

Table S1 Baseline characteristics according to HbA1c control status

Variable	Total (N=6,516)	HbA1c uncontrol (N=2,788)	HbA1c control (N=3,728)	P value
Age, years	59.10±0.27	57.29±0.39	60.34±0.31	<0.001
SBP, mmHg	130.32±0.37	130.72±0.55	130.05±0.44	0.31
DBP, mmHg	69.88±0.29	70.66±0.38	69.34±0.34	<0.01
Creatinine, µmol/L	86.33±0.83	84.89±1.43	87.32±0.98	0.16
Uric acid, µmol/L	343.71±1.80	326.13±2.67	355.87±2.18	<0.001
Triglyceride, mmol/L	2.08±0.05	2.48±0.11	1.85±0.04	<0.001
HDL cholesterol, mmol/L	1.23±0.01	1.18±0.01	1.26±0.01	<0.001
LDL cholesterol, mmol/L	2.81±0.02	2.78±0.04	2.83±0.03	0.29
PIR	2.66±0.04	2.59±0.06	2.71±0.04	0.06
Sex				<0.001
Female	3,170 (49.41)	1,313 (46.55)	1,857 (51.38)	
Male	3,346 (50.59)	1,475 (53.45)	1,871 (48.62)	
Ethnicity/race				<0.001
Black	1,617 (14.59)	736 (16.58)	881 (13.23)	
Mexican	1,353 (8.84)	706 (11.25)	647 (7.19)	
Other	1,013 (13.34)	452 (15.64)	561 (11.76)	
White	2,533 (63.22)	894 (56.53)	1,639 (67.82)	
Marital				0.001
Divorced	1,859 (25.84)	738 (23.40)	1,121 (27.51)	
Living with partner	3,776 (61.52)	1,631 (62.14)	2,145 (61.09)	
Never married	570 (8.81)	273 (10.23)	297 (7.83)	
Separated	232 (2.56)	100 (2.48)	132 (2.62)	
Unclear	79 (1.27)	46 (1.76)	33 (0.94)	
Education				<0.01
College	2,395 (45.75)	971 (43.75)	1,424 (47.12)	
primary education level	1,388 (12.29)	663 (13.91)	725 (11.18)	
secondary education level	1,696 (24.14)	758 (26.06)	938 (22.82)	
Unclear	1,037 (17.82)	396 (16.28)	641 (18.88)	
Congestive heart failure	587 (8.48)	243 (8.70)	344 (8.45)	0.8
Stroke	585 (8.03)	229 (7.45)	356 (8.50)	0.25
Angina	485 (7.86)	195 (7.67)	290 (8.13)	0.55
Congestive heart failure	709 (10.45)	304 (10.49)	405 (10.53)	0.96
Heart attack	587 (8.48)	243 (8.70)	344 (8.45)	0.8
Drinks	3,030 (46.56)	1,197 (42.93)	1,833 (50.64)	0.05
smoke				<0.001
Former	2,225 (33.91)	887 (30.79)	1,338 (36.27)	
Never	3,159 (48.43)	1,386 (49.76)	1,773 (47.84)	
Now	1,090 (17.27)	498 (19.45)	592 (15.89)	

Continuous variables are presented as mean ± standard deviation, and categorical variables are presented as number (%). Displayed raw P values <0.05 are suggestive of differences across different years. DBP, diastolic blood pressure; HDL, High-density lipoprotein; LDL, low-density lipoprotein; PIR, poverty-to-income ratio; SBP, systolic blood pressure.

Table S2 Trend in glycated hemoglobin control rate and 5-year mortality rate

Group	HbA1c control rate (95% CI) ^{*,#,\$,&} , %	All death (95% CI), %	CVDs death (95% CI), %
Total (N=6516)	40.07 (37.04, 43.11)	12.04 (10.93, 13.15)	4.45 (3.91, 4.99)
1999–2000 (n=550)	27.80 (19.93, 35.67)	10.79 (7.85, 13.72)	4.74 (3.05, 6.43)
2001–2002 (n=620)	37.04 (33.18, 40.89)	13.48 (10.78, 16.19)	4.32 (2.49, 6.15)
2003–2004 (n=638)	38.09 (33.42, 42.76)	12.85 (10.18, 15.52)	5.57 (3.67, 7.46)
2005–2006 (n=660)	46.20 (40.85, 51.55)	12.06 (9.60, 14.51)	4.28 (3.43, 5.13)
2007–2008 (n=1,053)	43.76 (38.27, 49.25)	12.68 (10.05, 15.32)	4.75 (3.38, 6.13)
2009–2010 (n=1,048)	41.75 (36.37, 47.12)	11.18 (8.97, 13.38)	3.92 (2.94, 4.90)
2011–2012 (n=961)	40.19 (35.02, 45.37)	11.31 (9.22, 13.41)	4.17 (3.01, 5.32)
2013–2014 (n=986)	39.90 (34.79, 45.01)	12.08 (9.89, 14.28)	4.24 (2.84, 5.64)
P value	0.01	0.85	0.80
Linear P value	<0.001	0.61	0.37
Quadratic P value	<0.001	0.71	0.87

Linear and quadratic models were used to examine both linear and nonlinear trends. * indicates a linear P value <0.001 in 1999–2014 year; # indicates a quadratic P value <0.001 in 1999–2014 year; \$ indicates a linear P value <0.001 in 1999–2006 year; & indicates a linear P value <0.001 in 2007–2014 year. There was no statistically significant trend in mortality observed for the years 1999–2014, 1999–2006, and 2007–2014. CI, confidence interval; CVD, cardiovascular disease; HbA1c, haemoglobin A1c; HR, hazard ratio.

Table S3 HR (95% CI) of all-cause mortality risk according to glycated hemoglobin control stratified by sociodemographic characteristics and concomitant diseases

Subgroup	HbA1c <7% (N=3,728)	HbA1c ≥7% (N=2,788)	P
Sex			
Male	Ref	0.918 (0.713, 1.181)	0.506
Female	Ref	0.886 (0.681, 1.154)	0.37
Age group			
≥65 years	Ref	0.940 (0.774, 1.142)	0.53
45–64 years	Ref	1.243 (0.828, 1.867)	0.29
18–44 years	Ref	1.893 (0.692, 5.179)	0.21
Ethnicity/race			
Mexican	Ref	1.235 (0.818, 1.864)	0.32
White	Ref	0.941 (0.737, 1.203)	0.63
Black	Ref	0.893 (0.675, 1.182)	0.43
Other	Ref	1.186 (0.640, 2.200)	0.59
Marital			
Living with partner	Ref	0.963 (0.709, 1.308)	0.81
Divorced	Ref	0.920 (0.705, 1.200)	0.54
Separated	Ref	0.784 (0.312, 1.968)	0.61
Never married	Ref	0.753 (0.319, 1.778)	0.52
Unclear	Ref	4.639 (1.363, 15.792)	0.01
Education			
Primary education level or lower	Ref	0.663 (0.485, 0.906)	0.01
Secondary education level	Ref	1.050 (0.755, 1.462)	0.77
College	Ref	0.833 (0.607, 1.143)	0.26
Unclear	Ref	0.966 (0.652, 1.432)	0.87
Family income-to-poverty ratio			
≤100%	Ref	0.734 (0.531, 1.015)	0.06
>100% and <300%	Ref	0.873 (0.659, 1.156)	0.34
≥300% and <500%	Ref	1.137 (0.640, 2.020)	0.66
≥500%	Ref	0.865 (0.422, 1.774)	0.69
Unclear	Ref	1.024 (0.603, 1.739)	0.93
Hypertension			
Yes	Ref	0.915 (0.753, 1.112)	0.37
No	Ref	0.842 (0.323, 2.198)	0.73
Coronary heart disease			
No	Ref	0.847 (0.686, 1.046)	0.12
Yes	Ref	1.088 (0.735, 1.610)	0.67

Table S3 (continued)

Table S3 (*continued*)

Subgroup	HbA1c <7% (N=3,728)	HbA1c ≥7% (N=2,788)	P
Heart attack			
No	Ref	0.858 (0.695, 1.060)	0.16
Yes	Ref	1.113 (0.788, 1.574)	0.54
Congestive heart failure			
No	Ref	0.926 (0.749, 1.144)	0.47
Yes	Ref	0.783 (0.576, 1.065)	0.12
Smoke			
Former	Ref	0.958 (0.714, 1.287)	0.78
Never	Ref	0.804 (0.615, 1.051)	0.11
Now	Ref	1.155 (0.776, 1.720)	0.48
Stroke			
No	Ref	0.997 (0.807, 1.231)	0.98
Yes	Ref	0.599 (0.388, 0.923)	0.02
Angina			
No	Ref	0.906 (0.747, 1.099)	0.32
Yes	Ref	0.955 (0.575, 1.587)	0.86
Hyperlipidemia			
Yes	Ref	0.919 (0.743, 1.136)	0.43
No	Ref	0.881 (0.576, 1.348)	0.56

HR was calculated with Cox proportional hazards model. Displayed raw P values <0.05 are suggestive of association between glycated hemoglobin control and all-cause mortality. CI, confidence interval; HbA1c, haemoglobin A1c; HR, hazard ratio.

Table S4 HR (95% CI) of cardiovascular mortality risk according to glycated hemoglobin control stratified by sociodemographic characteristics and concomitant diseases

Subgroup	HbA1c <7% (N=3,728)	HbA1c ≥7% (N=2,788)	P
Sex			
Male	Ref	0.968 (0.683, 1.372)	0.86
Female	Ref	0.609 (0.410, 0.906)	0.01
Age group			
≥65 years	Ref	0.852 (0.657, 1.105)	0.23
45–64 years	Ref	1.280 (0.650, 2.518)	0.48
18–44 years	Ref	1.652 (0.341, 7.990)	0.53
Ethnicity/race			
Mexican	Ref	1.643 (0.841, 3.210)	0.15
White	Ref	0.793 (0.583, 1.078)	0.14
Black	Ref	0.806 (0.517, 1.254)	0.34
Other	Ref	1.165 (0.473, 2.874)	0.74
Marital			
Living with partner	Ref	0.911 (0.618, 1.342)	0.64
Divorced	Ref	0.844 (0.553, 1.288)	0.43
Separated	Ref	0.806 (0.190, 3.416)	0.77
Never married	Ref	0.475 (0.110, 2.048)	0.32
Unclear	Ref	4.165 (2.153, 8.057)	<0.001
Education			
Primary education level or lower	Ref	0.494 (0.285, 0.857)	0.01
Secondary education level	Ref	0.822 (0.533, 1.268)	0.38
College	Ref	0.694 (0.435, 1.108)	0.13
Unclear	Ref	1.346 (0.714, 2.539)	0.36
Family income-to-poverty ratio			
≤100%	Ref	0.593 (0.378, 0.930)	0.02
>100% and <300%	Ref	0.960 (0.650, 1.416)	0.84
≥300% and <500%	Ref	0.370 (0.140, 0.980)	0.045
≥500%	Ref	0.764 (0.228, 2.566)	0.66
Unclear	Ref	1.234 (0.544, 2.797)	0.62
Hypertension			
Yes	Ref	0.809 (0.630, 1.038)	0.10
No	Ref	0.882 (0.200, 3.901)	0.87
Coronary heart disease			
No	Ref	0.642 (0.491, 0.839)	0.001
Yes	Ref	1.326 (0.832, 2.116)	0.24

Table S4 (continued)

Table S4 (continued)

Subgroup	HbA1c <7% (N=3,728)	HbA1c ≥7% (N=2,788)	P
Heart attack			
No	Ref	0.657 (0.486, 0.887)	0.01
Yes	Ref	1.378 (0.874, 2.174)	0.17
Congestive heart failure			
No	Ref	0.725 (0.545, 0.965)	0.03
Yes	Ref	0.864 (0.539, 1.385)	0.54
Smoke			
Former	Ref	0.686 (0.452, 1.042)	0.08
Never	Ref	0.699 (0.478, 1.021)	0.06
Now	Ref	1.817 (0.940, 3.511)	0.08
Stroke			
No	Ref	0.839 (0.636, 1.108)	0.22
Yes	Ref	0.782 (0.436, 1.404)	0.41
Angina			
No	Ref	0.703 (0.542, 0.912)	0.01
Yes	Ref	1.781 (0.927, 3.421)	0.08
Hyperlipidemia			
Yes	Ref	0.832 (0.646, 1.073)	0.16
No	Ref	0.629 (0.294, 1.346)	0.23

HR was calculated with Cox proportional hazards model. Displayed raw P values <0.05 are suggestive of association between glycosylated hemoglobin control and cardiovascular mortality. CI, confidence interval; HbA1c, haemoglobin A1c; HR, hazard ratio.

Table S5 Comparison of antidiabetic drug use between survivors and all-cause deaths in the study population

Variable	Total, n (%)	Death, n (%)	Non-death, n (%)	P value
Sulf	1,575 (21.32)	259 (28.81)	1,316 (23.43)	<0.01
Insulin	618 (9.64)	141 (15.68)	477 (8.49)	<0.001
Biguanides	1,580 (25.66)	131 (14.57)	1,449 (25.80)	<0.001
TZD	156 (2.50)	24 (2.67)	132 (2.35)	0.81
DPP inhibitor	62 (1.03)	9 (1.00)	51 (0.91)	0.85

Values are presented as number (percentage). P values were calculated using the Chi-squared test to compare the distribution of each medication between individuals who survived and those who died from all causes. A P value <0.05 was considered statistically significant. DPP, dipeptidyl peptidase-4; Sulf, sulfonylureas; TZD, thiazolidinediones.

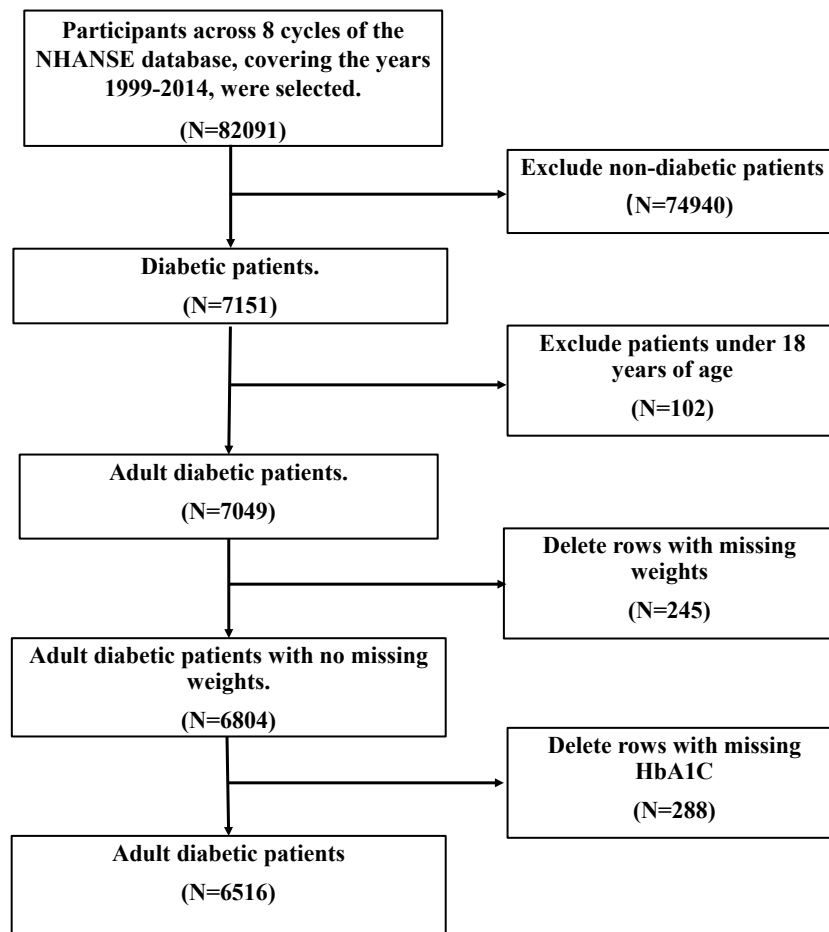


Figure S1 Flowchart for the inclusion of patients. NHANES, National Health and Nutrition Examination Survey.