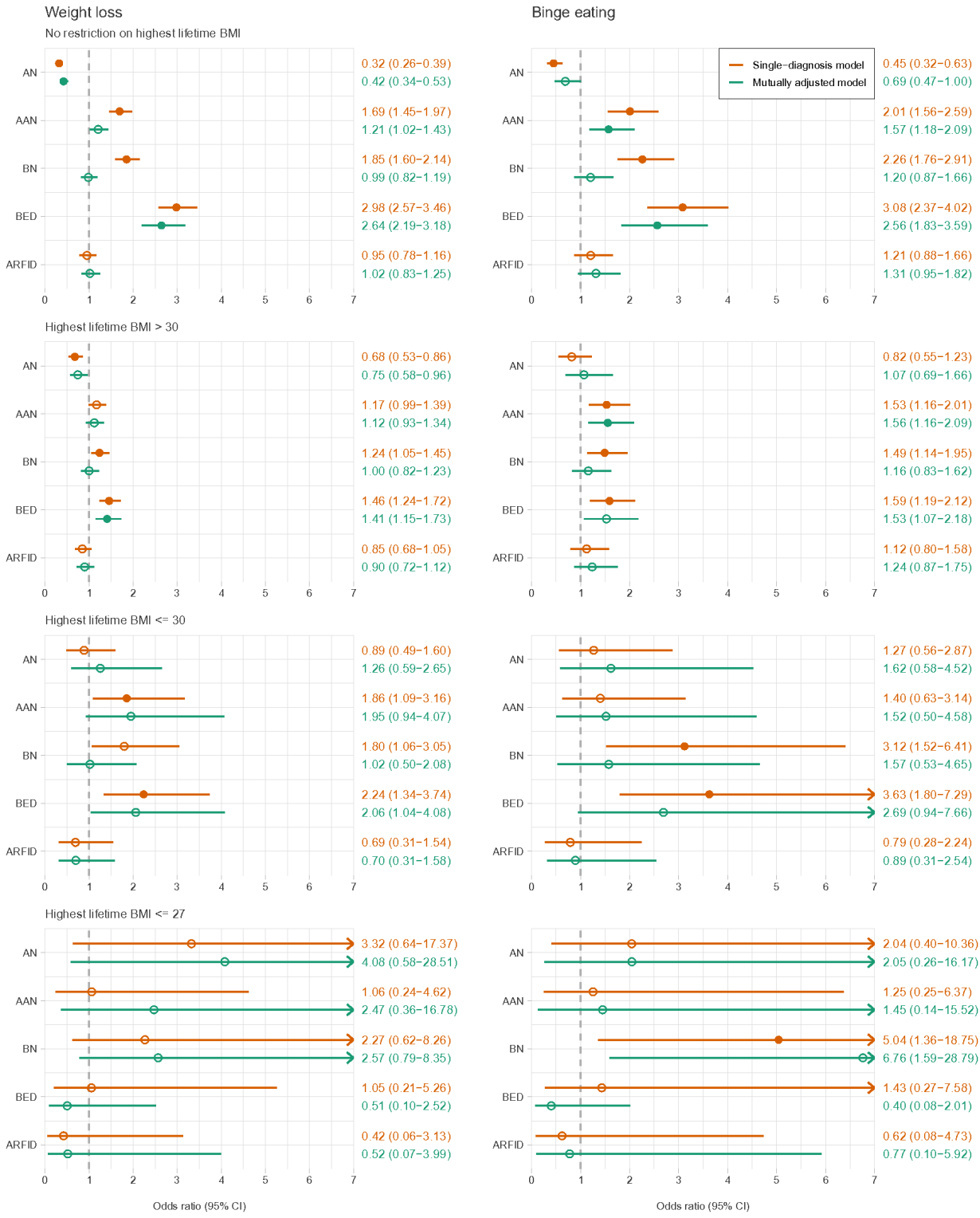


Figure 1

Forest plots of odds ratios for **GLP-1RA prescriptions** comparing each ED group with the control group from single-diagnosis models including each ED, sex, age, and GLP-1RA prescription for T2D (orange) and mutually adjusted models including all EDs, sex, age, and GLP-1RA prescription for T2D (green) separated based on highest lifetime BMI.

Note. ED and BMI groups are not mutually exclusive except for Highest lifetime BMI > 30. Filled circles indicate significance after FDR correction. ED = eating disorder. T2D = type 2 diabetes. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder. CI = confidence interval.

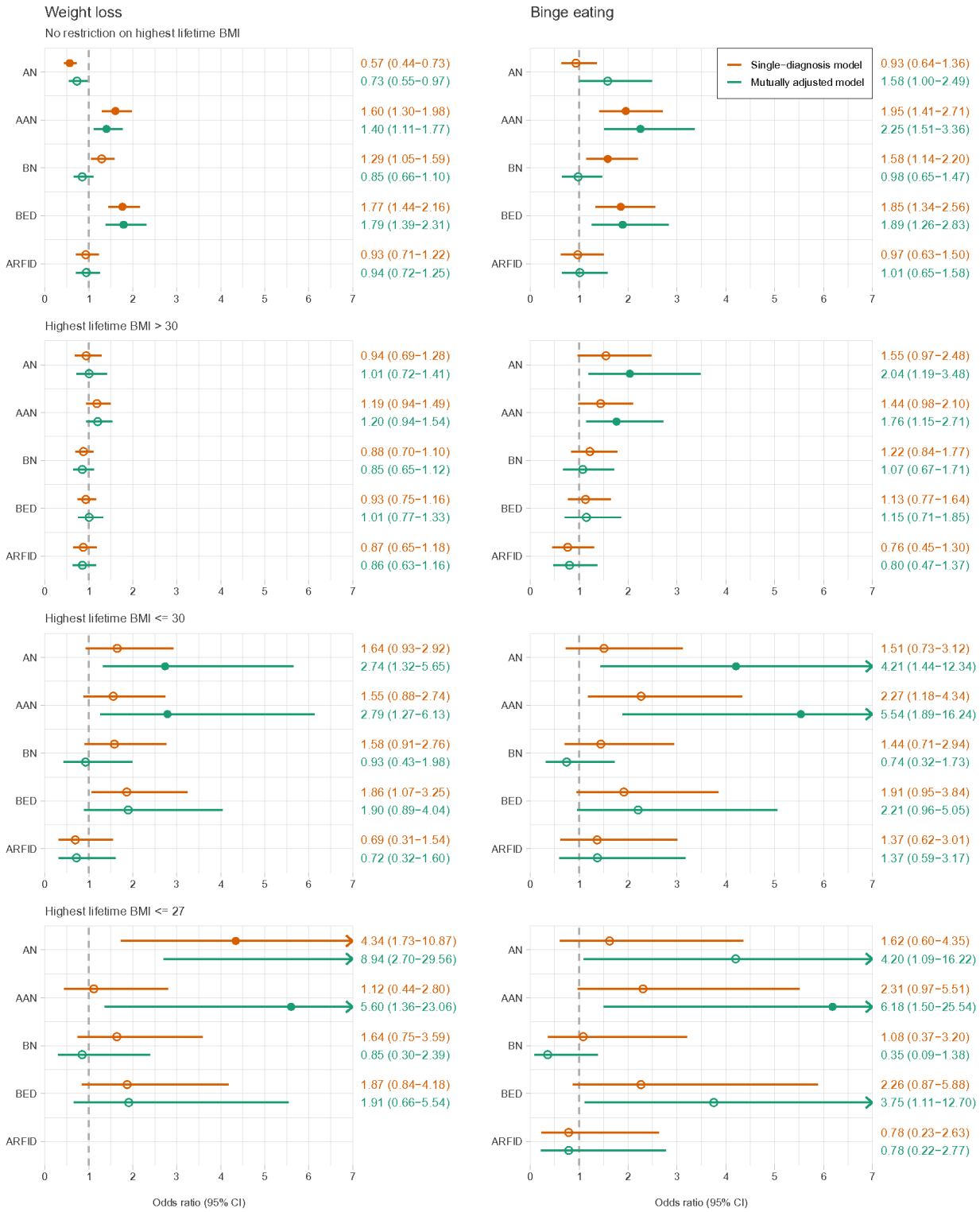


Figure 2

Forest plots of odds ratios for **GLP-1RA use without prescription** comparing each ED group with the control group from single-diagnosis models including each ED, sex, age, and GLP-1RA prescription for T2D (orange) and mutually adjusted models including all EDs, sex, age, and GLP-1RA prescription for T2D (green) separated based on highest lifetime BMI.

Note. ED and BMI groups are not mutually exclusive except for Highest lifetime BMI > 30. Filled circles indicate significance after FDR correction. ED = eating disorder. T2D = type 2 diabetes. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder. CI = confidence interval.

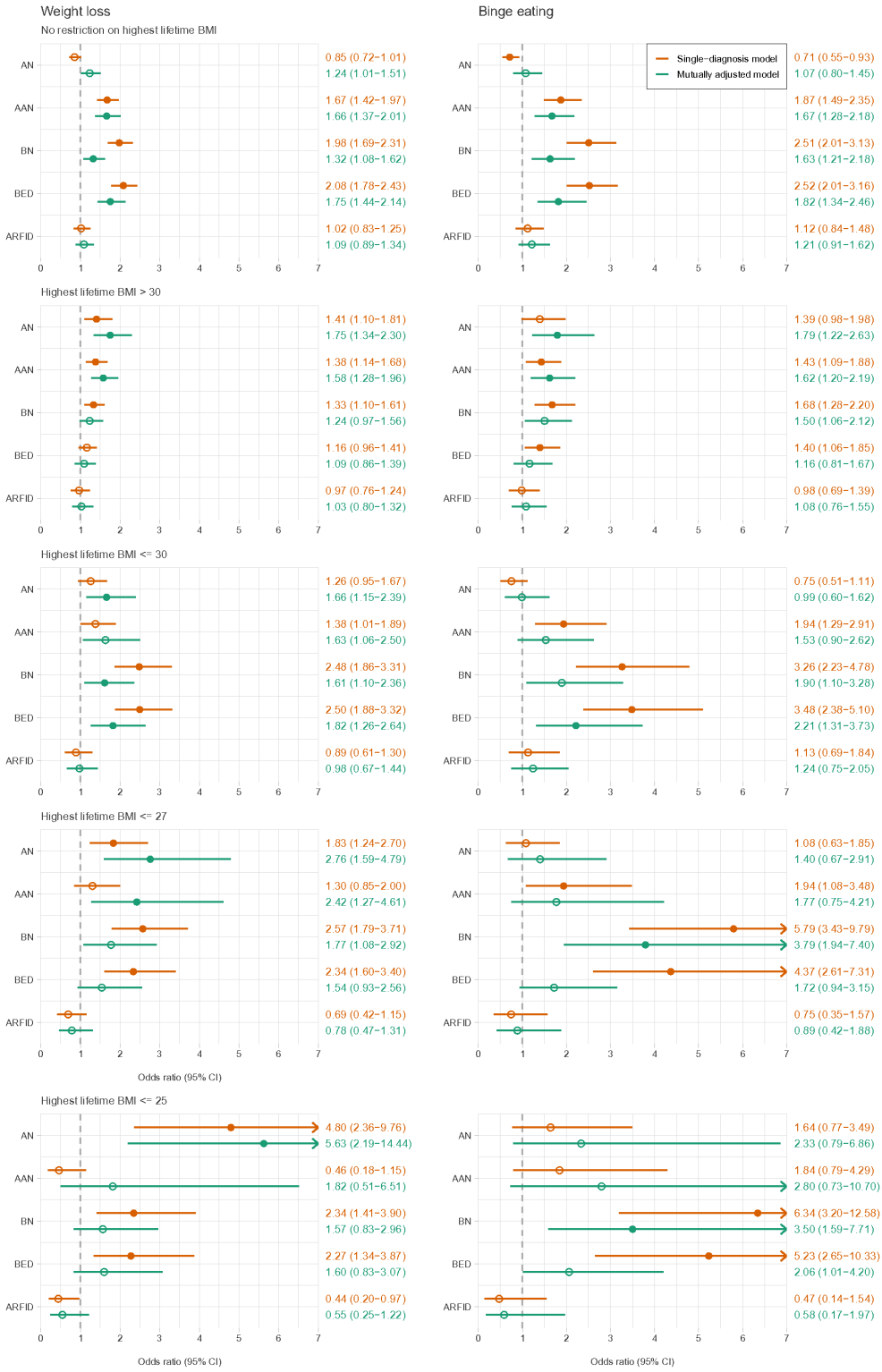


Figure 3

Forest plots of odds ratios for **unsuccessful attempts to obtain GLP-1RAs** comparing each ED group with the control group from single-diagnosis models including each ED, sex, age, and GLP-1RA prescription for T2D (orange) and mutually adjusted models including all EDs, sex, age, and GLP-1RA prescription for T2D (green) separated based on highest lifetime BMI.

Note. ED and BMI groups are not mutually exclusive except for Highest lifetime BMI > 30. Filled circles indicate significance after FDR correction. ED = eating disorder. T2D = type 2 diabetes. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder. CI = confidence interval.

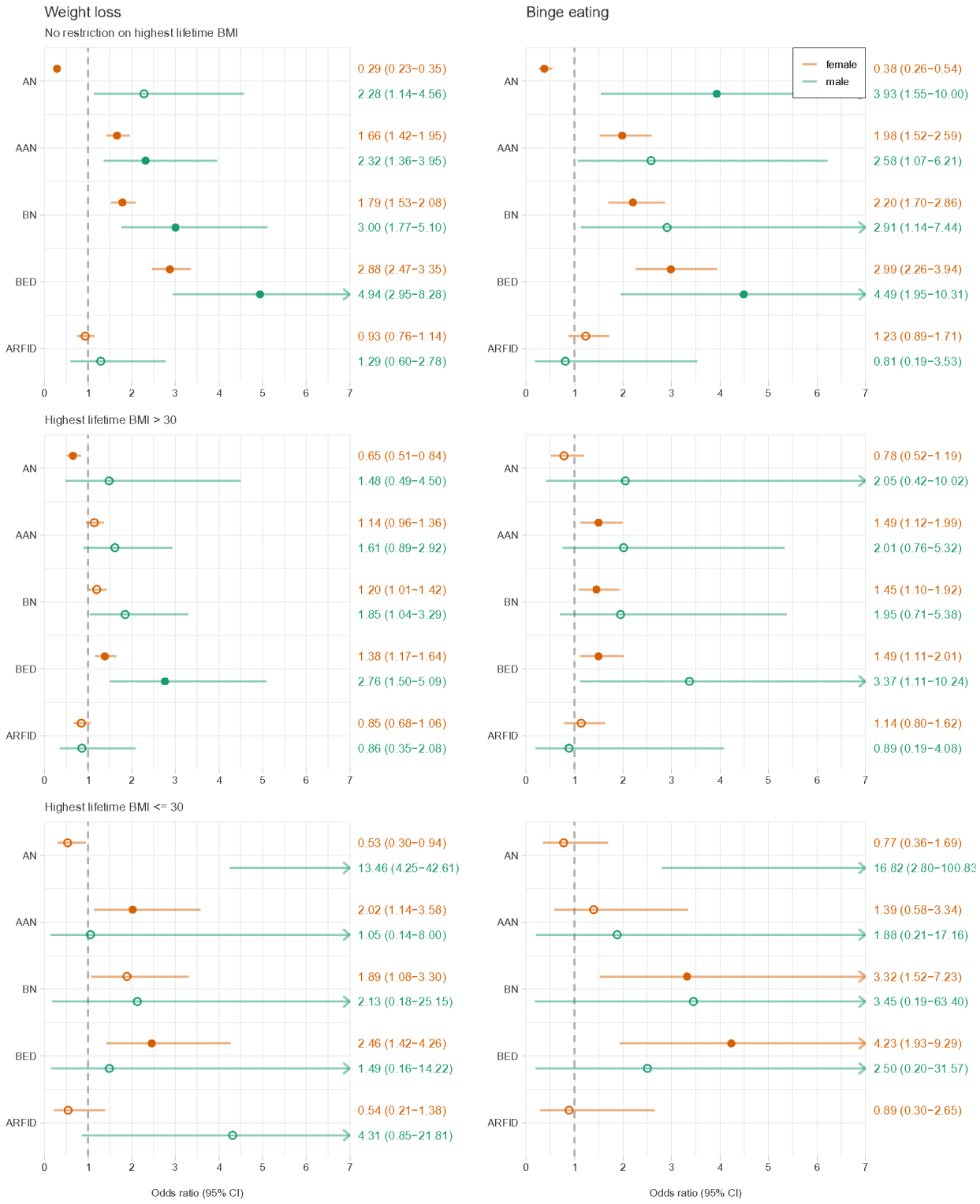


Figure 4

Forest plots of odds ratios for **GLP-1RA prescriptions** comparing each ED group with the control group from single-diagnosis models including each ED, age, and GLP-1RA prescription for T2D in females only (orange) and males only (green) separated based on highest lifetime BMI.

Note. ED and BMI groups are not mutually exclusive except for Highest lifetime BMI > 30. Filled circles indicate significance. ED = eating disorder. T2D = type 2 diabetes. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder. CI = confidence interval.

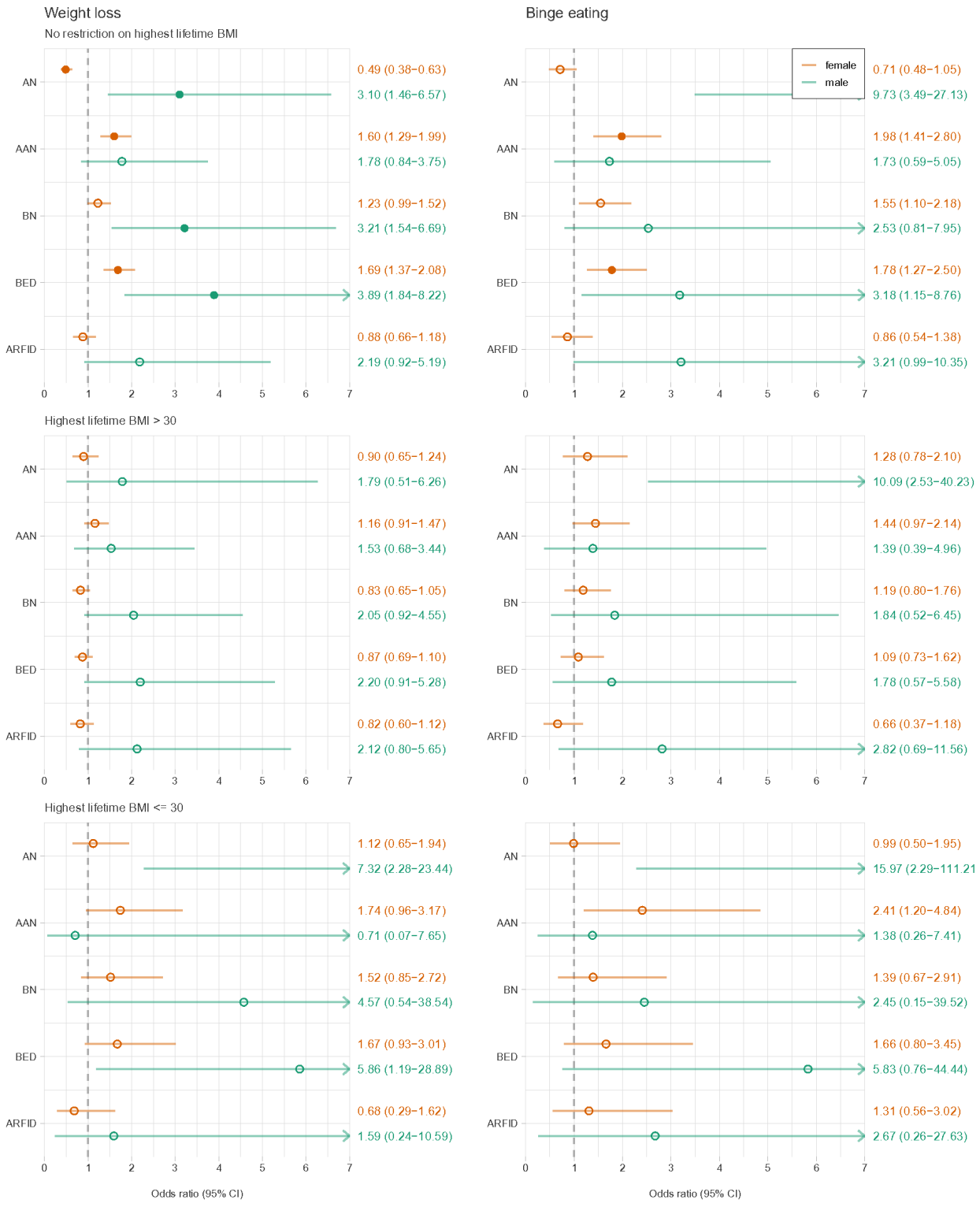


Figure 5

Forest plots of odds ratios for **GLP-1RA use without prescription** comparing each ED group with the control group from single-diagnosis models including each ED, age, and GLP-1RA prescription for T2D in females only (orange) and males only (green) separated based on highest lifetime BMI.

Note. ED and BMI groups are not mutually exclusive except for Highest lifetime BMI > 30. Filled circles indicate significance. ED = eating disorder. T2D = type 2 diabetes. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder. CI = confidence interval.

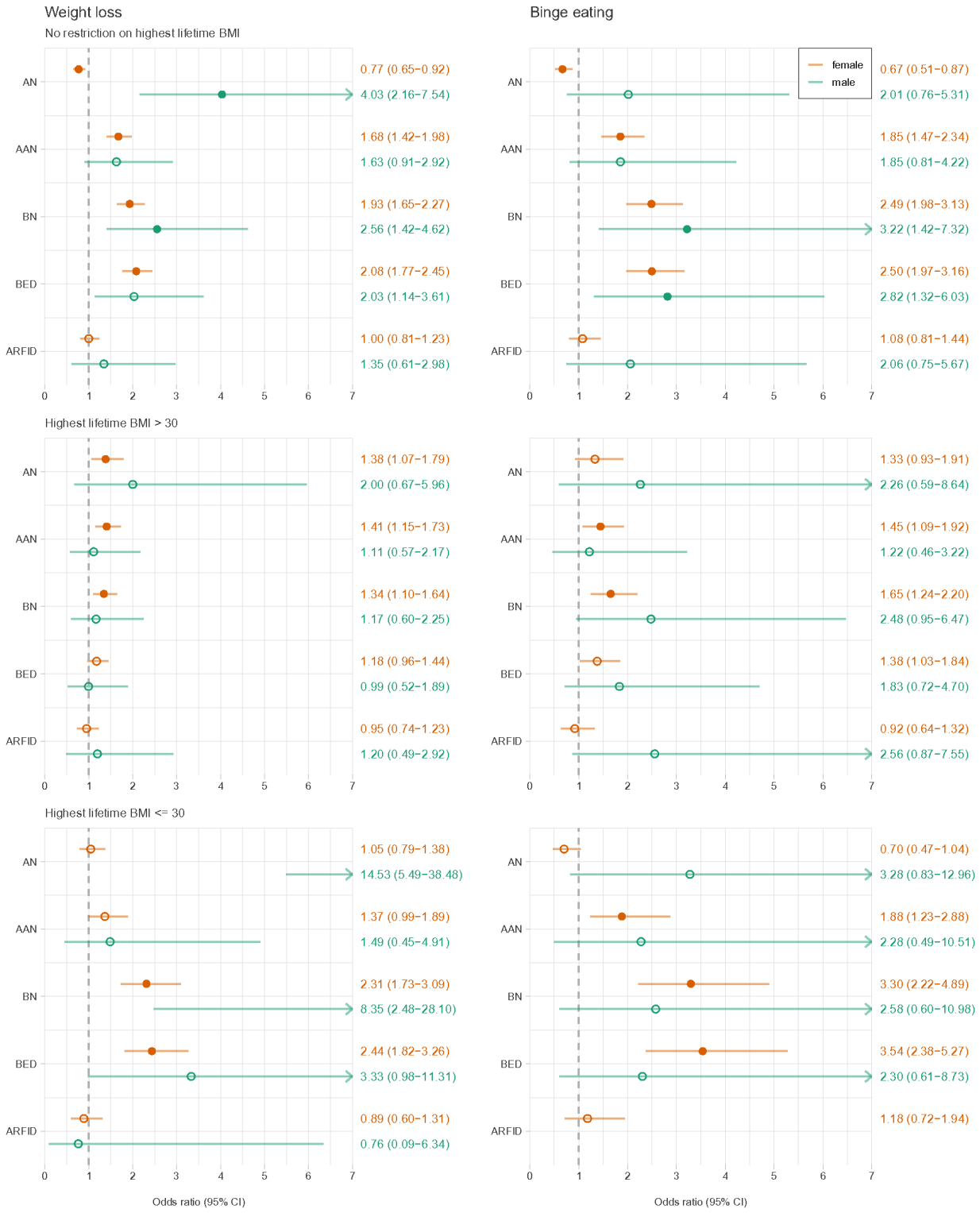


Figure 6

Forest plots of odds ratios for **unsuccessful attempts to obtain GLP-1RAs** comparing each ED group with the control group from single-diagnosis models including each ED, age, and GLP-1RA prescription for T2D in females only (orange) and males only (green) separated based on highest lifetime BMI.

Note. ED and BMI groups are not mutually exclusive except for Highest lifetime BMI > 30. Filled circles indicate significance. ED = eating disorder. T2D = type 2 diabetes. AN = anorexia nervosa. AAN = atypical anorexia nervosa. BN = bulimia nervosa. BED = binge-eating disorder. ARFID = avoidant/restrictive food intake disorder. CI = confidence interval.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- FigureS1.pdf
- Supplementaryfigures.docx
- Supplementarytables.docx