

S3 Table. Phase sensitivity analysis among men: odd ratios (95% CIs) ^a for short or long sleep duration compared to normal sleep duration (6-7 hours) according to selected correlates

	Sensitivity analysis I ^a (N=20,923)			Sensitivity analysis II ^b (N=20,731)			Sensitivity analysis III ^c (N=19,617)		
	< 6 hours OR (95% CI)	8 - 9 hours OR (95% CI)	≥ 10 hours OR (95% CI)	< 6 hours OR (95% CI)	8 - 9 hours OR (95% CI)	≥ 10 hours OR (95% CI)	< 6 hours OR (95% CI)	8 - 9 hours OR (95% CI)	≥ 10 hours OR (95% CI)
Sociodemographic factors									
Age (years)									
40-49	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
50-59	1.07 (0.96-1.20)	1.09 (1.01-1.18)	1.61 (1.22-2.14)	1.08 (0.96-1.21)	1.09 (1.01-1.18)	1.63 (1.24-2.17)	1.09 (0.97-1.22)	1.08 (0.99-1.17)	1.68 (1.26-2.24)
60-69	1.65 (1.44-1.89)	1.06 (0.95-1.17)	1.96 (1.42-2.70)	1.65 (1.44-1.66)	1.06 (0.96-1.17)	2.01 (1.46-2.78)	1.61 (1.40-1.86)	1.03 (0.92-1.14)	2.00 (1.43-2.80)
Educational attainment									
College degree or higher	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
High school graduate	1.12 (0.99-1.27)	1.30 (1.20-1.42)	1.67 (1.20-2.33)	1.13 (1.00-1.28)	1.30 (1.19-1.42)	1.65 (1.18-2.31)	1.12 (0.98-1.27)	1.31 (1.19-1.43)	1.71 (1.21-2.42)
Middle school or below	1.43 (1.24-1.65)	1.57 (1.42-1.75)	2.65 (1.87-3.77)	1.44 (1.24-1.66)	1.57 (1.42-1.75)	2.53 (1.78-3.61)	1.45 (1.25-1.68)	1.61 (1.44-1.79)	2.59 (1.79-3.73)
Occupational classification									
Non-manual	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Manual	1.14 (1.01-1.30)	1.15 (1.05-1.25)	1.59 (1.14-2.24)	1.14 (1.01-1.30)	1.15 (1.05-1.26)	1.61 (1.15-2.26)	1.15 (1.01-1.30)	1.14 (1.04-1.25)	1.68 (1.19-2.39)
Unemployed / housewives	1.02 (0.87-1.20)	1.44 (1.29-1.61)	2.39 (1.63-3.50)	1.02 (0.87-1.20)	1.45 (1.20-1.62)	2.32 (1.58-3.41)	1.02 (0.86-1.21)	1.44 (1.27-1.61)	2.38 (1.60-3.54)
Marital status									
Married	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Single or separated	1.23 (1.02-1.48)	0.86 (0.74-1.01)	0.96 (0.63-1.48)	1.23 (1.02-1.49)	0.86 (0.74-1.01)	0.96 (0.62-1.49)	1.25 (1.03-1.52)	0.90 (0.76-1.05)	0.87 (0.54-1.39)
Menopausal status									
Premenopausal	-	-	-	-	-	-	-	-	-
Postmenopausal	-	-	-	-	-	-	-	-	-
Lifestyle factors									
Smoking status									
Non-current smokers	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Current smokers	0.97 (0.88-1.08)	1.04 (0.97-1.12)	1.35 (1.08-1.69)	0.97 (0.88-1.08)	1.05 (0.97-1.13)	1.34 (1.07-1.68)	0.96 (0.86-1.07)	1.04 (0.96-1.12)	1.35 (1.07-1.70)
Alcohol consumption									
Non-current drinkers	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Current drinkers	0.90 (0.81-1.00)	0.96 (0.89-1.04)	1.05 (0.83-1.33)	0.90 (0.81-1.00)	0.96 (0.89-1.04)	1.09 (0.85-1.39)	0.90 (0.81-1.01)	0.98 (0.90-1.06)	1.07 (0.83-1.38)
Eating habits									
Having three meals a day	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Having irregular meals	1.51 (1.33-1.72)	0.99 (0.89-1.10)	1.94 (1.48-2.53)	1.50 (1.32-1.71)	0.99 (0.89-1.10)	1.99 (1.52-2.60)	1.51 (1.33-1.73)	0.97 (0.87-1.08)	1.97 (1.50-2.60)
Intake of multi vitamin									
Multi-vitamin users	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Non-users	1.02 (0.90-1.16)	0.95 (0.87-1.04)	1.51 (1.06-2.15)	1.02 (0.90-1.16)	0.95 (0.87-1.04)	1.47 (1.03-2.10)	1.01 (0.89-1.17)	0.96 (0.87-1.05)	1.45 (1.01-2.08)
Physical activity									
Regular exercisers	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Non-exercisers	1.07 (0.97-1.18)	1.05 (0.98-1.12)	1.68 (1.34-2.11)	1.06 (0.96-1.17)	1.05 (0.98-1.13)	1.72 (1.36-2.16)	1.05 (0.95-1.17)	1.05 (0.97-1.12)	1.67 (1.31-2.11)

Psychological condition									
PWI status^e									
Positive wellbeing	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Moderate distress	0.91 (0.79-1.06)	0.89 (0.81-0.99)	0.73 (0.54-1.00)	0.91 (0.79-1.05)	0.89 (0.80-0.98)	0.74 (0.54-1.01)	0.92 (0.79-1.06)	0.89 (0.80-0.99)	0.74 (0.54-1.02)
Severe distress	1.28 (1.04-1.58)	0.99 (0.85-1.16)	0.93 (0.59-1.46)	1.28 (1.04-1.58)	0.98 (0.84-1.15)	0.89 (0.57-1.41)	1.31 (1.05-1.62)	1.03 (0.87-1.21)	0.89 (0.56-1.43)
Stress events									
Not at all	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Often	1.17 (1.05-1.30)	0.90 (0.84-0.97)	0.92 (0.72-1.17)	1.17 (1.05-1.30)	0.90 (0.84-0.97)	0.91 (0.71-1.17)	1.19 (1.07-1.33)	0.91 (0.84-0.98)	0.91 (0.71-1.18)
Frequent	1.77 (1.48-2.12)	0.93 (0.79-1.09)	1.16 (0.77-1.75)	1.76 (1.47-2.10)	0.93 (0.79-1.08)	1.17 (0.77-1.77)	1.70 (1.41-2.06)	0.92 (0.78-1.09)	1.09 (0.70-1.69)
Self-reported health status									
Healthy	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Normal	0.90 (0.81-1.00)	0.99 (0.92-1.07)	1.10 (0.86-1.41)	0.91 (0.81-1.01)	0.99 (0.92-1.07)	1.11 (0.87-1.42)	0.89 (0.80-1.00)	0.99 (0.91-1.07)	1.11 (0.87-1.43)
Unhealthy	1.26 (1.08-1.47)	1.07 (0.95-1.21)	1.47 (1.04-2.06)	1.28 (1.09-1.50)	1.07 (0.94-1.21)	1.45 (1.02-2.06)	1.24 (1.05-1.47)	1.04 (0.92-1.19)	1.49 (1.03-2.14)
Anthropometry									
Body mass index^f (kg/m²)									
Quartile 1 (Lowest)	1.00 (0.87-1.16)	1.05 (0.95-1.16)	0.78 (0.95-1.16)	1.00 (0.87-1.16)	1.04 (0.94-1.15)	0.76 (0.54-1.07)	1.01 (0.87-1.18)	1.04 (0.94-1.15)	0.76 (0.53-1.07)
Quartile 2	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Quartile 3	1.12 (0.97-1.30)	0.97 (0.88-1.07)	0.99 (0.73-1.34)	1.12 (0.97-1.29)	0.96 (0.87-1.06)	0.98 (0.72-1.33)	1.11 (0.96-1.29)	0.96 (0.86-1.06)	0.97 (0.71-1.33)
Quartile 4 (Highest)	1.39 (1.18-1.64)	0.88 (0.78-0.99)	0.68 (0.47-0.99)	1.39 (1.18-1.64)	0.87 (0.77-0.98)	0.68 (0.47-0.99)	1.38 (1.16-1.63)	0.87 (0.77-0.98)	0.71 (0.48-1.04)
Waist circumference^g (cm)									
Quartile 1 (Lowest)	1.02 (0.89-1.18)	0.91 (0.82-1.00)	0.92 (0.65-1.30)	1.03 (0.89-1.19)	0.91 (0.82-1.00)	0.94 (0.67-1.34)	0.99 (0.85-1.15)	0.89 (0.81-0.99)	0.88 (0.62-1.26)
Quartile 2	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)	1.00 (Ref.)
Quartile 3	0.88 (0.76-1.01)	0.94 (0.85-1.03)	1.08 (0.78-1.48)	0.88 (0.76-1.01)	0.93 (0.84-1.03)	1.11 (0.80-1.53)	0.89 (0.77-1.03)	0.93 (0.84-1.03)	1.03 (0.74-1.44)
Quartile 4 (Highest)	0.87 (0.73-1.03)	1.10 (0.98-1.24)	1.65 (1.15-2.37)	0.87 (0.73-1.03)	1.10 (0.97-1.24)	1.67 (1.15-2.41)	0.88 (0.74-1.05)	1.10 (0.98-1.25)	1.60 (1.09-2.32)

Note: Unknown values were wholly included in the statistical models but were not presented in the table

- All ORs were adjusted for sociodemographic factors (*i.e.*, age, education attainment, occupational classification, marital status, and menopausal status only for women), lifestyle factors (*i.e.*, smoking status, alcohol consumption, eating habits, intake of multi vitamin, and physical activity), psychological condition (*i.e.*, PWI status, stress events, and self-reported health status), and anthropometry (*i.e.*, body mass index and waist circumference)
- Subjects who were currently taking any medications for diabetes mellitus, depression, hypertension, stroke, peptic ulcer, and arthritis were excluded from the primary analysis
- According to sex strata, men who were currently taking any medications for cancer, diabetes mellitus, thyroid disease, depression, hypertension, stroke, peptic ulcer, and arthritis were excluded from the primary analysis
- Subjects who were currently taking any medications for selected diseases were wholly excluded from the primary analysis
- Defined as positive wellbeing group with PWI score ≤ 8 , moderate distress group with $8 < \text{PWI score} < 27$, and severe distress group with PWI score ≥ 27
- Defined as follows: Quartile 1: ≤ 22.6 , Quartile 2: $22.6 < \text{BMI} \leq 24.4$, Quartile 3: $24.4 < \text{BMI} \leq 26.1$, and Quartile 4: $26.1 < \text{BMI}$ in men
- Defined as follows: Quartile 1: ≤ 81.3 , Quartile 2: $81.3 < \text{WC} \leq 86.0$, Quartile 3: $86.0 < \text{WC} \leq 91.0$, and Quartile 4: $91.0 < \text{WC}$ in men