

Supplementary Table 1 Survey-weighted logistic regression analyses of the association between the triglyceride-glucose index combined with a body shape index and individual sleep-problem items

Variables	Model 1		Model 2		Model 3	
	OR (95%CI)	<i>P</i> value	OR (95%CI)	<i>P</i> value	OR (95%CI)	<i>P</i> value
SLQ050	1.307 (1.243-1.375)	<.001	1.294 (1.215-1.379)	<.001	1.185 (1.070-1.311)	0.0014
SLQ060	1.438 (1.339-1.544)	<.001	1.346 (1.229-1.473)	<.001	1.035 (0.891-1.202)	0.6484

Values are odds ratios (95%CI) per 1-unit increase in triglyceride-glucose index combined with a body shape index. SLQ050 indicates trouble sleeping; SLQ060 indicates a physician-diagnosed sleep disorder. Model 1 was unadjusted; model 2 adjusted for age, sex, and race and ethnicity; model 3 additionally adjusted for all covariates listed in the Methods. All analyses accounted for the NHANES complex sampling design. CI: Confidence interval; OR: Odds ratio.

Supplementary Table 2 Threshold-effect analyses of the association between the triglyceride-glucose index combined with a body shape index and sleep duration by demographic subgroup

Effect	Cut-off values of cause	β -coefficients	95%CI	<i>P</i> value
Total	< 8.6	0.34	0.08, 0.59	0.0105
	$\geq$ 8.6	-0.48	-1.47, 0.51	0.3389
Age $\geq$ 18	< 5.81	-6.27	-17.11, 4.57	0.2588
	$\geq$ 5.81	0.33	-0.42, 1.08	0.3916
$\geq$ 40	< 8.49	0.43	0.02, 0.84	0.0430
	$\geq$ 8.49	-0.64	-2.18, 0.90	0.4146
$\geq$ 60	< 8.69	0.07	-0.35, 0.49	0.7402

	≥ 8.69	-1.01	-2.54, 0.52	0.1962
Sex				
Male	< 8.68	0.18	-0.19, 0.54)	0.3434
	≥ 8.68	-1.84	-3.10, -0.57	0.0047
Female	< 7.8	0.30	-0.14, 0.74	0.1787
	≥ 7.8	0.99	0.15, 1.83	0.0212
Ethnicity				
Non-Hispanic	< 8.69	0.14	-0.19, 0.47	0.4171
White	≥ 8.69	1.18	-2.35, -0.01	0.0489
Non-Hispanic	< 8.23	0.15	-0.49, 0.80	0.6477
Black	≥ 8.23	2.12	-0.65, 4.90	0.1359
Mexican	< 8.37	1.04	-0.03, 2.10	0.0624
American	≥ 8.37	2.65	-0.17, 5.47	0.072
Other Hispanic	< 6.45	13.10	-2.67, 28.87	0.1119
	≥ 6.45	1.96	0.29, 3.63	0.0272
Other Race	< 6.37	-5.67	-12.14, 0.80	0.1052
	≥ 6.37	1.38	-0.54, 3.29	0.1773

Values are β coefficients (95% CIs) for each 1-unit increase in the triglyceride-glucose index combined with a body shape index below and above the estimated cutoff point. Analyses were restricted to participants with sleep problems and adjusted for all covariates listed in the Methods. The National Health and Nutrition Examination Survey complex sampling design was incorporated. CI: Confidence interval.

Supplementary Table 3 Mediation analyses of depressive symptoms in the association between the triglyceride-glucose index combined with a body shape index and sleep duration

Depressive-symptom measure		Effect type	Estimate	95%CI lower	95%CI upper	P value
Depressive status		Total effect	0.247	0.052	0.451	0.014

(yes/no) PHQ-9 depression score (continuous)	Indirect effect	-0.046	-0.087	-0.009	0.002
	Direct effect	0.293	0.092	0.491	0.002
	Total effect	0.251	0.051	0.454	0.014
	Indirect effect	-0.044	-0.082	-0.016	< 0.001
	Direct effect	0.296	0.085	0.497	0.002

Estimates are unstandardized effect coefficients with 95% bootstrap CIs. Total, indirect, and direct effects were estimated separately using depressive status and continuous PHQ-9 score as mediators. Models were adjusted for all covariates listed in the Methods. CI: Confidence interval; PHQ-9: Patient Health Questionnaire-9.