

Long working hours and all-cause mortality in China: A 26-year follow-up study¹

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1. Supplementary material
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Supplemental Table S1. Results of participants' follow-up time, N=10269.

Variables	Follow-up time (year)
Mean±SD	11.4±8.2
Median (Interquartile)	11.0 (4.0-18.0)
Total person-years	116705

Supplemental Table S2. All-cause mortality (per 1000 person-years) in different working hours during follow-up, N=10269.

Variables	Person-years (PY) N	Numbers of deaths N	Numbers of exposed N	Deaths per 1000 PY N	Deaths per exposed %	χ^2	P-value of Log-rank test ^a
All	116705	411	10269	3.52	4.0	-	-
Working hours (hours/week)						54.11	<0.001
<35	17864	99	1931	5.54	5.1		
35-40	26935	45	3154	1.67	1.4		
41-54	43259	148	2718	3.42	5.4		
≥55	28647	119	2466	4.15	4.8		

^aLog-rank test was used to compare the survival rates of different working time groups.

Supplemental Table S3. Association between long working hours and all-cause mortality risk, N=10269. [HR, hazard ratio; CI, confidence intervals; BMI, body mass index.]

Variables	HR	95% CI	Adjusted HR	95% CI
Working hours (hours/week)				
<35	3.39	2.38-4.83^{***}	1.47	0.98-2.21
35-40	1.00	-	1.00	-
41-54	1.86	1.32-2.61^{***}	1.29	0.90-1.87
≥55	2.39	1.69-3.38^{***}	1.49	1.02-2.18[*]
Sex				
Women	1.00	-	1.00	-
Men	2.95	2.33-3.75^{***}	2.42	1.76-3.33^{***}
Age	1.04	1.03-1.04^{***}	1.02	1.01-1.03^{***}
Marital status				
Unmarried	1.00	-	1.00	-
Married	3.30	2.25-4.86^{***}	3.54	2.22-5.65^{***}
Divorced/separated/widowed	6.16	3.33-11.40^{***}	7.01	3.51-14.02^{***}
Income				
Low	1.00	-	1.00	-
Intermediate	0.19	0.10-0.33^{***}	0.26	0.14-0.49^{***}
High	0.69	0.56-0.87^{**}	0.71	0.55-0.90^{**}
Occupational categories				
Non-manual	1.00	-	1.00	-
Manual	2.22	1.69-2.92^{***}	1.77	1.31-2.39^{***}
Education level				
Primary school or less	1.00	-	1.00	-
Middle or high school	0.23	0.18-0.28^{***}	0.32	0.24-0.41^{***}
College or university or above	0.13	0.07-0.27^{***}	0.24	0.11-0.54^{***}
Residence				
Urban	1.00	-	1.00	-
Rural	1.84	1.48-2.28^{***}	1.48	1.17-1.87^{**}
Smoking				
No	1.00	-	1.00	-
Yes	2.63	2.16-3.21^{***}	1.34	1.05-1.73[*]
Alcohol consumption				
No	1.00	-	1.00	-
Yes	1.88	1.55-2.29^{***}	1.20	0.95-1.52
BMI				
Underweight	2.02	1.51-2.72^{***}	2.05	1.52-2.75^{***}
Normal	1.00	-	1.00	-
Overweight	0.91	0.70-1.18	0.97	0.74-1.27
Obese	0.93	0.58-1.49	1.01	0.63-1.62

*** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$.

Supplemental Table S4. Univariate cox regression analysis stratified by sex or smoking, N=10269. [HR, hazard ratio; CI, confidence intervals.]

Variables	Women		Men	
	HR	95% CI	HR	95% CI
Working hours (hours/week)				
<35	1.09	0.63-1.86	1.74	1.44-3.72***
35-40	1.00	-	1.00	-
41-54	1.07	0.53-2.18	2.10	1.42-3.12***
≥55	1.16	0.55-2.44	2.68	1.80-4.00***
	Non-smoker		Smoker	
	HR	95% CI	HR	95% CI
Working hours (hours/week)				
<35	1.95	1.11-3.14*	2.13	1.95-3.02**
35-40	1.00	-	1.00	-
41-54	1.90	1.12-3.23*	1.73	1.11-2.69*
≥55	2.07	1.19-3.59*	2.32	1.49-3.62***

*** $P<0.001$, ** $P<0.01$, * $P<0.05$.

Supplemental Table S5. Association between time-dependent long working hours and all-cause mortality risk, N=10269. [HR, hazard ratio; CI, confidence intervals.]

Variables	Adjusted HR ^a	95% CI
Working hours (hours/week)		
<35	1.46	0.97-2.29
35-40	1.00	-
41-54	1.29	0.89-1.88
≥55	1.47	1.05-2.29*

^aAdjusted for age, sex, marital status, income, occupational categories, education level, residence, smoking, alcohol consumption and body mass index (BMI).

* $P<0.05$.

Supplemental Table S6. Association between time-dependent long working hours and all-cause mortality risk stratified by sex or smoking, N=10269. [HR, hazard ratio; CI, confidence intervals.]

Variables	Women		Men	
	Adjusted HR ^a	95% CI	Adjusted HR ^a	95% CI
Working hours (hours/week)				
<35	1.83	0.84-4.00	1.57	0.95-2.61
35-40	1.00	-	1.00	-
41-54	0.59	0.27-1.29	1.58	1.03-2.42*
≥55	0.40	0.14-1.11	2.03	1.25-3.31**
	Non-smoker		Smoker	
	Adjusted HR ^b	95% CI	Adjusted HR ^b	95% CI
Working hours (hours/week)				
<35	2.09	0.96-2.94	1.54	0.87-2.72
35-40	1.00	-	1.00	-
41-54	1.19	0.66-2.12	1.36	0.84-2.21
≥55	1.11	0.56-2.22	1.79	1.03-3.12*

^aAdjusted for age, marital status, income, occupational categories, education level, residence, smoking, alcohol consumption and body mass index (BMI).

^bAdjusted for age, sex, marital status, income, occupational categories, education level, residence, alcohol consumption and body mass index (BMI).

** $P<0.01$, * $P<0.05$.