Supplementary Material

Table S1. Demographic and clinical data between short, intermediate, and long sleep groups.

	Short sleep group (N = 1,782)	Intermediate sleep group (N = 6,172)	Long sleep group (N = 1,351)
Age, median (range), year	45 (20–69)	45 (20–69)	45 (20–69)
Female, N (%)	883 (49.6)	3,042 (49.3)	716 (53.0)
BMI, median (range), kg/m^2	22.0 (10.2–50.4)	21.6 (11.2–61)	21.5 (15.6–52.1)
Current smoker, N (%)	407 (22.8)	1,209 (19.6)	216 (16.0)
Habitual alcohol ingestion, N (%)	880 (49.4)	3,041 (49.3)	620 (45.9)
Regular worker, N (%)	1,107 (62.1)	3,514 (56.9)	571 (42.3)
Existence of currently treated diseases, N (%)	511 (28.7)	1,789 (29.0)	438 (32.4)
Physical QOL (PCS), median (range), point	49.5 (14.1–67.5)	50.2 (11.2–65.7)	50.3 (10.8–70.6)
Mental QOL (MCS), median (range), point	48.8 (13.1–65.2)	50.3 (15.5–68.3)	51.4 (10.6–70)
Difficulty initiating sleep (C2 in PSQI), median (range), point	1 (0–6)	1 (0–6)	1 (0–6)
Difficulty maintaining sleep and/or waking up earlier than desired (C5a in PSQI), median (range), point	0 (0–3)	0 (0–3)	0 (0–3)
Sleep quality (C1 in PSQI), median (range), point	1 (0–3)	1 (0–3)	1 (0–3)
Habitual sleep duration, median (range), min	325.7 (180.0–355.7)	411.4 (360.0–475.7)	488.6 (480–917.1)

BMI, body mass index; QOL, quality of life; PCS, physical component summary of the SF-8; MCS, mental component summary of the SF-8; PSQI, Pittsburgh Sleep Quality Index.

Table S2. Model fit indices and standardized direct and indirect relations of variables between the entire sample and subgroups.

	Mediation model on physical QOL (A)					Mediation model on Mental QOL (B)			
	Total (N = 9,305)	Short sleep group (N = 1,782)	Intermediate sleep group (N = 6,172)	Long sleep group (N = 1,351)		Total (N = 9,305)	Short sleep group (N = 1,782)	Intermediate sleep group (N = 6,172)	Long sleep group (N = 1,351)
Model Fit					Model Fit				
χ^2	434.2	115.4	300.1	99.5	χ^2	434.2	111.8	293.5	99.4
RMSEA	0.048	0.041	0.046	0.047	RMSEA	0.046	0.039	0.045	0.046
CFI	0.955	0.950	0.951	0.950	CFI	0.958	0.957	0.955	0.954
NFI	0.953	0.936	0.948	0.935	NFI	0.956	0.943	0.952	0.940
Path analysis					Path analysis				
Sleep Quality –> Physical QOL					Sleep Quality –> Mental QOL				
Direct association	0.203***	0.165***	0.194***	0.267***	Direct association	0.169***	0.132***	0.171***	0.188***
Indirect association	0.041**	0.039	0.044**	−0.002	Indirect association	0.136***	0.156***	0.154***	0.144***
Sleep Duration –> Physical QOL					Sleep Duration –> Mental QOL				
Direct association	−0.002	0.078***	0.018	−0.099***	Direct association	0.040***	0.040	0.030*	0.027
Indirect association	−0.005**	0.002	−0.004**	0.000	Indirect association	−0.017***	0.009	−0.011**	−0.022**
Insomnia symptoms –> Physical QOL	−0.068***	−0.075*	−0.073**	0.003	Insomnia symptoms –> Mental QOL	−0.227***	−0.296***	−0.202***	−0.229***
Sleep quality –> Insomnia symptoms	−0.598***	−0.527***	−0.601***	−0.631***	Sleep quality –> Insomnia symptoms	−0.598***	−0.526***	−0.600***	−0.630***
Sleep duration –> Insomnia symptoms	0.077***	−0.029	0.053***	0.096***	Sleep duration –> Insomnia symptoms	0.077***	−0.029	0.053***	0.096***
Difficulty initiating sleep –> Insomnia symptoms	0.677***	0.688***	0.658***	0.644***	Difficulty initiating sleep –> Insomnia symptoms	0.675***	0.683***	0.659***	0.647***
Difficulty maintaining sleep and/or waking up earlier than desired –> Insomnia symptoms	0.571***	0.691	0.551***	0.526***	Difficulty maintaining sleep and/or waking up earlier than desired –> Insomnia symptoms	0.572***	0.693***	0.550***	0.522***

RMSEA, root mean square error of approximation; NFI, non-normed fit index; CFI, comparative fit index; QOL, quality of life. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.