**SUPPLEMENTARY MATERIALS**

**Association of low and high ambient temperature with daily hospitalization for cardiorespiratory diseases in Brazil: A national time-series study between 2008 and 2018**

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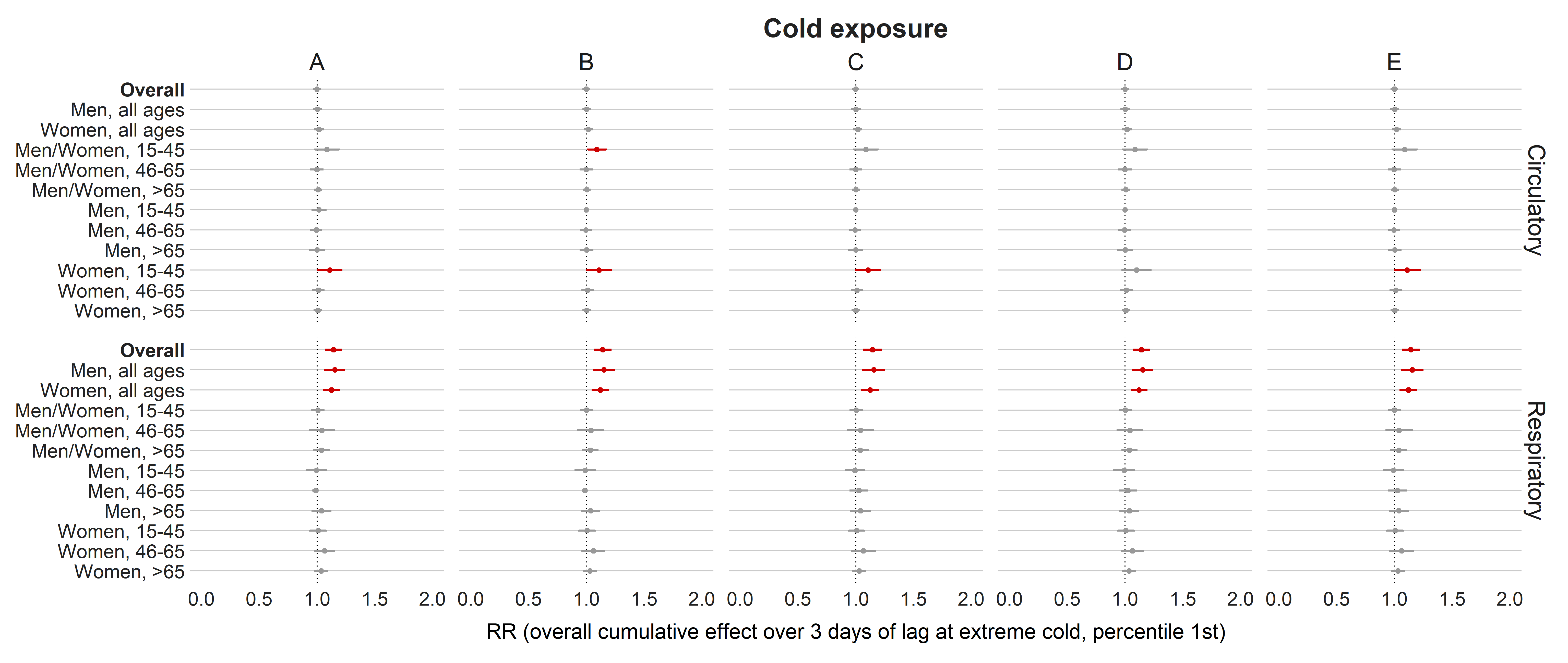
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**Map

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Figure S1: Spatial distribution of the municipalities and regions in Brazil.

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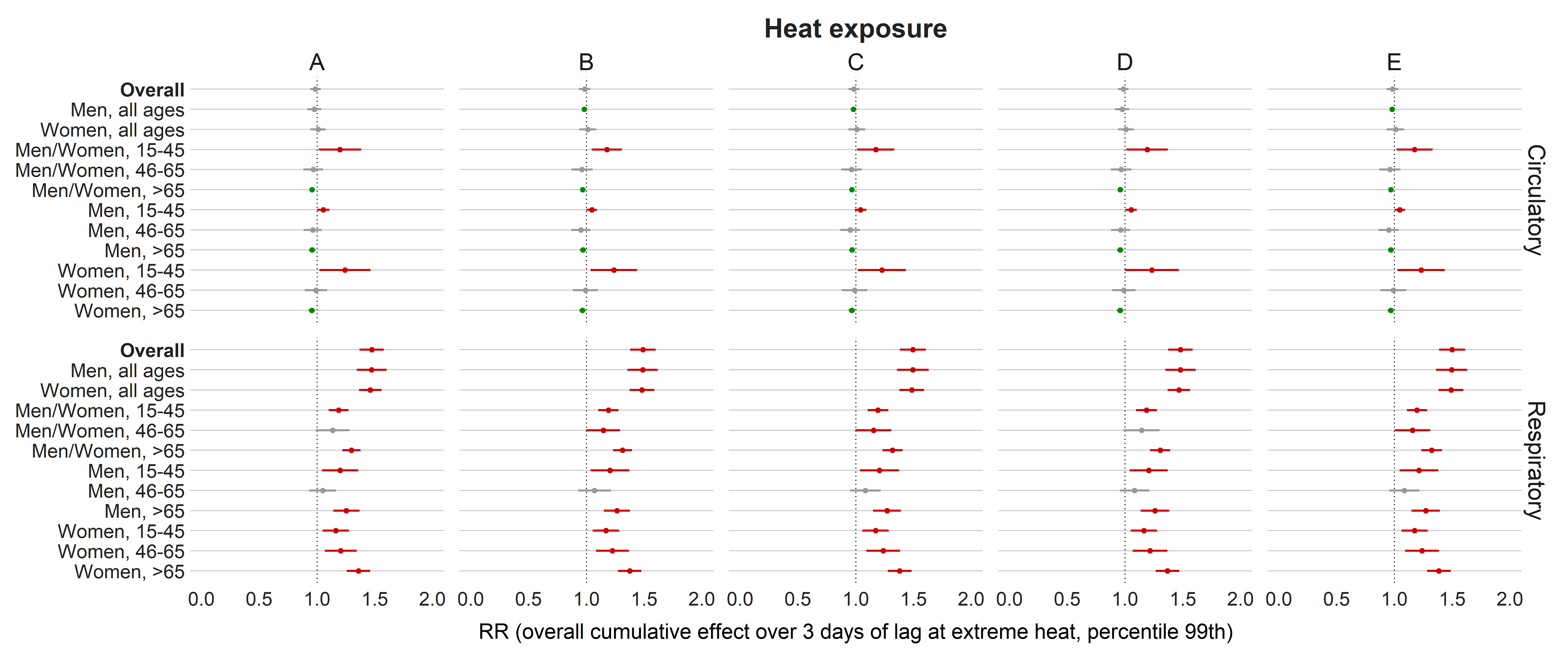
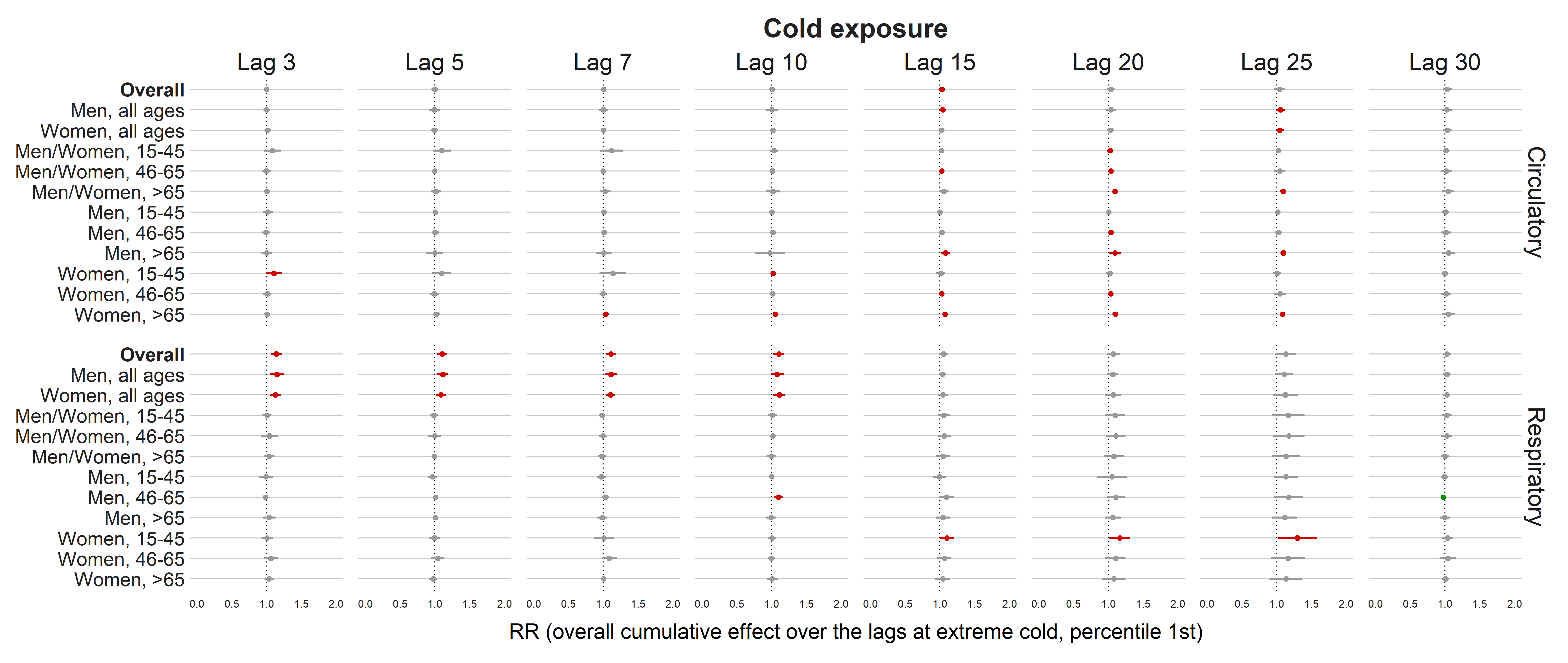


Figure S2 – Relative risks (95%CI) from the primary model and sensitivity analysis for cardiorespiratory admissions considering the cold (percentile 1st) and heat (percentile 99th) exposure in Brazil (from meta-analysis). This is the overall cumulative effect over 3 days of lag (summing all the contributions up to the maximum lag). Note 1: primary model, adjusted for PM2.5, O3, humidity, and temporal factors (A); model adjusted only for PM2.5 (B); model adjusted only for O3 (C); model adjusted only for humidity (D); model adjusted only for temporal terms (E). Note 2: gray color represents the insignificant coefficients (which the RR includes the value 1), red color represents the significant positive associations, and green color represents the significant negative associations.



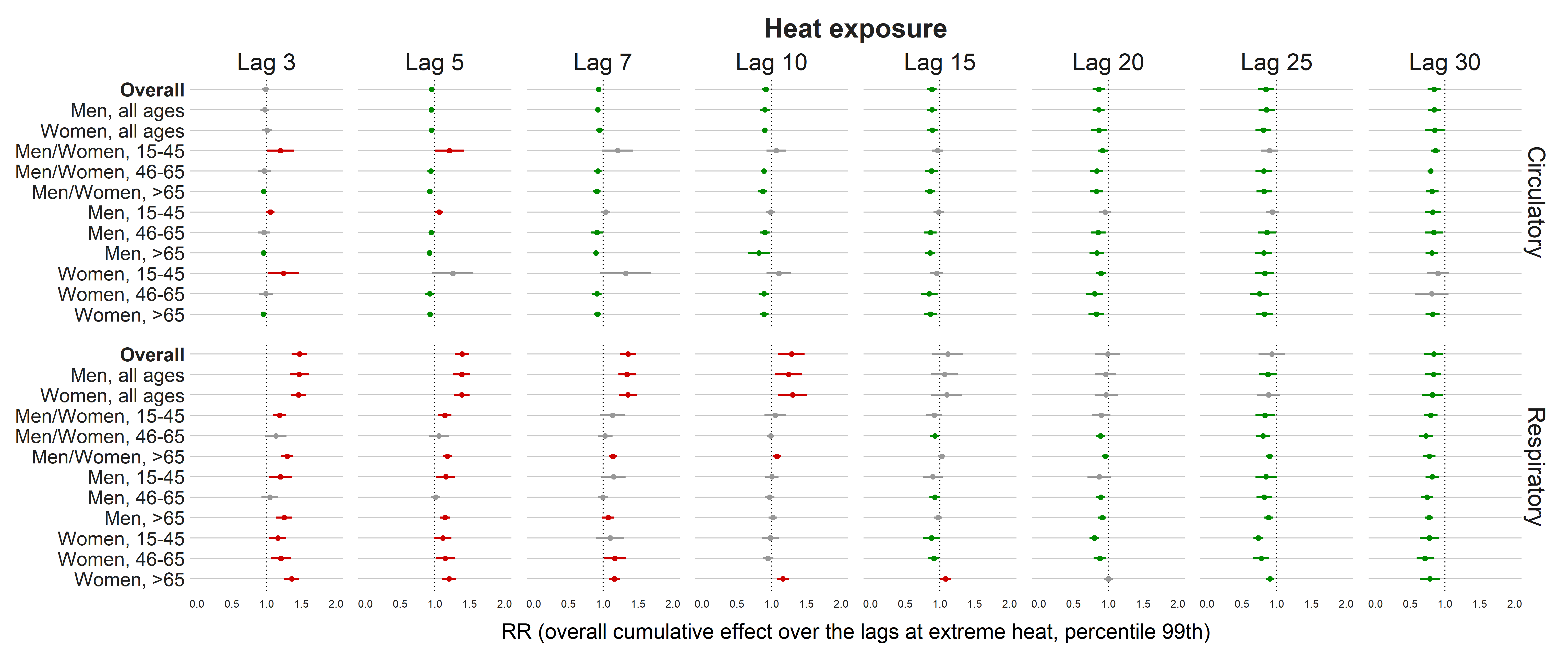


Figure S3 – Relative risks (95%CI) for different lags (3 [note that the lag 3 was the primary model], 5, 7, 10, 15, 20, 25, and 30) considering the cold (percentile 1st) and heat (percentile 99th) exposure in Brazil (from meta-analysis). This is the overall cumulative effect over the lags (summing all the contributions up to the maximum lag). Note 1: all the models were adjusted for PM2.5, O3, humidity, and temporal factors (the same covariates used in the primary model). The only difference was the lag. Note 2: gray color represents the insignificant coefficients (which the RR includes the value 1), red color represents the significant positive associations, and green color represents the significant negative associations.

Chart

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Figure S4 – Bi-dimensional exposure-lag-response association stratified by regions for circulatory and respiratory admissions (charts were created for the overall analysis, including all ages and sex).

Table S1 - Relative risks (95%CI) for cold (percentile 10st) and heat (percentile 99th) exposure stratified by regions, health effects, age, and sex. Note 1: This is the overall cumulative effect (primary model) over 3 days of lag (summing all the contributions up to the maximum lag). Note 2: The reference of the RR in is based on the minimum risk temperature (MRT).

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **Outcome** | **Group** | **Cold** | | | **Heat** | | | **Maximum**  **crosspred** | **Minimum**  **crosspred** | **MRT** |
| **RR** | **95%CI** | | **RR** | **95%CI** | |
| Midwest | Circulatory | Overall | 0.98 | 0.96 | 0.99 | 0.97 | 0.94 | 1.00 | 30.60 | 16.10 | 19.70 |
| Midwest | Circulatory | Men, all ages | 0.99 | 0.98 | 1.00 | 0.99 | 0.95 | 1.04 | 30.60 | 16.10 | 17.80 |
| Midwest | Circulatory | Women, all ages | 0.97 | 0.95 | 0.99 | 0.95 | 0.91 | 1.00 | 30.60 | 16.10 | 19.70 |
| Midwest | Circulatory | Men/Women, 15-45 | 1.42 | 1.12 | 1.81 | 1.67 | 1.26 | 2.20 | 30.60 | 16.10 | 5.20 |
| Midwest | Circulatory | Men/Women, 46-65 | 0.99 | 0.96 | 1.01 | 0.93 | 0.88 | 0.98 | 30.60 | 16.10 | 19.70 |
| Midwest | Circulatory | Men/Women, >65 | 0.99 | 0.97 | 1.00 | 0.96 | 0.91 | 1.01 | 30.60 | 16.10 | 18.50 |
| Midwest | Circulatory | Men, 15-45 | 1.43 | 1.00 | 2.03 | 1.75 | 1.16 | 2.63 | 30.60 | 16.10 | 5.20 |
| Midwest | Circulatory | Men, 46-65 | 1.00 | 0.97 | 1.03 | 0.96 | 0.89 | 1.03 | 30.60 | 16.10 | 19.70 |
| Midwest | Circulatory | Men, >65 | 0.99 | 0.97 | 1.00 | 0.96 | 0.89 | 1.03 | 30.60 | 16.10 | 17.90 |
| Midwest | Circulatory | Women, 15-45 | 1.40 | 1.01 | 1.95 | 1.58 | 1.08 | 2.32 | 30.60 | 16.10 | 5.20 |
| Midwest | Circulatory | Women, 46-65 | 0.97 | 0.93 | 1.00 | 0.90 | 0.83 | 0.97 | 30.60 | 16.10 | 19.70 |
| Midwest | Circulatory | Women, >65 | 0.98 | 0.95 | 1.01 | 0.95 | 0.89 | 1.03 | 30.60 | 16.10 | 19.70 |
| North | Circulatory | Overall | 0.97 | 0.93 | 1.01 | 0.94 | 0.88 | 1.01 | 31.00 | 22.70 | 19.90 |
| North | Circulatory | Men, all ages | 0.83 | 0.73 | 0.95 | 0.81 | 0.70 | 0.94 | 31.00 | 22.70 | 17.50 |
| North | Circulatory | Women, all ages | 1.03 | 0.96 | 1.09 | 1.00 | 0.90 | 1.11 | 31.00 | 22.70 | 19.90 |
| North | Circulatory | Men/Women, 15-45 | 1.53 | 0.76 | 3.07 | 1.59 | 0.78 | 3.24 | 31.00 | 22.70 | 11.60 |
| North | Circulatory | Men/Women, 46-65 | 0.86 | 0.77 | 0.97 | 0.82 | 0.71 | 0.95 | 31.00 | 22.70 | 18.60 |
| North | Circulatory | Men/Women, >65 | 0.89 | 0.75 | 1.05 | 0.84 | 0.69 | 1.01 | 31.00 | 22.70 | 16.80 |
| North | Circulatory | Men, 15-45 | 1.23 | 0.77 | 1.97 | 1.24 | 0.75 | 2.06 | 31.00 | 22.70 | 16.40 |
| North | Circulatory | Men, 46-65 | 0.87 | 0.80 | 0.95 | 0.79 | 0.68 | 0.92 | 31.00 | 22.70 | 19.90 |
| North | Circulatory | Men, >65 | 0.80 | 0.67 | 0.96 | 0.78 | 0.63 | 0.96 | 31.00 | 22.70 | 17.50 |
| North | Circulatory | Women, 15-45 | 1.54 | 0.60 | 3.95 | 1.63 | 0.63 | 4.24 | 31.00 | 22.70 | 11.60 |
| North | Circulatory | Women, 46-65 | 0.93 | 0.75 | 1.16 | 0.94 | 0.73 | 1.22 | 31.00 | 22.70 | 17.80 |
| North | Circulatory | Women, >65 | 1.03 | 0.93 | 1.13 | 0.92 | 0.79 | 1.08 | 31.00 | 22.70 | 19.90 |
| Northeast | Circulatory | Overall | 0.99 | 0.97 | 1.02 | 0.98 | 0.96 | 1.00 | 30.60 | 20.60 | 26.30 |
| Northeast | Circulatory | Men, all ages | 1.02 | 0.99 | 1.05 | 0.98 | 0.95 | 1.01 | 30.60 | 20.60 | 25.30 |
| Northeast | Circulatory | Women, all ages | 1.07 | 0.99 | 1.16 | 1.09 | 0.98 | 1.21 | 30.60 | 20.60 | 16.30 |
| Northeast | Circulatory | Men/Women, 15-45 | 1.08 | 0.94 | 1.23 | 1.22 | 1.02 | 1.46 | 30.60 | 20.60 | 16.30 |
| Northeast | Circulatory | Men/Women, 46-65 | 1.04 | 0.95 | 1.15 | 1.06 | 0.93 | 1.21 | 30.60 | 20.60 | 16.30 |
| Northeast | Circulatory | Men/Women, >65 | 1.03 | 1.00 | 1.06 | 0.95 | 0.92 | 0.97 | 30.60 | 20.60 | 26.30 |
| Northeast | Circulatory | Men, 15-45 | 1.00 | 0.82 | 1.23 | 1.04 | 0.80 | 1.37 | 30.60 | 20.60 | 16.30 |
| Northeast | Circulatory | Men, 46-65 | 1.01 | 0.96 | 1.05 | 1.02 | 0.96 | 1.08 | 30.60 | 20.60 | 24.10 |
| Northeast | Circulatory | Men, >65 | 1.07 | 1.03 | 1.12 | 0.96 | 0.92 | 1.00 | 30.60 | 20.60 | 26.30 |
| Northeast | Circulatory | Women, 15-45 | 1.14 | 0.95 | 1.36 | 1.38 | 1.09 | 1.76 | 30.60 | 20.60 | 16.30 |
| Northeast | Circulatory | Women, 46-65 | 1.14 | 0.99 | 1.30 | 1.17 | 0.97 | 1.41 | 30.60 | 20.60 | 16.30 |
| Northeast | Circulatory | Women, >65 | 1.00 | 0.96 | 1.04 | 0.94 | 0.90 | 0.98 | 30.60 | 20.60 | 26.30 |
| South | Circulatory | Overall | 1.04 | 1.00 | 1.07 | 1.07 | 1.02 | 1.12 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men, all ages | 1.02 | 0.98 | 1.07 | 1.05 | 0.98 | 1.13 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Women, all ages | 1.05 | 1.00 | 1.09 | 1.09 | 1.02 | 1.16 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men/Women, 15-45 | 1.12 | 1.03 | 1.22 | 1.20 | 1.05 | 1.36 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men/Women, 46-65 | 1.05 | 1.00 | 1.10 | 1.06 | 0.99 | 1.15 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men/Women, >65 | 1.00 | 0.95 | 1.04 | 1.04 | 0.97 | 1.11 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men, 15-45 | 1.08 | 0.95 | 1.23 | 1.09 | 0.90 | 1.33 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men, 46-65 | 1.04 | 0.97 | 1.11 | 1.04 | 0.94 | 1.16 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Men, >65 | 0.99 | 0.93 | 1.06 | 1.04 | 0.94 | 1.14 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Women, 15-45 | 1.15 | 1.03 | 1.28 | 1.28 | 1.08 | 1.51 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Women, 46-65 | 1.06 | 0.98 | 1.14 | 1.09 | 0.97 | 1.21 | 28.00 | 7.70 | 1.30 |
| South | Circulatory | Women, >65 | 1.00 | 0.94 | 1.07 | 1.04 | 0.94 | 1.14 | 28.00 | 7.70 | 1.30 |
| Southeast | Circulatory | Overall | 1.02 | 1.02 | 1.02 | 0.97 | 0.96 | 0.98 | 28.90 | 14.50 | 16.50 |
| Southeast | Circulatory | Men, all ages | 1.02 | 1.02 | 1.03 | 0.97 | 0.96 | 0.99 | 28.90 | 14.50 | 16.50 |
| Southeast | Circulatory | Women, all ages | 1.02 | 1.01 | 1.02 | 0.97 | 0.96 | 0.99 | 28.90 | 14.50 | 16.60 |
| Southeast | Circulatory | Men/Women, 15-45 | 1.00 | 0.99 | 1.01 | 1.04 | 1.01 | 1.07 | 28.90 | 14.50 | 15.90 |
| Southeast | Circulatory | Men/Women, 46-65 | 1.02 | 1.01 | 1.02 | 0.97 | 0.95 | 0.98 | 28.90 | 14.50 | 16.70 |
| Southeast | Circulatory | Men/Women, >65 | 1.03 | 1.03 | 1.04 | 0.96 | 0.94 | 0.97 | 28.90 | 14.50 | 16.60 |
| Southeast | Circulatory | Men, 15-45 | 1.00 | 0.99 | 1.01 | 1.05 | 1.00 | 1.10 | 28.90 | 14.50 | 15.70 |
| Southeast | Circulatory | Men, 46-65 | 1.02 | 1.01 | 1.02 | 0.97 | 0.95 | 0.99 | 28.90 | 14.50 | 16.40 |
| Southeast | Circulatory | Men, >65 | 1.04 | 1.03 | 1.05 | 0.96 | 0.94 | 0.98 | 28.90 | 14.50 | 16.80 |
| Southeast | Circulatory | Women, 15-45 | 1.00 | 0.86 | 1.16 | 1.02 | 0.86 | 1.21 | 28.90 | 14.50 | 4.20 |
| Southeast | Circulatory | Women, 46-65 | 1.01 | 1.00 | 1.03 | 0.96 | 0.93 | 0.98 | 28.90 | 14.50 | 17.10 |
| Southeast | Circulatory | Women, >65 | 1.03 | 1.02 | 1.04 | 0.96 | 0.94 | 0.98 | 28.90 | 14.50 | 16.50 |
| Midwest | Respiratory | Overall | 1.15 | 1.07 | 1.23 | 1.54 | 1.42 | 1.68 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Men, all ages | 1.22 | 1.11 | 1.34 | 1.59 | 1.42 | 1.78 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Women, all ages | 1.08 | 0.97 | 1.19 | 1.50 | 1.33 | 1.68 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Men/Women, 15-45 | 0.95 | 0.80 | 1.13 | 1.09 | 0.90 | 1.33 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Men/Women, 46-65 | 1.02 | 0.86 | 1.22 | 1.13 | 0.92 | 1.39 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Men/Women, >65 | 1.04 | 0.90 | 1.19 | 1.31 | 1.12 | 1.53 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Men, 15-45 | 1.05 | 0.82 | 1.34 | 1.19 | 0.90 | 1.57 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Men, 46-65 | 0.99 | 0.96 | 1.03 | 0.99 | 0.90 | 1.08 | 30.60 | 16.10 | 19.70 |
| Midwest | Respiratory | Men, >65 | 1.04 | 0.86 | 1.25 | 1.30 | 1.05 | 1.61 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Women, 15-45 | 0.89 | 0.73 | 1.09 | 1.04 | 0.82 | 1.32 | 30.60 | 16.10 | 6.40 |
| Midwest | Respiratory | Women, 46-65 | 1.03 | 0.80 | 1.33 | 1.28 | 0.95 | 1.72 | 30.60 | 16.10 | 5.20 |
| Midwest | Respiratory | Women, >65 | 1.04 | 0.85 | 1.26 | 1.33 | 1.06 | 1.66 | 30.60 | 16.10 | 5.20 |
| North | Respiratory | Overall | 1.28 | 1.03 | 1.60 | 1.63 | 1.31 | 2.03 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Men, all ages | 1.39 | 1.04 | 1.85 | 1.75 | 1.31 | 2.34 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Women, all ages | 1.18 | 0.86 | 1.61 | 1.51 | 1.10 | 2.07 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Men/Women, 15-45 | 1.44 | 0.88 | 2.35 | 1.69 | 1.03 | 2.78 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Men/Women, 46-65 | 0.91 | 0.51 | 1.63 | 1.03 | 0.57 | 1.86 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Men/Women, >65 | 1.10 | 0.70 | 1.73 | 1.23 | 0.78 | 1.94 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Men, 15-45 | 1.55 | 0.77 | 3.11 | 1.76 | 0.87 | 3.56 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Men, 46-65 | 0.85 | 0.43 | 1.68 | 0.90 | 0.45 | 1.81 | 31.00 | 22.70 | 12.90 |
| North | Respiratory | Men, >65 | 1.41 | 0.77 | 2.60 | 1.50 | 0.81 | 2.78 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Women, 15-45 | 1.38 | 0.70 | 2.72 | 1.67 | 0.84 | 3.33 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Women, 46-65 | 1.00 | 0.43 | 2.33 | 1.22 | 0.52 | 2.88 | 31.00 | 22.70 | 11.60 |
| North | Respiratory | Women, >65 | 0.88 | 0.58 | 1.34 | 1.04 | 0.67 | 1.60 | 31.00 | 22.70 | 14.80 |
| Northeast | Respiratory | Overall | 1.16 | 1.11 | 1.22 | 1.50 | 1.42 | 1.60 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Men, all ages | 1.16 | 1.09 | 1.23 | 1.50 | 1.38 | 1.63 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Women, all ages | 1.17 | 1.10 | 1.24 | 1.51 | 1.39 | 1.64 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Men/Women, 15-45 | 0.96 | 0.88 | 1.06 | 1.12 | 0.98 | 1.27 | 30.60 | 20.60 | 16.70 |
| Northeast | Respiratory | Men/Women, 46-65 | 0.97 | 0.89 | 1.06 | 1.00 | 0.87 | 1.14 | 30.60 | 20.60 | 17.50 |
| Northeast | Respiratory | Men/Women, >65 | 1.13 | 1.03 | 1.24 | 1.27 | 1.12 | 1.44 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Men, 15-45 | 0.92 | 0.85 | 1.00 | 1.05 | 0.91 | 1.22 | 30.60 | 20.60 | 18.00 |
| Northeast | Respiratory | Men, 46-65 | 0.98 | 0.95 | 1.01 | 0.96 | 0.85 | 1.08 | 30.60 | 20.60 | 19.70 |
| Northeast | Respiratory | Men, >65 | 1.15 | 1.00 | 1.31 | 1.23 | 1.03 | 1.47 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Women, 15-45 | 1.04 | 0.91 | 1.20 | 1.22 | 1.01 | 1.48 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Women, 46-65 | 1.01 | 0.85 | 1.20 | 1.08 | 0.86 | 1.36 | 30.60 | 20.60 | 16.30 |
| Northeast | Respiratory | Women, >65 | 1.11 | 0.98 | 1.27 | 1.30 | 1.09 | 1.55 | 30.60 | 20.60 | 16.30 |
| South | Respiratory | Overall | 1.05 | 1.02 | 1.08 | 1.33 | 1.28 | 1.39 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Men, all ages | 1.04 | 1.00 | 1.08 | 1.30 | 1.23 | 1.38 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Women, all ages | 1.06 | 1.02 | 1.10 | 1.36 | 1.28 | 1.44 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Men/Women, 15-45 | 1.03 | 0.96 | 1.10 | 1.25 | 1.13 | 1.40 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Men/Women, 46-65 | 1.00 | 0.94 | 1.06 | 1.11 | 1.01 | 1.22 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Men/Women, >65 | 0.99 | 0.95 | 1.03 | 1.26 | 1.18 | 1.35 | 28.00 | 7.70 | 2.10 |
| South | Respiratory | Men, 15-45 | 1.05 | 0.95 | 1.16 | 1.35 | 1.16 | 1.57 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Men, 46-65 | 0.98 | 0.94 | 1.02 | 1.08 | 0.98 | 1.19 | 28.00 | 7.70 | 4.50 |
| South | Respiratory | Men, >65 | 0.98 | 0.97 | 1.00 | 1.19 | 1.11 | 1.27 | 28.00 | 7.70 | 5.50 |
| South | Respiratory | Women, 15-45 | 1.01 | 0.92 | 1.11 | 1.16 | 1.00 | 1.35 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Women, 46-65 | 1.04 | 0.96 | 1.13 | 1.16 | 1.02 | 1.32 | 28.00 | 7.70 | 1.30 |
| South | Respiratory | Women, >65 | 1.03 | 0.96 | 1.10 | 1.39 | 1.26 | 1.53 | 28.00 | 7.70 | 1.30 |
| Southeast | Respiratory | Overall | 1.19 | 1.14 | 1.25 | 1.51 | 1.43 | 1.59 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men, all ages | 1.19 | 1.12 | 1.27 | 1.49 | 1.39 | 1.60 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Women, all ages | 1.19 | 1.11 | 1.27 | 1.52 | 1.41 | 1.64 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men/Women, 15-45 | 1.04 | 0.93 | 1.18 | 1.21 | 1.06 | 1.38 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men/Women, 46-65 | 1.23 | 1.10 | 1.37 | 1.35 | 1.19 | 1.53 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men/Women, >65 | 1.05 | 0.96 | 1.14 | 1.40 | 1.27 | 1.54 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men, 15-45 | 1.02 | 0.87 | 1.21 | 1.23 | 1.02 | 1.48 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men, 46-65 | 1.19 | 1.03 | 1.39 | 1.30 | 1.10 | 1.54 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Men, >65 | 1.06 | 0.94 | 1.20 | 1.39 | 1.21 | 1.59 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Women, 15-45 | 1.07 | 0.90 | 1.27 | 1.19 | 0.98 | 1.44 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Women, 46-65 | 1.27 | 1.07 | 1.50 | 1.41 | 1.17 | 1.70 | 28.90 | 14.50 | 4.20 |
| Southeast | Respiratory | Women, >65 | 1.03 | 0.91 | 1.16 | 1.41 | 1.23 | 1.61 | 28.90 | 14.50 | 4.20 |

Table S2 – National average relative risks (95%CI) for cold (percentile 1st) exposure in Brazil stratified by health outcome, age, and sex. Note 1: This is the overall cumulative effect over 3 days of lag (summing all the contributions up to the maximum lag).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Outcome** | **Group** | **RR** | **95%CI** | | **I2** | **I2 (p-value)** |
| Circulatory | Overall | 0.999 | 0.975 | 1.023 | 90.356 | 1.13E-09 |
| Circulatory | Men, all ages | 1.002 | 0.971 | 1.033 | 93.472 | 2.25E-08 |
| Circulatory | Women, all ages | 1.017 | 0.985 | 1.050 | 84.234 | 1.74E-04 |
| Circulatory | Men/Women, 15-45 | 1.086 | 0.983 | 1.189 | 69.049 | 7.93E-03 |
| Circulatory | Men/Women, 46-65 | 0.998 | 0.950 | 1.046 | 91.177 | 1.42E-03 |
| Circulatory | Men/Women, >65 | 1.010 | 0.982 | 1.037 | 86.069 | 3.17E-08 |
| Circulatory | Men, 15-45 | 1.017 | 0.960 | 1.074 | 14.379 | 3.34E-01 |
| Circulatory | Men, 46-65 | 0.994 | 0.950 | 1.037 | 86.555 | 7.70E-03 |
| Circulatory | Men, >65 | 1.001 | 0.940 | 1.061 | 96.115 | 9.42E-09 |
| Circulatory | Women, 15-45 | 1.109 | 1.007 | 1.211 | 16.314 | 3.70E-01 |
| Circulatory | Women, 46-65 | 1.011 | 0.965 | 1.057 | 74.301 | 1.43E-02 |
| Circulatory | Women, >65 | 1.007 | 0.980 | 1.033 | 64.473 | 7.06E-03 |
| Respiratory | Overall | 1.142 | 1.077 | 1.206 | 81.764 | 3.13E-06 |
| Respiratory | Men, all ages | 1.153 | 1.070 | 1.235 | 78.740 | 9.27E-05 |
| Respiratory | Women, all ages | 1.124 | 1.059 | 1.189 | 64.627 | 1.63E-02 |
| Respiratory | Men/Women, 15-45 | 1.007 | 0.959 | 1.056 | 0.099 | 4.98E-01 |
| Respiratory | Men/Women, 46-65 | 1.042 | 0.937 | 1.146 | 71.402 | 3.35E-02 |
| Respiratory | Men/Women, >65 | 1.039 | 0.977 | 1.102 | 46.951 | 1.50E-01 |
| Respiratory | Men, 15-45 | 0.995 | 0.912 | 1.079 | 33.500 | 2.64E-01 |
| Respiratory | Men, 46-65 | 0.987 | 0.968 | 1.006 | 0.000 | 2.53E-01 |
| Respiratory | Men, >65 | 1.038 | 0.960 | 1.116 | 43.223 | 1.61E-01 |
| Respiratory | Women, 15-45 | 1.009 | 0.941 | 1.078 | 0.000 | 5.96E-01 |
| Respiratory | Women, 46-65 | 1.065 | 0.982 | 1.148 | 11.346 | 3.75E-01 |
| Respiratory | Women, >65 | 1.037 | 0.985 | 1.088 | 0.000 | 7.76E-01 |

Table S3 – National average relative risks (95%CI) for heat (percentile 99th) exposure in Brazil stratified by health outcome, age, and sex. Note 1: This is the overall cumulative effect over 3 days of lag (summing all the contributions up to the maximum lag).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Outcome** | **Group** | **RR** | **95%CI** | | **I2** | **I2 (p-value)** |
| Circulatory | Overall | 0.986 | 0.950 | 1.022 | 88.962 | 3.98E-03 |
| Circulatory | Men, all ages | 0.976 | 0.926 | 1.027 | 87.245 | 1.14E-02 |
| Circulatory | Women, all ages | 1.009 | 0.952 | 1.066 | 80.938 | 5.80E-03 |
| Circulatory | Men/Women, 15-45 | 1.198 | 1.023 | 1.374 | 73.275 | 7.51E-03 |
| Circulatory | Men/Women, 46-65 | 0.967 | 0.890 | 1.044 | 87.666 | 3.47E-03 |
| Circulatory | Men/Women, >65 | 0.956 | 0.943 | 0.969 | 0.830 | 1.04E-01 |
| Circulatory | Men, 15-45 | 1.054 | 1.010 | 1.099 | 0.003 | 4.10E-01 |
| Circulatory | Men, 46-65 | 0.963 | 0.893 | 1.032 | 84.004 | 7.94E-03 |
| Circulatory | Men, >65 | 0.957 | 0.939 | 0.976 | 0.718 | 1.36E-01 |
| Circulatory | Women, 15-45 | 1.242 | 1.029 | 1.455 | 49.910 | 1.22E-01 |
| Circulatory | Women, 46-65 | 0.989 | 0.900 | 1.078 | 77.503 | 2.35E-02 |
| Circulatory | Women, >65 | 0.955 | 0.936 | 0.973 | 0.086 | 4.49E-01 |
| Respiratory | Overall | 1.473 | 1.376 | 1.570 | 78.494 | 1.11E-04 |
| Respiratory | Men, all ages | 1.472 | 1.351 | 1.593 | 74.381 | 1.34E-03 |
| Respiratory | Women, all ages | 1.461 | 1.371 | 1.550 | 50.771 | 9.54E-02 |
| Respiratory | Men/Women, 15-45 | 1.187 | 1.109 | 1.265 | 0.009 | 4.19E-01 |
| Respiratory | Men/Women, 46-65 | 1.135 | 0.997 | 1.274 | 66.037 | 3.42E-02 |
| Respiratory | Men/Women, >65 | 1.298 | 1.228 | 1.368 | 13.528 | 5.37E-01 |
| Respiratory | Men, 15-45 | 1.201 | 1.053 | 1.348 | 39.447 | 1.94E-01 |
| Respiratory | Men, 46-65 | 1.049 | 0.942 | 1.156 | 62.684 | 6.29E-02 |
| Respiratory | Men, >65 | 1.253 | 1.149 | 1.358 | 29.580 | 3.61E-01 |
| Respiratory | Women, 15-45 | 1.162 | 1.055 | 1.269 | 0.000 | 7.68E-01 |
| Respiratory | Women, 46-65 | 1.205 | 1.076 | 1.335 | 15.132 | 4.33E-01 |
| Respiratory | Women, >65 | 1.359 | 1.265 | 1.452 | 0.004 | 6.38E-01 |