### Supplementary Table 1. Basic population information of 12 towns (streets) with 17 health centers in the Liyang city (2020)

| All towns        | Health centers | Permanent population | Region | Residents (n=764,000, %) | Inclusion participants (n=10,200, %) | $\chi^2$ | P-value |
|------------------|----------------|----------------------|--------|--------------------------|--------------------------------------|---------|---------|
| Shezhu town      | Shezhu hospital| 52,021               | Urban  | 52,021 (6.81)            | 586 (5.75)                          | 62.37   | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Zhoucheng town   | Zhoucheng hospital | 24,668             | Urban  | 24,668 (3.23)            | 637 (6.25)                           | 179.01  | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Nandu town       | Nandu hospital | 64,614               | Urban  | 64,614 (8.46)            | 625 (6.13)                           | 152.27  | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Shangxing town   | Shangpei hospital | 40,453              | Urban  | 40,453 (5.29)            | 613 (6.01)                           | 0.17    | 0.68    |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Zhuze town       | Zhuze hospital | 59,855               | Urban  | 38,160 (4.99)            | 616 (6.04)                           | 1.45    | 0.24    |
|                  | Rural          | 24,695 (3.23)        | 637 (6.25) |                          |                                       |         |         |
| Bieqiao town     | Bieqiao hospital | 65,790              | Urban  | 65,790 (8.61)            | 626 (6.14)                           | 164.08  | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Shanghuang town  | Shanghuang hospital | 25,776              | Urban  | 25,776 (3.37)            | 602 (5.90)                           | 108.20  | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Daitou town      | Daitou hospital | 27,245               | Urban  | 27,245 (3.57)            | 600 (5.88)                           | 79.57   | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Kunlun street    | Kunlun hospital | 55,260               | Urban  | 38,962 (5.10)            | 246 (2.41)                           | 9.92    | <0.05   |
|                  | Rural          | 16,298 (2.13)        | 386 (3.78) |                          |                                       |         |         |
| Guxian street    | Xinchang hospital | 36,166              | Urban  | 36,166 (4.73)            | 612 (6.00)                           | 5.71    | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Licheng street   | Licheng hospital | 87,455              | Urban  | 60,221 (7.88)            | 102 (1.00)                           | 241.22  | <0.05   |
|                  | Rural          | 27,234 (3.56)        | 341 (3.34) |                          |                                       | 1.44    | 0.23    |
| Qingan hospital  | 32,372         | Urban                | 30,032 (3.93) | 292 (2.86) | 135.86                | <0.05   |
|                  | Rural          | 2,340 (0.31)         | 301 (2.95) |                          |                                       | 173.94  | <0.05   |
| Madian hospital  | 40,592         | Urban                | 14,775 (1.93) | 222 (2.18) | 0.13                 | 0.71    |
|                  | Rural          | 25,817 (3.37)        | 297 (2.91) |                          |                                       | 26.24   | <0.05   |
| Tianmuhu town    | Tianmuhu hospital | 40,891              | Urban  | 3,328 (0.44)            | 0                                    |        |         |
|                  | Rural          | 37,563 (4.92)        | 625 (6.13) |                          |                                       | 3.94    | 0.06    |
| Pingqiao hospital| 20,799         | Urban                | 20,799 (2.72) | 598 (5.86) | 242.54                | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Daibu town       | Daibu hospital | 51,883               | Urban  | 51,883 (6.79)            | 633 (6.21)                           | 5.45    | <0.05   |
|                  | Rural          | 0                    | 0      |                          |                                       |         |         |
| Total            | Liyang City/Liang Study | 76,4000 | Urban  | 154,940 (20.28)         | 822 (8.06)                           | 935.45  | <0.05   |
|                  | Rural          | 609,060 (79.72)      | 9,378 (91.94) |                          |                                       |         |         |
## Supplementary Table 2. Distribution of resources in towns (streets) of Liyang City in 2020

| 12 towns(streets) | Hospital beds(n) | Medical staff(n) | Schools(n) | Students(n) | GDP(billion) | GDP per capita(ten thousand yuan) |
|-------------------|------------------|------------------|-----------|-------------|-------------|----------------------------------|
| Shezhu town       | 131              | 113              | 7         | 4,104       | 10.13       | 13.21                            |
| Nandu town        | 250              | 126              | 7         | 4,200       | 5.14        | 7.95                             |
| Shangxing town    | 134              | 87               | 7         | 4,721       | 6.73        | 8.56                             |
| Zhuze town        | 83               | 84               | 5         | 3,541       | 3.99        | 6.67                             |
| Bieqiao town      | 58               | 73               | 6         | 2,121       | 6.37        | 9.68                             |
| Shanghuang town   | 42               | 41               | 2         | 877         | 3.78        | 14.66                            |
| Daitou town       | 30               | 34               | 4         | 1,564       | 3.86        | 14.17                            |
| Kunlun street     | 54               | 79               | 10        | 10,212      | 27.53       | 30.11                            |
| Guxian street*    | -                | -                | -         | -           | 7.96        | 22.01                            |
| Licheng street    | 1,854            | 1,709            | 15        | 23,308      | 24.81       | 15.47                            |
| Tianmuhu town     | 64               | 73               | 5         | 4,019       | 3.97        | 6.44                             |
| Daibu town        | 120              | 122              | 5         | 3,240       | 4.37        | 8.42                             |

*As a result of a new round of administrative division, Guxian street was merged into Kunlun street. GDP, Gross Domestic Product (billion, RMB).
### Supplementary Table 3. Comparison between Liyang Study and Census of Liyang City in 2020

| Age Category | Age Distribution (%) | Sex Structure (male, %) |
|--------------|----------------------|-------------------------|
|              | Liyang Study | Total in Liyang | $\chi^2$ | $P$ | Liyang Study | Total in Liyang | $\chi^2$ | $P$ |
| 18-24        | 3.69          | 5.64            | 117.17   | <0.001 | 45.01        | 52.67          | 8.642    | 0.003 |
| 25-29        | 8.10          | 7.89            | 0.571    | 0.450  | 51.90        | 53.68          | 1.019    | 0.313 |
| 30-34        | 9.64          | 8.84            | 7.786    | 0.005  | 45.92        | 49.80          | 5.731    | 0.017 |
| 35-39        | 7.96          | 5.48            | 116.52   | <0.001 | 44.13        | 48.89          | 7.110    | 0.008 |
| 40-44        | 8.61          | 6.91            | 21.569   | <0.001 | 46.30        | 49.33          | 3.112    | 0.078 |
| 45-49        | 13.15         | 11.72           | 19.457   | <0.001 | 46.37        | 48.64          | 2.682    | 0.102 |
| 50-54        | 11.51         | 12.58           | 10.412   | 0.001  | 49.09        | 48.32          | 0.273    | 0.601 |
| 55-59        | 10.00         | 12.08           | 40.302   | <0.001 | 47.02        | 49.77          | 3.010    | 0.083 |
| 60-64        | 5.80          | 6.98            | 21.388   | <0.001 | 48.54        | 52.59          | 3.784    | 0.052 |
| 65-69        | 7.98          | 7.68            | 1.219    | 0.270  | 45.51        | 50.90          | 9.177    | 0.003 |
| 70-74        | 6.15          | 6.66            | 4.221    | 0.040  | 47.41        | 49.10          | 0.632    | 0.427 |
| 75-79        | 3.33          | 3.28            | 0.082    | 0.774  | 49.85        | 46.08          | 1.887    | 0.170 |
| 80-84        | 2.50          | 2.09            | 7.963    | 0.005  | 45.82        | 44.78          | 0.107    | 0.744 |
| 85+          | 1.60          | 1.81            | 2.438    | 0.118  | 42.86        | 41.61          | 0.149    | 0.700 |
| Total        | 100           | 100             | -        | -      | 47.08        | 49.72          | 27.701   | <0.001 |