Supplemental Materials

Seasonal variations of temperature-related mortality burden from cardiovascular disease and myocardial infarction in China.

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Table A1

The monthly mean temperature (^{o}C) in the nine Chinese cities.

City	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beijing	-3.6	0.2	6.7	14.6	21.9	25.1	27.4	26.4	21.1	14.2	5.4	-1.3
Tianjin	-4.2	-0.3	6.3	14.2	21.6	25	27.2	26.2	21	14.2	5.3	-1.7
Shanghai	4.2	6.7	10.3	15.7	21.7	24.6	29.6	28.9	25	20.1	13.7	7.3
Nanjing	2.4	5.4	10.1	16.1	22.2	24.9	28.8	28.4	23.6	18.4	11.4	5.1
Hefei	2.1	4.9	10.5	17.9	22.6	25.7	29.7	28.8	23.1	18.2	11.8	3.6
Chengdu	4.9	7.9	12.3	17	21	23.7	25.3	25.4	21.6	17.3	12.1	6.9
Wuhan	3.1	6.4	10.6	17.4	22	26.2	29.5	28.2	23.6	18.2	11	5.1
Hangzhou	4.2	7.1	11.3	16.9	22.7	25.1	30.4	29.4	24.9	19.5	13.1	6.8
Guangzhou	11.4	15.3	17.6	22.1	25.7	27.7	28	28.1	26.4	23	19.8	13.4

Table A2

Seasonal temperature-related attributable number due to mortality from cardiovascualr disease in the nine Chinese cities.

City	Spring	Summer	Autumn	Winter
Beijing	12707(7203-17749)	5690(4021-7365)	10070(5434-14275)	26307(16671-34258)
Tianjin	10730(3281-16854)	3332(1175-5379)	7140(1549-11856)	21271(9002-31102)
Nanjing	8199(4932-10793)	1995(724-3175)	4761(2141-7100)	16827(12816-19953)
Shanghai	2625(-941-5717)	1110(-207-2300)	604(-1575-2429)	6331(984-10855)
Hefei	3446(249-5693)	1095(-343-2239)	1855(-849-3904)	7471(3777-9858)
Chengdu	2956(-3653-8215)	484(-3671-4125)	1279(-4371-5954)	11474(3669-17572)
Wuhan	1526(276-2406)	410(-178-887)	1325(134-2213)	3041(1261-4133)
Hangzhou	1063(-553-2163)	178(-328-581)	417(-698-1286)	2666(656-3958)
Guangzhou	3569(1263-5359)	1628(242-2801)	1883(199-3286)	8052(5638-9849)
Overall	46821(12057-74949)	15923(1436-28853)	29333(1963-52304)	103439(54475-141537)

Table A3

Seasonal temperature-related attributable number due to mortality from myocardial infarction in the nine Chinese cities.

City	Spring	Summer	Autumn	Winter
Beijing	3850(1351-5737)	1374(631-2098)	3585(1597-5162)	7217(2736-10482)
Tianjin	2710(-896-5332)	1062(120-1917)	1637(-1159-3824)	6807(1318-10904)
Nanjing	1061(-106-1787)	487(97-791)	778(-145-1421)	2033(511-2827)
Shanghai	730(-232-1308)	82(-330-405)	281(-299-703)	1094(-406-1936)
Hefei	573(-473-1051)	234(-211-549)	333(-754-863)	1331(167-1738)
Chengdu	1243(-460-2333)	712(-615-1559)	986(-703-2061)	2533(185-3912)
Wuhan	392(-193-632)	215(-29-377)	405(-161-667)	820(198-1034)
Hangzhou	356(-296-617)	98(-125-242)	261(-178-495)	652(-170-928)
Guangzhou	1162(394-1637)	682(137-1077)	757(118-1192)	2126(1352-2518)
Overall	12077(-911-20433)	4946(-325-9016)	9022(-1683-16389)	24613(5891-36279)

Table A4

Sensitivity analyses of calculating temperature-related attributable fraction (%, 95% empirical CI) due to death from cardiovascular disease by changing location of knots of exposure-response relationship, maximum lag for mean temperature and degrees of freedom (df) for covariates.

Model choices	Spring	Summer	Autumn	Winter
Knots for exposure-response: 10^{th}, 50^{th} and 75^{th}	20.18(6.8-31.2)	6.96(1.73-11.67)	12.78(2.26-21.51)	36.36(20.68-48.77)
Knots for exposure-response: 25^{th}, 75^{th} and 90^{th}	19.91(5.33-31.45)	6.97(-0.1-13.18)	13.27(1.29-23.24)	34.57(17.55-47.76)
Lag period: 14 days	14.33(3.97-23.24)	8.26(3.76-12.43)	9.28(0.68-17.03)	29.01(15.65-40.13)
Lag period: 28 days	21.02(3.05-34.97)	9.86(0.87-17.53)	14.7(1.09-25.89)	35.61(14.57-50.95)
Df for year:6	13.06(1.63-22.7)	6.45(0.97-11.36)	6.74(-2.64-14.74)	33.01(18.96-44.05)
Df for year: 10	12.56(-4.84-26.53)	7.39(-0.11-14.07)	7.29(-6.5-18.57)	24.92(2.89-41.55)
Df for relative humidity: 4	19.29(4.94-30.85)	7.72(0.75-14.01)	12.43(0.65-22.27)	34.99(18-47.9)
Df for relative humidity: 6	19.25(4.92-30.86)	7.75(0.52-14.1)	12.42(0.72-22.3)	34.93(18.34-48.06)
Df for air pressure: 4	19.39(4.95-31.1)	7.86(0.73-14.27)	12.53(0.78-22.57)	35.07(18.39-48.12)
Df for air pressure: 6	19.37(5.23-31.17)	7.86(0.78-14.02)	12.5(0.61-22.34)	35.05(18.5-48.22)

Table A5

Sensitivity analyses of calculating temperature-related attributable fraction (%, 95% empirical CI) due to death from myocardial infarction by changing location of knots of exposure-response relationship, maximum lag for mean temperature and degrees of freedom (df) for covariates.

Model choices	Spring	Summer	Autumn	Winter
Knots for exposure-response: 10^{th}, 50^{th} and 75^{th}	23.69(-5.12-42.43)	6.73(-5.81-16.16)	16.83(-5.98-32.73)	41.91(8.03-61.89)
Knots for exposure-response: 25^{th}, 75^{th} and 90^{th}	26.62(-2.36-45.04)	11.12(-2.37-21.2)	20.56(-3.64-36.64)	41.3(8.21-61.59)
Lag period: 14 days	16.62(-5.28-32.64)	9.14(-0.34-17.21)	13.05(-5.17-27.02)	31.57(2.11-51.1)
Lag period: 28 days	32.84(-2.61-53.16)	13.27(-5-26.29)	23.97(-2.87-41.22)	48.21(8.08-69.26)
Df for year:6	17.48(-4.78-33.23)	8.84(-2.3-17.89)	11.01(-7.61-24.31)	39.93(13.38-57.22)
Df for year: 10	8.91(-30.3-34.76)	9.04(-6.79-21.22)	5.24(-25.66-26.54)	24.59(-27.63-53.14)
Df for relative humidity: 4	25.85(-2.03-44.1)	12.53(-0.8-22.97)	19.43(-3.22-35.44)	42.42(8.09-61.78)
Df for relative humidity: 6	25.91(-1.86-44.21)	12.7(-0.6-23.08)	19.58(-3.64-35.51)	42.44(9.93-62.44)
Df for air pressure: 4	26.16(-1.52-44.55)	12.78(-0.71-23.23)	19.74(-3.39-35.64)	42.56(9.43-62.65)
Df for air pressure: 6	26.14(-1.39-44.6)	12.55(-0.85-23.02)	19.63(-3.26-35.79)	42.83(10.34-62.88)

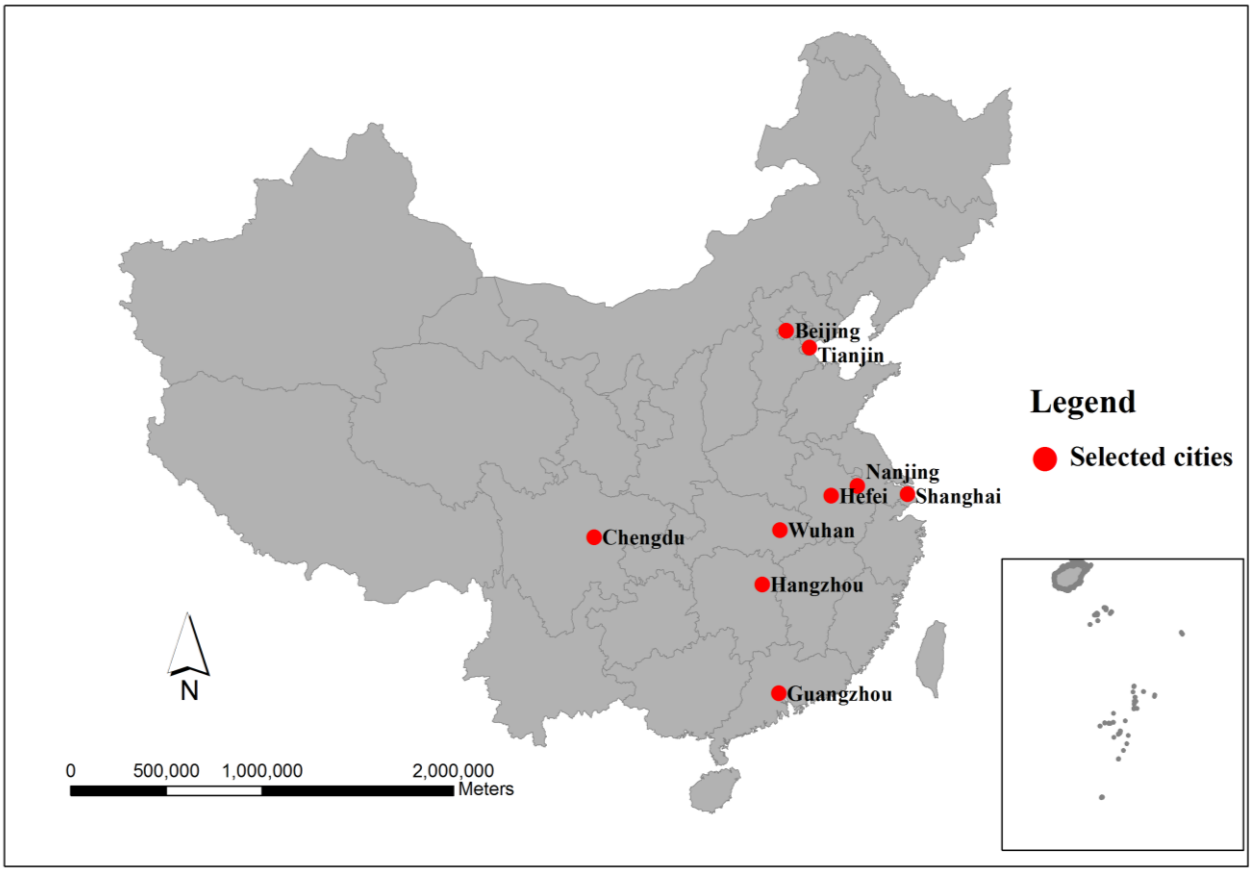

Fig. A1. The locations of nine Chinese cities in this study.

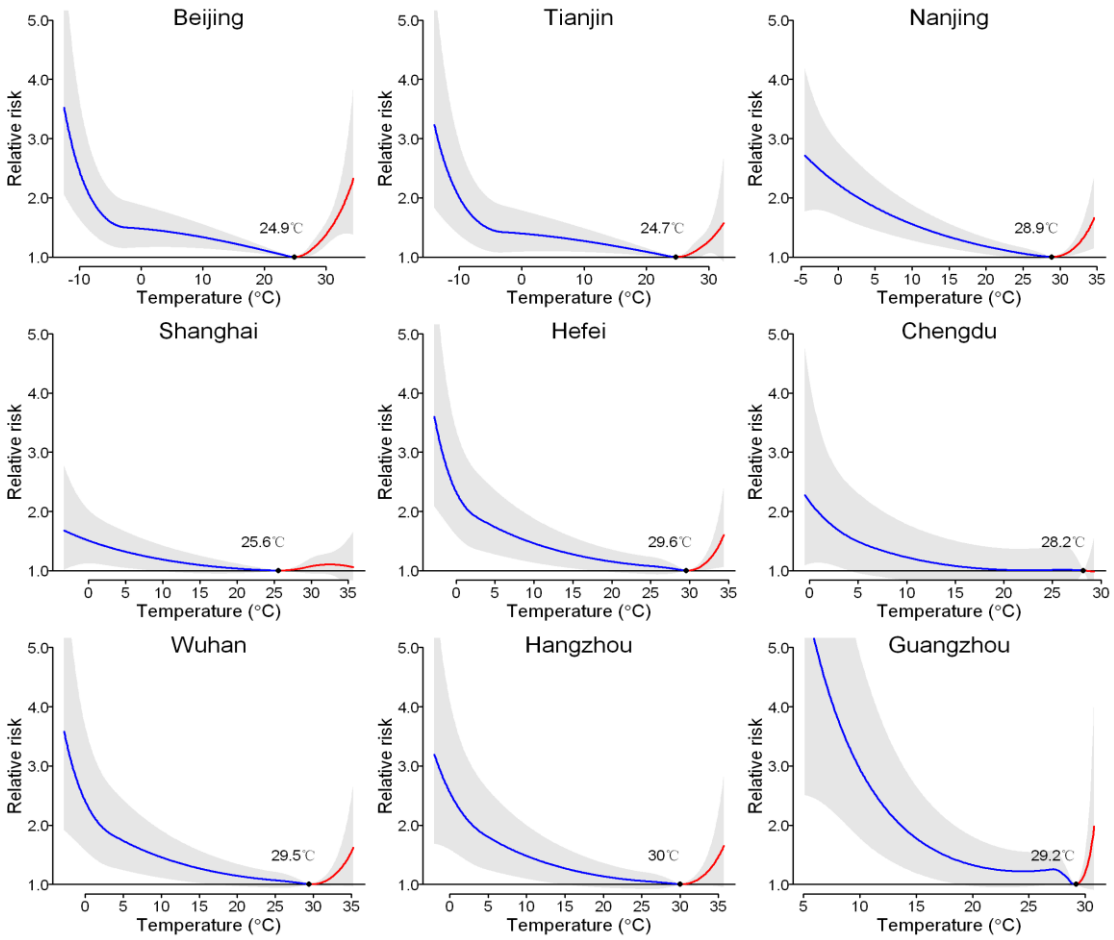

Fig. A2. Overall cumulative association between mean temperature and cardiovascular mortality across lag 0-21 days (with 95% empirical CI, shaded grey) in the nine Chinese cities. The dark points are minimum-mortality temperatures. The blue and red lines represent the exposure-response below (cold) and above (hot) the minimum-mortality temperatures.

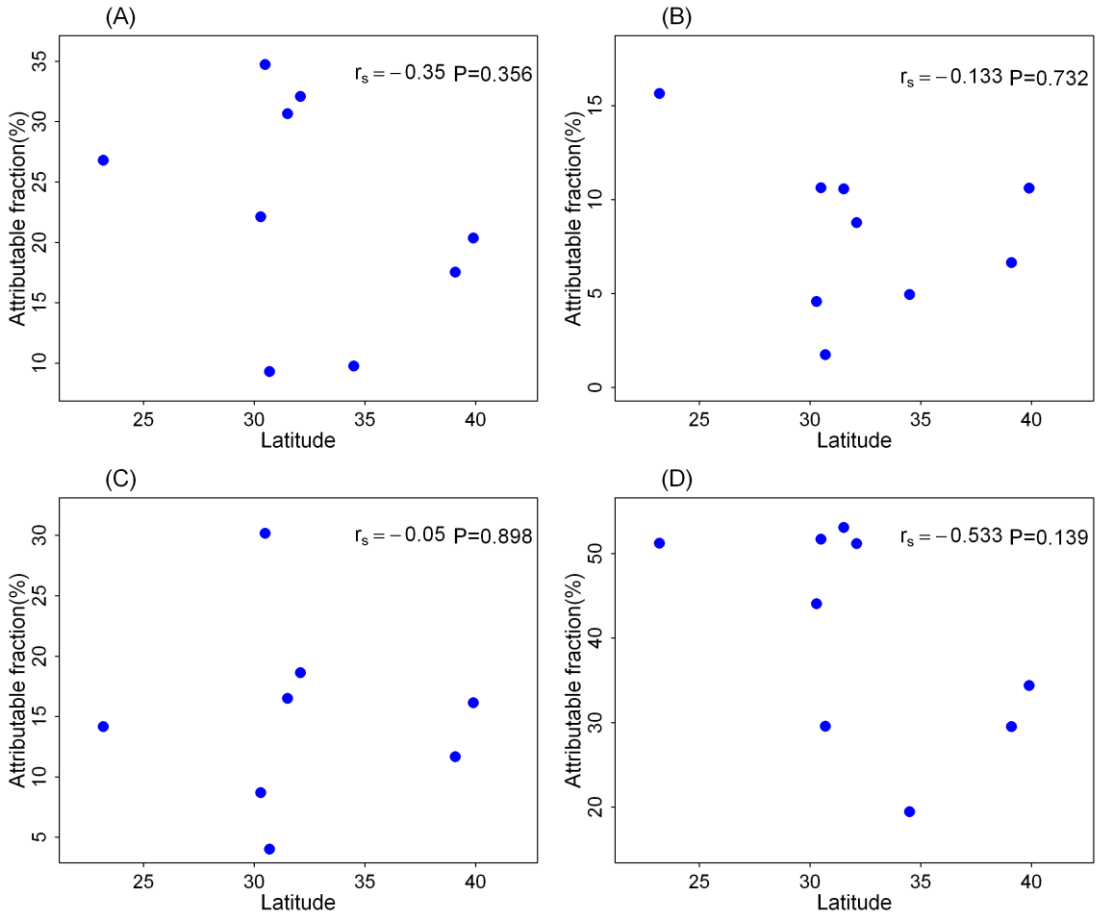

Fig. A3. The association of seasonal temperature-related attributable fraction (%) from cardiovascular mortality and latitude in the nine Chinese cities. (A)-spring, (B)-summer, (C)-autumn and (D)-winter. Spearman's correlation coefficient (r_s) and significant test result (P-value) were presented.

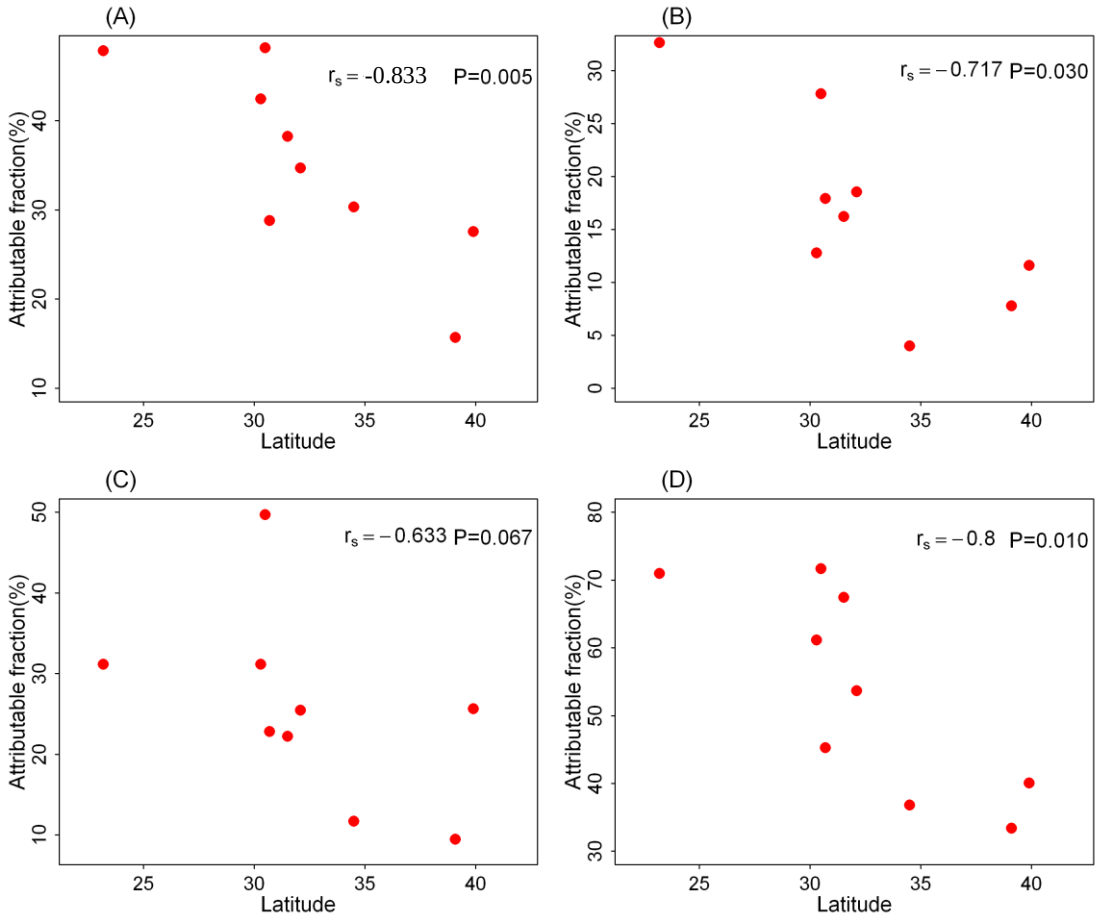

Fig. A4. The association of seasonal temperature-related attributable fraction (%) from mortality due to myocardial infarction and latitude in the nine Chinese cities. (A)-spring, (B)-summer, (C)-autumn and (D)-winter. Spearman's correlation coefficient (r_s) and significant test result (P-value) were presented.