Supplementary Methods

1. The sample size in our study

The sample size is one of the important factors reflecting the statistical efficacy, and we have added more information about the sample size. Based on the latest methodological study, it revealed that in time-series studies with Poisson outcome distribution, precision and power depend only on the total number of disease events and the usable variation of exposure. They also provided R code to calculate the statistical power. Using the similar method, we calculated the statistical power was almost 95%. We provided the detailed calculation process in the R code.

Supplementary Results

Table S1. Spearman correlation coefficients matrix of meteorological factors and air pollutions

	Temp	RH	SH	SP	TP	$PM_{2.5}$	NO_2	SO_2
Temp	1.0							
RH	-0.1	1.0						
SH	0.3	-0.6	1.0					
SP	-0.8	0.1	-0.2	1.0				
TP	0.3	0.3	-0.1	-0.3	1.0			
$PM_{2.5}$	-0.4	-0.1	-0.1	0.3	-0.3	1.0		
NO_2	-0.3	-0.2	0.0	0.2	-0.4	0.8	1.0	
SO_2	-0.2	-0.3	0.0	0.1	-0.2	0.7	0.7	1.0

Abbreviations: Temp, temperature; RH, relative humidity; SH, sunshine duration; SP, surface air pressure; TP, total precipitation. $PM_{2.5}$, particulate matter that has a diameter of fewer than 2.5 micrometers; NO_2, nitrogen dioxide; SO_2, sulfur dioxide.

Table S2. The change of attributable fraction for total AD population adopting different lag times for temperature.

Lag time (days)	AF	95% eCI
0-3	22.1	7.5-31.7

0-5	25.9	12.0-36.4
0-7	25.4	9.2-36.0
0-9	25.5	8.3-38.0

AF: attributable fraction

95% eCI: 95% empirical confidence interval.

Table S3. The change of attributable fraction for total AD population adopting various degrees of freedom for time trend and relative humidity.

Variable	df	AF	95% eCI
Relative humidity	2	25.4	8.9-36.9
	3	25.4	9.2-36.0
	4	25.3	9.7-36.6
	5	25.3	7.9-36.3
Sunshine duration	2	25.3	9.4-36.5
	3	25.4	9.2-36.0
	4	25.3	9.7-37.1
	5	25.3	8.7-36.3
Air pressure	2	25.6	10.1-37.0
	3	25.4	9.2-36.0
	4	25.5	9.2-37.0
	5	25.7	7.3-36.0
Precipitation	2	26.5	9.2-37.1
	3	25.4	9.2-36.0
	4	25.3	9.7-37.4
	5	25.2	9.9-37.6
Time	3*6	23.6	9.3-33.6
	5*6	23.6	9.5-33.7
	7*6	25.4	9.2-36.0
	9*6	26.5	8.2-36.9

AF: attributable fraction

95% eCI: 95% empirical confidence interval

Table S4. The change of attributable fraction by the model adjusting different air pollutants.

Lag time (days)	AF	95% eCI
$PM_{2.5}$	25.4	9.2-36.0
SO_2	25.1	10.2-35.4
NO_2	26.3	12.2-36.3

AF: attributable fraction

95% eCI: 95% empirical confidence interval.

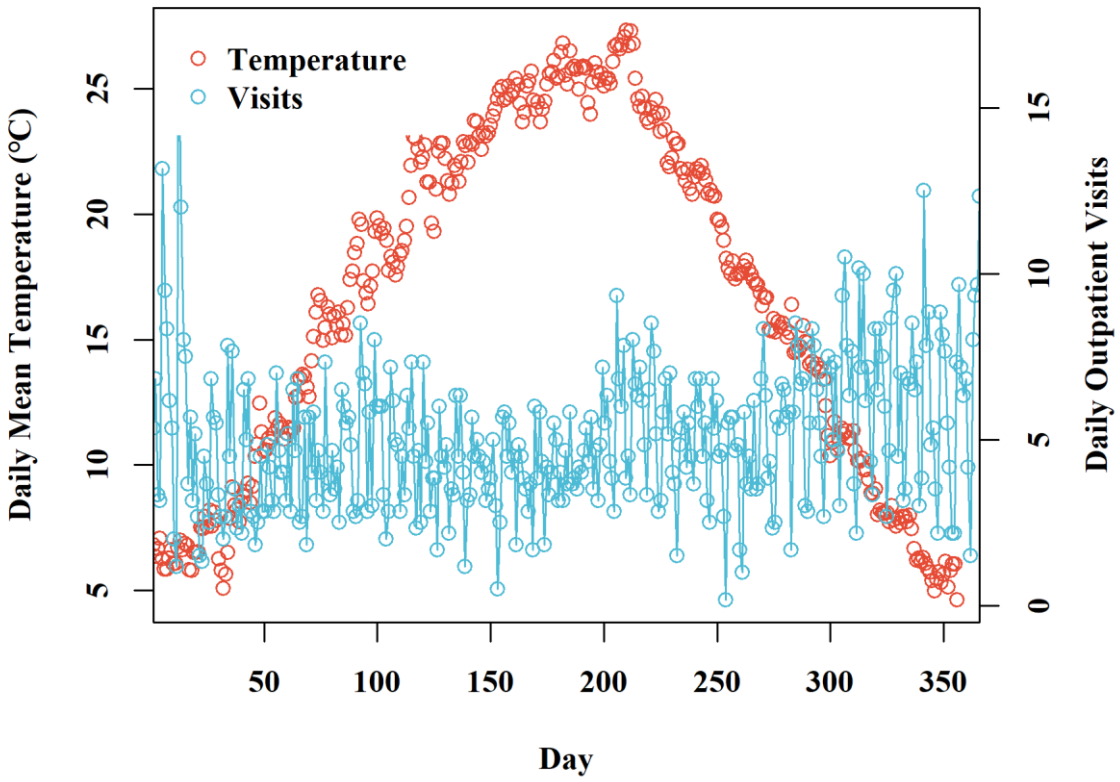

Figure S1. Distribution of the daily average temperature and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

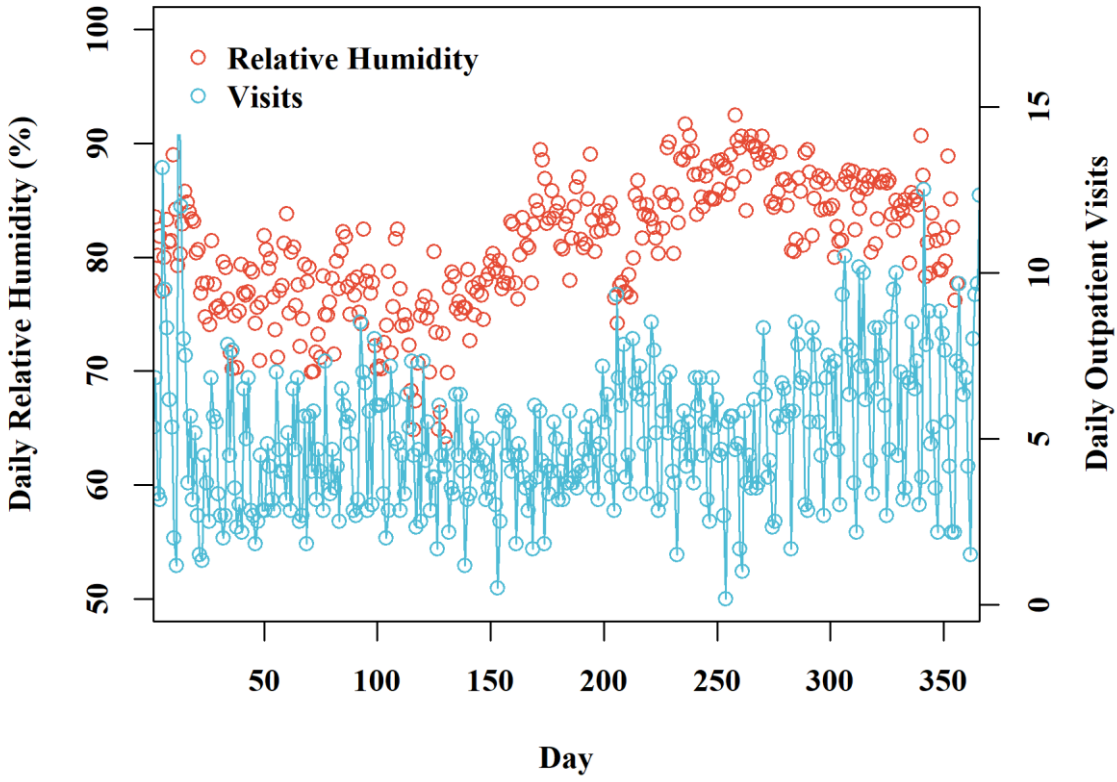

Figure S2. Distribution of the daily average relative humidity and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

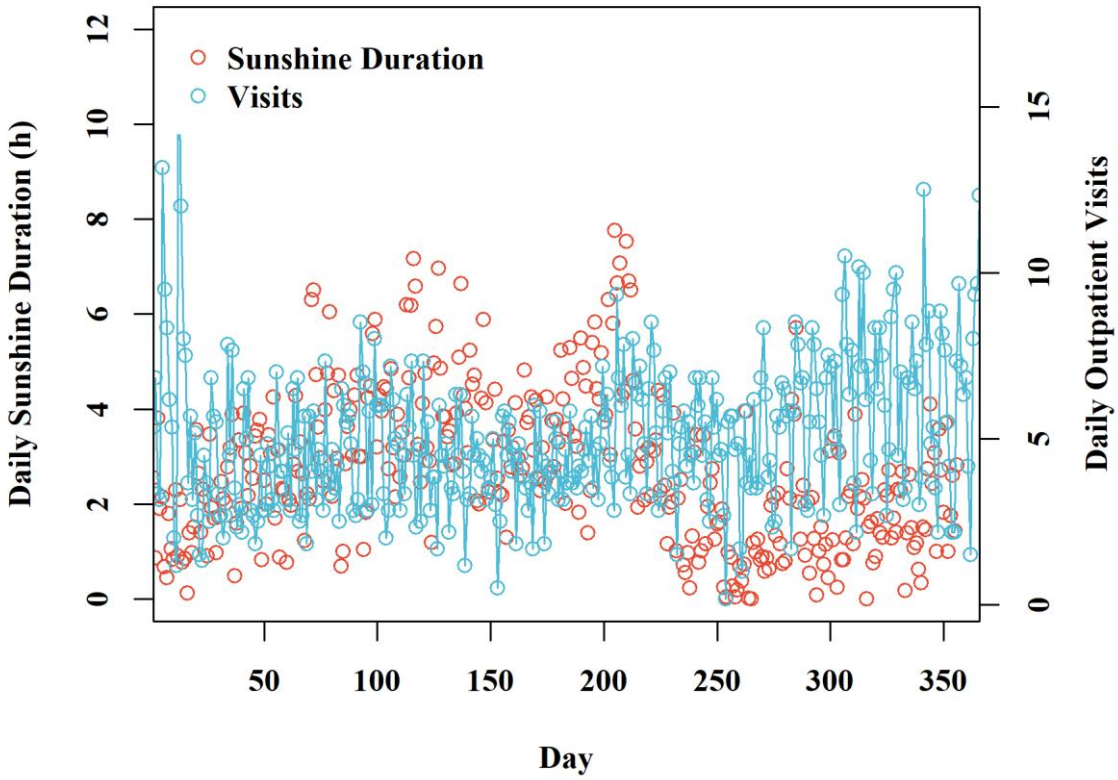

Figure S3. Distribution of the daily sunshine duration and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

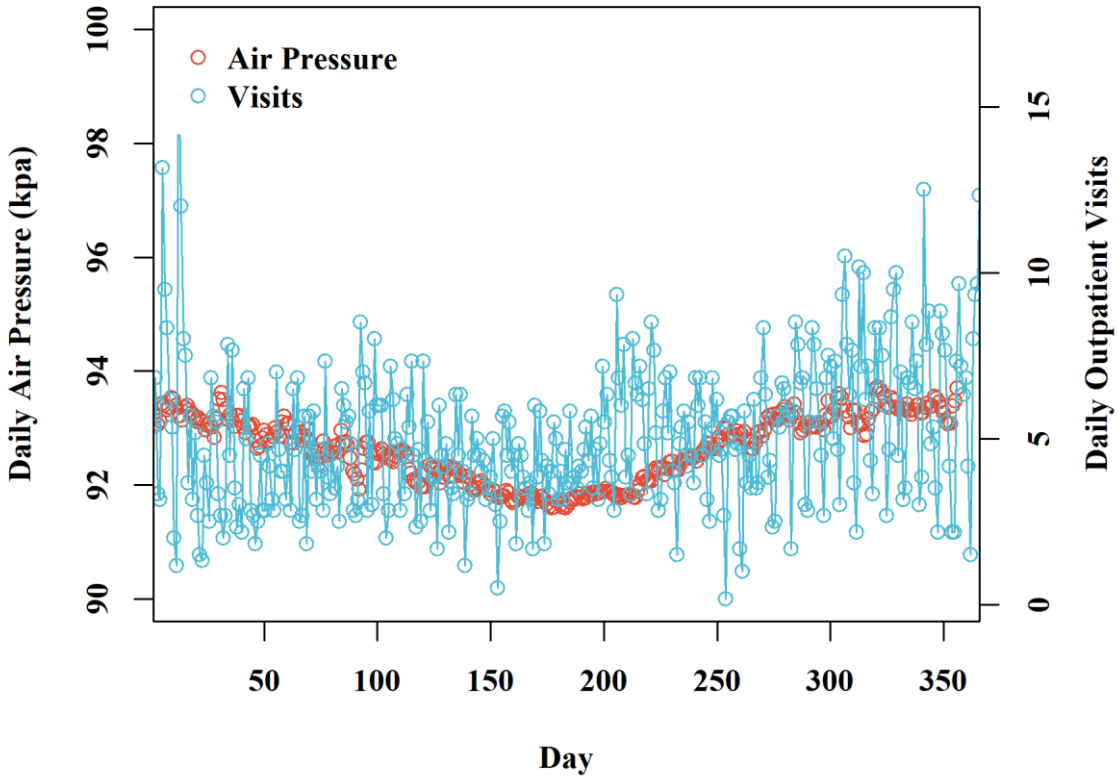

Figure S4. Distribution of the daily average air pressure and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

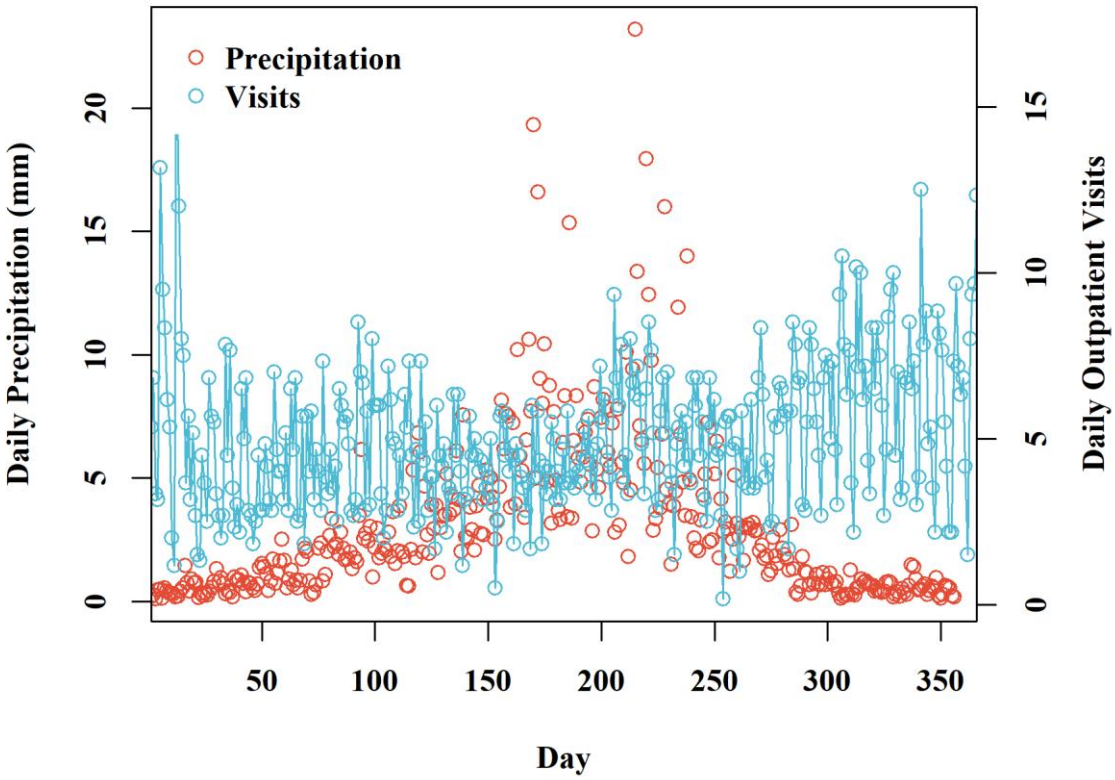

Figure S5. Distribution of the daily average precipitation and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

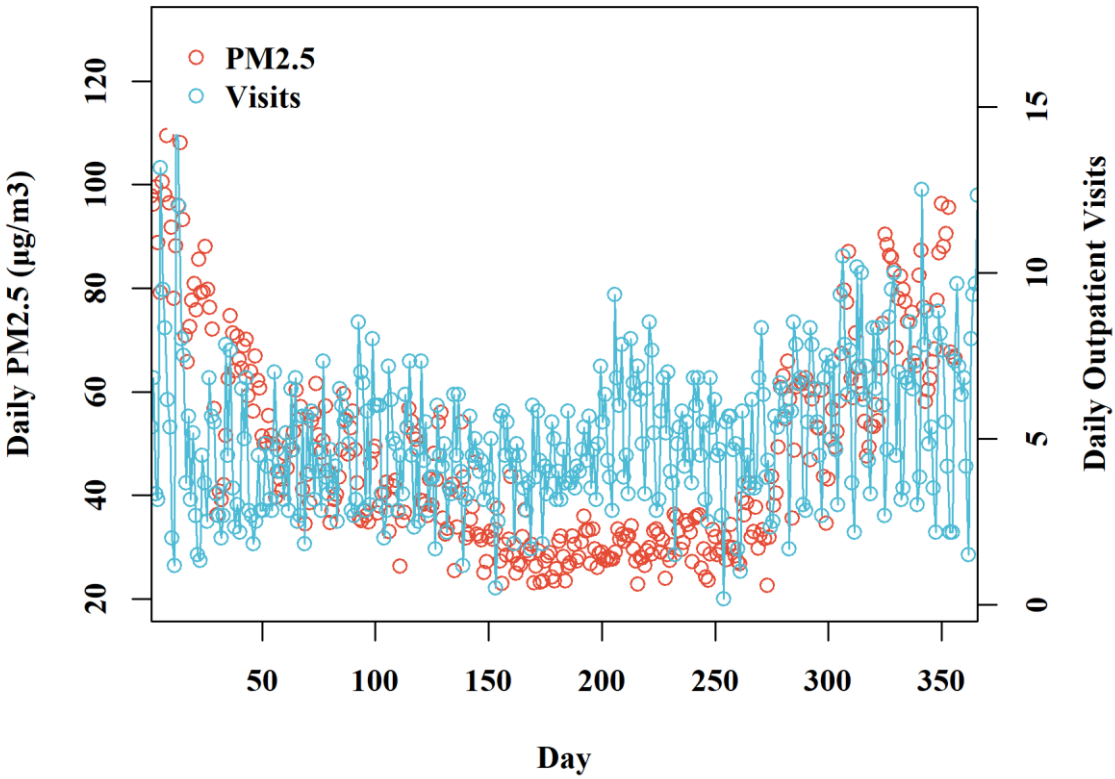

Figure S6. Distribution of the daily average PM2.5 and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

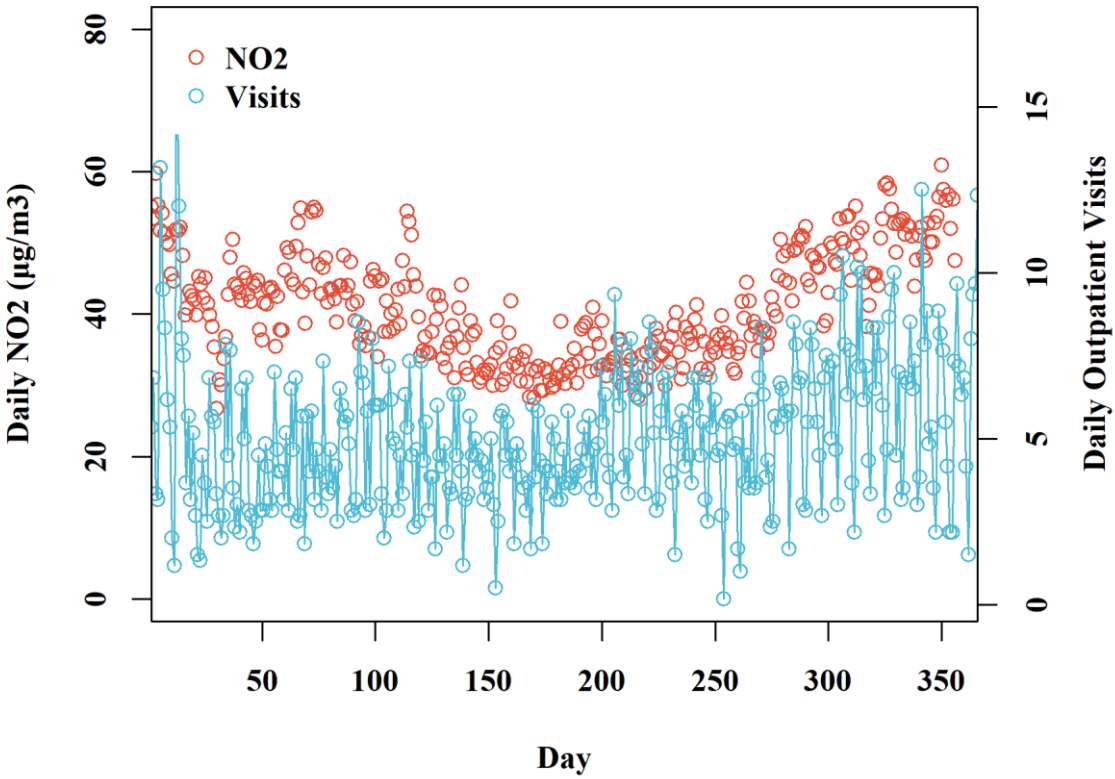

Figure S7. Distribution of the daily average NO2 and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

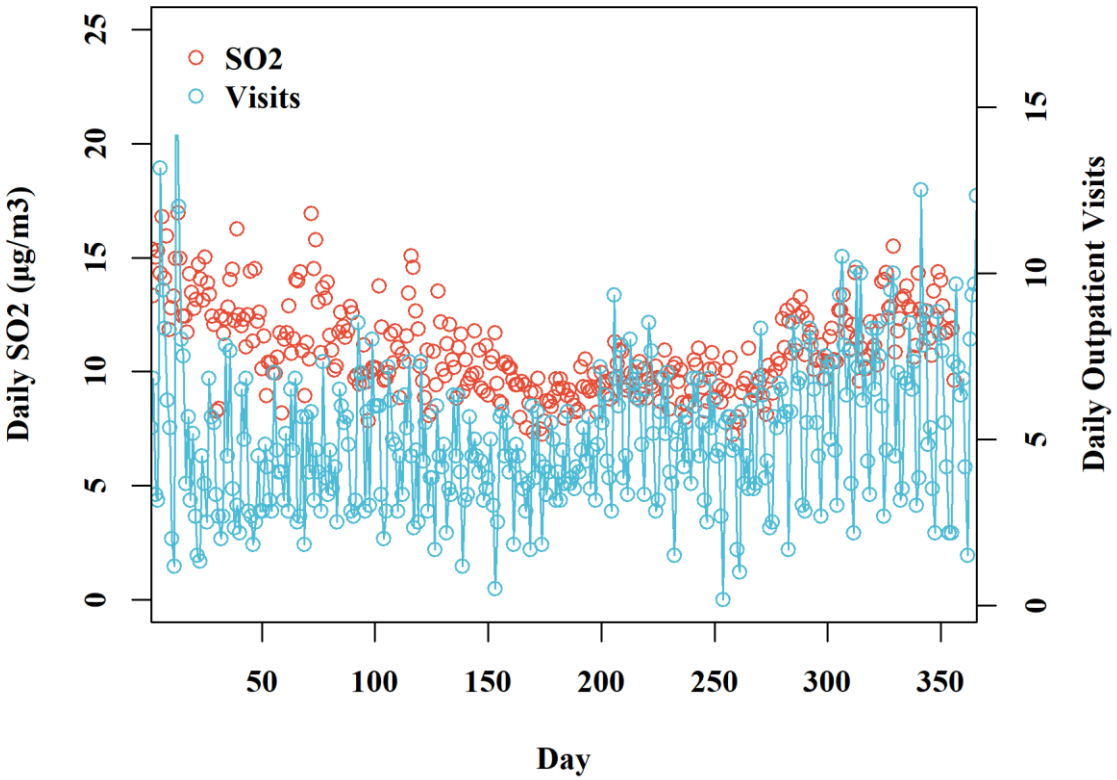

Figure S8. Distribution of the daily average SO2 and the number of AD outpatient visits from 2015 to 2020 in Chengdu, China. The horizontal axis represents 1 to 365 days in a year.

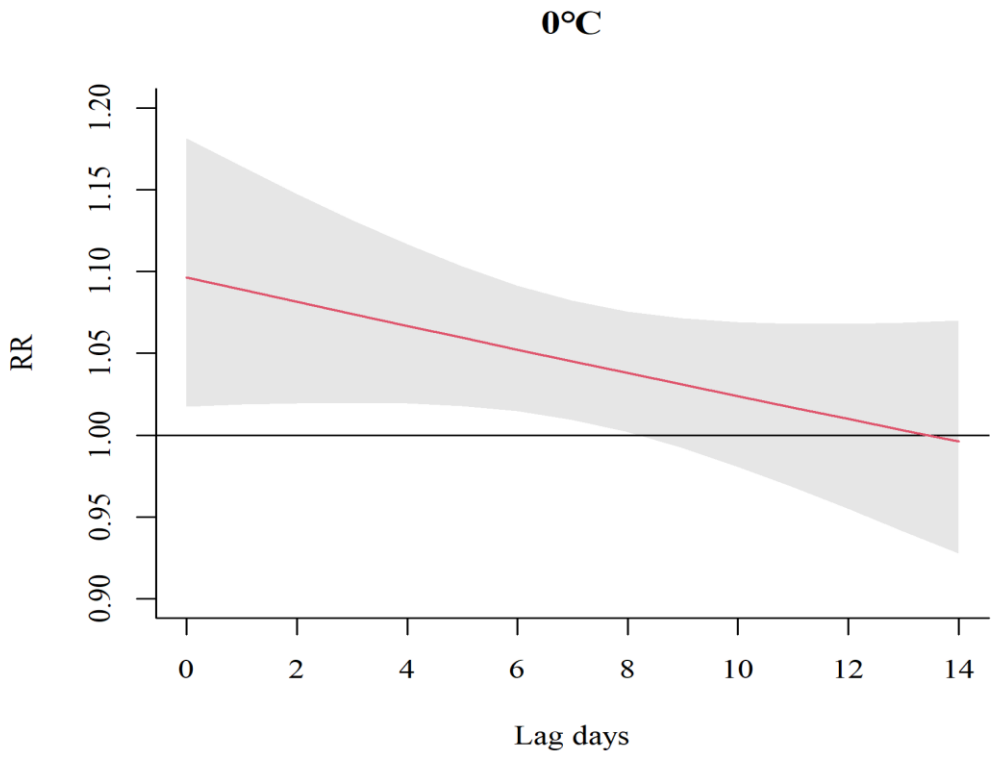

Figure S9. The lag effects for the cold temperature (0 ℃).

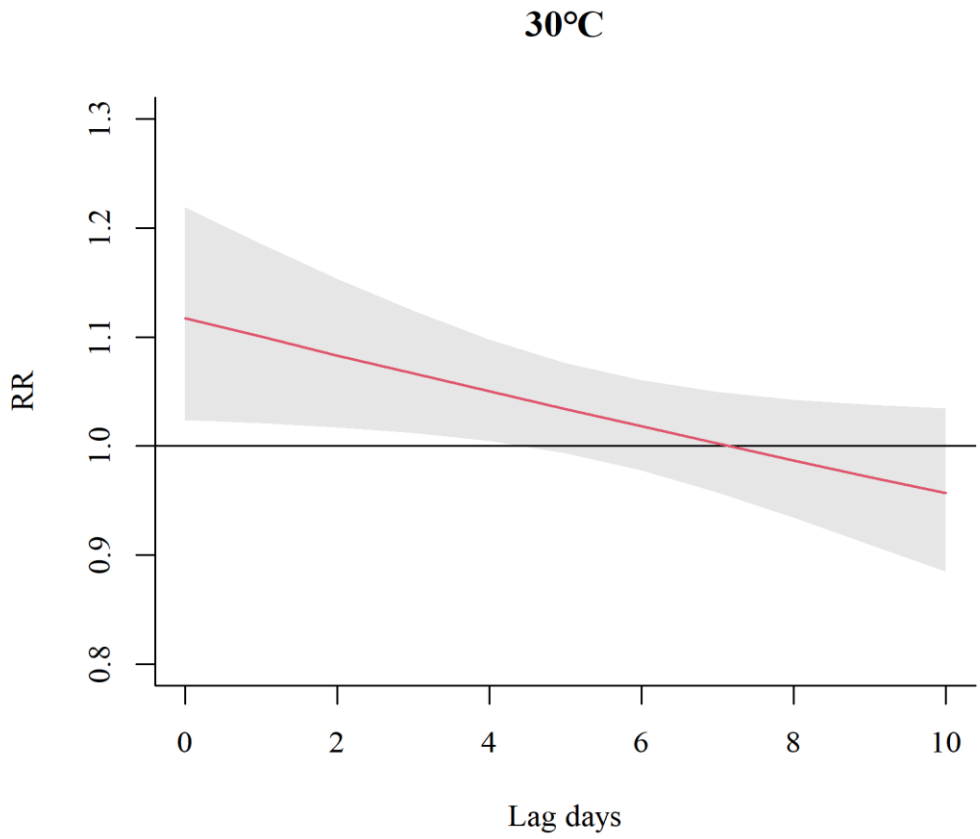

Figure S10. The lag effects for the hot temperature (30 ℃).