

BACKGROUND

- Diabetes is the No. 1 cause of kidney failure, lower-limb amputations, and adult blindness. More than 37 million adults in the United States have diabetes.¹
- The current Standard of Care recommends the use of continuous glucose monitoring (CGM) to people living with type 1 diabetes (T1D) or type 2 diabetes (T2D) on insulin therapy to manage their condition.²
- Treatment satisfaction with CGM is receiving growing attention as more people with diabetes (PWD) adopt this novel technology to manage their condition.

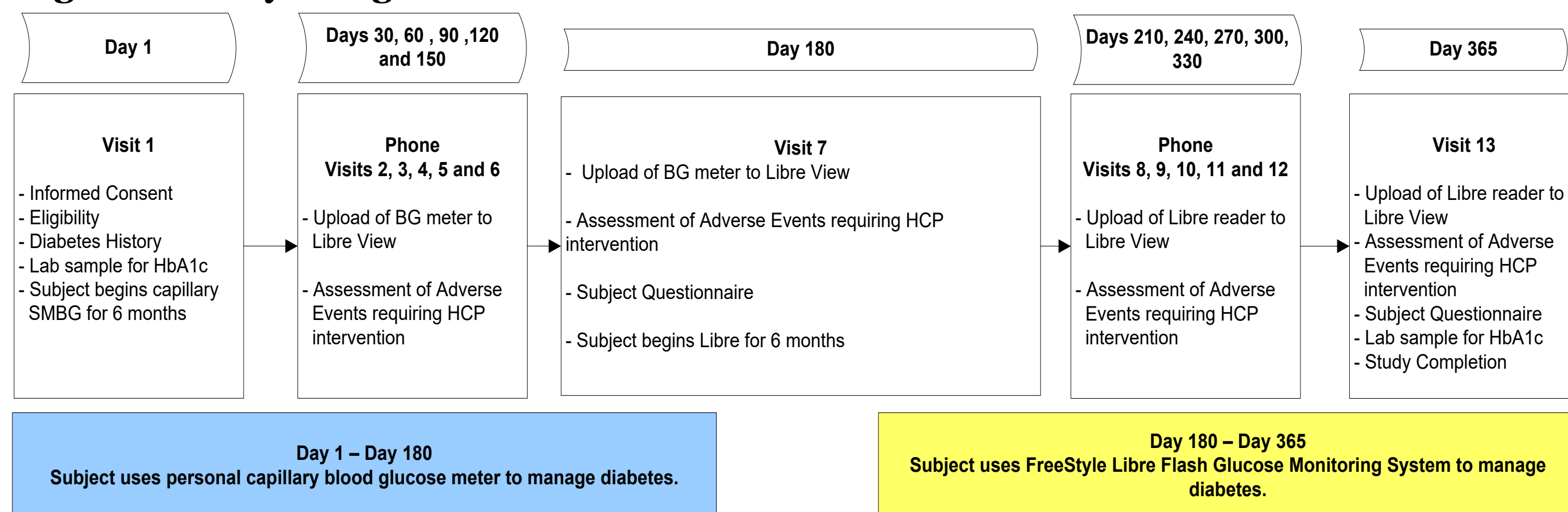
Objectives:

- This study assessed diabetes treatment satisfaction (DTS) using FreeStyle Libre 14-day (FSL) glucose monitoring system among people living with type 1 (T1D) and type 2 diabetes (T2D).
- Secondary objectives include FSL scan frequency and change in HbA1c measurement before and after using FSL.

METHODS

- This is a post-approval, prospective, multi-center, non-randomized, adult (≥18 years) study based in the United States.
- It consisted of a 6-month baseline period where participants used blood glucose monitoring (BGM) device, and a 6-month follow-up period where participants used FSL to manage their diabetes.
- Diabetes Treatment Satisfaction Questionnaires (DTSQ) and HbA1c values were collected and the differences between the baseline and follow-up periods were assessed using t-test.
- Multivariate regression model was used to assess the relationship between HbA1c and daily scan frequency. Adjusted model included covariates age, sex, race, ethnicity, education, BMI, baseline HbA1c, duration of diabetes, type of diabetes, and anti-diabetic medications.

Figure 1. Study Design



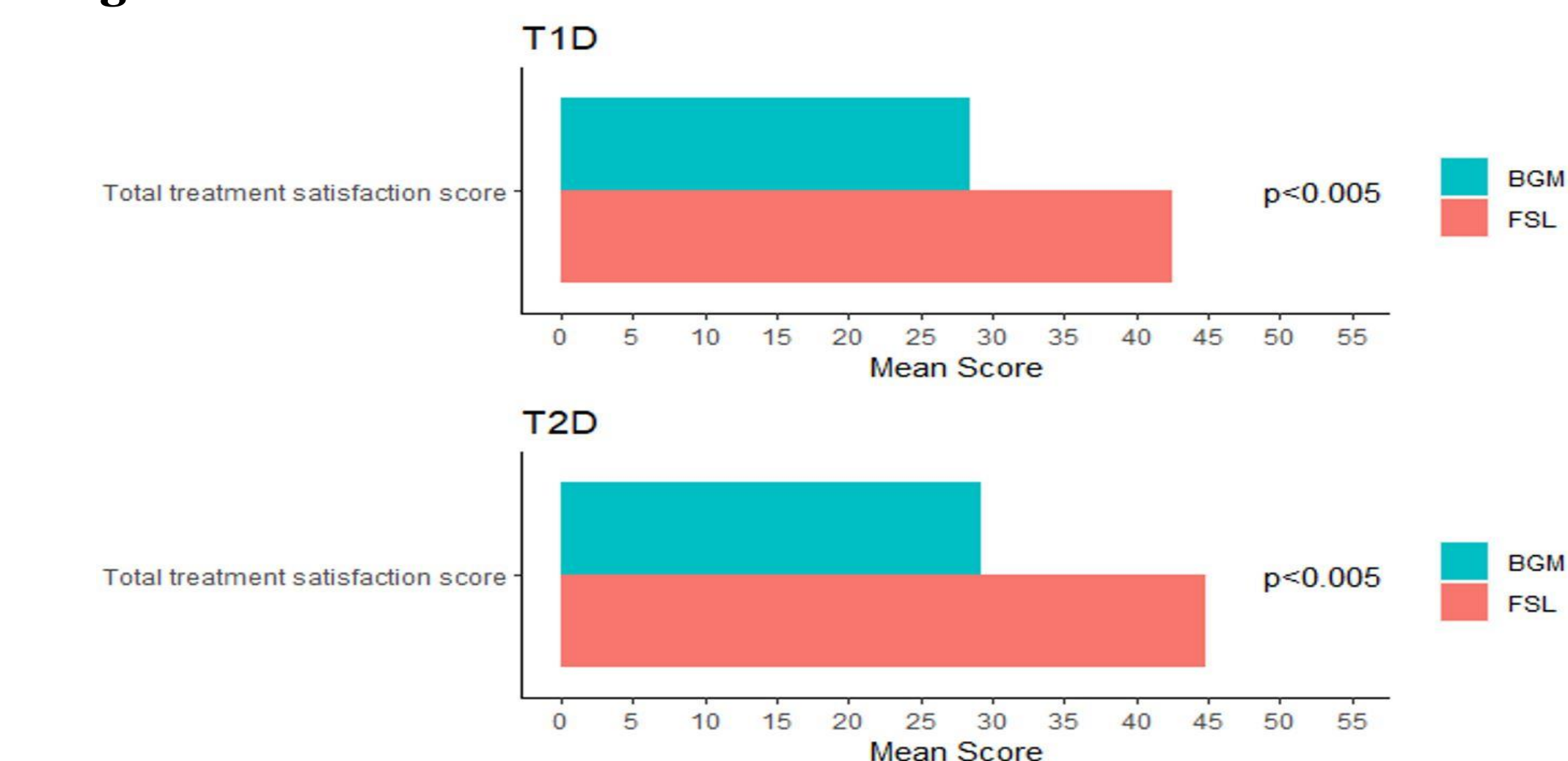
RESULTS

- This study enrolled 935 participants, and 744 completed both the baseline and follow-up periods and were included in the analysis.
- 10.8% have T1D and 89.2% have T2D.

Table 1. Baseline Demographics and Clinical Characteristics

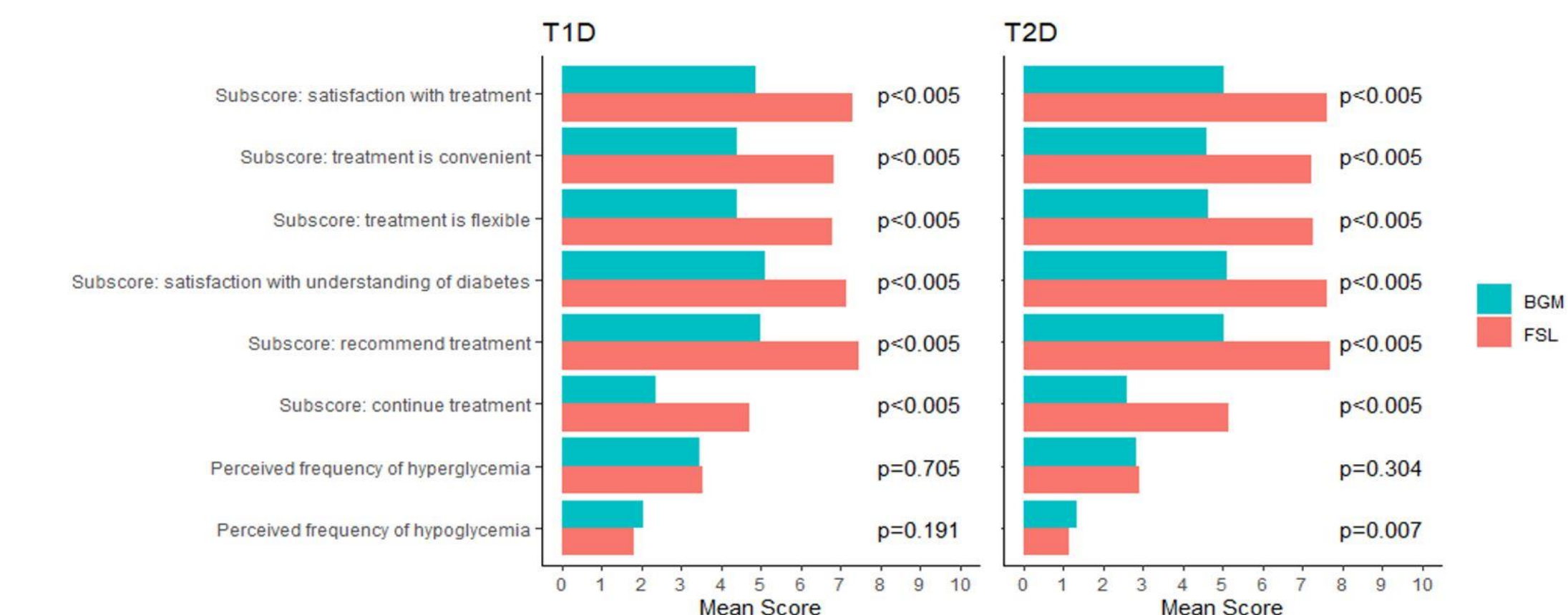
	Type 1 (n=80, 10.8%)	Type 2 (n=664, 89.2%)	Total (N=744)
Age (yrs.)			
1. 30 or below	12 (15.0%)	6 (0.9%)	18 (2.4%)
2. 31 to 64	58 (72.5%)	391 (58.9%)	449 (60.3%)
3. 65 or older	10 (12.5%)	267 (40.2%)	277 (37.2%)
Sex			
Female	30 (37.5%)	349 (52.6%)	379 (50.9%)
Male	50 (62.5%)	315 (47.4%)	365 (49.1%)
Race			
American Indian or Alaska Native	1 (1.2%)	8 (1.2%)	9 (1.2%)
Asian	1 (1.2%)	15 (2.3%)	16 (2.2%)
Black or African American	4 (5.0%)	96 (14.5%)	100 (13.4%)
Native Hawaiian or Pacific Islander	0 (0.0%)	3 (0.5%)	3 (0.4%)
White	73 (91.2%)	526 (79.2%)	599 (80.5%)
Other	1 (1.2%)	16 (2.4%)	17 (2.3%)
Ethnicity			
Hispanic or Latino	22 (27.5%)	144 (21.7%)	166 (22.3%)
Not Hispanic or Latino	58 (72.5%)	520 (78.3%)	578 (77.7%)
Education			
Grade 0-8	1 (1.2%)	6 (0.9%)	7 (0.9%)
High School (Grades 9-12)	16 (20.0%)	130 (19.6%)	146 (19.6%)
Some College (1-4 years)	36 (45.0%)	285 (42.9%)	321 (43.1%)
Bachelor's degree (BA BS etc)	17 (21.2%)	147 (22.1%)	164 (22.0%)
Master's Degree (MA MS etc)	10 (12.5%)	76 (11.4%)	86 (11.6%)
Doctorate or Professional school degree	0 (0.0%)	20 (3.0%)	20 (2.7%)
BMI			
1. underweight (<18.5)	2 (2.5%)	0 (0.0%)	2 (0.3%)
2. normal weight (18.5-24.9)	15 (18.8%)	28 (4.2%)	43 (5.8%)
3. overweight (25-29.9)	31 (38.8%)	149 (22.4%)	180 (24.2%)
4. obesity class I (30-34.9)	22 (27.5%)	220 (33.1%)	242 (32.5%)
5. obesity class II (35-39.9)	5 (6.2%)	135 (20.3%)	140 (18.8%)
6. obesity class III (≥40)	5 (6.2%)	132 (19.9%)	137 (18.4%)
Diabetes duration (yrs.)			
1. <10	19 (23.8%)	241 (36.3%)	260 (34.9%)
2. 10-20	14 (17.5%)	229 (34.5%)	243 (32.7%)
3. >20	47 (58.8%)	194 (29.2%)	241 (32.4%)
HbA1c baseline (%)			
1. ≤7.5	24 (30.0%)	378 (56.9%)	402 (54.0%)
2. >7.5	55 (68.8%)	281 (42.3%)	336 (45.2%)
3. Missing	1 (1.2%)	5 (0.8%)	6 (0.8%)
Anti-diabetic medications			
1. MDI	75 (93.8%)	320 (48.2%)	395 (53.1%)
2. Basal	2 (2.5%)	45 (6.8%)	47 (6.3%)
3. Noninsulin	1 (1.2%)	277 (41.7%)	278 (37.4%)
4. No anti-diabetic medication	2 (2.5%)	22 (3.3%)	24 (3.2%)

Figure 2. Treatment Satisfaction Score



- FSL usage was associated with a significant increase in diabetes treatment satisfaction in persons with T1D (mean total DTS change score: +13.95; p<0.005) or T2D (mean total DTS change score: +15.57, p<0.005).

Figure 3. Treatment Satisfaction Sub-score



- The perceived frequency of hypoglycemia among T2D was significantly less after using FSL (mean score: -0.18, p=0.007).
- Daily scan frequency was correlated with a decrease in HbA1c, where each additional scan was associated with a reduction of 0.04% in HbA1c (adjusted 95% CI: (-0.06, -0.01); adjusted p=0.001).

CONCLUSIONS

- Using FSL was associated with significant improvement in diabetes treatment satisfaction among people with T1D or T2D.
- Frequent daily scan was also associated with a reduction in HbA1c.

References:

- Diabetes. Centers for Disease Control and Prevention. <https://www.cdc.gov/diabetes/basics/diabetes.html>. Accessed on January 9, 2023
- ElSayed NA, Aleppo G, Aroda VR, Bannuru RR, Brown FM, Bruemmer D, Collins BS, Hilliard ME, Isaacs D, Johnson EL, Kahan S, Khunti K, Leon J, Lyons SK, Perry ML, Prahalad P, Pratley RE, Seley JJ, Stanton RC, Gabbay RA. 7. Diabetes Technology: Standards of Care in Diabetes-2023. Diabetes Care. 2023 Jan 1;46(Supplement_1):S111-S127. doi: 10.2337/dc23-S007. PMID: 36507635.