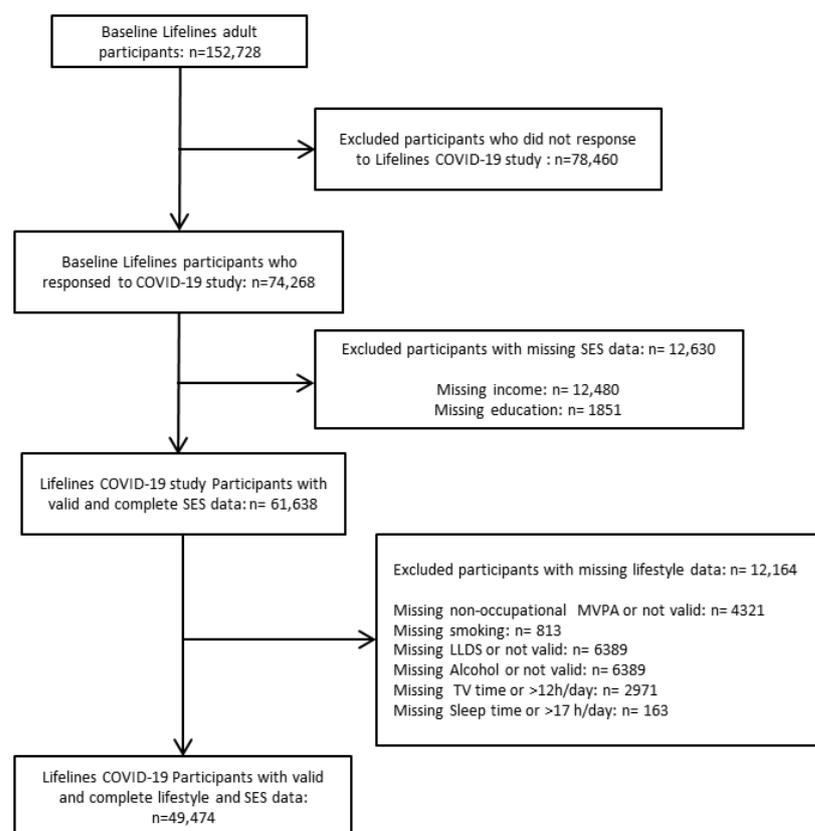


Supplementary Figure 1. Study flow chart**Supplementary Table 1.** Association of education or income with COVID-19 status with further adjustment for number of questionnaires filled.

| Education | COVID-19 Status | | | | | |
|-----------|------------------|--------|------------------|--------|------------------|-------|
| | Self-reported | | Tested | | Diagnosed | |
| | OR [95%CI] | p | OR [95%CI] | p | RR [95%CI] | p |
| Model 1 | | | | | | |
| low | 0.78 [0.71-0.86] | <0.001 | 0.58 [0.52-0.66] | <0.001 | 1.10 [0.60-2.01] | 0.8 |
| middle | 0.90 [0.84-0.97] | 0.004 | 0.72 [0.66-0.79] | <0.001 | 1.77 [1.21-2.60] | 0.003 |
| high | | | Ref | | | |
| Model 2 | | | | | | |
| low | 0.79 [0.72-0.87] | <0.001 | 0.61 [0.54-0.68] | <0.001 | 1.08 [0.60-1.95] | 0.8 |
| middle | 0.91 [0.84-0.97] | 0.006 | 0.73 [0.67-0.80] | <0.001 | 1.72 [1.17-2.52] | 0.005 |
| high | | | Ref | | | |
| Income | Self-reported | | Tested | | Diagnosed | |
| | OR [95%CI] | p | OR [95%CI] | p | RR [95%CI] | p |
| | | | | | | |
| Model 1 | | | | | | |
| low | 0.86 [0.79-0.93] | <0.001 | 0.86 [0.78-0.95] | 0.002 | 0.74 [0.47-1.18] | 0.2 |
| middle | 0.80 [0.74-0.87] | <0.001 | 0.86 [0.78-0.94] | 0.002 | 1.05 [0.70-1.57] | 0.8 |
| high | | | Ref | | | |
| Model 2 | | | | | | |

| | | | | | | |
|--------|------------------|--------|------------------|--------|------------------|-----|
| low | 0.85 [0.78-0.92] | <0.001 | 0.84 [0.76-0.92] | <0.001 | 0.78 [0.49-1.24] | 0.3 |
| middle | 0.80 [0.74-0.86] | <0.001 | 0.85 [0.77-0.93] | 0.001 | 1.04 [0.69-1.55] | 0.9 |
| high | | | | Ref | | |

*Model 1: adjusted for education or income, age, sex, six lifestyle factors (smoking status, TV watching time \geq 4h/day, sleep time <7 or >9 h/day, MVPA<150 min/week, LLDS, and heavy drinker), BMI, and ethnicity. Model 2: adjusted for education or income, age, sex, six lifestyle factors (smoking status, TV watching time \geq 4h/day, sleep time <7 or >9 h/day, MVPA<150 min/week, LLDS, and heavy drinker), BMI, ethnicity, and number of questionnaires filled.

Supplementary Table 2. Characteristics and COVID-19 status of study population and excluded population.

| | Study population n= 49,474 | Excluded population n= 24,794 |
|-------------------------------|-------------------------------|----------------------------------|
| Sex, male % | 40.3 | 37.3 |
| Age, mean (sd) | 46 \pm 12 | 45 \pm 12 |
| BMI, mean (sd) | 26.0 \pm 4.2 | 26.0 \pm 4.3 |
| Underweight,% | 0.7 | 0.8 |
| Normal,% | 44.9 | 42.0 |
| Overweight,% | 40.0 | 36.9 |
| Obese,% | 14.5 | 14.0 |
| Ethnicity, white % | 92.0 | 81.3 |
| Self-reported covid-19, n (%) | 4711 (9.5) | 2534 (10.2) |
| Tested covid-19, n (%) | 2883 (5.8) | 1284 (5.2) |
| Diagnosed covid-19, n (%) | 123 (0.3) | 50 (0.2) |

Supplementary Table 3. Mediation effect of lifestyle factors in the association between SES and COVID-19 status.

| SES indicators | COVID-19 Status | | |
|--------------------------|-----------------|--------|-----------|
| | Self-reported | Tested | Diagnosed |
| Education | | | |
| Proportion mediated (%)* | 9.9 | ns | ns |
| Income | | | |
| Proportion mediated (%) | 6.7 | 9.5 | ns |

*The proportion mediated was calculated when the mediation effect of lifestyle factors was significant. As shown in the table, lifestyle factors only slightly mediated the association of SES and self-reported, and tested COVID-19 status because the proportion mediated was really small (<10%). This was in accordance with our regression model2 that the coefficient was slightly attenuated after adjustment for lifestyle factors.

Supplementary Table 4. COVID-19 diagnosed cases for the Netherlands as whole and for the Northern Provinces (Lifelines population). Source: RIVM, downloaded from the CoronaWatchNL Github.

| Region | Diagnosed (cumulative on 28th of June, 2020) |
|-------------|---|
| Netherlands | 50,167 |
| North NL | 1529 |
| Groningen | 362 |
| Friesland | 634 |
| Drenthe | 533 |