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Supplemental Table 1. The overall sleep quality score scale according to each sleep parameter score

Sleep parameters	Score	Overall sleep quality score
Insomnia	AIS score	
	<6	0
	≥6	2
Daytime sleepiness	ESS score	
	<10	0
	≥10	2
Sleep duration	7-8hr/d	0
	6-7hr/d	1
	≥8hr/d	2
	<6hr/d	2
Snoring	No	0
	occasional	1
	Frequent	2
Total score		0 (best) -8 (worst)

Footnotes: AIS: Athens Insomnia Scale; ESS: the Epworth Sleepiness Scale.

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Supplementary Table 2. The prevalence ratios (PRs) and 95% confidence intervals (95% CIs) of having chronic kidney disease (CKD), according to sleep status.

	High or very high risk of CKD			eGFR<60 ml/min/1.73m ² or proteinuria>300mg/dl		
	Age-sex adjusted		Full adjusted*	Age-sex adjusted		Full adjusted*
	Case/N	PR(95%CI)	PR(95%CI)	Case/N	PR(95%CI)	PR(95%CI)
Overall sleep quality score						
<3	146/8265	Ref 1	Ref 1	425/8265	Ref 1	Ref 1
3-5	69/2630	1.52(1.15-2.02)	1.39(1.04-1.85)	151/2630	1.06(0.88-1.28)	0.98(0.81-1.19)
>5	9/145	2.32(1.32-4.08)	1.92(1.08-3.42)	15/145	1.13(0.77-1.64)	0.97(0.66-1.43)
<i>P-trend</i>		0.004	0.03		0.54	0.88

* Adjusted for age, sex, education level (primary, high school, or college), income level (<600RMB/month, 600-1000 RMB/month, or >1000 RMB/month), occupation(white collar, blue collar, or coalminer), physical activity(never, <4 times/week, or ≥4 times/week), smoking status(never, past smoker, or current smoker), alcohol consumption (never, past drinker, or current drinker), myocardial infarction history(no, yes), stroke history(no, yes), cancer history(no, yes), hypertension(no, prehypertension, or hypertension), diabetes(no, prediabetes, or diabetes), use of sleep medication(no, yes), body mass index(<24kg/m², 24-28kg/m², or ≥28kg/m²), triglyceride(<0.82mmol/L, 0.82-1.22mmol/L, 1.22-1.87mmol/L, or ≥1.87mmol/L), low density lipoprotein(<1.76mmol/L, 1.76-2.12mmol/L, 2.12-2.65mmol/L, or ≥2.65mmol/L), and high-density lipoprotein(<1.31mmol/L, 1.31-1.54mmol/L, 1.54-1.79mmol/L, or ≥1.79mmol/L).

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Supplementary Table 3. Sensitivity analyses of the association between overall sleep quality score and eGFR<60 ml/min/1.73m² or proteinuria>300mg/dl, after excluding common chronic conditions.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)
Overall sleep quality score										
<3	151/4560	Ref 1	333/7384	Ref 1	410/8014	Ref 1	379/7406	Ref 1	110/3755	Ref 1
3-5	39/1208	1.03(0.71-1.50)	92/2264	0.80(0.62-1.02)	141/2503	0.99(0.81-1.22)	138/2346	1.03(0.84-1.27)	24/966	0.84(0.53-1.34)
>5	3/47	1.91(0.55-6.68)	12/108	2.38(1.26-4.50)	9/132	1.00(0.49-2.05)	13/120	1.59(0.86-2.96)	1/27	1.46(0.18-11.6)
P for trend		0.58		0.67		0.94		0.37		0.56

Adjusted for age, sex, education level (primary, high school, or college), income level (<600RMB/month, 600-1000 RMB/month, or >1000 RMB/month), occupation(white collar, blue collar, or coalminer), physical activity(never, <4 times/week, or ≥4 times/week), smoking status(never, past smoker, or current smoker), alcohol consumption (never, past drinker, or current drinker), myocardial infarction history(no, yes), stroke history(no, yes), cancer history(no, yes), hypertension(no, prehypertension, or hypertension), diabetes(no, prediabetes, or diabetes), use of sleep medication(no, yes), body mass index(<24kg/m², 24-28kg/m², or ≥28kg/m²), triglyceride(<0.82mmol/L, 0.82-1.22mmol/L, 1.22-1.87mmol/L, or ≥1.87mmol/L), low density lipoprotein(<1.76mmol/L, 1.76-2.12mmol/L, 2.12-2.65mmol/L, or ≥2.65mmol/L), and high-density lipoprotein(<1.31mmol/L, 1.31-1.54mmol/L, 1.54-1.79mmol/L, or ≥1.79mmol/L).

Model 1 excluding participants with hypertension.

Model 2 excluding participants with diabetes.

Model 3 excluding participants with myocardial infarction, stroke or cancer.

Model 4 excluding participants who used sleep medications.

Model 5 excluding participants with hypertension, diabetes, myocardial infarction, stroke or cancer.

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Supplementary Table 4. Sensitivity analyses of the association between overall sleep quality score and high or very high risk CKD, after excluding common chronic conditions.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)
Overall sleep quality score										
<3	48/4560	Ref 1	113/7384	Ref 1	143/8014	Ref 1	135/7406	Ref 1	38/3755	Ref 1
3-5	16/1208	1.42(0.78-2.56)	41/2264	1.09(0.76-1.60)	67/2503	1.36(1.01-1.84)	66/2346	1.42(1.04-1.92)	7/966	0.75(0.32-1.72)
>5	2/47	4.85(1.05-22.5)	7/108	3.83(1.70-8.71)	6/132	1.92(0.81-4.57)	7/120	2.31(1.02-5.23)	1/27	4.99(0.60-42.3)
P for trend		0.07		0.06		0.02		0.006		0.89

Adjusted for age, sex, education level (primary, high school, or college), income level (<600RMB/month, 600-1000 RMB/month, or >1000 RMB/month), occupation(white collar, blue collar, or coalminer), physical activity(never, <4 times/week, or ≥4 times/week), smoking status(never, past smoker, or current smoker), alcohol consumption (never, past drinker, or current drinker), myocardial infarction history(no, yes), stroke history(no, yes), cancer history(no, yes), hypertension(no, prehypertension, or hypertension), diabetes(no, prediabetes, or diabetes), use of sleep medication(no, yes), body mass index(<24kg/m², 24-28kg/m², or ≥28kg/m²), triglyceride(<0.82mmol/L, 0.82-1.22mmol/L, 1.22-1.87mmol/L, or ≥1.87mmol/L), low density lipoprotein(<1.76mmol/L, 1.76-2.12mmol/L, 2.12-2.65mmol/L, or ≥2.65mmol/L), and high-density lipoprotein(<1.31mmol/L, 1.31-1.54mmol/L, 1.54-1.79mmol/L, or ≥1.79mmol/L).

Model 1 excluding participants with hypertension.

Model 2 excluding participants with diabetes.

Model 3 excluding participants with myocardial infarction, stroke or cancer.

Model 4 excluding participants who used sleep medications.

Model 5 excluding participants with hypertension, diabetes, myocardial infarction, stroke or cancer.

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Supplementary Table 5. Sensitivity analyses of the association between overall sleep quality score and odds of having proteinuria, after excluding common chronic conditions

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)	Case/N	OR(95%CI)
Overall sleep quality score										
<3	61/4560	Ref 1	175/7384	Ref 1	230/8014	Ref 1	210/7406	Ref 1	43/3755	Ref 1
3-5	25/1208	1.51(0.93-2.45)	60/2264	0.97(0.72-1.32)	101/2503	1.19(0.93-1.52)	100/2346	1.30(1.01-1.67)	15/966	1.27(0.69-2.33)
>5	24/47	3.02(0.68-13.3)	9/108	2.72(1.31-5.63)	7/132	1.34(0.63-2.85)	10/120	1.91(0.95-3.83)	1/27	3.30(0.42-25.6)
P for trend		0.04		0.28		0.13		0.01		0.29

Adjusted for age, sex, education level (primary, high school, or college), income level (<600RMB/month, 600-1000 RMB/month, or >1000 RMB/month), occupation(white collar, blue collar, or coalminer), physical activity(never, <4 times/week, or ≥4 times/week), smoking status(never, past smoker, or current smoker), alcohol consumption (never, past drinker, or current drinker), myocardial infarction history(no, yes), stroke history(no, yes), cancer history(no, yes), hypertension(no, prehypertension, or hypertension), diabetes(no, prediabetes, or diabetes), use of sleep medication(no, yes), body mass index(<24kg/m², 24-28kg/m², or ≥28kg/m²), triglyceride(<0.82mmol/L, 0.82-1.22mmol/L, 1.22-1.87mmol/L, or ≥1.87mmol/L), low density lipoprotein(<1.76mmol/L, 1.76-2.12mmol/L, 2.12-2.65mmol/L, or ≥2.65mmol/L), and high-density lipoprotein(<1.31mmol/L, 1.31-1.54mmol/L, 1.54-1.79mmol/L, or ≥1.79mmol/L).

Model 1 excluding participants with hypertension.

Model 2 excluding participants with diabetes.

Model 3 excluding participants with myocardial infarction, stroke or cancer.

Model 4 excluding participants who used sleep medications.

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Model 5 excluding participants with hypertension, diabetes, myocardial infarction, stroke or cancer.