

## Supplementary Materials

### Short-Term Associations between Size-Fractioned Particles and Cardiopulmonary Function in COPD Patients: A Panel Study in Shanghai, China, during

2014–2021

**Table S1.** Pearson correlation coefficients of size-fractioned PNC with criteria air pollutant concentrations and weather conditions.

	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	O <sub>3</sub>	Temperature	Relative Humidity	Wind Speed
PNC <sub>0.01–0.1</sub>	-0.06*	0.22*	0.08*	-0.02	-0.05*	0.21*	-0.26*	-0.08*
PNC <sub>0.1–0.3</sub>	0.66*	0.24*	0.66*	0.55*	0.43*	-0.19*	-0.27*	-0.25*
PNC <sub>0.3–1</sub>	0.84*	0.05*	0.60*	0.37*	0.55*	-0.27*	0.06*	-0.23*
PNC <sub>1–2.5</sub>	0.19*	0.13*	0.04	0.05	0.12*	0.14*	0.09*	-0.07*
PNC <sub>2.5–10</sub>	0.27*	0.09*	0.14*	0.29*	0.21*	0.02	-0.04	-0.04

Abbreviations: PM<sub>2.5</sub>, particulate matter with an aerodynamic diameter  $\leq 2.5 \mu\text{m}$ ; PNC, particle number concentrations; O<sub>3</sub>, Ozone (8 h mean); NO<sub>2</sub>, nitrogen dioxide; SO<sub>2</sub>, sulfur dioxide; CO, carbon monoxide. \*  $p < 0.05$ .

**Table S2.** Changes (mean and 95% confidence intervals) in cardiopulmonary function measures associated with an interquartile range increase in size-fractioned PNC, adjusted for PM<sub>2.5</sub> and (A) NO<sub>2</sub>, (B) SO<sub>2</sub>, (C) O<sub>3</sub>, (D) CO.

	FEV <sub>1</sub> (mL)	FVC (mL)	LVEF (%)
<b>+NO<sub>2</sub></b>			
PNC <sub>0.01-0.1</sub>	-10.4 (-78.0, 57.2)	-75.6 (-129.1, -22.0) *	-0.6 (-1.6, 0.4)
PNC <sub>0.1-0.3</sub>	-142.2 (-249.8, -34.7) *	-23.7 (-108.7, 61.3)	-1.7 (-3.2, -0.3) *
PNC <sub>0.3-1</sub>	-123.2 (-228.8, -17.6) *	3.8 (-70.2, 77.8)	-1.5 (-2.9, -0.2) *
PNC <sub>1-2.5</sub>	-9.6 (-41.6, 22.3)	-6.2 (-29.8, 17.5)	0.1 (-0.3, 0.5)
PNC <sub>2.5-10</sub>	-32.7 (-72.2, 6.9)	-6.9 (-33.7, 19.8)	0.1 (-0.2, 0.5)
<b>+SO<sub>2</sub></b>			
PNC <sub>0.01-0.1</sub>	-3.7 (-67.9, 60.5)	-95.1 (-149.1, -41.2) *	-0.5 (-1.4, 0.4)
PNC <sub>0.1-0.3</sub>	-87.8 (-185.5, 9.8)	-73.3 (-153.1, 6.5)	-1.2 (-2.5, 0.2)
PNC <sub>0.3-1</sub>	-117.5 (-221.4, -13.6) *	-4.5 (-79.3, 70.4)	-1.5 (-2.8, -0.1) *
PNC <sub>1-2.5</sub>	-10.8 (-42.4, 22.7)	-2.8 (-27.2, 21.6)	0.1 (-0.3, 0.4)
PNC <sub>2.5-10</sub>	-29.9 (-69.8, 10.0)	-7.1 (-35.5, 21.4)	0.1 (-0.2, 0.5)
<b>+O<sub>3</sub></b>			
PNC <sub>0.01-0.1</sub>	-9.4 (-73.1, 54.3)	-78.0 (-127.9, -28.1) *	-0.6 (-1.5, 0.3)
PNC <sub>0.1-0.3</sub>	-99.3 (-188.2, -10.4) *	-47.6 (-115.8, 20.6)	-1.3 (-2.5, -0.1) *
PNC <sub>0.3-1</sub>	-118.5 (-222.8, -14.3) *	-1.4 (-74.6, 71.8)	-1.6 (-2.9, -0.3) *
PNC <sub>1-2.5</sub>	-11.2 (-43.0, 20.5)	-4.0 (-28.0, 20.0)	0.1 (-0.3, 0.5)
PNC <sub>2.5-10</sub>	-33.2 (-72.8, 6.3)	-6.7 (-34.4, 20.9)	0.1 (-0.2, 0.4)
<b>+CO</b>			
PNC <sub>0.01-0.1</sub>	-12.6 (-77.1, 51.9)	-71.2 (-121.5, -20.9) *	-0.6 (-1.5, 0.3)
PNC <sub>0.1-0.3</sub>	-96.9 (-185.9, -7.9) *	-44.2 (-112.0, 23.6)	-1.3 (-2.5, -0.1) *
PNC <sub>0.3-1</sub>	-117.6 (-221.9, -13.3) *	-10.3 (-83.5, 62.8)	-1.5 (-2.9, -0.2) *
PNC <sub>1-2.5</sub>	-10.0 (-41.6, 21.7)	-3.0 (-26.8, 20.7)	0.1 (-0.3, 0.4)
PNC <sub>2.5-10</sub>	-32.1 (-71.7, 7.5)	-4.9 (-32.4, 22.7)	0.1 (-0.2, 0.5)

Abbreviations: FEV<sub>1</sub>, forced expiratory volume in 1 s; FVC, forced vital capacity; LVEF, left ventricular ejection fraction. Other abbreviations as in Table S1. \*  $p < 0.05$ .