Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Ji J S, Zhu A, Lv Y, et al. Interaction between residential greenness and air pollution mortality: analysis of the Chinese Longitudinal Healthy Longevity Survey. Lancet Planet Health 2020: 4: e107–115.
### Supplementary Table 1. Hazard ratios and 95% confidence intervals for each 0.1-unit decrease in contemporaneous NDVI, each 10 μg/m³ increase in 3-year average PM2.5, and mortality (adjusted for more informative covariates)

| Model          | HR (95% CI)     |
|----------------|-----------------|
| Model 1        |                 |
| Contemporaneous NDVI | 1.13 (1.12, 1.14) |
| Model 2        |                 |
| 3-year average PM2.5 | 1.09 (1.07, 1.12) |
| Model 3        |                 |
| Contemporaneous NDVI | 1.13 (1.12, 1.14) |
| 3-year average PM2.5 | 1.09 (1.07, 1.12) |
| Model 3        |                 |
| Contemporaneous NDVI | 1.07 (1.13, 1.12) |
| 3-year average PM2.5 | 1.14 (1.09, 1.18) |
| Interaction    | 1.01 (1.00, 1.02) |
| p-value for interaction | 0.015 |

Note: All models were adjusted for a number of covariates, including age, sex, ethnicity, marital status, urban/rural residence, education, main occupation before age 60, financial support, social and leisure activity, geographical region, smoking status (never/former/current smokers), alcohol consumption (never/former/current smokers), and physical activity at baseline. p-value indicated the significance test for the interaction between each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 in Model 4.

Model 1 tested the main effect of each 0.1-unit decrease in contemporaneous NDVI on mortality.
Model 2 tested the main effect of each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
Model 3 tested the main effects of each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
Model 4 tested the interaction between each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
Supplementary Table 2. A comparison summary of the baseline characteristics between the included participants (n=12,873) and all participants (n=16,954) of 2008 wave

| Characteristics                              | Included participants | All participants | p-value |
|----------------------------------------------|-----------------------|------------------|---------|
| Age (years) (mean±SD)                        | 12,873                | 16,954           | ..      |
| Sex                                           | 87±11·34              | 87±11·97         | 0·24    |
| Males                                         | 5,488 (42·63)         | 7,252 (42·77)    | 0·81    |
| Females                                       | 7,385 (57·37)         | 9,702 (57·23)    |         |
| Ethnicity                                     |                       |                  |         |
| Han Chinese                                  | 12,015 (93·33)        | 15,918 (93·89)   | 0·052   |
| Ethnic minorities                            | 858 (6·67)            | 1,036 (6·11)     |         |
| Marital status                                |                       |                  |         |
| Married                                       | 3,987 (30·97)         | 5,251 (30·97)    | 1·00    |
| Not married                                   | 8,886 (69·03)         | 11,703 (69·03)   |         |
| Residence                                     |                       |                  |         |
| Urban area                                    | 1,980 (15·38)         | 3,351 (19·77)    | <0·001  |
| Rural area                                    | 10,893 (84·62)        | 13,603 (80·23)   |         |
| Main occupation before age 60                 |                       |                  |         |
| Professional work                            | 820 (6·37)            | 1,183 (6·98)     | 0·038   |
| Non-professional work                         | 12,053 (93·63)        | 15,771 (93·02)   |         |
| Education                                     |                       |                  |         |
| Formal education                              | 4,664 (36·23)         | 6,371 (37·58)    | 0·017   |
| No formal education                           | 8,209 (63·77)         | 10,583 (62·42)   |         |
| Financial support                             |                       |                  |         |
| Financial independence                        | 3,022 (23·48)         | 4,395 (25·92)    | <0·001  |
| Financial dependence                          | 9,851 (76·52)         | 12,559 (74·08)   |         |
| Social and leisure activity index (mean±SD) | 2·03±1·53 | 2·06±1·56 | 0·12 |
| Smoking status | | | |
| Yes | 2,309 (17·94) | 13,988 (82·51) | 0·32 |
| No | 10,564 (82·06) | 2,966 (17·49) | |
| Alcohol consumption | | | |
| Yes | 2,307 (17·92) | 14,021 (82·70) | 0·16 |
| No | 10,566 (82·08) | 2,933 (17·30) | |
| Physical activity | | | |
| Yes | 3,425 (26·61) | 12,309 (72·60) | 0·13 |
| No | 9,448 (73·39) | 4,645 (27·40) | |
| Geographic regions | | | 0·043 |
| Central China | 2,192 (17·03) | 2,831 (16·70) | |
| Eastern China | 4,896 (38·03) | 6,424 (37·89) | |
| Northeastern China | 858 (6·67) | 1,257 (7·41) | |
| Northern China | 515 (4·00) | 738 (4·35) | |
| Northwestern China | 111 (0·86) | 169 (1·00) | |
| Southern China | 2,569 (19·96) | 3,381 (19·94) | |
| Southwestern China | 1,732 (13·45) | 2,154 (12·70) | |
Supplementary Table 3. Hazard ratios and 95% confidence intervals for each 0·1-unit decrease in cumulative NDVI, each 10 μg/m³ increase in 3-year average PM2.5, and mortality

| Model          | HR (95% CI)     |
|----------------|-----------------|
| Model 1        |                 |
| cumulative NDVI| 0·97 (0·95, 0·99)|
| Model 2        |                 |
| 3-year average PM$_{2.5}$ | 1·10 (1·04, 1·16) |
| Model 3        |                 |
| cumulative NDVI| 0·97 (0·95, 0·99)|
| 3-year average PM$_{2.5}$ | 1·10 (1·07, 1·12) |
| Model 3        |                 |
| cumulative NDVI| 0·91 (0·85, 0·97)|
| 3-year average PM$_{2.5}$ | 1·16 (1·09, 1·23) |
| Interaction    | 1·01 (1·00, 1·03) |
| p-value for interaction | 0·042 |

Note: All models were adjusted for a number of covariates, including age, sex, ethnicity, marital status, urban/rural residence, education, main occupation before age 60, financial support, social and leisure activity, geographical region, smoking status, alcohol consumption, and physical activity at baseline. p-value indicated the significance test for the interaction between each 0·1-unit decrease in cumulative NDVI and each 10 μg/m³ increase in 3-year average PM2.5 in Model 4. Model 1 tested the main effect of each 0·1-unit decrease in cumulative NDVI on mortality. Model 2 tested the main effect of each 10 μg/m³ increase in 3-year average PM2.5 on mortality. Model 3 tested the main effects of each 0.1-unit decrease in cumulative NDVI and each 10 μg/m³ increase in 3-year average PM2.5 on mortality. Model 4 tested the interaction between each 0·1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
### Supplementary Table 4. Hazard ratios and 95% confidence intervals for each 0.1-unit decrease in contemporaneous NDVI, each 10 μg/m³ increase in 3-year average PM$_{2.5}$, and mortality (weighted analysis)

| Model   | Contemporaneous NDVI | 3-year average PM$_{2.5}$ | HR (95% CI)   |
|---------|----------------------|---------------------------|---------------|
| Model 1 | 1.23 (1.20, 1.27)    |                           |               |
| Model 2 | 1.10 (1.04, 1.16)    |                           |               |
| Model 3 | 1.23 (1.20, 1.27)    | 1.10 (1.04, 1.16)         |               |
| Model 3 | 1.10 (0.99, 1.23)    | 1.20 (1.09, 1.32)         |               |
| Interaction | 1.02 (1.00, 1.05) |                           |               |
| p-value for interaction | 0.031                  |                           |               |

Note: All models were adjusted for a number of covariates, including age, sex, ethnicity, marital status, urban/rural residence, education, main occupation before age 60, financial support, social and leisure activity, geographical region, smoking status (never/former/current smokers), alcohol consumption (never/former/current smokers), and physical activity at baseline. p-value indicated the significance test for the interaction between each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM$_{2.5}$ in Model 4. Model 1 tested the main effect of each 0.1-unit decrease in contemporaneous NDVI on mortality. Model 2 tested the main effect of each 10 μg/m³ increase in 3-year average PM$_{2.5}$ on mortality. Model 3 tested the main effects of each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM$_{2.5}$ on mortality. Model 4 tested the interaction between each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM$_{2.5}$ on mortality.
Supplementary Table 5. Hazard ratios and 95% confidence intervals for each 0·1-unit decrease in contemporaneous NDVI, each 10 μg/m³ increase in 3-year average PM2.5, and mortality (excluding the participants with negative NDVI values, n=12,803)

| Model     | HR (95% CI)        |
|-----------|--------------------|
| Model 1   |                    |
| Contemporaneous NDVI | 1·13 (1·12, 1·14) |
| Model 2   |                    |
| 3-year average PM<sub>2.5</sub> | 1·09 (1·07, 1·12) |
| Model 3   |                    |
| Contemporaneous NDVI | 1·13 (1·12, 1·14) |
| 3-year average PM<sub>2.5</sub> | 1·09 (1·07, 1·12) |
| Model 3   |                    |
| Contemporaneous NDVI | 1·08 (1·03, 1·13) |
| 3-year average PM<sub>2.5</sub> | 1·13 (1·09, 1·18) |
| Interaction | 1·01 (1·00, 1·02) |
| p-value for interaction | 0·028 |

Note: All models were adjusted for a number of covariates, including age, sex, ethnicity, marital status, urban/rural residence, education, main occupation before age 60, financial support, social and leisure activity, geographical region, smoking status (never/former/current smokers), alcohol consumption (never/former/current smokers), and physical activity at baseline. p-value indicated the significance test for the interaction between each 0·1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM<sub>2.5</sub> in Model 4.

Model 1 tested the main effect of each 0·1-unit decrease in contemporaneous NDVI on mortality.
Model 2 tested the main effect of each 10 μg/m³ increase in 3-year average PM<sub>2.5</sub> on mortality.
Model 3 tested the main effects of each 0·1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM<sub>2.5</sub> on mortality.
Model 4 tested the interaction between each 0·1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM<sub>2.5</sub> on mortality.
### Supplementary Table 6. Hazard ratios and 95% confidence intervals for each 0.1-unit decrease in contemporaneous NDVI, each 10 μg/m³ increase in 3-year average PM2.5, and mortality (excluding the participants with missing covariates, \( n=12,837 \))

| Model | HR (95% CI)          |
|-------|----------------------|
| Model 1 |                           |
| Contemporaneous NDVI | 1.13 (1.12, 1.15)       |
| Model 2 |                           |
| 3-year average PM2.5 | 1.09 (1.07, 1.12)       |
| Model 3 |                           |
| Contemporaneous NDVI | 1.13 (1.12, 1.14)       |
| 3-year average PM2.5 | 1.09 (1.07, 1.12)       |
| Model 3 |                           |
| Contemporaneous NDVI | 1.08 (1.03, 1.13)       |
| 3-year average PM2.5 | 1.13 (1.09, 1.18)       |
| Interaction           | 1.01 (1.00, 1.02)       |
| p-value for interaction | 0.030  |

Note: All models were adjusted for a number of covariates, including age, sex, ethnicity, marital status, urban/rural residence, education, main occupation before age 60, financial support, social and leisure activity, geographical region, smoking status (never/former/current smokers), alcohol consumption (never/former/current smokers), and physical activity at baseline. p-value indicated the significance test for the interaction between each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 in Model 4.

Model 1 tested the main effect of each 0.1-unit decrease in contemporaneous NDVI on mortality.
Model 2 tested the main effect of each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
Model 3 tested the main effects of each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
Model 4 tested the interaction between each 0.1-unit decrease in contemporaneous NDVI and each 10 μg/m³ increase in 3-year average PM2.5 on mortality.
Supplementary Figure 1. Geographic distribution of the number of included participants by provinces