Table S1: Baseline Characteristics of Liver Transplant Recipients Before Propensity Score Matching

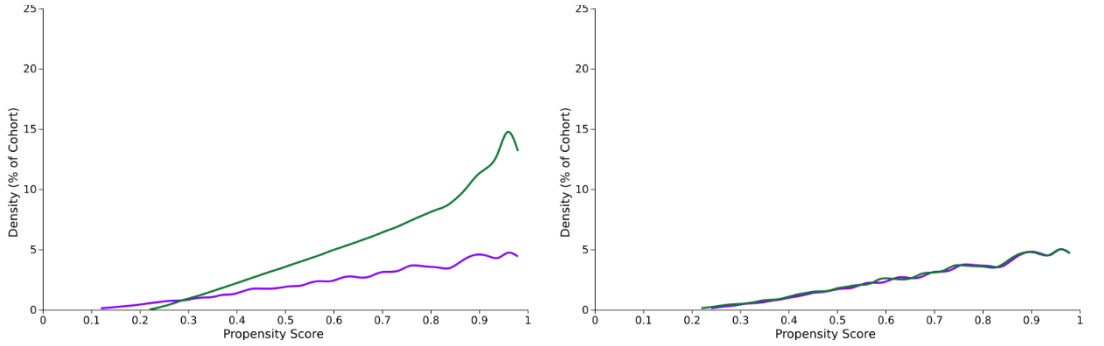
Characteristic	**GLP-1 cohort (N = 747)**	**Non-GLP-1 cohort (N = 6,204)**	**Std Diff**	**P-value**
Age, years (mean ± SD)	57.9 ± 10.6	57.7 ± 12.4	0.021	0.601
Female	305 (40.8%)	2,314 (37.4%)	0.070	0.070
Male	442 (59.2%)	3,868 (62.6%)	0.069	0.071
Race / Ethnicity				
White	530 (71.0%)	4,543 (73.5%)	0.056	0.141
Black / African American	59 (7.9%)	525 (8.5%)	0.022	0.582
Asian	34 (4.6%)	175 (2.8%)	0.091	0.009
American Indian / Alaska Native	10 (1.3%)	55 (0.9%)	0.043	0.229
Native Hawaiian / Pacific Islander	10 (1.3%)	18 (0.3%)	0.117	<0.001
Hispanic or Latino	116 (15.5%)	768 (12.4%)	0.090	0.016
Not Hispanic or Latino	481 (64.4%)	4,430 (71.6%)	0.156	<0.001
Comorbidities				
Diabetes mellitus	649 (86.9%)	3,871 (62.6%)	0.582	<0.001
Overweight / Obesity	377 (50.5%)	1,459 (23.6%)	0.579	<0.001
Hypertensive diseases	538 (72.0%)	3,403 (55.0%)	0.358	<0.001
Ischemic heart disease	205 (27.4%)	1,313 (21.2%)	0.145	<0.001
Cerebral infarction	32 (4.3%)	176 (2.8%)	0.078	0.030
Immunosuppressive Medications				
Tacrolimus	455 (60.9%)	2,563 (41.5%)	0.397	<0.001
Mycophenolate mofetil	296 (39.6%)	1,727 (27.9%)	0.249	<0.001
Mycophenolic acid	127 (17.0%)	675 (10.9%)	0.176	<0.001
Sirolimus	31 (4.1%)	253 (4.1%)	0.003	0.940
Cyclosporine	43 (5.8%)	241 (3.9%)	0.087	0.016
Azathioprine	30 (4.0%)	194 (3.1%)	0.047	0.200
Laboratory Values				
HbA1c, % (mean ± SD)	7.1 ± 2.0	6.1 ± 1.7	0.529	<0.001
HbA1c 5.7–6.3%	244 (32.7%)	985 (15.9%)	0.398	<0.001

HbA1c 6.4–8.9%	381 (51.0%)	1,297 (21.0%)	0.659	<0.001
HbA1c ≥ 9.0%	176 (23.6%)	415 (6.7%)	0.484	<0.001
Body Mass Index				
BMI, kg/m² (mean ± SD)	32.9 ± 7.0	29.5 ± 6.8	0.504	<0.001
BMI 30–34.9 kg/m²	306 (41.0%)	1,769 (28.6%)	0.262	<0.001
BMI 35–39.9 kg/m²	237 (31.7%)	1,032 (16.7%)	0.357	<0.001
BMI ≥ 40 kg/m²	139 (18.6%)	555 (9.0%)	0.282	<0.001

This table presents the demographic, clinical, and laboratory characteristics of liver transplant recipients with type 2 diabetes mellitus prior to propensity score matching. It compares patients exposed to GLP-1 receptor agonists (**GLP-1 cohort, N = 747**) with those receiving conventional diabetes therapy (**non-GLP-1 cohort, N = 6,204**). Variables include age, sex, race/ethnicity, comorbidities (e.g., obesity, hypertension, ischemic heart disease), immunosuppressive medication use, glycemic control (HbA1c), and body mass index (BMI). Standardized differences and p-values are provided to highlight baseline imbalances between cohorts, indicating substantial differences in clinical and metabolic profiles before matching.

Table S2: Propensity Score Density Function Before and After Matching

GLP-1 cohort - purple, non-GLP-1 cohort - green



This figure illustrates the distribution of propensity scores for liver transplant recipients with type 2 diabetes mellitus before and after 1:1 propensity score matching. The GLP-1 cohort is represented in **purple**, and the non-GLP-1 cohort in **green**. The left panel shows the density functions prior to matching, highlighting substantial baseline differences between cohorts. The right panel displays the distributions after matching, demonstrating improved overlap and covariate balance achieved through the matching process. This visualization confirms the effectiveness of propensity score matching in reducing selection bias and ensuring comparability between treatment groups

Table S3: List of ICD-10-CM Codes Used in the Study

ICD-10-CM Code	Description
Z94.4	Liver transplant status
Z48.23	Encounter for aftercare following liver transplant
E11	Type 2 diabetes mellitus
E10	Type 1 diabetes mellitus
C00–D49	Neoplasms
Z94.2	Lung transplant status
Z94.83	Pancreas transplant status
Z94.0	Kidney transplant status
Z94.1	Heart transplant status
T86.41	Liver transplant rejection
T86.42	Liver transplant failure
T86.43	Liver transplant infection
T86.40	Unspecified complication of liver transplant
T86.49	Other complications of liver transplant
K83.1	Obstruction of bile duct
K75.0	Abscess of liver
I74.8	Embolism and thrombosis of other arteries
I81	Portal vein thrombosis
E08–E13	Diabetes mellitus (grouped)
E65–E68	Overweight, obesity and other hyperalimentation
I10–I1A	Hypertensive diseases
I20–I25	Ischemic heart diseases
I63	Cerebral infarction