

Impaired kidney function among young healthcare workers with long working hours and night work¹

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1. *Supplementary material*

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Supplementary Table S1. Fixed effects parameters of the generalized linear mixed model with estimated glomerular filtration rate (MDRD) as outcome (n=10677).

	β (95% CI)		
	Model 1	Model 2	Model 3
Total working hours ^a	-3.69 (-4.51 – -2.87)	-	-
Night working hours ^a	-	-1.00 (-1.48 – -0.52)	-
Non-night working hours ^a	-	-	-0.51 (-0.97 – -0.06)
Age (years)	-0.80 (-0.88 – -0.72)	-0.81 (-0.89 – -0.73)	-0.78 (-0.85 – -0.70)
Follow-up time (years)	-1.16 (-1.25 – -1.07)	-1.11 (-1.20 – -1.03)	-1.10 (-1.19 – -1.01)
Male sex	-4.81 (-6.60 – -3.02)	-5.09 (-6.88 – -3.30)	-4.89 (-6.68 – -3.09)
Hypertension	-1.42 (-2.23 – -0.60)	-1.50 (-2.32 – -0.69)	-1.58 (-2.40 – -0.76)
Diabetes	-0.11 (-2.21 – 2.00)	-0.06 (-2.17 – 2.04)	-0.07 (-2.17 – 2.04)
BMI (kg/m ²)	1.16 (0.98 – 1.33)	1.23 (1.05 – 1.40)	1.21 (1.03 – 1.39)
HDL-C (mg/dL) ^b	2.04 (1.68 – 2.40)	2.20 (1.84 – 2.56)	2.19 (1.83 – 2.56)
LDL-C (mg/dL) ^b	-0.21 (-0.37 – -0.06)	-0.18 (-0.34 – -0.02)	-0.19 (-0.35 – -0.03)
TG (mg/dL) ^b	0.47 (0.38 – 0.56)	0.49 (0.40 – 0.59)	0.50 (0.40 – 0.59)
Uric acid (mg/dL)	-8.44 (-8.89 – -7.98)	-8.47 (-8.93 – -8.01)	-8.46 (-8.92 – -8.00)
Current smoker	-2.62 (-7.30 – 2.06)	-2.48 (-7.28 – 2.31)	-2.69 (-7.50 – 2.13)
Drinking	-0.38 (-2.63 – 1.87)	-0.52 (-2.78 – 1.74)	-0.50 (-2.75 – 1.76)
Shift work	-0.93 (-1.74 – -0.11)	-	-

Night working hours were from 0:00 am to 8:00 am. Total working hours were considered as the sum of all working hours, encompassing both non-night and night working hours.

Model 1, 2, and 3 adopt total working hours, night working hours, and non-night working hours as main predictors, respectively. Model 1 additionally adjusted for shift work status.

^a For every 10 hours per week

^b For every 10 mg/dL

Numbers in bold indicated statistically significant findings ($p < 0.05$).

Abbreviations: SBP, systolic blood pressure; DBP, diastolic blood pressure; BMI, body mass index; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein; TG, triglycerides; eGFR, estimated Glomerular filtration rate.

Supplementary Table S2. Fixed effects parameters of the generalized linear mixed model with estimated glomerular filtration rate (different formula) as outcome (n=10677).

	β (95% CI)	
	2021 CKD-EPI	MDRD
Total working hours		-
<30/week	Reference	Reference
30 – 40/week	-1.27 (-1.66 – -0.87)	-5.62 (-7.06 – -4.18)
>40/week	-1.23 (-1.72 – -0.74)	-5.30 (-6.97 – -3.62)
Age (years)	-0.76 (-0.79 – -0.73)	-0.80 (-0.88 – -0.72)
Follow-up time (years)	-0.87 (-0.90 – -0.83)	-1.12 (-1.21 – -1.03)
Male sex	-4.47 (-5.45 – -3.50)	-5.05 (-6.84 – -3.26)
Hypertension	-0.38 (-0.71 – -0.05)	-1.46 (-2.27 – -0.64)
Diabetes	-0.08 (-0.89 – 0.73)	-0.07 (-2.17 – 2.03)
BMI (kg/m ²)	0.34 (0.27 – 0.40)	1.17 (1.00 – 1.35)
HDL-C (mg/dL) ^b	0.28 (0.17 – 0.38)	2.08 (1.71 – 2.44)
LDL-C (mg/dL) ^b	-0.08 (-0.14 – -0.03)	-0.19 (-0.35 – -0.04)
TG (mg/dL) ^b	0.09 (0.07 – 0.12)	0.47 (0.38 – 0.57)
Uric acid (mg/dL)	-2.87 (-3.07 – -2.66)	-8.46 (-8.91 – -8.00)
Current smoker	-0.96 (-3.02 – 1.10)	-2.51 (-7.23 – 2.22)
Drinking	-0.55 (-1.53 – 0.44)	-0.50 (-2.75 – 1.75)
Shift work	-0.36 (-0.63 – -0.09)	-1.20 (-2.03 – -0.38)

Night working hours were from 0:00 am to 8:00 am. Total working hours were considered as the sum of all working hours, encompassing both non-night and night working hours.

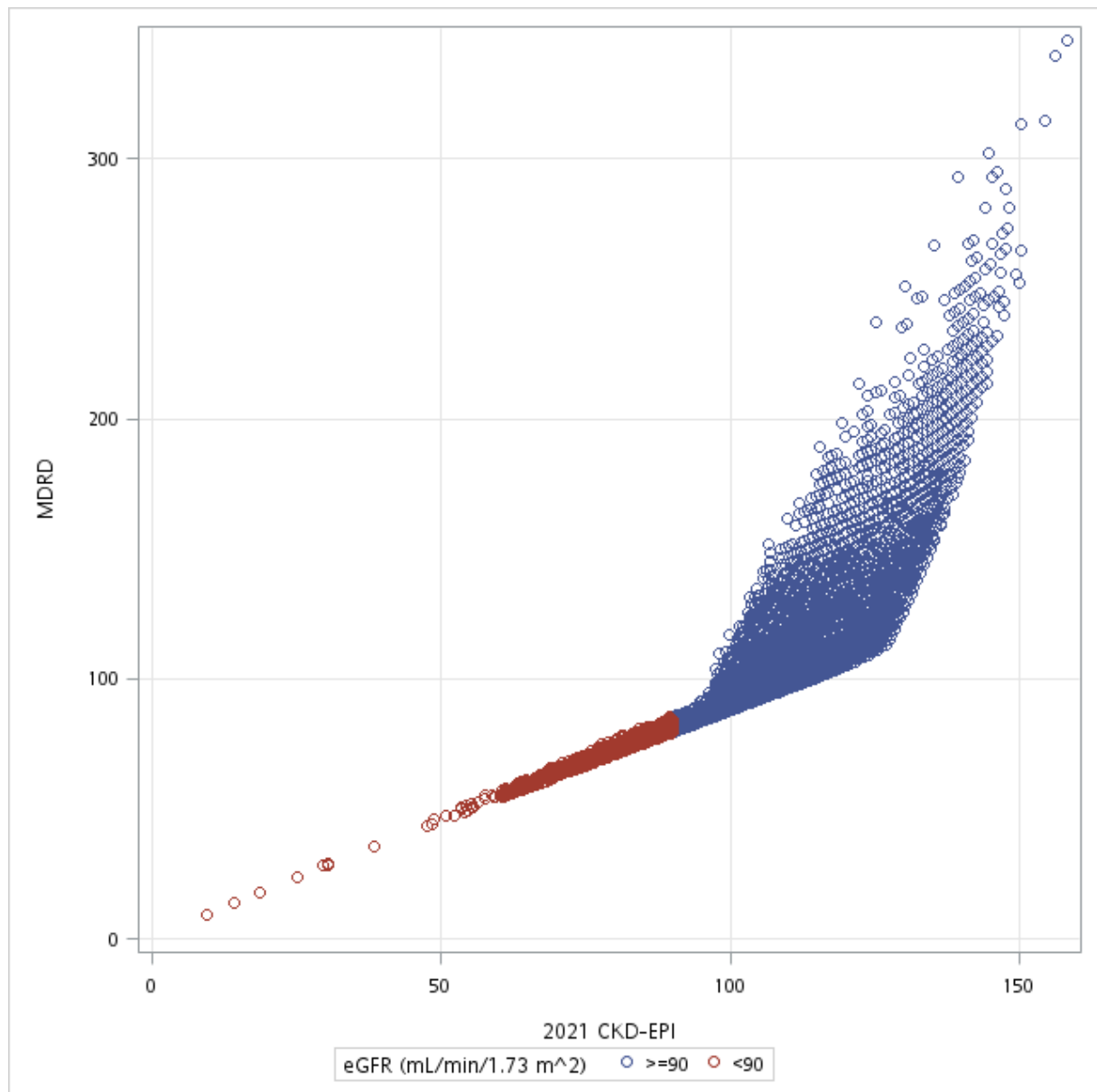
The measurement of eGFR (the response) is 2021 CKD-EPI and MDRD, respectively. Both models adopted categorical levels of total work hours as main predictors.

^a Categorized into three levels and <30 hours per week as the reference

^b For every 10 mg/dL

Numbers in bold indicated statistically significant findings ($p < 0.05$).

Abbreviations: SBP, systolic blood pressure; DBP, diastolic blood pressure; BMI, body mass index; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein; TG, triglycerides; eGFR, estimated Glomerular filtration rate.



Supplementary Figure S1. A scatterplot illustrating the relationship of eGFRs derived from 2021 CKD-EPI and MDRD equations.