

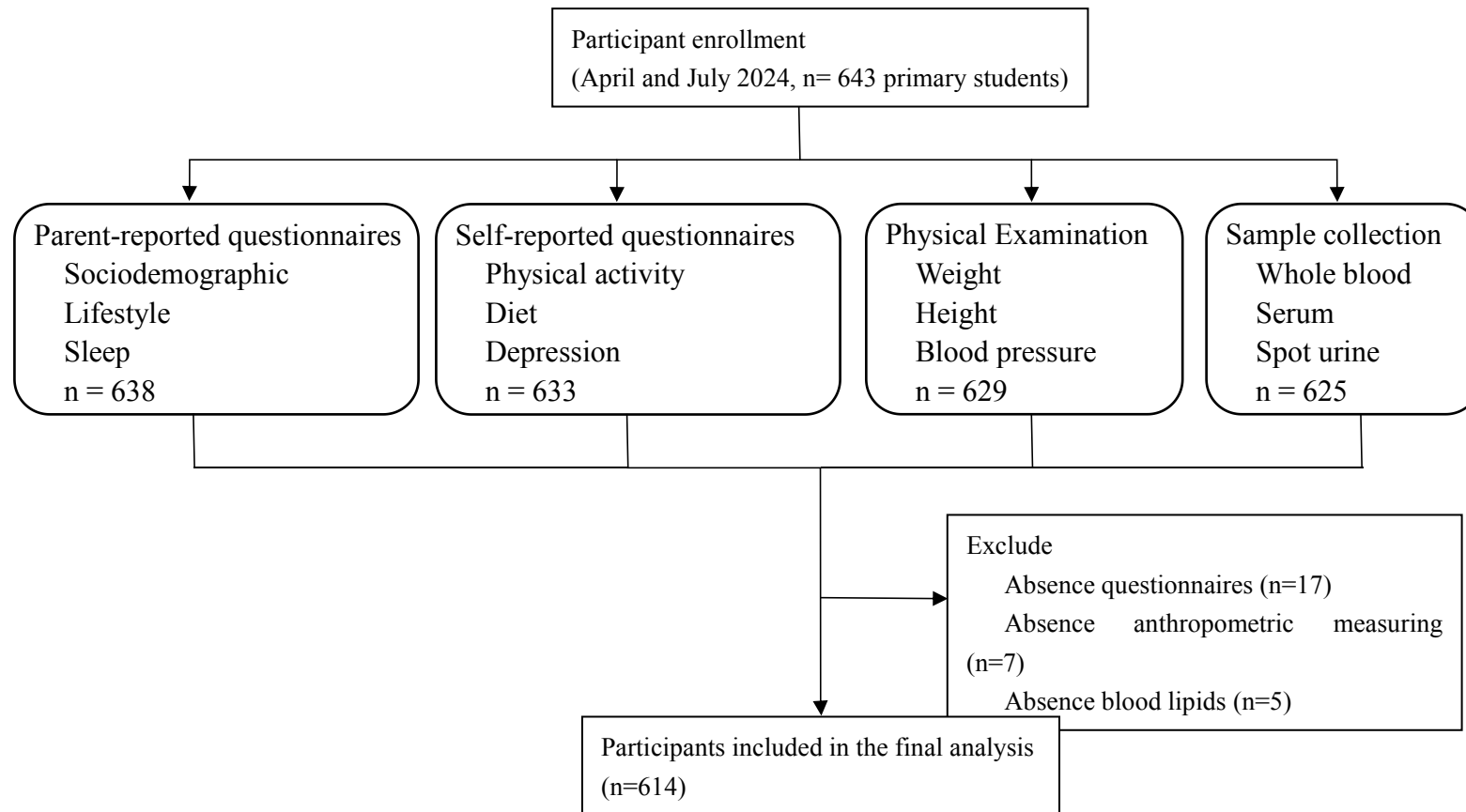
Supplementary Table S1. General characteristics of participants in primary students with and without dyslipidaemia ($n = 614$)

Characteristic	Total	Dyslipidaemia		<i>P</i>
		No ($n = 522$)	Yes ($n = 92$)	
Age [years (mean $\pm$ SD)]	11.22 $\pm$ 1.55	11.23 $\pm$ 1.55	11.17 $\pm$ 1.53	0.815
BMI [kg/m ² (mean $\pm$ SD)]	19.20 $\pm$ 4.02	18.80 $\pm$ 3.68	21.47 $\pm$ 5.02	< 0.01
Gender [n(%)]				
Boy	57.0(350/614)	55.4(289/522)	66.3(61/92)	0.051
Girl	43.0(264/614)	44.6(233/522)	33.7(31/92)	
Race [n (%)]				
Han	98.4(604/614)	98.3(513/522)	98.9(91/92)	0.656
Others	1.6(10/614)	1.7(9/522)	1.1(1/92)	
Residence [n (%)]				
Urban	49.5(302/610)	48.6(252/518)	54.3(50/92)	0.314
Rural	50.5(308/610)	51.4(266/518)	45.7(42/92)	
Only child [n (%)]				
No	70.5(433/614)	70.9(370/522)	68.5(63/92)	0.614
Yes	29.5(181/614)	29.1(152/522)	31.5(29/92)	
Monthly household income per capita [n (%)]				
≤ 5000	38.6(237/614)	38.3(200/522)	40.2(37/92)	0.942
5000~10000	35.7(219/614)	35.8(187/522)	34.8(32/92)	
≥ 10000	25.7(158/614)	25.9(135/522)	25.0(23/92)	
Physical activity at least 60 min [n (%)]				
None	17.1(105/614)	16.7(87/522)	19.6(18/92)	0.546
1~3 times/week	43.2(265/614)	42.7(223/522)	45.7(42/92)	
≥ 3 times/week	39.7(244/614)	40.6(212/522)	34.8(32/92)	
Passive smoking [n (%)]				
No	64.7(397/614)	64.4(336/522)	66.3(61/92)	0.720
Yes	35.3(217/614)	35.61(86/522)	33.7(31/92)	
Healthy diet [n (%)]				
No	77.0(473/614)	76.8(401/522)	78.3(72/92)	0.762
Yes	23.0(141/614)	23.2(121/522)	21.7(20/92)	
Depressive disorder				
No	89.6(550/614)	89.3(466/522)	91.3(84/92)	0.556
Yes	10.4(64/614)	10.7(56/522)	8.7(8/92)	
Blood glucose (mean $\pm$ SD)	4.56 $\pm$ 0.41	4.55 $\pm$ 0.40	4.64 $\pm$ 0.44	0.730
Blood lipids				< 0.01
TC (mean $\pm$ SD)	4.10 $\pm$ 0.66	4.00 $\pm$ 0.53	4.64 $\pm$ 0.99	< 0.01
TG (mean $\pm$ SD)	0.97 $\pm$ 0.49	0.86 $\pm$ 0.31	1.57 $\pm$ 0.81	< 0.01
HDL-C (mean $\pm$ SD)	1.54 $\pm$ 0.32	1.58 $\pm$ 0.28	1.36 $\pm$ 0.44	< 0.01
LDC-C (mean $\pm$ SD)	2.25 $\pm$ 0.54	2.16 $\pm$ 0.44	2.76 $\pm$ 0.75	< 0.01

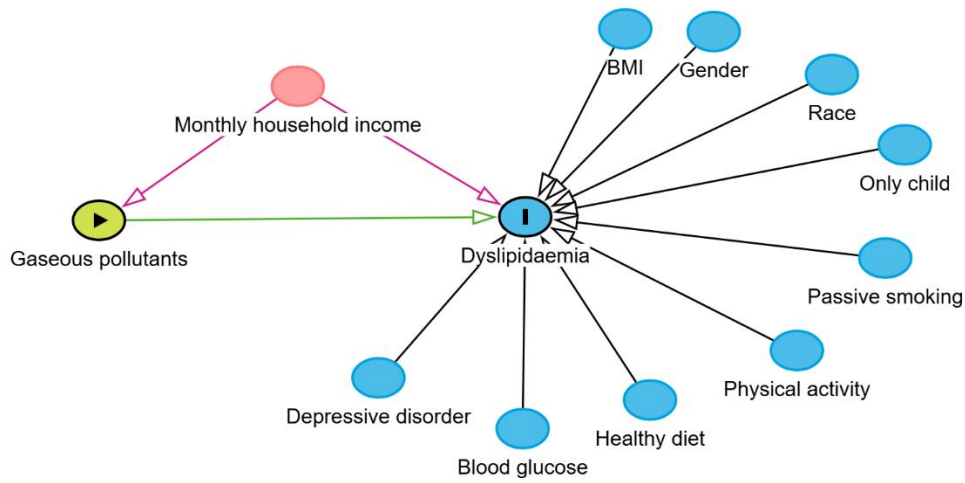
Supplementary Table S2. Summary distribution of air pollutants in 2023 and their correlations

Exposure	Mean±SD	Median (IQR)	Spearman correlation coefficient					
			PM _{2.5}	PM ₁₀	O ₃	NO ₂	SO ₂	CO
PM _{2.5} (µg/m ³)	39.18±4.42	40.57(9.43)	1	0.967**	0.822**	0.515**	0.671**	0.003
PM ₁₀ (µg/m ³)	75.95±12.21	79.31(28.58)	—	1	0.854**	0.481**	0.658**	-0.034
O ₃ (µg/m ³)	114.73±1.05	114.65(1.55)	—	—	1	0.463**	0.599**	0.037
NO ₂ (µg/m ³)	34.41±8.25	33.77(17.68)	—	—		1	0.872**	0.684**
SO ₂ (µg/m ³)	8.59±0.88	8.30(1.76)	—	—	—	—	1	0.535**

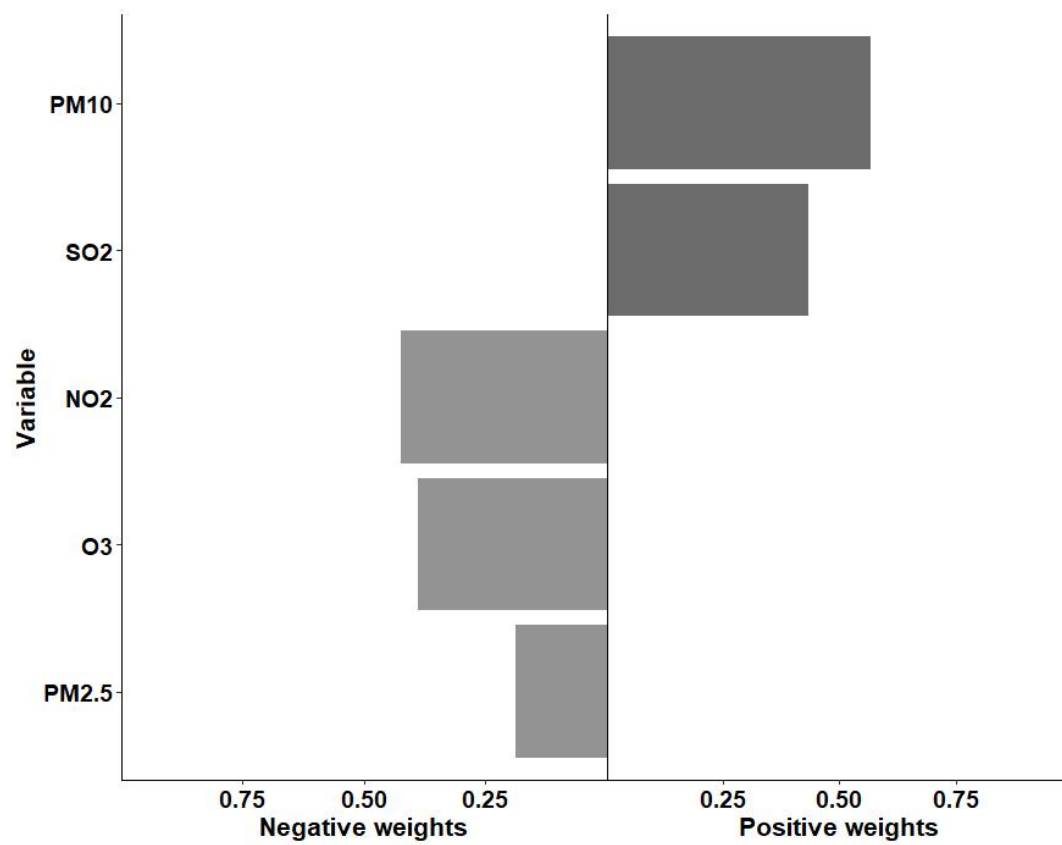
Note. —, no data; PM_{2.5}, particulate matter with an aerodynamic diameter ≤ 2.5 µm; PM₁₀, particulate matter with an aerodynamic diameter ≤ 10 µm; O₃, ozone; NO₂, nitrogen dioxide; SO₂, sulfur dioxide; SD, standardized deviation; IQR, interquartile range. **: $P < 0.01$.



Supplementary Figure S1. Flowchart of the study design and population.



Supplementary Figure S2. Directed acyclic graph for the hypothesized causal relationship between air pollutants and dyslipidaemia. Green circle: ancestor of exposure; Blue circle: ancestor of outcome; Red circle: ancestor of exposure and outcome; Green line: causal path; Red line: biasing path. Graph was drawn with using DAGitty version 3.1 (<http://dagitty.net/>).



Supplementary Figure S3. Effect size of air pollutants on dyslipidaemia.