Socioeconomic differences in the association between national measures taken to mitigate the COVID-19 pandemic and the number of births in the Netherlands

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BACKGROUND

• The COVID-19 pandemic and its associated policy responses drastically redraw the world’s demographics.
• Little is known on how fertility changed during this pandemic.
• Baby boom vs baby bust.
• Fertility trends during the COVID-19 pandemic might differ between socioeconomic groups within a country.

OBJECTIVES

1) Investigate whether the national implementation of COVID-19 mitigation measures in the Netherlands was associated with changes in the incidence of conceptions.
2) Investigate whether the association between the national implementation of COVID-19 mitigation measures and changes in the incidence of conceptions varied according to neighbourhood socioeconomic status (SES).
3) Investigate whether the national relaxation of COVID-19 mitigation measures in the Netherlands was associated with changes in the incidence of conceptions.

METHODOLOGY

Data sources

• Monthly live births in the Netherlands dataset by Statistics Netherlands (CBS).
• Praeventis: national database containing for babies having undergone neonatal blood spot screening (>99% of live births). Variables: date of birth, gestational age, and postcode.
• The Netherlands Institute for Social Research neighbourhood SES scores calculated for four-digit postcode areas.

Outcome

Weekly total incidence of conceptions, which will be approximated by the weekly number of conceived live births that underwent neonatal blood spot screening.

Exposure

• Primary: Dutch “intelligent lockdown” implemented in the Netherlands on 15th of March 2020, with easing of restrictions per 1st of July 2020.
• Secondary: Release of restrictions on 1st of July 2020.

Statistical analysis

• Description of trends in monthly live births in NL.
• Interrupted time series analysis:
  • Step and trend change.
  • Interaction term for SES groups.
  • Harmonic term to account for seasonality.

STRENGTHS AND LIMITATIONS

Strengths

• National-level weekly data.
• Gestational age available in Praeventis dataset. Preterm births can be taken into account.

Limitations

• Dataset does not contain early pregnancy losses, stillbirths, and very early neonatal deaths.
• Only possible to link records to area-level SES (using postcode). Individual-level SES measures not available.

NEXT STEPS

• Use Praeventis database to investigate whether there was a change in the incidence of conceptions after “intelligent lockdown” (and the release of measures).
• Investigate any potential differences across SES groups.

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A higher number of number of (live) births was observed in the Netherlands from February 2021 compared to the trends observed in the previous 5 years (Figure 1).

Figure 1

Monthly number of births in the Netherlands (Jan 2020- Sep 2021)

Data source: Statistics Netherlands (CBS)