

Supplemental Material

**Outdoor Temperature, Heart Rate and Blood Pressure in Chinese Adults: Effect
Modification by Individual Characteristics**

Table S1. Thresholds(°C) for effects of temperature on HR, SBP and DBP

| | HR | SBP | DBP |
|---------------------------------------|------|------|------|
| Whole | 22 | 27 | 27 |
| Age | | | |
| <44 | 23 | 24 | 24 |
| 45-64 | 25 | 27 | 27 |
| ≥ 65 | N.A. | N.A. | N.A. |
| Gender | | | |
| Male | N.A. | N.A. | N.A. |
| Female | 23 | 27 | 27 |
| BMI | | | |
| <18.5 | 20 | 28 | 27 |
| 18.5-23.9 | 22 | 27 | 27 |
| ≥23.9 | 24 | 27 | 27 |
| Education level | | | |
| Elementary or below | 23 | 25 | 23 |
| Middle school or above | 24 | 27 | 27 |
| Work Type | | | |
| Mental | | | |
| Manual | 24 | 27 | 27 |
| Physical Activity | | | |
| Inactive | 23 | 27 | 27 |
| Active | 23 | 27 | 26 |
| Income | | | |
| <¥800 | 24 | 27 | 27 |
| ≥¥800 | | | |
| Smoking status | | | |
| Never or former | 26 | 27 | 27 |
| Current but occasionally | 23 | 26 | 26 |
| Current and often | | | |
| Salt Intake | | | |
| Low or medium | 24 | 27 | 27 |
| High | 25 | 27 | 28 |
| Drinking status | | | |
| Never/former/current but occasionally | 24 | 27 | 27 |
| Current and often | 23 | 25 | 15 |
| Hypertension | | | |
| No | 24 | 27 | 27 |
| Yes | 25 | 27 | 27 |
| Hyperlipidemia | | | |
| No | 24 | 27 | 27 |
| Yes | | 25 | 25 |

Table S2. The comparison of the thresholds of associations with cardiovascular systems (cardiovascular/cerebrovascular mortality, HR, SBP and DBP) in different Chinese cities

| City | Threshold (°C) | | |
|---------------------------|---------------------------------------------------|----------------------------------------------------|-------------------------------------|
| | Temperature-Cardiovascular Mortality Associations | Temperature-Cerebrovascular Mortality Associations | Temperature-HR/SBP/DBP Associations |
| Our study | | | 22/ 27/ 27 |
| Harbin ¹ | 20.6 | | |
| Changchun ¹ | 20.6 | | |
| Shenyang ¹ | 21.5 | | |
| Beijing ^{1,2} | 24.9 | | 0.7 † |
| Tianjin ¹⁻³ | 24.5 | 0.6-25.1 * | -0.6 † |
| Shijiazhuang ¹ | 23.8 | | |
| Jinan ¹ | 24.9 | | |
| Zhengzhou ¹ | 25.9 | | |
| Shanghai ^{1,2} | 24.5 | | 26.9 † |
| Nanjing ¹ | 27.9 | | |
| Suzhou ⁴ | 26 | | |
| Chengdu ¹ | 24.1 | | |
| Chongqing ¹ | 29.2 | | |
| Changsha ^{1,5} | 25.1 | 10-29 ‡ | |
| Wuhan ² | | | 25 † |
| Kunming ¹ | 23.3 | | |
| Guangzhou ^{1,2} | 29.0 | | 27.8 † |

* The result was obtained from the 3rd literature. † The result was obtained from the 2nd literature.

‡ The result was obtained from 5th literature.

Abbreviations: HR: Heart Rate; SBP: Systolic Blood Pressure; DBP: Diastolic Blood Pressure

Reference:

1. Yang, J., Yin, P., Zhou, M. et al. Cardiovascular mortality risk attributable to ambient temperature in China. *Heart*, doi:10.1136/heartjnl-2015-308062 (2015).
2. Zhang, Y., Li, S., Pan, X. et al. The effects of ambient temperature on cerebrovascular mortality: An epidemiologic study in four climatic zones in China. *Environmental Health* 13, 24 (2014).
3. Guo, Y., Barnett, A. G., Pan, X. et al. The impact of temperature on mortality in Tianjin, China: A case–crossover design with a distributed lag non-linear model. *Environ. Health Perspect.* 119, 1719-1725 (2011).
4. Wang, C., Chen, R., Kuang, X. et al. Temperature and daily mortality in Suzhou, China: A time series analysis. *Sci. Total Environ.* 466-467, 985-990, doi:10.1016/j.scitotenv.2013.08.011 (2014).
5. Huang, J., Wang, J. & Yu, W. The lag effects and vulnerabilities of temperature effects on cardiovascular disease mortality in a subtropical climate zone in China. *Intl. J. Environ. Res. Publ. Health* 11, 3982-3994 (2014).

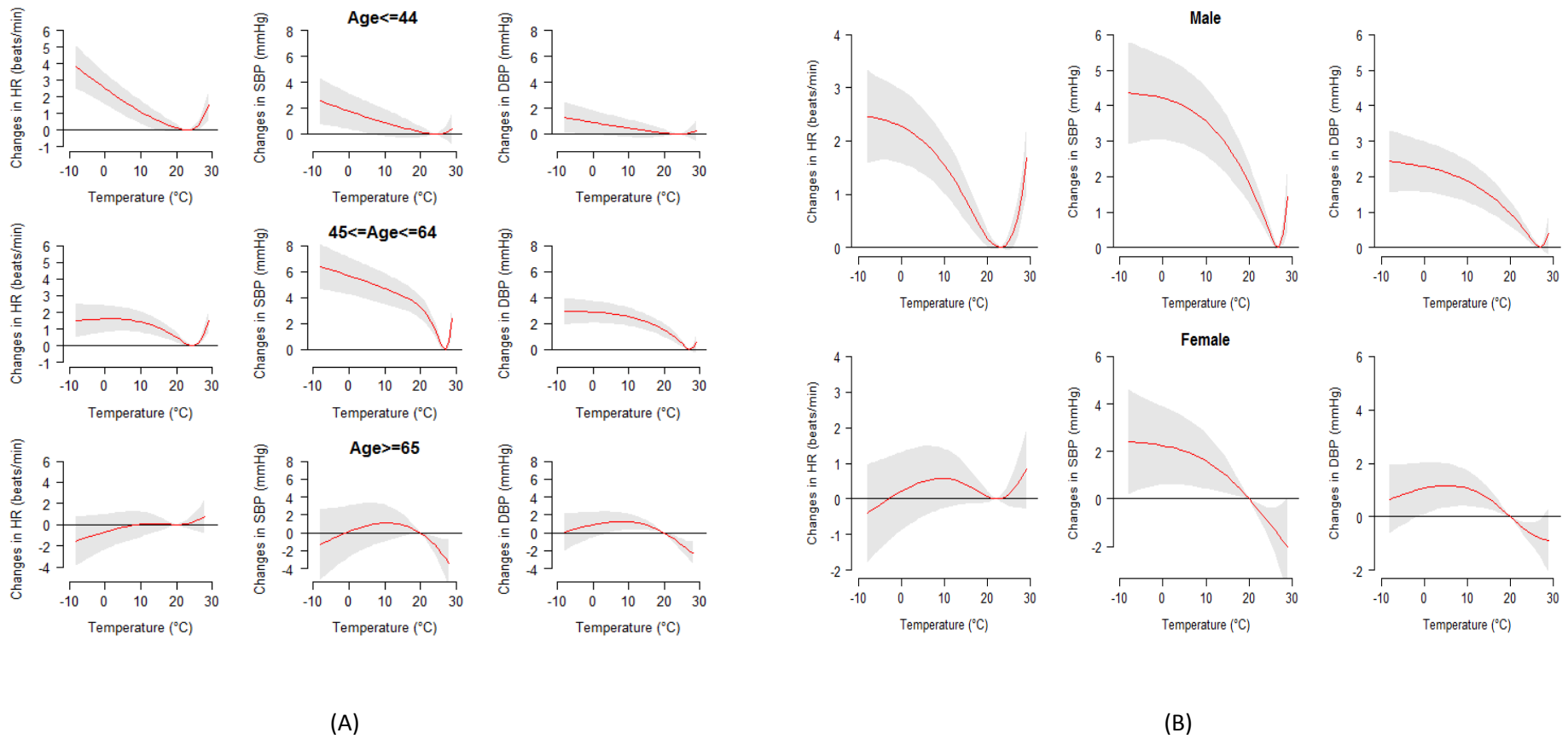
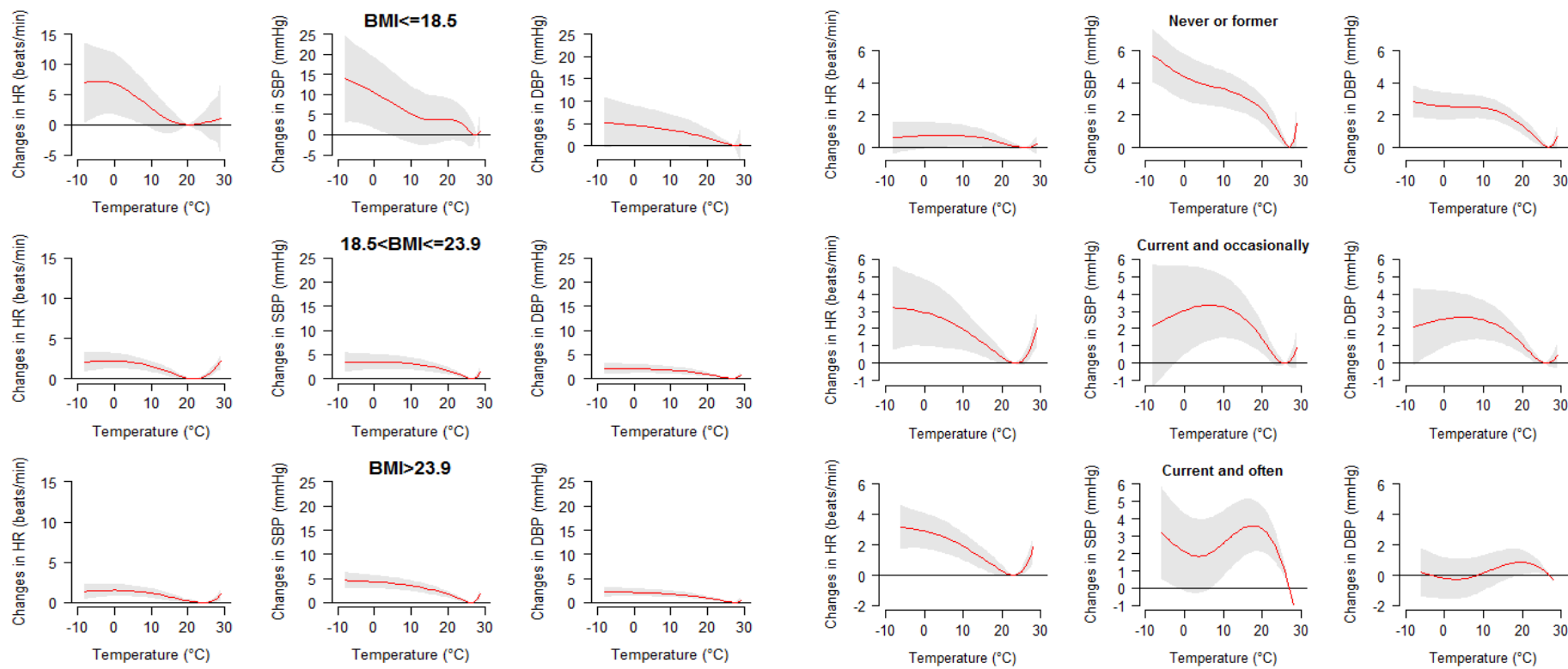


Figure S1. The estimated effects of 3-day moving average of mean temperature on HR, SBP and DBP among age groups (A) and gender (B)



(A)

(B)

Figure S2. The estimated effects of 3-day moving average of mean temperature on HR, SBP and DBP among BMI groups (A) and people with different smoking habits (B)

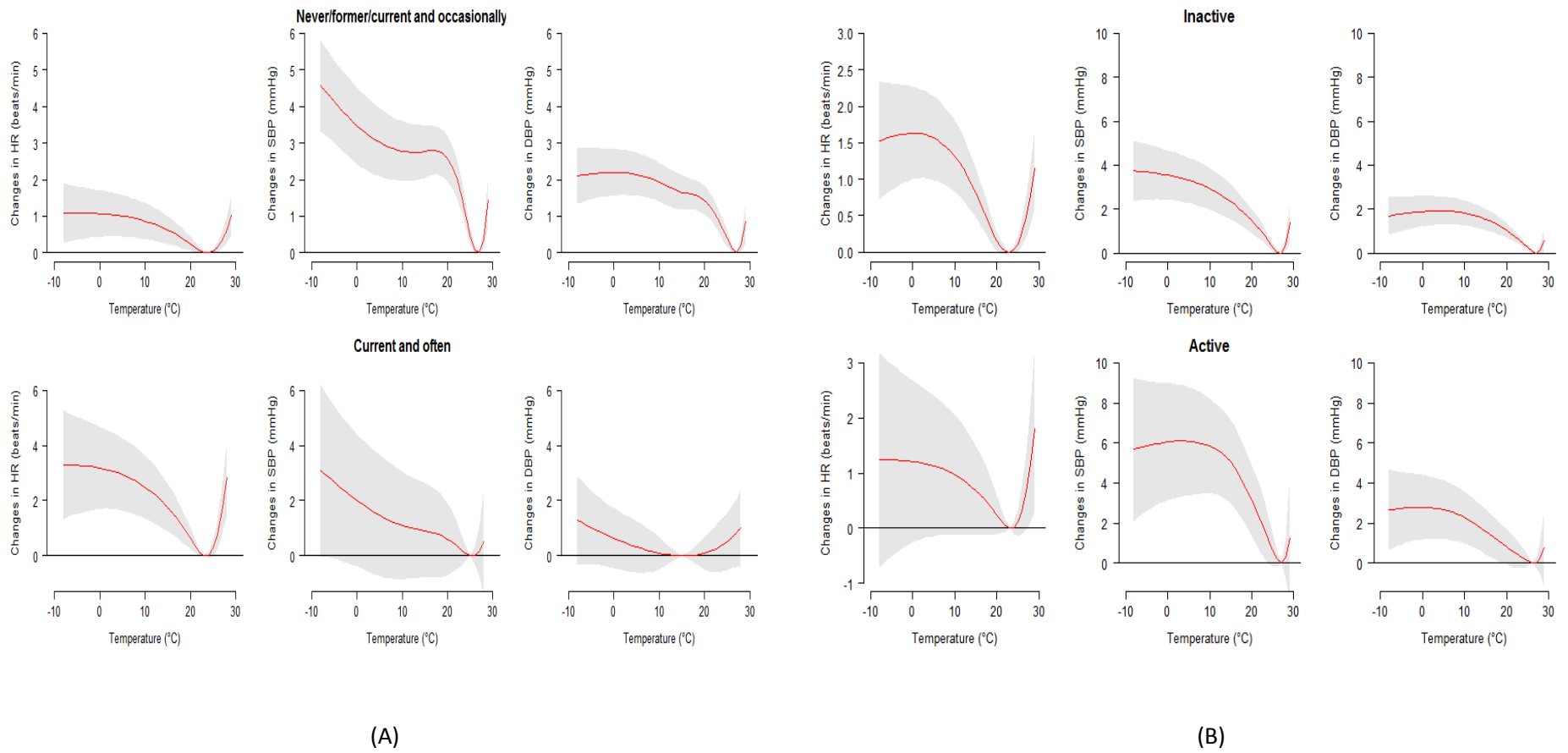


Figure S3. The estimated effects of 3-day moving average of mean temperature on HR, SBP and DBP among people with different drinking habits (A) and different physical activities (B)

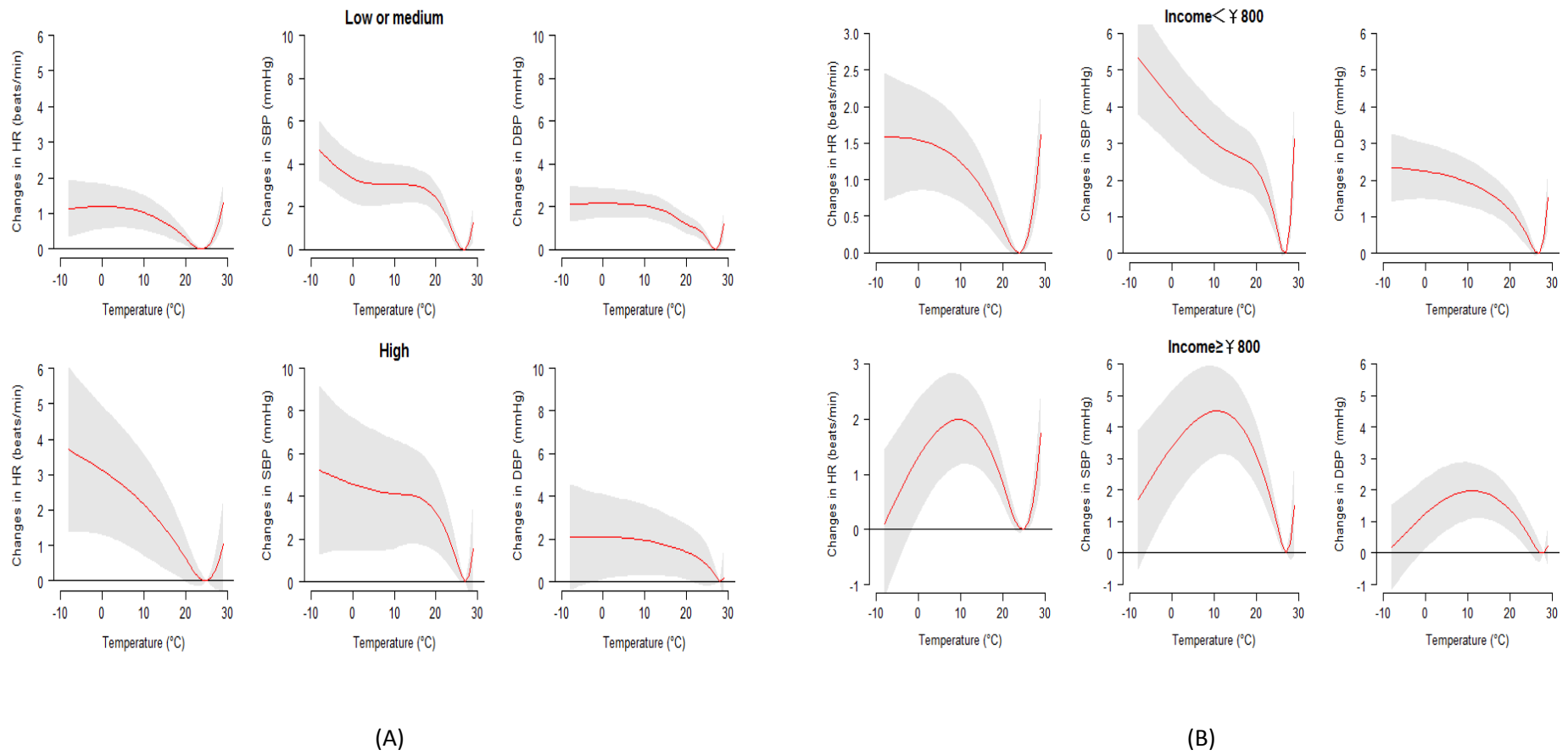


Figure S4. The estimated effects of 3-day moving average of mean temperature on HR, SBP and DBP among people with different salt intake (A) and different income (B)

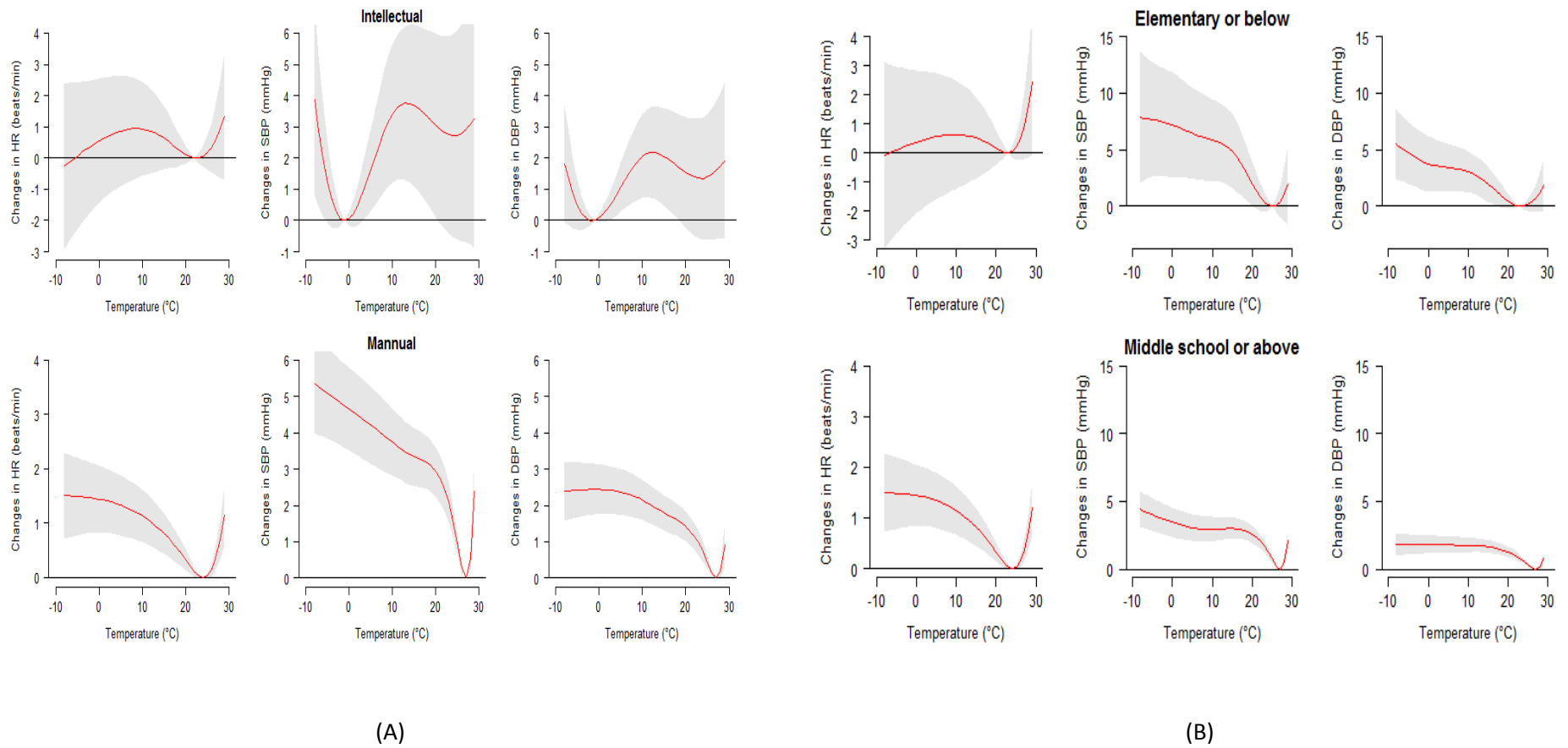


Figure S5. The estimated effects of 3-day moving average of mean temperature on HR, SBP and DBP among people with different work types (A) and different education levels (B)

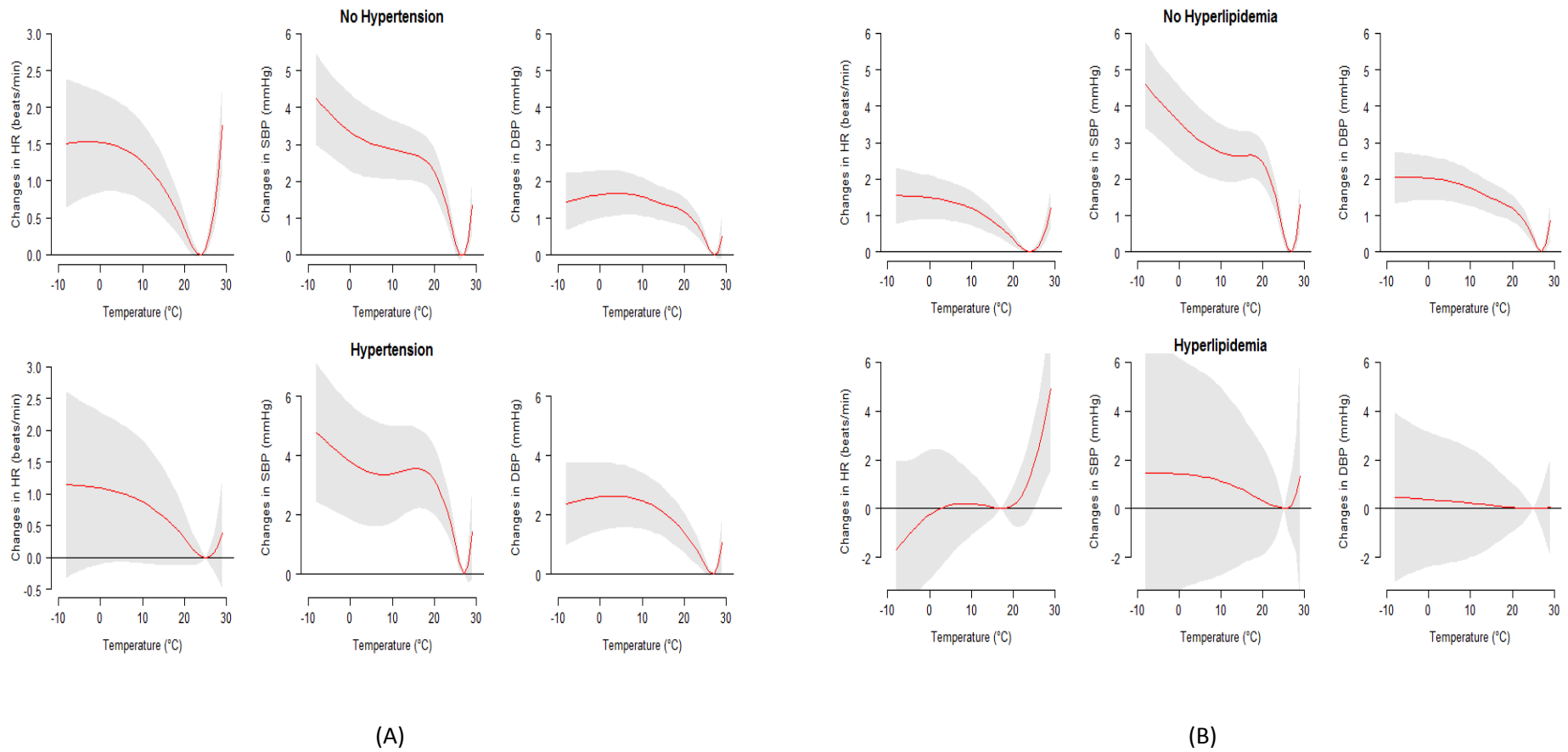


Figure S6. The estimated effects of 3-day moving average of mean temperature on HR, SBP and DBP among people with and without hypertension (A) and people with and without hyperlipidemia (B)