

Supplemental materials

Table S1. Descriptive statistics for weather conditions, 2009–2016.

	Min	25 th	Median	75 th	Max	Mean (SD)
Mean temperature (°C)	-3.3	12.3	17.0	20.2	25.6	16.1±4.9
Relative humidity (%)	25.0	58.0	71.0	78.0	95.0	67.3±14.7
Atmospheric pressure (hPa)	802.7	807.9	810.1	812.5	822.2	810.3±3.2
Wind speed (m/s)	0.5	1.9	2.5	3.2	8.6	2.7±1.1
Sunshine duration (h)	0	3.1	7.6	9.9	12.9	6.5±3.9

Table S2. Attributable number of non-accidental deaths and specific categories due to daily mean temperature, computed as total and as separated components for cold and heat temperatures over lag 0–28 days in Yuxi, China.

	Total	Cold	Heat
Total non-accidental	4131 (2306, 5937)	3482 (552, 5980)	652 (-2049, 3185)
Cause-specific			
Cardiovascular	2419 (2622, 7476)	2489 (629, 4141)	-68 (-2019, 1701)
Heart	912 (446, 8413)	1112 (-98, 2200)	-199 (-1456, 918)
Stroke	1417 (2055, 8814)	1306 (104, 2634)	113 (-1178, 1283)
Respiratory	854 (-428, 8228)	540 (-846, 1689)	314 (-822, 1190)
Age, years			
≤64	414 (-2421, 5413)	359 (-976, 1580)	55 (-1384, 1237)
65-74	470 (-2366, 5715)	679 (-764, 1853)	-209 (-1543, 953)
≥75	3137 (3094, 7816)	2431 (102, 4392)	710 (-1135, 2532)
Gender			
Male	1977 (818, 5961)	1706 (-395, 3697)	273 (-1668, 2048)
Female	2181 (1691, 7074)	1802 (-59, 3390)	380 (-1355, 1919)
Occupation			
Farmer	3752 (2730, 6784)	3225 (801, 5403)	530 (-1799, 2580)
Non-farmer	364 (-2842, 5120)	242 (-1320, 1486)	124 (-1293, 1350)
Ethnic			
Han nationality	3243 (2237, 6688)	1624 (-972, 4023)	1618 (-622, 3621)
Ethnic minorities	649 (-1165, 5773)	1685 (332, 2934)	-1037 (-2677, 488)
Marital status			
Married	2262 (1118, 5804)	1402 (-833, 3564)	860 (-1201, 2875)
Non-married	1843 (1892, 7386)	2042 (334, 3527)	-197 (-1963, 1218)

Results are expressed as attributable number (95% empirical confidence interval), and the bold indicates a statistically significant.

Table S3. Mortality number attributable to extreme and mild cold and mild and extreme heat by specific causes and individual characteristics

	Extreme cold	Mild cold	Mild heat	Extreme heat
Total non-accidental	1054 (604, 1530)	2556 (-117, 5016)	554 (-1930, 2984)	108 (-199, 395)
Cause-specific				
Cardiovascular	657 (331, 946)	1942 (183, 3532)	-84 (-1803, 1505)	15 (-191, 217)
Heart	264 (72, 445)	892 (-146, 1896)	-190 (-1385, 830)	-13 (-154, 109)
Stroke	368 (136, 600)	997 (-345, 2170)	87 (-1095, 1183)	28 (-129, 169)
Respiratory	223 (-30, 434)	337 (-1005, 1413)	277 (-643, 1006)	42 (-89, 161)
Age, years				
≤64	101 (-135, 308)	265 (-1039, 1292)	46 (-1121, 1094)	10 (-135, 149)
65-74	140 (-75, 331)	554 (-685, 1578)	-192 (-1434, 971)	-20 (-181, 116)
≥75	814 (431, 1152)	1732 (-123, 3465)	612 (-1103, 2097)	110 (-99, 313)
Gender				
Male	503 (118, 851)	1257 (-681, 3097)	229 (-1651, 1917)	47 (-153, 264)
Female	556 (238, 882)	1321 (-483, 2860)	325 (-1203, 1755)	61 (-134, 248)
Occupation				
Farmer	977 (564, 1376)	2382 (27, 4440)	446 (-1638, 2333)	92 (-173, 349)
Non-farmer	83 (-125, 295)	158 (-1263, 1389)	109 (-1137, 1255)	16 (-128, 158)
Ethnic				
Han nationality	772 (364, 1191)	918 (-1565, 3045)	1440 (-488, 3387)	209 (-57, 433)
Ethnic minorities	274 (-1, 500)	1462 (162, 2576)	-941 (-2416, 330)	-104 (-277, 62)
Marital status				
Married	544 (165, 908)	908 (-1292, 2815)	759 (-995, 2607)	117 (-125, 344)
Non-married	509 (219, 781)	1615 (4, 3017)	-192 (-1730, 1143)	-7 (-198, 158)

Results are expressed as attributable number (95% empirical confidence interval), and the bold indicates a statistically significant.

Table S4 Sensitivity analyses to calculate the fraction (%) with 95% empirical confidence interval attributable to temperature by changing maximum lag for mean temperature and degrees of freedom (*df*) for covariates

Model choices	Total	Cold	Heat
Lag period, days			
7	2.85 (1.62, 3.99)	0.97 (-1.16, 2.98)	1.88 (0.32, 3.31)
14	4.15 (2.78, 5.52)	2.90 (0.59, 5.15)	1.25 (-0.48, 2.93)
21	3.57 (1.51, 5.31)	3.10 (0.25, 5.76)	0.47 (-1.99, 2.89)
Df for time per year			
5	4.69 (3.10, 6.15)	4.19 (1.18, 6.73)	0.51 (-1.66, 2.81)
6	5.94 (4.07, 7.53)	4.96 (2.18, 7.72)	0.98 (-1.68, 3.49)
8	3.82 (0.92, 6.42)	4.72 (1.23, 8.07)	-0.90 (-4.31, 2.26)
9	5.07 (2.15, 7.75)	4.59 (0.57, 8.16)	0.48 (-2.98, 3.75)
Df for relative humidity			
2	4.64 (2.21, 6.83)	4.07 (0.84, 7.28)	0.57 (-2.70, 3.56)
4	4.74 (2.31, 6.88)	4.05 (0.56, 7.26)	0.69 (-2.15, 3.83)
5	4.79 (2.55, 6.92)	4.20 (1.06, 7.20)	0.60 (-2.76, 3.36)
Df for sunshine duration			
2	4.71 (2.27, 6.84)	4.18 (0.88, 7.35)	0.54 (-2.89, 3.51)
4	4.75 (2.39, 6.95)	4.08 (0.92, 7.03)	0.67 (-2.51, 3.65)
5	4.78 (2.44, 6.90)	4.13 (0.69, 7.45)	0.65 (-2.40, 3.63)
Df for atmospheric pressure			
2	4.76 (2.24, 6.87)	4.15 (0.76, 7.00)	0.62 (-2.69, 3.49)
4	4.75 (2.21, 6.97)	4.09 (0.39, 6.95)	0.67 (-2.49, 3.76)
5	4.79 (2.38, 6.95)	4.02 (1.01, 7.08)	0.77 (-2.30, 3.98)
Df for wind speed			
2	4.79 (2.26, 6.90)	4.02 (0.47, 6.88)	0.78 (-2.34, 3.52)
4	4.68 (2.34, 6.78)	4.02 (0.60, 7.07)	0.67 (-2.48, 3.68)
5	4.66 (2.31, 6.85)	4.04 (0.90, 6.94)	0.62 (-2.56, 3.75)

Results are expressed as attributable fractions (95% empirical confidence intervals), and the bold indicates a statistically significant.

Table S5. Attributable fraction (%) of total non-accidental mortality and by specific causes and individual characteristics due to daily mean temperature and cold and heat over lag 0-28 days with minimum mortality temperature (MMT) as the referent temperature.

	Total death	MMT	Total(%)	Cold(%)	Heat(%)
Total non-accident	89,467	16.7	4.66 (2.26, 6.85)	3.93 (0.60, 7.01)	0.73 (-2.69, 3.88)
Cause-specific					
Cardiovascular	41,794	19.7	6.57 (-1.01, 12.97)	6.42 (1.82, 9.37)	0.15 (-1.40, 1.62)
Heart	17,793	24.7	8.76 (-33.20, 36.26)	8.76 (0.35, 9.26)	0 (0, 0)
Stroke	22,589	17.7	6.48 (1.76, 10.02)	5.92 (-0.45, 11.17)	0.57 (-4.22, 4.94)
Respiratory	16,565	14.7	5.89 (-3.58, 13.34)	3.67 (-4.89, 10.02)	2.23 (-8.88, 11.19)
Age, years					
≤64	21,678	17.7	1.94 (-2.77, 5.73)	1.68 (-4.87, 7.06)	0.26 (-4.83, 4.96)
65-74	20,072	24.7	6.84 (-30.05, 32.26)	6.84 (-2.53, 6.33)	0 (0, 0)
≥75	47,717	16.7	6.72 (3.60, 9.47)	5.19 (0.65, 9.20)	1.54 (-2.87, 5.51)
Gender					
Male	48,939	17.7	4.08 (0.77, 6.75)	3.52 (-0.97, 7.46)	0.56 (-2.85, 3.73)
Female	40,528	16.7	5.44 (2.04, 8.43)	4.5 (-0.18, 8.73)	0.95 (-3.72, 5.23)
Occupation					
Farmer	68,278	16.7	5.52 (2.95, 7.90)	4.75 (1.10, 8.10)	0.77 (-2.93, 4.18)
Nonfarmer	21,189	15.7	1.87 (-5.49, 7.85)	1.22 (-5.80, 7.16)	0.66 (-8.75, 8.56)
Ethnic					
Han nationality	63,275	14.7	6.49 (1.48, 10.89)	3.24 (-1.29, 6.30)	3.25 (-2.54, 8.50)
Ethnic minorities	26,192	24.7	19.55 (-7.14, 38.61)	19.55 (-1.87, 6.2)	0 (0, 0)
Married status					
Married	54,971	15.7	4.60 (0.53, 8.18)	2.80 (-1.59, 6.48)	1.80 (-3.55, 6.54)
Unmarried	34,496	20.7	6.89 (-4.51, 16.26)	6.86 (1.89, 8.74)	0.03 (-0.77, 0.81)

Results are expressed as attributable fractions (95% empirical confidence intervals), and the bold indicates a statistically significant.

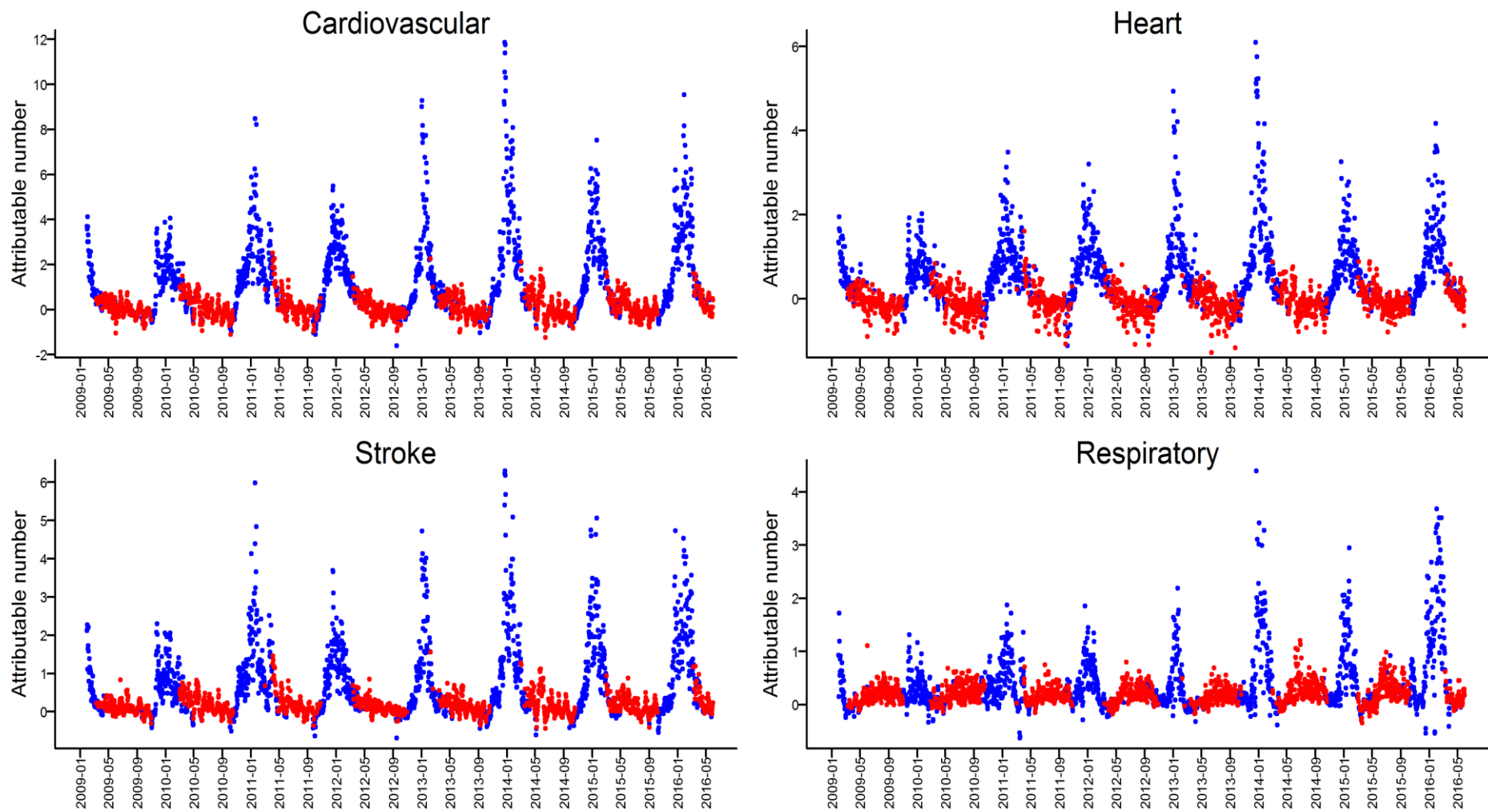


Figure S1. Daily number of cardiovascular, heart, stroke and respiratory deaths attributable to cold (blue points) and heat (red points) temperatures.