

Appendix Table 1. Characteristics (% , SE) of U.S. Adults with Diagnosed Diabetes by Food Insecurity and Diet Quality

	Total	Food Insecurity			p-value	Diet Quality (HEI-2015) Quartiles				p-value
		Food secure	Marginal	Food insecure		4 th (High)	3 rd	2 nd	1 st (Low)	
Unweighted N		1356	330	589		504	512	555	560	
Total	100.0	68.0 (1.4)	12.7 (1.0)	19.3 (1.3)		26.2 (1.5)	23.3 (1.0)	25.8 (1.2)	24.7 (1.1)	
DEMOGRAPHICS										
Age, years										
Mean	60.4 (0.4)	61.6 (0.4)	58.8 (1.2)	57.1 (0.7)		62.4 (0.8)	60.9 (0.8)	60.0 (0.6)	57.9 (0.8)	
20-44	13.0 (0.7)	10.1 (0.9)	15.6 (3.0)	21.1 (1.8)	<0.001	7.9 (1.7)	11.9 (1.4)	14.3 (1.7)	16.3 (2.3)	0.006
45-64	45.6 (1.5)	45.8 (1.8)	45.4 (4.6)	46.7 (3.3)		44.7 (3.0)	43.4 (3.3)	47.3 (3.3)	51.3 (3.1)	
≥65	41.5 (1.5)	44.1 (1.7)	39.0 (4.3)	32.2 (2.9)		47.4 (3.3)	44.6 (3.8)	38.5 (2.8)	32.5 (2.7)	
Sex										
Men	53.0 (1.7)	57.3 (2.2)	43.8 (3.3)	43.2 (2.0)	<0.001	54.6 (3.7)	49.1 (3.2)	52.2 (3.7)	57.6 (2.9)	0.150
Women	47.0 (1.7)	42.7 (2.1)	56.2 (3.3)	56.8 (2.0)		45.4 (3.7)	50.9 (3.2)	47.8 (3.7)	42.4 (2.9)	
Race and ethnicity										
Non-Hispanic White	63.4 (2.2)	69.1 (2.2)	54.2 (5.0)	49.3 (4.0)	<0.001	61.6 (3.4)	60.0 (4.0)	69.6 (2.7)	68.0 (3.0)	<0.001
Non-Hispanic Black	14.0 (1.4)	12.4 (1.4)	18.7 (3.1)	17.4 (2.2)		12.3 (1.8)	17.0 (2.3)	12.6 (1.7)	13.2 (2.0)	
Hispanic/Latino	16.5 (1.8)	12.1 (1.6)	21.1 (3.5)	29.3 (3.2)		17.0 (2.2)	16.5 (2.6)	15.4 (2.4)	16.2 (2.1)	
Non-Hispanic Asian	6.1 (0.8)	6.5 (0.9)	6.0 (1.4)	4.0 (0.8)		9.2 (1.3)	6.5 (1.6)	2.4 (0.7)	2.7 (0.6)	
SOCIODEMOGRAPHIC CHARACTERISTICS										
Poverty Income Ratio										
<1.00	15.3 (1.2)	8.0 (1.0)	17.7 (3.2)	41.3 (3.1)	<0.001	10.6 (1.6)	14.1 (2.1)	16.1 (2.2)	18.6 (2.5)	0.010
1.00-2.00	20.0 (1.2)	15.5 (1.2)	30.1 (3.2)	31.9 (2.8)		18.1 (2.1)	20.9 (2.4)	20.7 (2.1)	21.0 (2.4)	
>2.00	55.7 (1.9)	69.9 (1.9)	45.1 (4.8)	20.4 (2.7)		61.9 (3.4)	56.4 (3.7)	56.7 (3.2)	53.2 (3.4)	
Missing	9.1 (0.9)	6.6 (0.7)	7.2 (2.0)	6.4 (1.3)		9.5 (1.9)	8.6 (1.9)	6.6 (1.8)	7.2 (1.9)	
Education										
<High school	19.9 (1.4)	15.0 (1.3)	18.4 (2.7)	37.1 (2.7)	<0.001	16.8 (1.9)	19.3 (2.3)	18.1 (2.1)	22.9 (2.8)	0.130
High school graduate	25.0 (1.2)	23.1 (1.6)	34.2 (4.1)	27.2 (2.1)		23.6 (2.6)	27.7 (3.1)	25.1 (2.9)	26.4 (2.7)	
Some college	33.8 (1.5)	35.0 (2.2)	34.6 (4.0)	30.1 (2.3)		29.8 (3.0)	33.3 (3.0)	37.4 (3.3)	35.7 (3.7)	
College graduate or	21.4 (1.5)	27.0 (2.1)	12.8 (2.6)	5.6 (1.2)		29.8 (3.4)	19.7 (3.1)	19.5 (2.6)	15.0 (3.2)	

Above										
Received SNAP benefits, past 12 mo.										
Yes	20.7 (1.3)	11.8 (1.3)	25.5 (3.0)	48.9 (3.2)	<0.001	25.0 (2.2)	22.9 (2.3)	17.0 (1.9)	15.9 (2.0)	0.008
No	79.3 (1.3)	88.2 (1.3)	74.5 (3.2)	51.1 (3.2)		75.0 (2.2)	77.1 (2.3)	83.0 (1.9)	84.1 (2.0)	
Health Insurance										
Uninsured	8.1 (0.8)	6.0 (2.1)	9.8 (2.1)	14.8 (1.8)	<0.001	6.0 (1.1)	8.0 (1.3)	10.0 (1.8)	9.1 (1.7)	0.170
Insured	91.9 (0.8)	94.0 (0.8)	90.2 (2.1)	85.3 (1.8)		94.0 (1.1)	92.0 (1.3)	90.0 (1.8)	91.0 (1.7)	
Health Insurance Type										
Private	60.0 (1.8)	65.4 (2.2)	62.4 (3.9)	36.0 (3.0)	<0.001	60.2 (3.6)	64.2 (3.6)	60.1 (3.9)	59.9 (2.5)	0.650
Medicare	46.7 (1.8)	46.0 (1.1)	43.7 (4.3)	50.0 (3.1)	0.350	47.9 (3.2)	49.0 (4.0)	47.2 (3.0)	40.7 (3.3)	0.310
Medicaid	13.9 (1.1)	5.7 (1.2)	16.4 (3.0)	32.5 (2.6)	<0.001	11.4 (1.8)	12.5 (2.0)	15.1 (2.5)	15.0 (1.8)	0.260
Military/Other Government	15.2 (1.1)	15.4 (1.56)	9.5 (1.87)	19.5 (2.6)	0.006	14.1 (2.0)	16.1 (2.3)	18.3 (3.0)	11.0 (1.5)	0.150
HEALTHCARE UTILIZATION										
Seen a Physician in past year										
Yes	96.9 (0.4)	97.9 (0.6)	96.4 (1.4)	93.2 (1.2)	0.010	96.8 (1.2)	97.1 (0.9)	97.8 (1.3)	95.6 (1.3)	0.510
No	3.1 (0.4)	2.1 (0.6)	3.6 (1.4)	6.8 (1.2)		3.2 (1.2)	2.9 (0.9)	2.21 (0.6)	4.4 (1.3)	
Seen a Diabetes specialist in past year										
Yes	29.9 (1.2)	30.1 (1.8)	27.3 (3.1)	31.6 (2.1)	0.820	33.7 (3.5)	33.3 (2.7)	23.1 (2.2)	26.8 (3.2)	0.030
No	34.8 (1.7)	35.0 (2.1)	34.6 (3.3)	33.3 (2.4)		33.5 (2.5)	34.5 (3.3)	36.7 (3.2)	34.8 (3.1)	
Never	35.3 (1.5)	34.9 (1.7)	38.2 (3.7)	35.1 (2.6)		32.8 (2.6)	32.3 (2.8)	40.2 (3.0)	38.3 (3.7)	
A1c Checked in past year										
Yes	82.5 (1.1)	85.2 (1.3)	79.6 (3.1)	73.9 (2.9)	0.001	88.0 (1.6)	84.5 (1.7)	81.6 (2.0)	76.3 (2.9)	0.040
No	13.0 (0.9)	10.3 (1.0)	16.3 (2.8)	21.2 (2.5)		9.0 (1.5)	11.9 (1.7)	13.8 (2.0)	16.9 (2.4)	
Do not know	4.6 (0.6)	4.6 (0.8)	4.1 (1.0)	4.9 (1.2)		3.0 (0.6)	3.56 (1.1)	4.6 (0.9)	6.9 (1.8)	
CLINICAL CHARACTERISTICS										
Smoking Status										

Current	14.4 (1.1)	10.9 (1.3)	17.0 (3.1)	24.4 (2.4)	0.001	5.3 (1.3)	12.0 (2.0)	16.1 (2.4)	21.8 (2.7)	<0.001
Former	36.5 (1.4)	39.0 (2.0)	35.4 (3.8)	30.0 (2.7)		42.3 (3.6)	39.0 (3.3)	36.1 (2.6)	32.1 (3.1)	
Never	49.1 (1.3)	50.2 (1.9)	47.7 (4.1)	45.5 (2.8)		52.4 (3.5)	49.0 (3.5)	47.8 (3.2)	46.2 (3.4)	
Diabetes Medication										
Insulin only	12.8 (1.0)	11.1 (1.1)	15.9 (3.2)	15.4 (2.6)	0.020	12.1 (2.2)	10.5 (1.8)	13.0 (1.9)	11.5 (1.8)	0.110
Oral medication only	55.5 (1.4)	59.2 (2.0)	50.8 (4.0)	44.5 (2.4)		59.1 (2.9)	59.4 (3.2)	52.8 (2.6)	53.7 (3.7)	
Both insulin and oral medications	14.8 (1.0)	13.6 (1.3)	16.8 (2.6)	18.7 (1.8)		11.8 (1.7)	14.8 (2.1)	17.2 (2.0)	15.4 (2.6)	
None reported	17.0 (0.9)	16.1 (1.4)	16.5 (2.4)	21.3 (1.9)		17.1 (2.5)	15.3 (2.2)	17.1 (2.6)	19.5 (2.5)	
Taking Antihypertensive Medication	62.9 (1.7)	65.1 (2.1)	57.1 (4.3)	60.5 (2.1)	0.050	64.8 (3.0)	61.3 (3.2)	64.7 (3.4)	60.3 (3.1)	0.550
Taking Antilipidemic Medication	59.4 (1.3)	62.4 (1.7)	50.9 (4.1)	55.2 (2.7)	0.008	60.5 (3.6)	54.0 (2.7)	63.3 (3.3)	60.8 (3.2)	0.070
BMI, kg/m²										
Mean	33.0 (0.3)	32.8 (0.3)	33.3 (0.6)	34.1 (0.5)		31.5 (0.4)	33.2 (0.5)	34.0 (0.6)	34.6 (0.6)	
<25.0 (Underweight/ healthy weight)	10.5 (0.9)	10.8 (1.1)	8.7 (1.9)	10.2 (1.4)	0.606	10.9 (1.8)	11.5 (1.8)	9.6 (1.4)	6.7 (1.8)	0.035
25.0-29.9 (Overweight)	27.7 (1.2)	27.5 (1.6)	30.9 (4.4)	24.6 (2.1)		33.0 (3.1)	28.8 (3.1)	22.2 (2.4)	23.0 (3.1)	
≥30 (Obesity)	61.8 (1.7)	61.6 (2.2)	60.5 (4.3)	65.1 (2.4)		56.2 (3.6)	59.7 (3.1)	68.2 (2.7)	70.2 (3.7)	
FOOD INSECURITY AND DIET QUALITY										
Food Insecurity Status										
Food secure	68.0 (1.4)	NA	NA	NA		74.4 (2.7)	67.8 (2.7)	67.4 (2.8)	63.3 (2.9)	0.100
Marginal	12.7 (1.0)	NA	NA	NA		11.6 (1.7)	13.1 (1.8)	12.2 (2.3)	12.5 (1.7)	
Food insecure	19.3 (1.3)	NA	NA	NA		14.1 (1.8)	19.2 (2.4)	20.5 (2.3)	24.2 (2.7)	
Healthy Eating Index										
Mean (SE)	53.6 (0.4)	54.3 (0.5)	53.0 (1.2)	51.0 (0.7)		NA	NA	NA	NA	
Quartile 4 (High)	26.2 (1.5)	28.6 (1.9)	24.7 (3.9)	19.0 (2.4)	0.100	NA	NA	NA	NA	
Quartile 3	23.3 (1.0)	22.9 (1.6)	24.5 (2.6)	22.8 (2.1)		NA	NA	NA	NA	
Quartile 2	25.8 (1.2)	25.5 (1.6)	25.6 (3.87)	27.3 (2.58)		NA	NA	NA	NA	
Quartile 1 (Low)	24.7 (1.1)	22.9 (1.4)	25.2 (3.3)	30.9 (2.5)		NA	NA	NA	NA	
METABOLIC										

OUTCOMES										
A1c ≥7.0%	49.8 (1.8)	47.7 (2.3)	52.2 (3.8)	54.8 (2.6)	0.120	43.9 (3.4)	46.9 (3.0)	51.7 (3.2)	54.9 (4.1)	0.050
A1c ≥8.0%	26.1 (1.3)	22.8 (1.8)	29.8 (3.8)	34.2 (2.1)	0.002	20.1 (2.6)	25.8 (2.7)	25.4 (2.5)	28.2 (2.6)	0.120
A1c ≥9.0%	14.4 (1.0)	12.2 (1.3)	15.0 (2.7)	21.9 (2.2)	0.003	11.9 (2.2)	14.3 (2.1)	12.6 (1.7)	18.1 (2.4)	0.250
Blood Pressure ≥140/90 mmHg	28.5 (1.5)	27.8 (2.0)	30.1 (3.4)	29.4 (2.8)	0.800	29.6 (2.7)	25.4 (2.7)	29.7 (3.0)	28.3 (2.7)	0.550
Blood Pressure ≥130/80 mmHg	52.0 (1.5)	51.5 (2.3)	52.9 (4.7)	51.6 (3.1)	0.970	51.9 (3.1)	51.6 (3.2)	53.4 (2.8)	50.9 (3.3)	0.950
LDL-C ≥100 mg/dL	41.8 (2.4)	38.3 (3.2)	50.2 (5.6)	48.3 (3.2)	0.060	35.9 (4.6)	43.3 (4.5)	45.7 (5.0)	44.0 (4.3)	0.470
LDL-C ≥130 mg/dL	18.0 (1.7)	16.2 (2.4)	23.6 (5.3)	20.1 (3.1)	0.430	16.9 (3.0)	17.9 (3.0)	22.9 (3.8)	14.2 (3.9)	0.250
Elevated ABCs (A1c ≥7.0, BP ≥130/80, and LDL ≥100)										
None	15.7 (2.1)	19.7 (3.2)	10.9 (2.8)	7.4 (1.8)	0.017	18.1 (4.9)	15.9 (3.6)	12.9 (3.2)	18.6 (5.0)	0.567
One elevated ABC	36.4 (2.7)	34.9 (3.7)	37.9 (5.4)	40.2 (3.3)	0.585	35.7 (4.9)	29.6 (4.3)	41.4 (5.8)	33.5 (4.9)	0.437
Two elevated ABCs	35.3 (2.9)	33.3 (3.7)	37.0 (5.6)	40.8 (4.1)	0.411	36.5 (6.1)	42.0 (4.8)	34.8 (6.0)	33.0 (4.6)	0.571
Three elevated ABCs	12.3 (1.6)	12.2 (2.0)	14.2 (4.3)	11.6 (2.2)	0.808	9.8 (2.4)	12.5 (3.0)	10.9 (2.1)	15.0 (4.5)	0.732
Any one elevated ABC	84.3 (2.1)	80.9 (3.0)	89.7 (2.6)	92.0 (1.8)	0.015	81.4 (4.8)	84.8 (3.5)	88.0 (2.9)	82.3 (4.4)	0.424
Elevated ABCs (A1c ≥8.0, BP ≥140/90 and LDL ≥130)										
None	45.0 (2.6)	48.5 (3.6)	35.7 (5.3)	39.3 (3.7)	0.055	45.6 (5.2)	42.5 (4.5)	43.2 (5.8)	49.7 (4.9)	0.776
One elevated ABC	40.6 (2.4)	38.4 (3.0)	47.6 (6.3)	43.4 (4.6)	0.228	44.1 (5.2)	44.1 (4.5)	41.5 (6.0)	32.2 (4.4)	0.286
Two elevated ABCs	11.4 (1.6)	9.8 (1.9)	15.4 (3.6)	14.4 (3.0)	0.135	7.6 (2.1)	11.5 (2.1)	10.3 (2.5)	16.5 (4.6)	0.320
Three elevated ABCs	3.0 (0.6)	3.4 (0.75)	³	2.9 (1.6) ²	0.238	2.8 (1.5) ²	2.0 (0.7) ¹	5.1 (2.0) ¹	1.6 (0.8) ²	0.327
Any one elevated ABC	55.2 (2.6)	51.6 (3.5)	64.1 (5.3)	61.3 (3.7)	0.034	54.1 (5.1)	59.5 (4.4)	57.4 (5.5)	49.4 (4.8)	0.572

Health insurance categories are not mutually exclusive; estimates are among those with insurance

LDL-C were determined among the fasting sample only

Relative Standard Error (RSE): ¹RSE 30-40%; ²RSE 40-50%; ³RSE>50%, data do not meet the National Center for Health Statistics Data

Presentation Standards for Proportions

ABC, A1c, blood pressure, cholesterol

BP, blood pressure

BMI, body mass index

HEI, Healthy Eating Index

LDL-C, low-density lipoprotein cholesterol