

Table S1: Relationship between different mean temperature interval and mortality

Lag days	1 °C interval	3 °C interval	5 °C interval
	RR (95% CI)	RR (95% CI)	RR (95% CI)
CVD			
0	1.052 (1.021 to 1.084)	1.062 (0.994 to 1.134)	—
0–1	1.040 (1.024 to 1.057)	1.062 (1.023 to 1.103)	1.097 (0.880 to 1.368)
0–2	1.026 (1.015 to 1.038)	1.042 (1.014 to 1.071)	—
0–3	1.015 (1.004 to 1.025)	1.029 (1.003 to 1.057)	1.106 (0.934 to 1.309)
0–4	1.009 (1.001 to 1.018)	1.025 (1.003 to 1.048)	1.063 (0.919 to 1.230)
0–5	1.006 (0.998 to 1.013)	1.015 (0.996 to 1.035)	1.046 (0.918 to 1.193)
0–6	1.004 (0.997 to 1.011)	1.012 (0.994 to 1.030)	1.038 (0.923 to 1.169)
0–7	1.005 (0.998 to 1.011)	1.011 (0.995 to 1.028)	1.038 (0.930 to 1.158)
CBD			
0	1.068 (1.037 to 1.100)	1.096 (1.027 to 1.170)	—
0–1	1.056 (1.040 to 1.073)	1.090 (1.050 to 1.131)	1.196 (0.967 to 1.480)
0–2	1.040 (1.029 to 1.052)	1.076 (1.047 to 1.105)	1.201 (1.016 to 1.418)
0–3	1.026 (1.016 to 1.037)	1.058 (1.031 to 1.086)	1.107 (0.934 to 1.313)
0–4	1.018 (1.009 to 1.026)	1.038 (1.015 to 1.062)	1.036 (0.889 to 1.206)
0–5	1.012 (1.004 to 1.020)	1.026 (1.006 to 1.047)	1.083 (0.946 to 1.240)
0–6	1.008 (1.001 to 1.015)	1.024 (1.005 to 1.042)	1.038 (0.921 to 1.170)
0–7	1.004 (0.998 to 1.010)	1.015 (0.999 to 1.033)	1.031 (0.921 to 1.153)
CCVD			
0	1.060 (1.038 to 1.082)	1.077 (1.028 to 1.128)	—
0–1	1.048 (1.037 to 1.060)	1.076 (1.048 to 1.104)	1.144 (0.982 to 1.334)
0–2	1.033 (1.025 to 1.041)	1.059 (1.038 to 1.079)	1.170 (1.039 to 1.318)
0–3	1.020 (1.013 to 1.028)	1.043 (1.024 to 1.063)	1.107 (0.982 to 1.248)
0–4	1.014 (1.008 to 1.020)	1.031 (1.015 to 1.048)	1.049 (0.944 to 1.166)
0–5	1.009 (1.003 to 1.014)	1.020 (1.006 to 1.035)	1.062 (0.967 to 1.166)
0–6	1.006 (1.001 to 1.011)	1.017 (1.004 to 1.030)	1.038 (0.954 to 1.129)
0–7	1.004 (0.999 to 1.009)	1.013 (1.002 to 1.025)	1.034 (0.956 to 1.119)

Abbreviations:

CVD cardiovascular disease

CBD cerebrovascular disease

ACVD acute cardiovascular disease

ACBD acute cerebrovascular disease

CVDM cardiovascular disease mortality

CBDM cerebrovascular disease mortality

CCVDM cardio-cerebrovascular disease mortality, including CVDM and CBDM

ACVDM acute cardiovascular disease mortality

ACBDM acute cerebrovascular disease mortality

ACCVDM acute cardio-cerebrovascular disease mortality, including ACVDM and ACBDM

Table S2: Relationship between different mean temperature interval and acute mortality

Lag days	1 °C interval RR (95% CI)	3 °C interval RR (95% CI)	5 °C interval RR (95% CI)
ACVD			
0	1.064 (1.018 to 1.111)	1.131 (1.027 to 1.245)	—
0–1	1.048 (1.023 to 1.074)	1.099 (1.040 to 1.161)	1.235 (0.893 to 1.709)
0–2	1.029 (1.012 to 1.047)	1.060 (1.018 to 1.105)	1.183 (0.913 to 1.533)
0–3	1.011 (0.994 to 1.027)	1.025 (0.984 to 1.067)	1.078 (0.824 to 1.409)
0–4	1.003 (0.990 to 1.017)	1.016 (0.982 to 1.051)	—
0–5	0.998 (0.987 to 1.010)	1.010 (0.980 to 1.041)	1.012 (0.823 to 1.244)
0–6	0.998 (0.987 to 1.008)	1.008 (0.981 to 1.036)	1.003 (0.833 to 1.207)
ACBD			
0	1.056 (1.023 to 1.090)	1.079 (1.004 to 1.158)	—
0–1	1.050 (1.032 to 1.068)	1.078 (1.035 to 1.123)	1.192 (0.942 to 1.509)
0–2	1.039 (1.023 to 1.055)	1.068 (1.037 to 1.100)	1.170 (0.972 to 1.408)
0–3	1.023 (1.011 to 1.035)	1.051 (1.021 to 1.082)	1.059 (0.875 to 1.281)
0–4	1.016 (1.006 to 1.026)	1.033 (1.008 to 1.058)	1.006 (0.849 to 1.193)
0–5	1.008 (1.000 to 1.017)	1.021 (0.998 to 1.043)	1.054 (1.038 to 1.070)
0–6	1.005 (0.997 to 1.012)	—	1.015 (0.889 to 1.159)
ACCVD			
0	1.059 (1.032 to 1.086)	1.095 (1.034 to 1.160)	—
0–1	1.049 (1.035 to 1.064)	1.086 (1.051 to 1.122)	1.203 (0.994 to 1.456)
0–2	1.034 (1.024 to 1.044)	1.065 (1.039 to 1.090)	1.173 (1.009 to 1.364)
0–3	1.018 (1.009 to 1.028)	1.042 (1.018 to 1.067)	1.065 (0.912 to 1.244)
0–4	1.011 (1.004 to 1.019)	1.027 (1.007 to 1.048)	1.011 (0.882 to 1.159)
0–5	1.005 (0.998 to 1.012)	1.016 (0.999 to 1.035)	1.035 (0.917 to 1.169)
0–6	1.002 (0.996 to 1.008)	1.015 (0.999 to 1.032)	1.010 (0.907 to 1.125)

Abbreviations:

CVD cardiovascular disease

CBD cerebrovascular disease

ACVD acute cardiovascular disease

ACBD acute cerebrovascular disease

CVDM cardiovascular disease mortality

CBDM cerebrovascular disease mortality

CCVDM cardio-cerebrovascular disease mortality, including CVDM and CBDM

ACVDM acute cardiovascular disease mortality

ACBDM acute cerebrovascular disease mortality

ACCVDM acute cardio-cerebrovascular disease mortality, including ACVDM and ACBDM

Table S3: Effect of mean temperature (T_{mean}) on mortality with and without adjusting for air pollutants of Harbin

Lag day	CCVD			CVD			CBD		
	Adj RR (95% CI)	RR (95% CI)	Adj RR (95% CI)	RR (95% CI)	Adj RR (95% CI)	RR (95% CI)	Adj RR (95% CI)	RR (95% CI)	
0	1.060 (1.026 to 1.094)	1.057 (1.037 to 1.078)	1.052 (1.021 to 1.084)	1.046 (1.018 to 1.075)	1.068 (1.037 to 1.100)	1.069 (1.040 to 1.098)			
0-1	1.048 (1.037 to 1.060)	1.043 (1.032 to 1.053)	1.040 (1.024 to 1.057)	1.034 (1.019 to 1.049)	1.056 (1.040 to 1.073)	1.052 (1.037 to 1.067)			
0-2	1.033 (1.0250 to 1.041)	1.031 (1.023 to 1.038)	1.026 (1.015 to 1.038)	1.024 (1.013 to 1.035)	1.040 (1.029 to 1.052)	1.038 (1.027 to 1.048)			
0-3	1.020 (1.013 to 1.028)	1.022 (1.015 to 1.029)	1.015 (1.004 to 1.025)	1.016 (1.006 to 1.026)	1.026 (1.016 to 1.037)	1.028 (1.018 to 1.038)			
0-4	1.014 (1.008 to 1.020)	1.016 (1.010 to 1.022)	1.009 (1.001 to 1.018)	1.011 (1.002 to 1.019)	1.018 (1.009 to 1.026)	1.021 (1.012 to 1.029)			
0-5	1.009 (1.003 to 1.014)	1.010 (1.005 to 1.015)	1.006 (0.998 to 1.013)	1.007 (0.999 to 1.014)	1.012 (1.004 to 1.020)	1.013 (1.006 to 1.021)			
0-6	1.006 (1.001 to 1.011)	1.007 (1.003 to 1.012)	1.004 (0.997 to 1.011)	1.006 (0.999 to 1.012)	1.008 (1.001 to 1.015)	1.009 (1.002 to 1.015)			
0-7	1.004 (0.999 to 1.009)	1.005 (1.001 to 1.010)	1.005 (0.998 to 1.011)	1.006 (0.999 to 1.012)	1.004 (0.998 to 1.010)	1.005 (0.999 to 1.011)			

Abbreviations:
 CVD cardiovascular disease
 CBD cerebrovascular disease
 ACVD acute cardiovascular disease
 ACBD acute cerebrovascular disease
 CVDm cardiovascular disease mortality
 CBDm cerebrovascular disease mortality
 CCVDM cardio-cerebrovascular disease mortality, including CVDm and CBDm
 ACVDM acute cardiovascular disease mortality
 ACBDM acute cerebrovascular disease mortality
 ACCVDM acute cardio-cerebrovascular disease mortality, including ACVDM and ACBDM

Table S4: Effect of mean temperature (T_{mean}) on acute mortality with and without adjusting for air pollutants of Harbin

Lag day	ACCV		ACVD		ACBD	
	Adj RR (95% CI)	RR (95% CI)	Adj RR (95% CI)	RR (95% CI)	Adj RR (95% CI)	RR (95% CI)
0	1.059 (1.032 to 1.086)	1.052 (1.027 to 1.077)	1.064 (1.018 to 1.111)	1.044 (1.002 to 1.087)	1.056 (1.023 to 1.090)	1.056 (1.025 to 1.088)
0-1	1.049 (1.035 to 1.064)	1.040 (1.027 to 1.053)	1.048 (1.023 to 1.074)	1.032 (1.010 to 1.055)	1.050 (1.032 to 1.068)	1.044 (1.027 to 1.060)
0-2	1.034 (1.024 to 1.044)	1.029 (1.020 to 1.038)	1.029 (1.012 to 1.047)	1.022 (1.006 to 1.038)	1.039 (1.023 to 1.055)	1.033 (1.021 to 1.044)
0-3	1.018 (1.009 to 1.028)	1.019 (1.010 to 1.028)	1.011 (0.994 to 1.027)	1.012 (0.996 to 1.027)	1.023 (1.011 to 1.035)	1.024 (1.013 to 1.035)
0-4	1.011 (1.004 to 1.019)	1.013 (1.005 to 1.020)	1.003 (0.990 to 1.017)	1.005 (0.992 to 1.018)	1.016 (1.006 to 1.026)	1.017 (1.007 to 1.026)
0-5	1.005 (0.998 to 1.012)	1.006 (0.999 to 1.013)	0.998 (0.987 to 1.010)	1.000 (0.989 to 1.012)	1.008 (1.000 to 1.017)	1.010 (1.001 to 1.018)
0-6	1.002 (0.996 to 1.008)	1.003 (0.998 to 1.009)	0.998 (0.987 to 1.008)	1.000 (0.990 to 1.010)	1.005 (0.997 to 1.012)	1.005 (0.998 to 1.013)

Abbreviations:
 CVD cardiovascular disease
 CBD cerebrovascular disease
 ACVD acute cardiovascular disease
 ACBD acute cerebrovascular disease
 CVDM cardiovascular disease mortality
 CBDM cerebrovascular disease mortality
 CCVDM cardio-cerebrovascular disease mortality, including CVD and CBDM
 ACVDM acute cardiovascular disease mortality
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 ACCVDM acute cardio-cerebrovascular disease mortality, including ACVDM and ACBDM

Table S5: Effect of mean temperature (T_{mean}) on mortality with different degrees of freedom for long-term trend of Harbin

Lag day	CCVD			CVD			CBD		
	$\Delta=5$	$\Delta=6$	$\Delta=7$	$\Delta=5$	$\Delta=6$	$\Delta=7$	$\Delta=5$	$\Delta=6$	$\Delta=7$
	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)
0	1.057 (1.035 to 1.080)	1.060 (1.026 to 1.094)	1.062 (1.040 to 1.084)	1.049 (1.019 to 1.081)	1.052 (1.021 to 1.084)	1.054 (1.023 to 1.085)	1.066 (1.035 to 1.097)	1.068 (1.037 to 1.100)	1.070 (1.039 to 1.012)
0-1	1.047 (1.035 to 1.059)	1.048 (1.037 to 1.060)	1.050 (1.038 to 1.062)	1.038 (1.022 to 1.055)	1.040 (1.024 to 1.057)	1.042 (1.025 to 1.059)	1.054 (1.038 to 1.071)	1.056 (1.040 to 1.073)	1.059 (1.042 to 1.076)
0-2	1.032 (1.024 to 1.040)	1.033 (1.025 to 1.041)	1.034 (1.026 to 1.043)	1.025 (1.013 to 1.037)	1.026 (1.015 to 1.038)	1.027 (1.016 to 1.039)	1.039 (1.027 to 1.050)	1.040 (1.029 to 1.052)	1.042 (1.030 to 1.054)
0-3	1.019 (1.012 to 1.027)	1.020 (1.013 to 1.028)	1.022 (1.014 to 1.029)	1.014 (1.003 to 1.025)	1.015 (1.004 to 1.025)	1.015 (1.005 to 1.026)	1.025 (1.015 to 1.036)	1.026 (1.016 to 1.037)	1.026 (1.016 to 1.037)
0-4	1.013 (1.007 to 1.020)	1.014 (1.008 to 1.020)	1.015 (1.009 to 1.021)	1.009 (0.999 to 1.017)	1.009 (1.001 to 1.018)	1.010 (1.001 to 1.019)	1.017 (1.009 to 1.025)	1.018 (1.009 to 1.026)	1.019 (1.011 to 1.027)
0-5	1.008 (1.002 to 1.013)	1.009 (1.003 to 1.014)	1.010 (1.004 to 1.015)	1.005 (0.998 to 1.013)	1.006 (0.988 to 1.013)	1.006 (0.999 to 1.014)	1.011 (1.003 to 1.019)	1.012 (1.004 to 1.020)	1.014 (1.006 to 1.021)
0-6	1.005 (1.000 to 1.010)	1.006 (1.001 to 1.011)	1.007 (1.002 to 1.011)	1.004 (0.997 to 1.011)	1.004 (0.997 to 1.011)	1.005 (0.998 to 1.011)	1.007 (1.000 to 1.014)	1.008 (1.001 to 1.015)	1.009 (1.002 to 1.016)
0-7	1.004 (0.999 to 1.008)	1.004 (0.999 to 1.009)	1.005 (1.000 to 1.009)	1.004 (0.998 to 1.010)	1.005 (0.998 to 1.011)	1.005 (0.999 to 1.011)	1.003 (0.997 to 1.010)	1.004 (0.998 to 1.010)	1.005 (0.998 to 1.011)

Abbreviations:
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 CVDm cardiovascular disease mortality
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Table S6: Effect of mean temperature (T_{mean}) on acute mortality with different degrees of freedom for long-term trend of Harbin

Lag day	ACVD						ACBD											
	$\Delta=5$		$\Delta=6$		$\Delta=7$		$\Delta=5$		$\Delta=6$		$\Delta=7$							
	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)	RR (95% CI)						
0	1.055 (1.028 to 1.083)	1.059 (1.032 to 1.086)	1.061 (1.034 to 1.089)	1.064 (1.014 to 1.107)	1.059 (1.014 to 1.107)	1.067 (1.022 to 1.115)	1.053 (1.020 to 1.088)	1.056 (1.023 to 1.090)	1.059 (1.026 to 1.094)	1.047 (1.033 to 1.062)	1.049 (1.035 to 1.064)	1.052 (1.037 to 1.067)	1.046 (1.021 to 1.071)	1.048 (1.023 to 1.074)	1.051 (1.026 to 1.076)	1.048 (1.030 to 1.066)	1.050 (1.032 to 1.068)	1.052 (1.034 to 1.071)
0-1	1.032 (1.022 to 1.042)	1.034 (1.024 to 1.044)	1.035 (1.025 to 1.046)	1.028 (1.010 to 1.045)	1.028 (1.010 to 1.045)	1.031 (1.013 to 1.048)	1.021 (1.010 to 1.033)	1.023 (1.011 to 1.035)	1.024 (1.013 to 1.036)	1.018 (1.009 to 1.028)	1.018 (1.009 to 1.028)	1.020 (1.010 to 1.029)	1.009 (0.993 to 1.026)	1.011 (0.994 to 1.027)	1.011 (0.995 to 1.028)	1.021 (1.010 to 1.033)	1.023 (1.011 to 1.035)	1.024 (1.013 to 1.036)
0-2	1.017 (1.003 to 1.018)	1.011 (1.004 to 1.019)	1.013 (1.005 to 1.021)	1.003 (0.990 to 1.016)	1.003 (0.990 to 1.016)	1.004 (0.990 to 1.017)	1.014 (1.005 to 1.024)	1.016 (1.006 to 1.026)	1.017 (1.008 to 1.027)	1.004 (0.997 to 1.011)	1.005 (0.998 to 1.012)	1.006 (0.999 to 1.013)	0.998 (0.987 to 1.010)	0.998 (0.987 to 1.010)	0.998 (0.987 to 1.010)	1.007 (0.999 to 1.016)	1.008 (1.000 to 1.017)	1.010 (1.001 to 1.018)
0-3	1.002 (0.996 to 1.008)	1.002 (0.996 to 1.008)	1.003 (0.997 to 1.009)	0.998 (0.987 to 1.008)	0.998 (0.987 to 1.008)	0.997 (0.987 to 1.008)	1.004 (0.996 to 1.012)	1.005 (0.997 to 1.012)	1.006 (0.998 to 1.013)	1.002 (0.996 to 1.008)	1.002 (0.997 to 1.009)	1.003 (0.997 to 1.009)	0.998 (0.987 to 1.008)	0.998 (0.987 to 1.008)	0.997 (0.987 to 1.008)	1.004 (0.996 to 1.012)	1.005 (0.997 to 1.012)	1.006 (0.998 to 1.013)

Abbreviations:
 CVD cardiovascular disease
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 CVDm cardiovascular disease mortality
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