

## Socio-economic disparities in self-reported, tested, and diagnosed COVID-19 status

Yinjie Zhu

Y Zhu<sup>1</sup>, M Duan<sup>1</sup>, HH Dijk<sup>2</sup>, RD Freriks<sup>2</sup>, LH Dekker<sup>1,3</sup>, JO Mierau<sup>2,3</sup>

<sup>1</sup>Internal Medicine, UMCG, Groningen, Netherlands

<sup>2</sup>Economics and Business, University of Groningen, Groningen, Netherlands

<sup>3</sup>Aletta Jacobs School of Public Health, University of Groningen, Groningen, Netherlands

Contact: y.zhu@umcg.nl

### Backgrounds:

Studies in clinical settings showed a potential relationship between Socio-Economic Status (SES) and lifestyle factors with COVID-19, but it is still unknown whether this holds in the general population. In this study we investigated the associations of SES with self-reported, tested, and diagnosed COVID-19 status in the general population.

### Methods:

Participants were 49,474 men and women ( $46 \pm 12$  yrs) residing in the Northern Netherlands from the Lifelines cohort study. SES indicators and lifestyle factors (i.e., smoking status, physical activity, alcohol intake, diet quality, sleep time, and TV watching time) were assessed by questionnaire from the Lifelines Biobank. Self-reported, tested, and diagnosed COVID-19 status were obtained from the Lifelines COVID-19 questionnaire.

### Results:

There were 4,711 participants who self-reported having had a COVID-19 infection, 2,883 participants tested for COVID-19, and 123 positive cases diagnosed in this study population. After adjustment for age, sex, lifestyle factors, BMI, and ethnicity, we found that participants with low education or low income were less likely to self-report a COVID-19 infection (OR [95%CI]: low education 0.78 [0.71-0.86]; low income 0.86 [0.79-0.93]), and be tested for COVID-19 (OR [95%CI]: low education 0.58 [0.52-0.66]; low income 0.86 [0.78-0.95]) compared with high education or high income groups, respectively.

### Conclusions:

Our findings suggest that the low SES group was the most vulnerable population to COVID-19 infection and self-reported and tested COVID-19 status in the general population was better predicted by SES than by lifestyle factors.

### Key messages:

- This study innovatively included a broader range of COVID-19 status, including self-reported and tested COVID-19 status, to better understand COVID-19 related socio-economic factors.
- This study added evidence to the socio-economically patterned COVID-19 status in a general population instead of in clinical settings.