

S4 Table. Phase sensitivity analysis among women: 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=43,670)			Sensitivity analysis II ^b (N=41,167)			Sensitivity analysis III ^c (N=39,951)		
	< 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	1.24 (1.13-1.36)	0.80 (0.75-0.85)	0.63 (0.52-0.76)	1.23 (1.13-1.35)	0.80 (0.75-0.85)	0.62 (0.51-0.76)	1.23 (1.12-1.35)	0.80 (0.75-0.86)	0.59 (0.48-0.73)
60-69	1.88 (1.67-2.10)	0.74 (0.68-0.81)	0.52 (0.39-0.70)	1.84 (1.63-2.07)	0.74 (0.67-0.81)	0.51 (0.38-0.69)	1.84 (1.63-2.08)	0.74 (0.68-0.82)	0.49 (0.36-0.67)
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	1.08 (0.97-1.20)	1.05 (0.98-1.12)	1.60 (1.26-2.04)	1.05 (0.95-1.17)	1.05 (0.98-1.12)	1.56 (1.22-2.00)	1.05 (0.95-1.17)	1.04 (0.97-1.12)	1.60 (1.24-2.05)
Middle school or below	1.35 (1.21-1.51)	1.12 (1.03-1.21)	2.16 (1.66-2.80)	1.33 (1.19-1.49)	1.12 (1.04-1.21)	2.08 (1.60-2.71)	1.33 (1.19-1.49)	1.11 (1.03-1.20)	2.15 (1.64-2.81)
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	1.15 (1.02-1.29)	1.23 (1.12-1.35)	1.28 (0.90-1.82)	1.15 (1.01-1.30)	1.23 (1.12-1.35)	1.27 (0.88-1.81)	1.15 (1.01-1.30)	1.24 (1.13-1.36)	1.25 (0.87-1.80)
Unemployed / housewives	1.03 (0.92-1.16)	1.79 (1.65-1.94)	2.87 (2.08-3.97)	1.03 (0.92-1.15)	1.80 (1.65-1.95)	2.91 (2.10-4.04)	1.03 (1.65-1.95)	1.79 (1.65-1.95)	2.87 (2.06-4.00)
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	1.18 (1.08-1.28)	0.99 (0.92-1.06)	1.05 (0.85-1.31)	1.17 (1.07-1.28)	1.00 (0.93-1.07)	1.04 (0.83-1.30)	1.17 (1.07-1.28)	1.00 (0.92-1.08)	1.06 (0.84-1.33)
Menopausal status									
Premenopausal	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.)
Postmenopausal	1.12 (1.02-1.22)	0.89 (0.83-0.95)	0.82 (0.68-1.00)	1.13 (1.03-1.24)	0.89 (0.84-0.95)	0.83 (0.68-1.01)	1.12 (1.02-1.23)	0.89 (0.83-0.95)	0.86 (0.70-1.06)
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	1.10 (0.91-1.34)	1.09 (0.93-1.28)	1.13 (0.75-1.73)	1.14 (0.94-1.39)	1.08 (0.92-1.27)	1.21 (0.79-1.84)	1.17 (0.96-1.43)	1.09 (0.93-1.28)	1.26 (0.82-1.92)
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	1.00 (0.94-1.07)	1.00 (0.95-1.05)	0.92 (0.79-1.07)	1.01 (0.94-1.08)	1.00 (0.95-1.06)	0.93 (0.80-1.09)	1.00 (0.93-1.08)	1.00 (0.95-1.06)	0.91 (0.77-1.06)
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	1.53 (1.42-1.64)	1.04 (0.98-1.10)	1.66 (1.42-1.94)	1.52 (1.41-1.63)	1.03 (0.98-1.10)	1.65 (1.41-1.93)	1.51 (1.41-1.63)	1.04 (0.98-1.10)	1.65 (1.41-1.94)
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	1.07 (0.99-1.16)	1.08 (1.02-1.14)	1.04 (0.87-1.25)	1.08 (0.99-1.17)	1.08 (1.02-1.15)	1.05 (0.87-1.27)	1.09 (1.00-1.18)	1.09 (1.03-1.16)	1.03 (0.85-1.25)
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	1.04 (0.98-1.11)	1.07 (1.02-1.12)	1.21 (1.05-1.39)	1.05 (0.99-1.12)	1.07 (1.02-1.12)	1.23 (1.06-1.84)	1.06 (0.99-1.13)	1.08 (1.03-1.13)	1.22 (1.05-1.42)

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	1.00 (0.90-1.12)	0.89 (0.82-0.96)	0.93 (0.72-1.21)	1.04 (0.92-1.17)	0.89 (0.83-0.97)	0.93 (0.71-1.22)	1.04 (0.92-1.17)	0.89 (0.83-0.97)	0.94 (0.72-1.24)
Severe distress	1.22 (1.06-1.40)	0.90 (0.82-1.00)	1.39 (1.01-1.90)	1.25 (1.09-1.45)	0.91 (0.82-1.01)	1.39 (1.00-1.92)	1.23 (1.06-1.43)	0.89 (0.80-0.99)	1.41 (1.01-1.95)
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	1.13 (1.06-1.21)	0.87 (0.83-0.92)	0.92 (0.78-1.07)	1.12 (1.05-1.21)	0.87 (0.82-0.91)	0.97 (0.82-1.13)	1.13 (1.05-1.21)	0.87 (0.83-0.92)	0.96 (0.81-1.12)
Frequent	1.56 (1.41-1.72)	0.87 (0.80-0.96)	0.84 (0.65-1.09)	1.53 (1.37-1.70)	0.86 (0.78-0.94)	0.84 (0.64-1.10)	1.54 (1.38-1.71)	0.87 (0.79-0.95)	0.85 (0.64-1.12)
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	1.02 (0.95-1.09)	0.99 (0.94-1.04)	1.10 (0.85-1.20)	1.03 (0.95-1.11)	1.00 (0.95-1.06)	1.03 (0.86-1.22)	1.03 (0.95-1.11)	1.00 (0.95-1.06)	1.04 (0.87-1.23)
Unhealthy	1.40 (1.27-1.54)	1.19 (1.11-1.28)	1.58 (1.28-1.96)	1.42 (1.29-1.57)	1.21 (1.12-1.31)	1.59 (1.27-1.98)	1.44 (1.30-1.59)	1.20 (1.11-1.30)	1.58 (1.26-1.99)
Anthropometry									
Body mass index^f (kg/m²)									
Quartile 1 (Lowest)	1.01 (0.92-1.10)	1.03 (0.96-1.10)	0.90 (0.74-1.11)	1.00 (0.91-1.09)	1.02 (0.95-1.09)	0.88 (0.71-1.09)	1.01 (0.91-1.11)	1.02 (0.95-1.10)	0.89 (0.72-1.11)
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	0.99 (0.91-1.08)	1.03 (0.96-1.10)	0.94 (0.77-1.16)	0.98 (0.89-1.07)	1.01 (0.95-1.08)	0.91 (0.73-1.12)	0.99 (0.90-1.09)	1.02 (0.95-1.09)	0.94 (0.76-1.16)
Quartile 4 (Highest)	1.11 (1.00-1.24)	1.00 (0.92-1.09)	1.00 (0.78-1.28)	1.12 (1.00-1.25)	0.99 (0.91-1.08)	1.04 (0.81-1.34)	1.14 (1.02-1.28)	1.00 (0.92-1.09)	1.07 (0.82-1.38)
Waist circumference^g (cm)									
Quartile 1 (Lowest)	1.05 (0.96-1.16)	0.96 (0.90-1.02)	0.95 (0.77-1.16)	1.05 (0.96-1.15)	0.96 (0.90-1.03)	0.94 (0.77-1.16)	1.06 (0.96-1.16)	0.96 (0.90-1.03)	0.95 (0.77-1.18)
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	1.03 (0.94-1.13)	0.99 (0.9301.06)	0.98 (0.79-1.21)	1.04 (0.95-1.15)	1.00 (0.93-1.07)	0.96 (0.78-1.20)	1.04 (0.94-1.14)	1.00 (0.93-1.07)	0.95 (0.76-1.18)
Quartile 4 (Highest)	0.96 (0.86-1.07)	1.03 (0.95-1.12)	1.04 (0.81-1.33)	0.95 (0.85-1.07)	1.04 (0.95-1.13)	0.98 (0.76-1.27)	0.95 (0.85-1.07)	1.03 (0.95-1.12)	0.97 (0.75-1.26)

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, women who were currently taking any medications for diabetes mellitus, hyperlipidemia, depression, cataract, hypertension, myocardial infarction, stroke, asthma/chronic bronchitis, fatty liver disease, gastritis, peptic ulcer, arthritis, osteoporosis, and bladder infection 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: ≤ 21.8 , Quartile 2: $21.8 < \text{BMI} \leq 23.5$, Quartile 3: $23.5 < \text{BMI} \leq 25.5$, and Quartile 4: $25.5 < \text{BMI}$ in women
- Defined as follows: Quartile 1: ≤ 73.5 , Quartile 2: $73.5 < \text{WC} \leq 79.0$, Quartile 3: $79.0 < \text{WC} \leq 84.3$, Quartile 4: $84.3 < \text{WC}$ in women