

Supplementary Material

1 Supplementary Tables

Supplementary Table 1. Descriptive statistics of study population: AMI hospitalization in Beijing, China, 2013 to 2016

	No. of cases	Daily AMI hospitalization counts		
		Min*	Median	Max**
Total	81,029	23	54	152
Age				
<65	36,989	7	25	70
≥65	44,040	9	29	93
Gender				
Male	55,669	13	37	104
Female	25,360	3	17	57
Year				
2013	18,367	23	49	90
2014	18,998	25	52	83
2015	20,442	24	56	94
2016	23,222	31	61	152

* minimum, ** maximum

Supplementary Table 2. Summary Statistics for Meteorology and Air Pollutants (Data on 1461 consecutive days) Supplementary Material

Parameters	Mean (SD)	Min*	P25**	P50**	P75**	Max***
Temperature measures						
Neighboring-day mean temperature difference (DTDmean ₁), °C	0 ± 2.26	7	1	0	1	7
2-day mean temperature difference (DTDmean ₂), °C	0 ± 2.94	12	2	0	2	10
3-day mean temperature difference (DTDmean ₃), °C	0 ± 3.22	13	2	0	2	14
Mean temperature (Tmean), °C	12.88 ± 11.17	16	2	14	23	32
Maximum temperature (Tmax), °C	18.95 ± 11.39	13	8	21	29	42
Minimum temperature (Tmin), °C	7.13 ± 11.34	17	3	8	18	27
1-day temperature range (TR ₁), °C	11.82 ± 4.31	1	9	12	15	26
2-day temperature range (TR ₂), °C	14.27 ± 3.95	2	12	14	17	27
3-day temperature range (TR ₃), °C	15.76 ± 3.73	3	13	16	18	27
Maximum-mean temperature difference (TDmax), °C	6.07 ± 2.23	0	5	6	8	13
Mean-minimum temperature difference (TDmin), °C	5.75 ± 2.15	1	4	6	7	13
Other meteorological variables						
Air Quality Index	123.65 ± 75.17	23	68	104	159	485
Relative humidity, %	53.43 ± 19.86	8	38	53	69	97
Wind speed, m/s	9.29 ± 4.75	3	6	8	11	34
Air pressure, hPa	1016.56 ± 10.17	994	1008	1016	1025	1044

* minimum, ** the 25th, 50th (median) and 75th percentile, respectively, *** maximum

Supplementary Table 3. Exposure-response associations between DTDmean₁ and CRR (95% CI) over 21 days for AMI hospitalization stratified by age and sex.

Percentiles	CRR (95% CI)				
	Overall	<65 years old	≥65 years old	Male	Female
P1(-6°C)	2.73 (1.56, 4.79)	2.40 (1.17, 4.92)	3.04 (1.48, 6.22)	2.46 (1.29, 4.67)	3.04 (1.42, 8.12)
P5(-4°C)	1.95 (1.33, 2.86)	1.69 (1.04, 2.75)	2.20 (1.35, 3.58)	1.82 (1.18, 2.81)	2.27 (1.25, 4.10)
P10(-3°C)	1.65 (1.20, 2.27)	1.45 (0.96, 2.18)	1.83 (1.22, 2.75)	1.57 (1.09, 2.25)	1.83 (1.12, 3.01)
P25(-1°C)	1.20 (1.00, 1.44)	1.15 (0.91, 1.44)	1.25 (0.99, 1.58)	1.19 (0.97, 1.46)	1.24 (0.93, 1.64)
P75(1°C)	1.01 (0.97, 1.05)	1.00 (0.96, 1.06)	1.01 (0.96, 1.06)	1.01 (0.96, 1.05)	1.00 (0.94, 1.07)
P90(3°C)	1.14 (0.99, 1.33)	1.13 (0.93, 1.36)	1.16 (0.96, 1.40)	1.13 (0.96, 1.34)	1.17 (0.93, 1.48)
P95(4°C)	1.47 (1.18, 1.84)	1.42 (1.07, 1.89)	1.51 (1.14, 2.00)	1.44 (1.12, 1.86)	1.52 (1.09, 2.17)
P99(5°C)	2.15 (1.54, 3.01)	2.03 (1.32, 3.12)	2.23 (1.46, 3.42)	2.09 (1.43, 3.07)	2.28 (1.35, 3.83)

CRR, cumulative relative risks; CI, confidence interval

Supplementary Table 4. Exposure-response associations between TR₁ and CRR (95% CI) over 21 days for AMI hospitalization stratified by age and sex.

Percentiles	CRR (95% CI)				
	Overall	<65 years old	≥65 years old	Male	Female
P75(15°C)	1.06 (0.99, 1.14)	1.04 (0.95, 1.13)	1.08 (0.99, 1.18)	1.03 (0.96, 1.12)	1.12 (1.01, 1.25)
P90(17°C)	1.00 (1.00, 1.00)	1.00 (1.00, 1.01)	1.00 (0.99, 1.00)	1.00 (1.00, 1.01)	1.00 (0.99, 1.00)
P95(19°C)	1.12 (1.04, 1.20)	1.17 (1.08, 1.28)	1.07 (0.98, 1.17)	1.14 (1.05, 1.23)	1.08 (0.97, 1.19)
P99(22°C)	2.00 (1.73, 2.85)	2.69 (1.97, 3.68)	1.90 (1.38, 2.60)	2.20 (1.66, 2.91)	2.27 (1.55, 3.32)

CRR, cumulative relative risks; CI, confidence interval

Supplementary Table 5. Exposure-response associations between TDmax and CRR (95% CI) over 21 days for AMI hospitalization stratified by age and sex.

Percentiles	CRR (95% CI)				
	Overall	<65 years old	≥65 years old	Male	Female
P75(8°C)	1.03 (0.98, 1.07)	1.02 (0.97, 1.07)	1.03 (0.98, 1.09)	1.01 (0.96, 1.06)	1.06 (1.00, 1.13)
P90(9°C)	1.01 (0.99, 1.04)	1.02 (0.99, 1.05)	1.00 (0.97, 1.03)	1.02 (0.99, 1.05)	0.99 (0.95, 1.03)
P95(10°C)	1.18 (1.09, 1.29)	1.26 (1.13, 1.40)	1.12 (1.01, 1.25)	1.21 (1.10, 1.33)	1.14 (1.00, 1.29)
P99(11°C)	1.71 (1.40, 2.09)	2.01 (1.56, 2.59)	1.49 (1.15, 1.92)	1.71 (1.36, 2.15)	1.70 (1.25, 2.32)

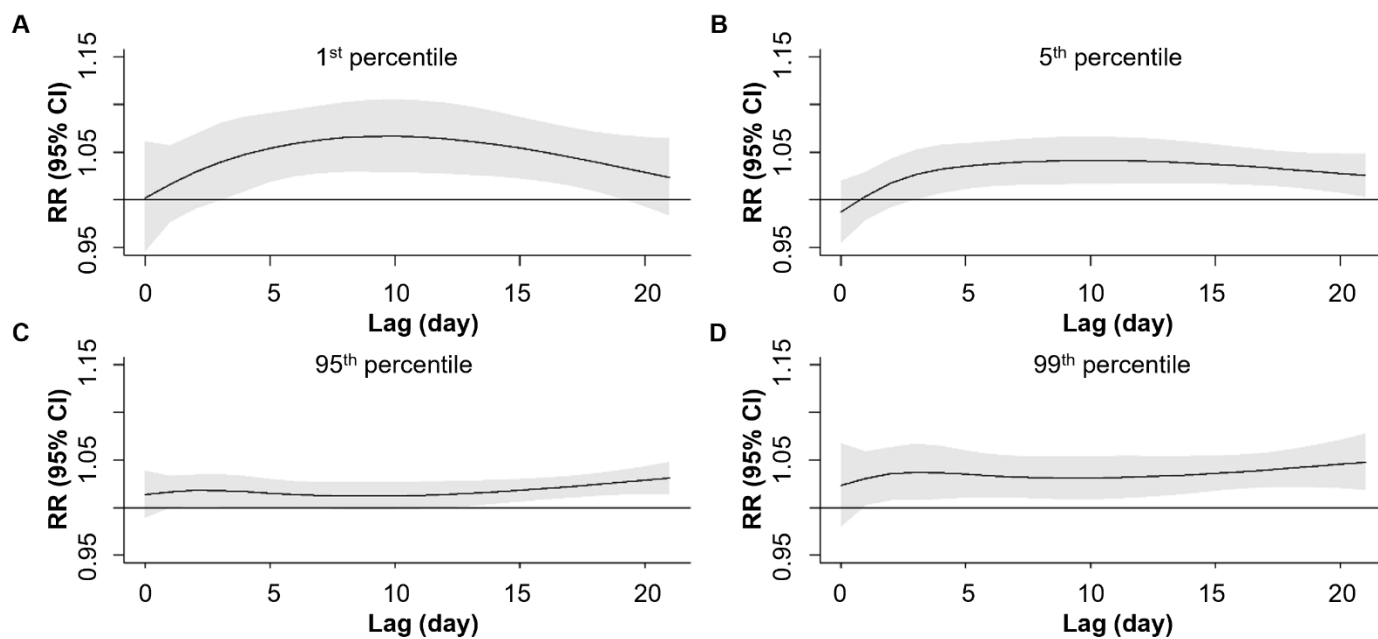
CRR, cumulative relative risks; CI, confidence interval

Supplementary Table 6. Exposure-response associations between TDmin and CRR (95% CI) over 21 days for AMI hospitalization stratified by age and sex.

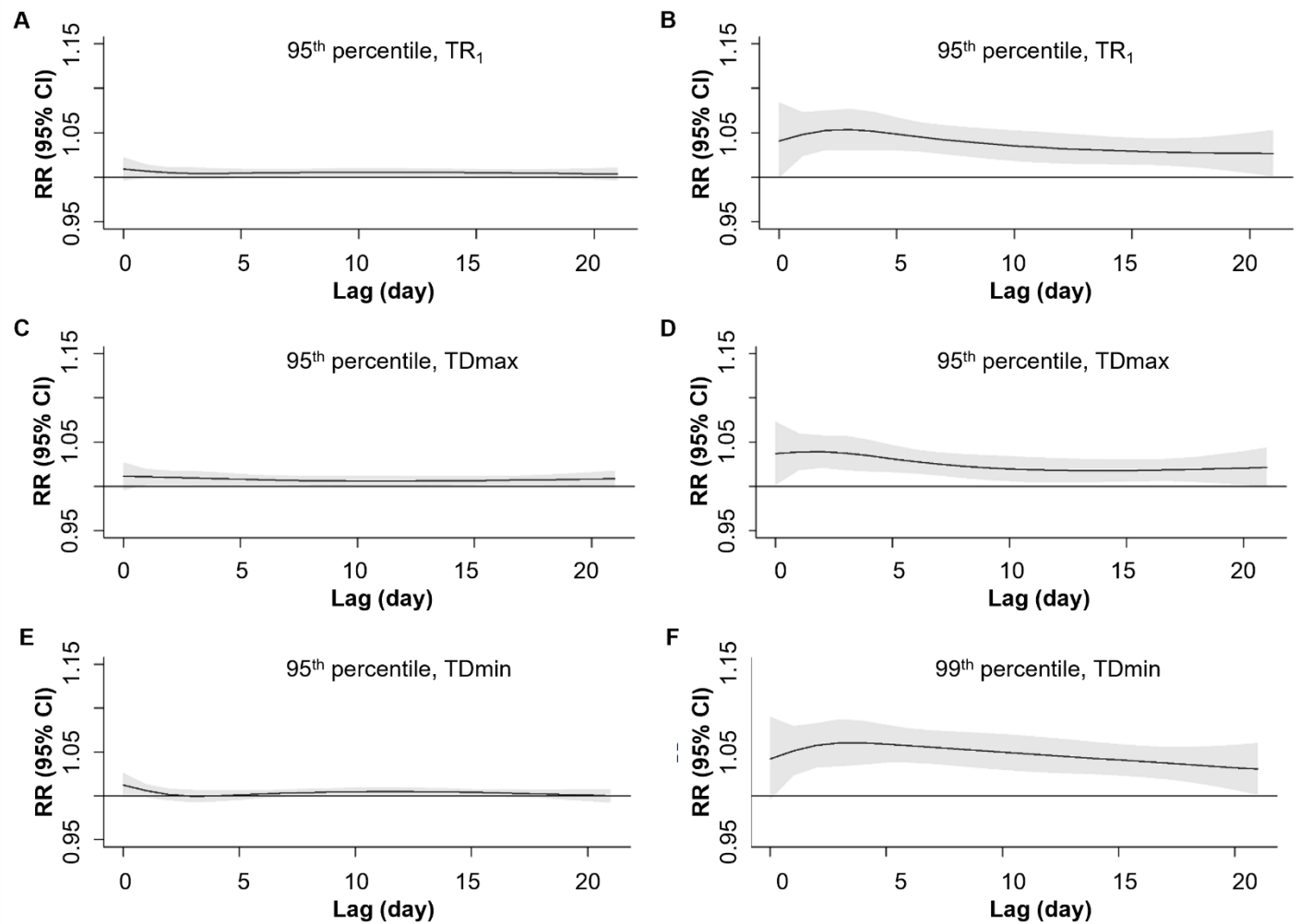
Percentiles	CRR (95% CI)				
	Overall	<65 years old	≥65 years old	Male	Female
P75(7°C)	1.06 (0.99, 1.14)	1.03 (0.95, 1.13)	1.09 (1.00, 1.19)	1.04 (0.96, 1.13)	1.11 (0.99, 1.23)
P90(9°C)	1.07 (1.00, 1.15)	1.11 (1.02, 1.21)	1.04 (0.96, 1.14)	1.09 (1.01, 1.18)	1.04 (0.94, 1.16)
P95(9°C)	1.07 (1.00, 1.15)	1.11 (1.02, 1.21)	1.04 (0.96, 1.14)	1.09 (1.01, 1.18)	1.04 (0.94, 1.16)
P99(11°C)	2.73 (2.04, 3.66)	3.36 (2.32, 4.87)	2.29 (1.58, 3.33)	2.73 (1.96, 3.80)	2.74 (1.74, 4.31)

CRR, cumulative relative risks; CI, confidence interval

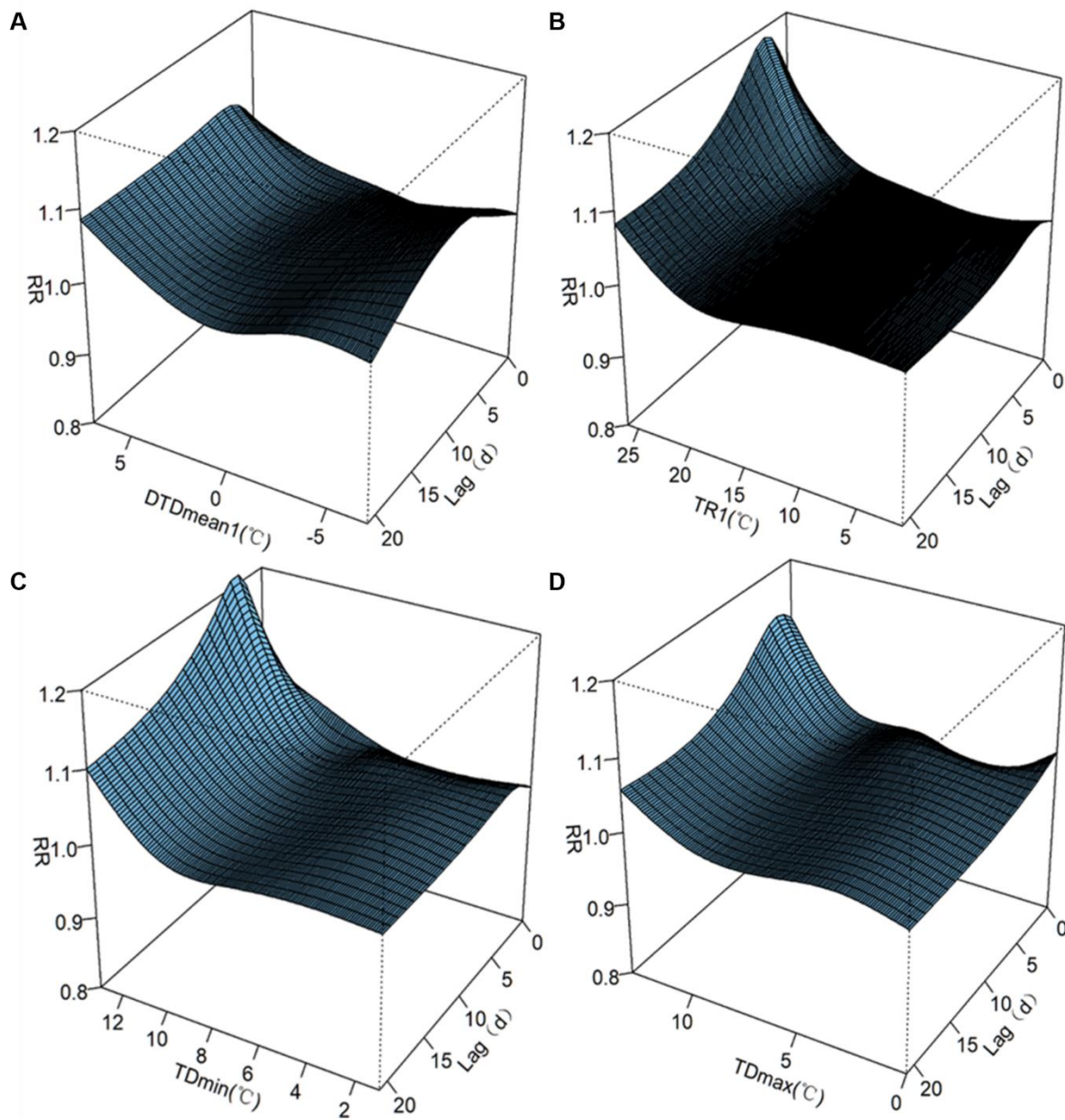
2 Supplementary Figures



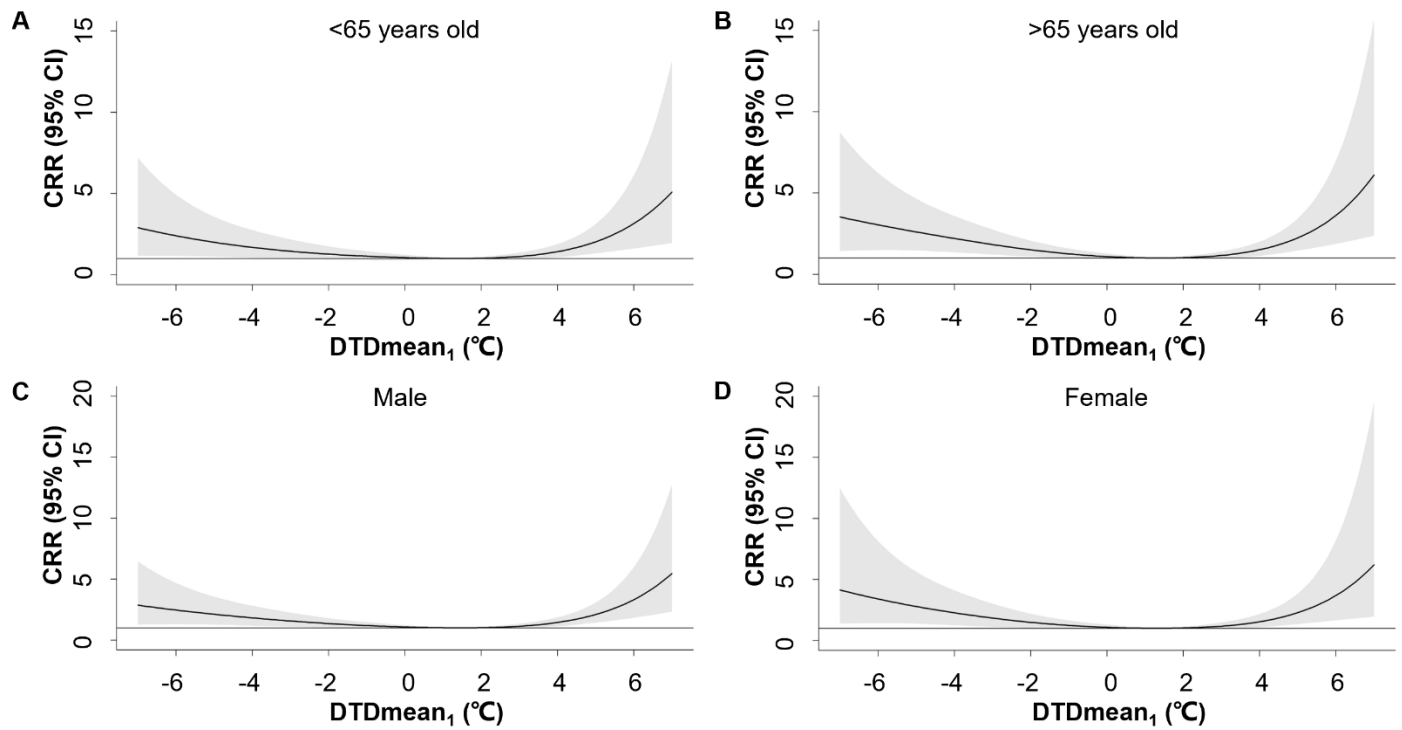
Supplementary Figure 1. Lag-response curves for neighboring-day mean temperature difference (DTDmean₁) at 1st, 5th, 95th and 99th percentile. Shaded areas represent 95% confidence intervals for relative risks (RR).



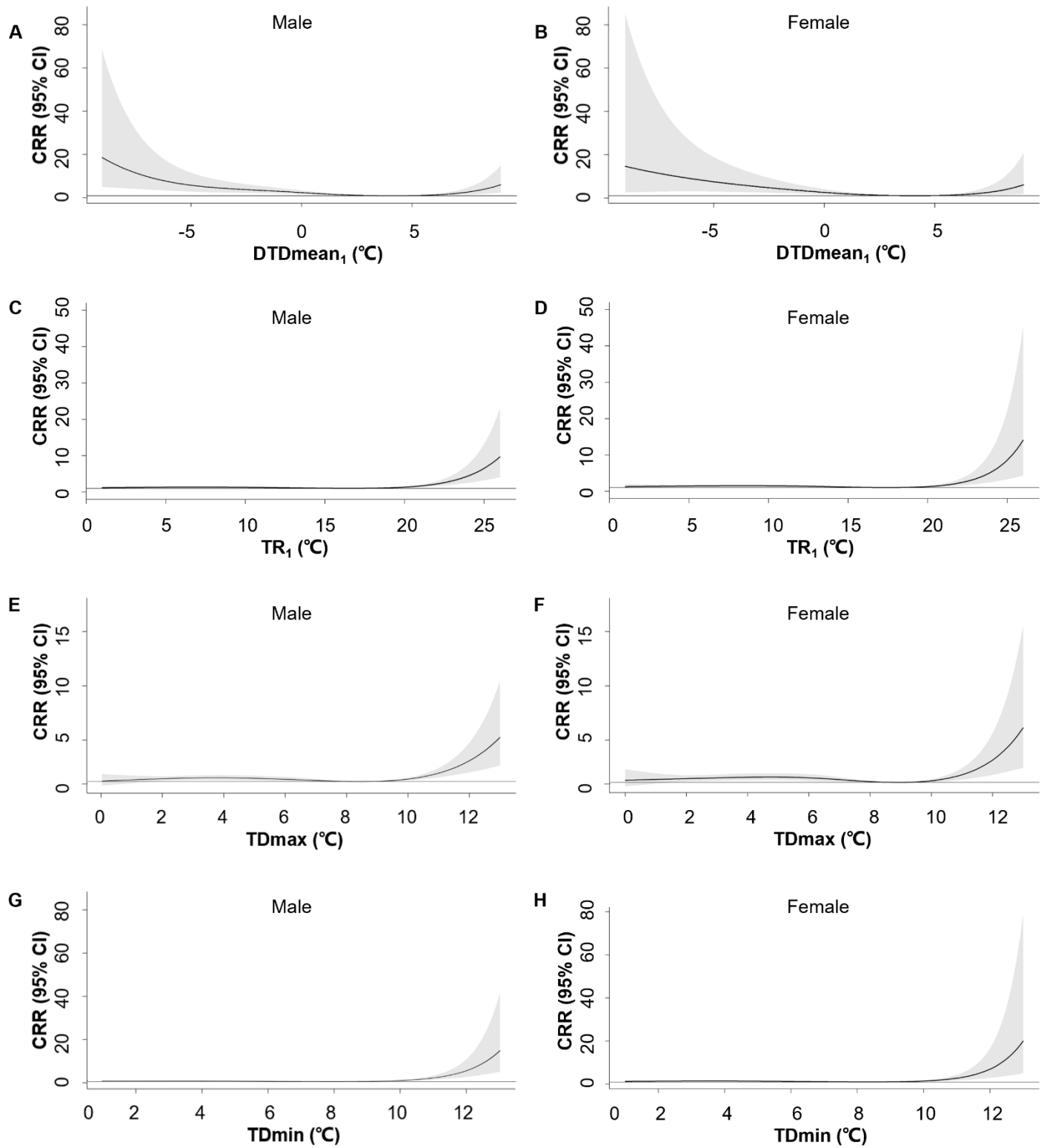
Supplementary Figure 2. Lag-response curves for 1-day temperature range (TR_1 , A and B), maximum-mean temperature difference (TDmax, C and D) and mean-minimum temperature difference (TDmin, E and F) at the 95th and 99th percentile. Shaded areas represent 95% CI for relative risks (RR).



Supplementary Figure 3. 3D mapping of the association between relative risk AMI hospitalization and neighboring-day mean temperature difference (DTD_{mean1} , A), 1-day temperature range ($TR1$, B), Maximum-mean temperature difference ($TDmax$, C) and Mean-minimum temperature difference ($TDmin$, D) over the 21-day lag period.



Supplementary Figure 4. Exposure-response associations between neighboring-day mean temperature difference (DTDmean₁) and cumulative relative risks (CRR) for AMI hospitalization stratified by age (A, B) and sex (C, D). Shaded areas represent 95% CI.



Supplementary Figure 5. Exposure-response associations between DTDmean₁ (A, B), TR₁ (C, D), TDmax (E, F), TDmin (G, H) and CRR (shaded 95% CI) for AMI hospitalization stratified by gender.