

Supplementary Material

Medication use and contextual factors associated with meeting guideline-based glycemic levels in diabetes among a nationally representative sample

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eTable1. Contextual Factors in Studying Glycemic Level	ls
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Contextual Factor Category ^a	Contextual Factor	Data Type
Fixed patient factors	Race/Ethnicity	Nominal
	Age	Continuous
	Gender	Nominal
	Family history of diabetes	Nominal
	Family monthly poverty level index	Ordinal
	Marital status	Nominal
	Education level	Ordinal
	Occupation type	Nominal
	Acculturation: Language spoken at home	Nominal
	Household food security	Ordinal
Clinical and psychosocial	Depressive symptoms (Total score from Patient	Continuous
factors	Health Questionnaire; PHQ-9 (1))	
	Duration of diabetes in years	Continuous
	Body mass index (kg/m ²)	Continuous
	Average systolic blood pressure (mmHg)	Continuous
	Average diastolic blood pressure (mmHg)	Continuous
	Total cholesterol (mg/dL)	Continuous
	Total number of chronic conditions (present=1	Continuous
	or absent=0): Asthma, arthritis, congestive	
	heart failure, coronary heart disease, angina,	
	myocardial infarction, stroke, thyroid	
	condition, liver condition, cancer, and chronic	
	obstructive pulmonary disorder or other related	
	conditions (emphysema or chronic bronchitis)	
	Average sleep hours per night during weekdays	Continuous
Behaviors	Diabetes self-management: Frequency of blood	Ordinal
	glucose self-monitoring	
	Diabetes self-management: Feet self-	Ordinal
	monitoring	
	Healthiness of overall diet	Ordinal
	Physical activity: Metabolic equivalents	Ordinal
	(METs) (2) per week	
	Smoking status	Nominal
Care processes	A1C test within past year	Nominal
	Foot exam from doctor within past year	Nominal
	Eye exam (dilated pupils)	Nominal
Patient-physician-system	Routine place for healthcare use	Nominal
interactions	Frequency of healthcare use over past year	Ordinal
	Insurance coverage type	Nominal
	Out-of-pocket prescription costs covered by	Nominal
	insurance	

^aGroupings within contextual factor categories were informed by the TRIAD conceptual model (3).

Medication	Medication Name: Multum's	Route of	Medication
Class ^a	Lexicon Generic Drug Code ^a	Admin. (4)	Characteristics (4)
Biguanides	Metformin: d03807	Oral	Risk for
_			gastrointestinal side
			effects; may help with
			minor weight loss
Sulfonylureas	Acetohexamide: d00162	Oral	Risk for
	chlorpropamide: d00042		hypoglycemia; may
	Gliclazide: h00034		cause weight gain
	Glimepiride: d03864		
	Glipizide: d00246		
	Glyburide: d00248		
	Tolazamide: d00393		
	Tolbutamide: d00394		
TZD	Pioglitazone: d04442	Oral	May cause weight
	Rosiglitazone: d04434		gain
	Troglitazone: d04122		
DPP-4i	Alogliptin: d07963	Oral	Need for modification
	Linagliptin: d07767		of renal dose (except
	Simvastatin/sitagliptin: d07805		linagliptin)
	Sitagliptin: d05896		
	Saxagliptin: d07467		
SGLT-2i	Canagliflozin: d08080	Oral	May help with weight
	Dapagliflozin: d07928		loss; cardiovascular
	Empagliflozin: d08275		and renal benefits
	Ertugliflozin: d08689		
GLP-1 RA	Albiglutide: d08251	Subcutaneous	May help with weight
	Dulaglutide: d08290	injection	loss; cardiovascular
	Exenatide: d05529	(semaglutide	and renal benefits
	Liraglutide: d07466	available as oral)	
	Semaglutide: d08688		
Insulins	Insulin: d00262	Subcutaneous	Risk for
	Insulin aspart: d04697	injection	hypoglycemia; may
	Insulin aspart/insulin aspart		cause weight gain
	protamine: d04839		
	Insulin degludec: d08054		
	Insulin detemir: d05436		
	Insulin glargine: d04538		
	Insulin glulisine: d05278		
	Insulin inhalation rapid acting: d05765		
	Insulin isophane (NPH): d04370		
	Insulin isophane/insulin regular:		
	d04374		
	Insulin lispro: d04373		
	Insulin lispro/insulin lispro protamine:		
	d04510		

eTable2. Antihyperglycemic Medication Classes

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Medication	Medication Name: Multum's	Route of	Niedication
	Lexicon Generic Drug Code"	Admin. (4)	Characteristics (4)
	Insulin regular: d04369		
	Insulin zinc: d04371		
<u> </u>	Insulin zinc extended: d04372	D 1	
Combinations	Alogliptin/pioglitazone: d0/965	Based on	Based on individual
	Canagliflozin/metformin: d08280	individual	medications for each
	Chlorpromamide/phenformin: h00013	medications for	combination
	Dapagliflozin/metformin: d08245	each	
	Empagliflozin/linagliptin: d08344	combination	
	Empagliflozin/metformin: d08384		
	Ertugliflozin/sitagliptin: d08692		
	Glimepiride/rosiglitazone: d05674		
	Glipizide/metformin: d04823		
	Glyburide/metformin: d04703		
	Insulin degludec/liraglutide: d08311		
	Insulin glargine/lixisenatide: d08501		
	Linagliptin/metformin: d07825		
	Metformin/pioglitazone: d05635		
	Metformin/rosiglitazone: d04820		
	Metformin/saxagliptin: d07709		
	Metformin/sitagliptin: d06720		
Others	<u>α-glucosidase inhibitors</u>	Oral	
	Acarbose: d03846		
	Miglitol: d04110		
	Antidiabetic agents – unspecified:		
	c00099		
	Bile acid sequestrants		
	Colesevelam: d04695		
	Colestipol: d00744		
	Cholestyramine: d00193		
	Meglitinides		
	Repaglinide: d04267		
	Nateglinide: d04743		

Abbreviations: TZD=thiazolidinediones, DPP-4i=dipeptidyl peptidase 4 inhibitors, SGLT-2i=sodium-glucose cotransporter-2 inhibitors, GLP-1 RA=glucagon-like peptide 1 receptor agonists.

^aThe NHANES drug data was classified using Multum's Lexicon database from Cerner Multum, Inc. (5). Multum's Lexicon first level classification: metabolic agents (code=358); Multum's Lexicon second level classification: antidiabetic agents (code=99); Multum's Lexicon third level classification: sulfonylureas (code=213), biguanides (code=214), insulin (code=215), α-glucosidase inhibitors (code=216), thiazolidinediones (code=271), meglitinides (code=282), antidiabetic combinations (code=314), DPP-4i (code=371), amylin analogs (code=372), GLP-1 RA (code=373), SGLT-2i (code=458) (5, 6). Bile acid sequestrants were also included using Multum's Lexicon third level classification code 252 (5, 6). The medication names included in the table are based on those available in the study sample from the 2015-2020 March Pre-pandemic NHANES database (6). Pramlintide (Multum's Lexicon Generic Drug Code: d05488) and bromocriptine (Multum's Lexicon Generic Drug Code: d00178) were originally included in the drug classification as "others"; however, no records were self-reported for these medications among the study sample.

eTable3. Data Table for Glycemic Levels by Antihyperglycemic Medication Class and Number of Antihyperglycemic Medications, Stratified by General Guideline-based Glycemic Levels vs. Individualized Glycemic Levels

Medication Class	Percentage Meeting Guideline-	Percentage Not Meeting Guideline-	p-
	based Glycemic Levels (A1C<7%)	based Glycemic Levels (A1C≥7%)	value
	Weighted % (95% CI); N	Weighted % (95% CI); N	
Insulins	28.04 (20.52-36.58); N=116	71.96 (63.42-79.48); N=438	<.001
Metformin	51.55 (45.64-57.43); N=507	48.45 (42.57-54.36); N=605	.864
Sulfonylureas	35.96 (28.24-44.24); N=171	64.04 (55.76-71.76); N=333	<.001
TZD ^a	61.28 (39.11-80.48); N=34	38.72 (19.52-60.89); N=32	.383
DPP-4i	37.37 (21.98-54.88); N=53	62.63 (45.12-78.02); N=104	.066
SGLT-2i ^a	53.00 (30.52-74.61); N=22	47.01 (25.39-69.48); N=45	.903
GLP-1 RA	43.87 (23.39-66.01); N=28	56.13 (33.99-76.61); N=57	.387
Combinations ^a	38.72 (22.11-57.50); N=37	61.28 (42.50-77.89); N=59	.140
Medication Class	Percentage Meeting Individualized	Percentage Not Meeting	p-
	Glycemic Levels	Individualized Glycemic Levels	value
	Weighted % (95% CI); N	Weighted % (95% CI); N	
Insulins	40.77 (32.03-49.96); N=188	59.23 (50.04-67.97); N=366	<.001
Metformin	62.89 (58.05-67.55); N=621	37.11 (32.45-41.95); N=491	.885
Sulfonylureas	50.60 (43.61-57.56); N=239	49.40 (42.44-56.39); N=265	<.001
TZD ^a	74.95 (55.39-89.11); N=43	25.05 (10.89-44.61); N=23	.176
DPP-4i	53.64 (37.21-69.51); N=79	46.36 (30.49-62.79); N=78	.198
SGLT-2i ^a	68.15 (48.65-83.89); N=30	31.85 (16.11-51.35); N=37	.532
GLP-1 RA	56.30 (35.32-75.75); N=39	43.70 (24.25-64.68); N=46	.422
Combinations ^a	54.43 (39.39-68.91); N=52	45.57 (31.09-60.61); N=44	.195
Number of	Percentage Meeting Guideline-	Percentage Not Meeting Guideline-	p-
Antihyperglycemic	based Glycemic Levels (A1C<7%)	based Glycemic Levels (A1C≥7%)	value
Medications	Weighted % (95% CI); N	Weighted % (95% CI); N	
Zero	76.11 (70.56-81.08); N=253	23.89 (18.92-29.44); N=98	<.001
One	61.79 (56.06-67.28); N=462	38.21 (32.72-43.94); N=326	
Two	35.04 (28.01-42.59); N=181	64.96 (57.41-71.99); N=416	
Three	28.67 (20.13-38.49); N=56	71.33 (61.51-79.87); N=187	
Four ^a	51.20 (29.69-72.39); N=16	48.80 (27.61-70.31); N=41	
Number of	Percentage Meeting Individualized	Percentage Not Meeting	p-
Antihyperglycemic	Glycemic Levels	Individualized Glycemic Levels	value
Medications	Weighted % (95% CI); N	Weighted % (95% CI); N	
Zero	80.57 (75.27-85.17); N=270	19.43 (14.83-24.73); N=81	<.001
One	72.01 (67.76-75.99); N=527	27.99 (24.01-32.24); N=261	
Two	50.64 (42.65-58.61); N=264	49.36 (41.39-57.35); N=333]
Three	42.75 (32.73-53.23); N=91	57.25 (46.77-67.27); N=152]
Four ^a	59.61 (39.02-77.99); N=24	40.39 (22.01-60.98); N=33]

^aCaution when interpreting this estimate; estimate reliability may be limited due to the effective denominator sample size being less than 30. Effective sample size: "the sample size divided by the design effect" (7). The estimates for "other" medication class (N=27; effective sample size=10.5) and five antihyperglycemic medications (N=6; effective sample size=6) were suppressed due to low sample size. Abbreviations: TZD=thiazolidinediones, DPP-4i=dipeptidyl peptidase 4 inhibitors, SGLT-2i=sodium-glucose cotransporter-2 inhibitors, GLP-1 RA=glucagon-like peptide 1 receptor agonists. **eTable4.** Full Model for Multivariable Logistic Regression Predicting Guideline-based Glycemic Levels (A1C<7%) among People with Diabetes in 2015-2020 NHANES

Characteristics	Adjusted Odds Ratio (95%
	CI)
	N=2042
Fixed Patient Factors	
Age	0.99 (0.97-1.01)
Race/Ethnicity	
Non-Hispanic White/other	Ref.
Hispanic	0.54 (0.30-0.96) ^a
Non-Hispanic Black	0.84 (0.57-1.25)
Non-Hispanic Asian	0.49 (0.26-0.93) ^a
Gender	
Male	0.53 (0.39-0.70) ^a
Female	Ref.
Family history of diabetes	
Yes	Ref.
No	1.36 (0.99-1.86)
Family monthly poverty level index	
≤1.30	1.04 (0.71-1.53)
$1.30 < index \le 1.85$	1.08 (0.73-1.59)
>1.85	Ref.
Marital status	
Married/living with partner	Ref.
Widowed/divorced/separated	0.74 (0.56-0.99) ^a
Never married	1.25 (0.80-1.95)
Education level	
Less than high school	0.90 (0.54-1.49)
High school graduate/GED	0.81 (0.56-1.17)
Some college/associate degree	1.02 (0.67-1.55)
College graduate or above	Ref.
Occupation type	
Looking for work with a job/business but not at work	1.11 (0.60-2.06)
Not working at a job/business	1.13 (0.77-1.66)
Working at a job/business for work	Ref.
Acculturation: Language spoken at home	
English only	Ref.
Non-English only	1.78 (1.04-3.06) ^a
English and non-English	1.20 (0.71-2.03)
Household food security	
Full food security	Ref.
Marginal food security	0.63 (0.44-0.90) ^a
Low food security	0.85 (0.55-1.33)
Very low food security	0.87 (0.58-1.31)
Prescribed Antihyperglycemic Treatment Regimens	

CI N=2042 Class of prescribed antihyperglycemic medication Insulins Yes 0.25 (0.09-0.72) ^a No Ref. Metformin	Characteristics	Adjusted Odds Ratio (95%
N=2042 Class of prescribed antihyperglycemic medication Insulins Insulins 0.25 (0.09-0.72)* No Ref. Metformin Ref. Yes 0.89 (0.43-1.86) No Ref. Sulfonylureas 0.50 (0.21-1.21) No Ref. Sulfonylureas 0.50 (0.21-1.21) No Ref. TZD 0.50 (0.68-5.88) No Ref. DPP-4i PP-4i Yes 0.71 (0.27-1.90) No Ref. SGLT-2i 2.14 (0.59-7.68) Yes 0.73 (0.16-3.37) No Ref. GlLP-1 RA 0.93 (0.34-2.56) Yes 0.93 (0.34-2.56) No Ref. Combinations 0.73 (0.16-3.37) Yes 0.73 (0.16-3.37) No Ref. Others 0.73 (0.16-3.37) No Ref. Others 0.73 (0.16-3.37) No Ref. <td></td> <td>CI)</td>		CI)
Class of prescribed antihyperglycemic medication Insulins Insulins 0.25 (0.09-0.72) ^a No Ref. Metformin 0.89 (0.43-1.86) Yes 0.89 (0.43-1.86) No Ref. Sulfonylureas 0.50 (0.21-1.21) No Ref. TZD 200 (0.68-5.88) No Ref. TZD 200 (0.68-5.88) No Ref. SGL7-2i 200 (0.68-5.88) Yes 0.71 (0.27-1.90) No Ref. SGL7-2i 20.4 (0.59-7.68) Yes 0.71 (0.27-1.90) No Ref. GLP-1 RA 9 Yes 0.93 (0.34-2.56) No Ref. Ombinations 7 Yes 0.73 (0.16-3.37) No Ref. Others 0.81 (0.25-2.61) Yes 0.81 (0.25-2.61) No Ref. Others 0.73 (0.16-3.37) Yes 0.81		N=2042
Insulins 0.25 (0.09-0.72) ^a No Ref. Metformin Ref. Yes 0.89 (0.43-1.86) No Ref. Sulfonylureas 0.50 (0.21-1.21) No Ref. TZD Ref. Yes 0.50 (0.21-1.21) No Ref. TZD Ref. Yes 0.00 (0.68-5.88) No Ref. DPP-4i Ref. Yes 0.71 (0.27-1.90) No Ref. SGLT-2i Scitt (0.59-7.68) Yes 0.71 (0.27-1.90) No Ref. GLP-1 RA Ref. Yes 0.93 (0.34-2.56) No Ref. Combinations Ref. Yes 0.73 (0.16-3.37) No Ref. Others Ref. Yes 0.81 (0.25-2.61) No Ref. Others Ref. Yes 0.73 (0.16-3.37) <td>Class of prescribed antihyperglycemic medication</td> <td></td>	Class of prescribed antihyperglycemic medication	
Yes $0.25 (0.09-0.72)^a$ No Ref. Metformin	Insulins	
No Ref. Metformin 0.89 (0.43-1.86) Yes 0.89 (0.43-1.86) No Ref. Sulfonylureas 0.50 (0.21-1.21) Yes 0.50 (0.21-1.21) No Ref. TZD 200 (0.68-5.88) No Ref. DPP-4i 7es Yes 0.71 (0.27-1.90) No Ref. SGLT-2i 2.14 (0.59-7.68) Yes 0.71 (0.27-1.90) No Ref. GLP-1 RA 2.14 (0.59-7.68) Yes 0.73 (0.34-2.56) No Ref. Combinations 2.14 (0.59-7.68) Yes 0.93 (0.34-2.56) No Ref. Gubers 0.93 (0.34-2.56) No Ref. Combinations 4.64 Yes 0.93 (0.34-2.56) No Ref. Others 0.81 (0.25-2.61) Yes 0.73 (0.16-3.37) No Ref.	Yes	0.25 (0.09-0.72) ^a
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Sulfonylureas	No	Ref.
Yes 0.50 (0.21-1.21) No Ref. TZD	Sulfonylureas	
No Ref. TZD	Yes	0.50 (0.21-1.21)
TZD Yes 2.00 (0.68-5.88) No Ref. DPP-4i Yes 0.71 (0.27-1.90) No Ref. SGLT-2i Yes 2.14 (0.59-7.68) No Ref. GLP-1 RA Yes 0.93 (0.34-2.56) No Ref. Combinations Yes 0.73 (0.16-3.37) No Ref. Others 0.73 (0.16-3.37) No Ref. Others 0.81 (0.25-2.61) Yes 0.78 (0.37-1.64) Clinical and Psychosocial Factors 0.78 (0.37-1.64) Depressive symptoms (PHQ-9 score) 1.02 (0.99-1.05) Duration of diabetes in years 1.01 (0.99-1.02) Body mass index (kg/m ²) 0.99 (0.97-1.01) Systolic blood pressure (mmHg) 1.00 (0.99-1.00) Diastolic blood pressure (mmHg) 1.00 (0.99-1.00) Otal cholesterol (mg/dL) 1.00 (0.99-1.00) ^e Average sleep hours per night during weekdays 1.01 (0.93-1.10)<	No	Ref.
Yes 2.00 (0.68-5.88) No Ref. DPP-4i	TZD	
No Ref. DPP-4i	Yes	2.00 (0.68-5.88)
DPP-4i () Yes 0.71 (0.27-1.90) No Ref. SGLT-2i () Yes 2.14 (0.59-7.68) No Ref. GLP-1 RA () Yes 0.93 (0.34-2.56) No Ref. Combinations () Yes 0.73 (0.16-3.37) No Ref. Others () Yes 0.81 (0.25-2.61) No Ref. Others () Yes 0.81 (0.25-2.61) No Ref. Outhers () Yes 0.81 (0.25-2.61) No Ref. Number of prescribed antihyperglycemic medications (0-5) 0.78 (0.37-1.64) Clinical and Psychosocial Factors () Depressive symptoms (PHQ-9 score) 1.02 (0.99-1.02) Body mass index (kg/m ²) 0.99 (0.97-1.01) Systolic blood pressure (mmHg) 1.00 (0.99-1.00) Diastolic blood pressure (mmHg) 1.00 (0.99-1.00) Average	No	Ref.
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No Ref. SGLT-2i	Yes	0.71 (0.27-1.90)
SGLT-2i 2.14 (0.59-7.68) No Ref. GLP-1 RA	No	Ref.
Yes 2.14 (0.59-7.68) No Ref. GLP-1 RA	SGLT-2i	
No Ref. GLP-1 RA	Yes	2.14 (0.59-7.68)
GLP-1 RA 0.93 (0.34-2.56) No Ref. Combinations Ref. Yes 0.73 (0.16-3.37) No Ref. Others Ref. Yes 0.81 (0.25-2.61) No Ref. Others 0.81 (0.25-2.61) No Ref. Number of prescribed antihyperglycemic medications (0-5) 0.78 (0.37-1.64) Clinical and Psychosocial Factors Depressive symptoms (PHQ-9 score) Depressive symptoms (PHQ-9 score) 1.02 (0.99-1.05) Duration of diabetes in years 1.01 (0.99-1.02) Body mass index (kg/m ²) 0.99 (0.97-1.01) Systolic blood pressure (mmHg) 1.00 (0.99-1.00) Diastolic blood pressure (mmHg) 1.00 (0.98-1.01) Total cholesterol (mg/dL) 1.00 (0.99-1.00) ^a Average sleep hours per night during weekdays 1.01 (0.93-1.10) Total number of chronic conditions 1.05 (0.93-1.18)	No	Ref.
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Number of prescribed antihyperglycemic medications (0-5)0.78 (0.37-1.64)Clinical and Psychosocial FactorsDepressive symptoms (PHQ-9 score)1.02 (0.99-1.05)Duration of diabetes in years1.01 (0.99-1.02)Body mass index (kg/m²)0.99 (0.97-1.01)Systolic blood pressure (mmHg)1.00 (0.99-1.00)Diastolic blood pressure (mmHg)1.00 (0.98-1.01)Total cholesterol (mg/dL)1.00 (0.99-1.00) ^a Average sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	No	Ref.
Clinical and Psychosocial FactorsDepressive symptoms (PHQ-9 score)1.02 (0.99-1.05)Duration of diabetes in years1.01 (0.99-1.02)Body mass index (kg/m²)0.99 (0.97-1.01)Systolic blood pressure (mmHg)1.00 (0.99-1.00)Diastolic blood pressure (mmHg)1.00 (0.98-1.01)Total cholesterol (mg/dL)1.00 (0.99-1.00) ^a Average sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	Number of prescribed antihyperglycemic medications (0-5)	0.78 (0.37-1.64)
Depressive symptoms (PHQ-9 score) $1.02 (0.99-1.05)$ Duration of diabetes in years $1.01 (0.99-1.02)$ Body mass index (kg/m²) $0.99 (0.97-1.01)$ Systolic blood pressure (mmHg) $1.00 (0.99-1.00)$ Diastolic blood pressure (mmHg) $1.00 (0.98-1.01)$ Total cholesterol (mg/dL) $1.00 (0.99-1.00)^a$ Average sleep hours per night during weekdays $1.01 (0.93-1.10)$ Total number of chronic conditions $1.05 (0.93-1.18)$	Clinical and Psychosocial Factors	
Duration of diabetes in years $1.01 (0.99-1.02)$ Body mass index (kg/m²) $0.99 (0.97-1.01)$ Systolic blood pressure (mmHg) $1.00 (0.99-1.00)$ Diastolic blood pressure (mmHg) $1.00 (0.98-1.01)$ Total cholesterol (mg/dL) $1.00 (0.99-1.00)^a$ Average sleep hours per night during weekdays $1.01 (0.93-1.10)$ Total number of chronic conditions $1.05 (0.93-1.18)$	Depressive symptoms (PHQ-9 score)	1.02 (0.99-1.05)
Body mass index (kg/m²)0.99 (0.97-1.01)Systolic blood pressure (mmHg)1.00 (0.99-1.00)Diastolic blood pressure (mmHg)1.00 (0.98-1.01)Total cholesterol (mg/dL)1.00 (0.99-1.00) ^a Average sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	Duration of diabetes in years	1.01 (0.99-1.02)
Systolic blood pressure (mmHg)1.00 (0.99-1.00)Diastolic blood pressure (mmHg)1.00 (0.98-1.01)Total cholesterol (mg/dL)1.00 (0.99-1.00)^aAverage sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	Body mass index (kg/m ²)	0.99 (0.97-1.01)
Diastolic blood pressure (mmHg)1.00 (0.98-1.01)Total cholesterol (mg/dL)1.00 (0.99-1.00)^aAverage sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	Systolic blood pressure (mmHg)	1.00 (0.99-1.00)
Total cholesterol (mg/dL)1.00 (0.99-1.00)^aAverage sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	Diastolic blood pressure (mmHg)	1.00 (0.98-1.01)
Average sleep hours per night during weekdays1.01 (0.93-1.10)Total number of chronic conditions1.05 (0.93-1.18)	Total cholesterol (mg/dL)	1.00 (0.99-1.00) ^a
Total number of chronic conditions1.05 (0.93-1.18)	Average sleep hours per night during weekdays	1.01 (0.93-1.10)
	Total number of chronic conditions	1.05 (0.93-1.18)
Behaviors	Behaviors	
Frequency of blood glucose self-monitoring	Frequency of blood glucose self-monitoring	
Never Ref.	Never	Ref.
Multiple times daily 0.64 (0.39-1.07)	Multiple times daily	0.64 (0.39-1.07)
Once daily 0.69 (0.42-1.12)	Once daily	0.69 (0.42-1.12)

Characteristics	Adjusted Odds Ratio (95%
	CI)
	N=2042
Weekly (once or more)	0.75 (0.49-1.14)
Less than weekly	0.88 (0.51-1.51)
Frequency of feet self-monitoring	
Never	Ref.
Daily (once or more)	1.00 (0.60-1.69)
Weekly (once or more)	1.27 (0.82-1.95)
Less than weekly	0.73 (0.36-1.48)
Self-reported healthiness of overall diet	
Excellent	4.73 (2.11-10.60) ^a
Very good	3.44 (1.78-6.65) ^a
Good	2.17 (1.30-3.60) ^a
Fair	1.76 (1.09-2.86) ^a
Poor	Ref.
Smoking status	
Never smoked	Ref.
Former smoker	1.17 (0.85-1.62)
Current smoker	1.15 (0.75-1.76)
Physical activity: MET minutes per week	
Physical activity not reported	0.99 (0.64-1.52)
Does not meet recommendation (<450)	1.14 (0.73-1.78)
Meets recommendation $(450 \le MET \le 750)$	1.24 (0.71-2.17)
Exceeds recommendation (>750)	Ref.
Care Processes	
A1C test within past year	
Yes	Ref.
No	1.22 (0.80-1.86)
Foot exam from doctor within past year	
Yes	Ref.
No	1.27 (0.97-1.67)
Most recent eve exam (dilated pupils)	
Within the past year	Ref.
Over one year ago	1.00 (0.67-1.50)
Never	1 37 (0 79-2 36)
Patient-Physician-System Interactions	1.57 (0.77 2.50)
Routine place for healthcare use	
Ves	Ref
No	0.64 (0.30-1.37)
Frequency of healthcare use over past year	0.01 (0.50 1.57)
>4 times	Ref
2 to 3 times	0.65 (0.46-0.01) ^a
Once	0.66 (0.34_1.27)
None	$0.50 (0.34-1.27) \\ 0.50 (0.27, 1, 22)$
TIONE	0.39(0.27-1.32)

Characteristics	Adjusted Odds Ratio (95%
	CI)
	N=2042
Insurance coverage type	
Private insurance	0.68 (0.38-1.24)
Medicare	0.75 (0.42-1.33)
Medicaid	0.41 (0.16-1.06)
Others	0.79 (0.45-1.39)
Multiple plans	Ref.
Uninsured	0.70 (0.10-5.05)
Out-of-pocket prescription costs covered by insurance	
Insurance does cover prescriptions	Ref.
Insurance does not cover prescription	1.15 (0.63-2.11)
Uninsured	0.49 (0.07-3.66)
NHANES cycle	
2015-2016	0.89 (0.59-1.33)
2017-March 2020 Pre-pandemic	Ref.

Abbreviations: TZD=thiazolidinediones, DPP-4i=dipeptidyl peptidase 4 inhibitors, SGLT-2i=sodium-glucose cotransporter-2 inhibitors, GLP-1 RA=glucagon-like peptide 1 receptor agonists, PHQ-9= Patient Health Questionnaire-9, MET=metabolic equivalent.

C-statistic for the full logistic regression model was 0.76.

^aIndicates significant result, p-value <.05.

eTable5. Sensitivity Analysis: Full Model for Multivariable Logistic Regression Predicting
Individualized Glycemic Levels among People with Diabetes in 2015-2020 NHANES

Characteristics	Adjusted Odds Ratio (95%
	CI)
	N=2042
Fixed Patient Factors	
Age	1.00 (0.99-1.02)
Race/Ethnicity	
Non-Hispanic White/other	Ref.
Hispanic	0.35 (0.20-0.62) ^a
Non-Hispanic Black	0.63 (0.43-0.92) ^a
Non-Hispanic Asian	0.42 (0.23-0.79) ^a
Gender	
Male	0.62 (0.48-0.80) ^a
Female	Ref.
Family history of diabetes	
Yes	Ref.
No	1.11 (0.82-1.49)
Family monthly poverty level index	
≤1.30	0.92 (0.62-1.35)
$1.30 < index \le 1.85$	0.78 (0.49-1.23)
>1.85	Ref.
Marital status	
Married/living with partner	Ref.
Widowed/divorced/separated	0.66 (0.49-0.88) ^a
Never married	1.34 (0.84-2.13)
Education level	
Less than high school	0.89 (0.51-1.57)
High school graduate/GED	0.82 (0.55-1.23)
Some college/associate degree	0.97 (0.60-1.56)
College graduate or above	Ref.
Occupation type	
Looking for work with a job/business but not at work	0.83 (0.40-1.72)
Not working at a job/business	1.13 (0.73-1.75)
Working at a job/business for work	Ref.
Acculturation: Language spoken at home	
English only	Ref.
Non-English only	1.66 (0.99-2.78)
English and non-English	1.34 (0.78-2.31)
Household food security	
Full food security	Ref.
Marginal food security	0.81 (0.56-1.16)
Low food security	0.72 (0.43-1.18)
Very low food security	0.98 (0.62-1.55)
Prescribed Antihyperglycemic Treatment Regimens	

Characteristics	Adjusted Odds Ratio (95%
	CI)
	N=2042
Class of prescribed antihyperglycemic medication	
Insulins	
Yes	0.26 (0.08-0.81) ^a
No	Ref.
Metformin	
Yes	1.07 (0.53-2.16)
No	Ref.
Sulfonylureas	
Yes	0.55 (0.24-1.28)
No	Ref.
TZD	
Yes	2.14 (0.61-7.52)
No	Ref.
DPP-4i	
Yes	0.92 (0.35-2.43)
No	Ref.
SGLT-2i	
Yes	3.11 (0.96-10.15)
No	Ref.
GLP-1 RA	
Yes	1.12 (0.40-3.10)
No	Ref.
Combinations	
Yes	1.15 (0.24-5.62)
No	Ref.
Others	
Yes	1.90 (0.56-6.45)
No	Ref.
Number of prescribed antihyperglycemic medications (0-5)	0.66 (0.31-1.40)
Clinical and Psychosocial Factors	
Depressive symptoms (PHQ-9 score)	1.03 (1.00-1.06) ^a
Duration of diabetes in years	1.00 (0.98-1.01)
Body mass index (kg/m ²)	0.98 (0.96-1.00)
Systolic blood pressure (mmHg)	1.01 (1.00-1.01)
Diastolic blood pressure (mmHg)	$0.98 (0.97-1.00)^{a}$
Total cholesterol (mg/dL)	1.00 (0.99-1.00)
Average sleep hours per night during weekdays	0.99 (0.91-1.08)
Total number of chronic conditions	1.28 (1.06-1.53) ^a
Behaviors	
Frequency of blood glucose self-monitoring	
Never	Ref.
Multiple times daily	0.84 (0.46-1.54)
Once daily	1.09 (0.60-1.98)

	Adjusted Odds Ratio (95%
	CI)
	N=2042
Weekly (once or more)	0.87 (0.53-1.44)
Less than weekly	0.77 (0.40-1.48)
Frequency of feet self-monitoring	
Never	Ref.
Daily (once or more)	0.81 (0.50-1.30)
Weekly (once or more)	1.00 (0.66-1.51)
Less than weekly	0.75 (0.39-1.43)
Self-reported healthiness of overall diet	
Excellent	2.93 (0.95-9.06)
Very good	2.71 (1.00-7.34)
Good	1.91 (0.79-4.63)
Fair	1.91 (0.83-4.38)
Poor	Ref.
Smoking status	
Never smoked	Ref.
Former smoker	$1.34 (1.03-1.74)^{a}$
Current smoker	0.94 (0.62-1.42)
Physical activity: MET minutes per week	
Physical activity not reported	1.18 (0.83-1.68)
Does not meet recommendation (<450)	1.08 (0.76-1.54)
Meets recommendation $(450 < MET < 750)$	1.25 (0.78-2.00)
Exceeds recommendation (>750)	Ref.
Care Processes	
A1C test within past year	
Yes	Ref.
No	1.40 (0.89-2.20)
Foot exam from doctor within past year	
Yes	Ref.
No	1.15 (0.81-1.63)
Most recent eye exam (dilated pupils)	
Within the past year	Ref.
Over one year ago	0.85 (0.60-1.21)
Never	1.45 (0.80-2.64)
Patient-Physician-System Interactions	
Routine place for healthcare use	
Yes	Ref.
No	0.80 (0.41-1.54)
Frequency of healthcare use over past year	
≥4 times	Ref.
$\frac{-}{2}$ to 3 times	0.83 (0.54-1.26)
Once	0.73 (0.36-1.47)
None	0.60 (0.28-1.30)

Characteristics	Adjusted Odds Ratio (95%
	CI)
	N=2042
Insurance coverage type	
Private insurance	0.54 (0.30-0.98) ^a
Medicare	1.12 (0.71-1.79)
Medicaid	0.43 (0.20-0.93) ^a
Others	0.53 (0.30-0.95) ^a
Multiple plans	Ref.
Uninsured	1.86 (0.44-7.92)
Out-of-pocket prescription costs covered by insurance	
Insurance does cover prescriptions	Ref.
Insurance does not cover prescription	1.33 (0.74-2.37)
Uninsured	0.19 (0.04-0.83) ^a
NHANES cycle	
2015-2016	0.83 (0.57-1.21)
2017-March 2020 Pre-pandemic	Ref.

Abbreviations: TZD=thiazolidinediones, DPP-4i=dipeptidyl peptidase 4 inhibitors, SGLT-2i=sodium-glucose cotransporter-2 inhibitors, GLP-1 RA=glucagon-like peptide 1 receptor agonists, PHQ-9= Patient Health Questionnaire-9, MET=metabolic equivalent.

C-statistic for the full logistic regression model predicting individualized glycemic targets was 0.79. ^aIndicates significant result, p-value < .05.

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