

research



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FAST TRACK

ORIGINAL RESEARCH OpenSAFELY cohort study of 12 million adults in England

Association between living with children and outcomes from covid-19

Forbes H, Morton CE, Bacon S, et al

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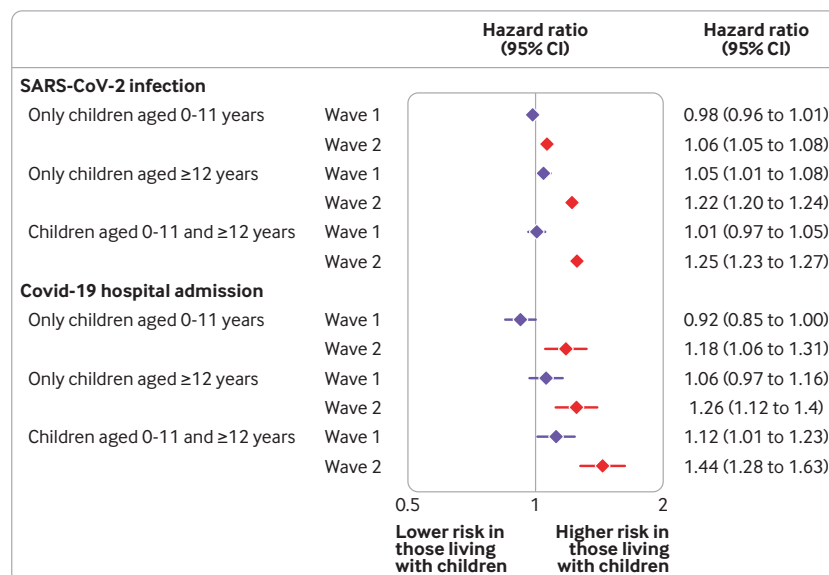
Study question Did the risk of infection with SARS-CoV-2 and covid-19 outcomes differ between adults living with and without children during the first two waves of the UK pandemic?

Methods This population based cohort study used primary care data and pseudonymously linked hospital and intensive care admissions and death records from England during wave 1 (1 February to 31 August 2020) and wave 2 (1 September to 18 December 2020). Adjusted hazard ratios for SARS-CoV-2 infection, covid-19 related hospital or intensive care admission, or covid-19 related death were calculated, by presence of children in the household for the two cohorts.

Study answer and limitations Among 9 334 392 adults aged 65 years and under, during wave 1, living with children was not associated with materially increased risks

of recorded SARS-CoV-2 infection or covid-19 outcomes. In wave 2, living with children was associated with an increased risk of recorded SARS-CoV-2 infection (hazard ratio 1.06 (95% confidence interval 1.05 to 1.08) for children aged 0-11; 1.22 (1.20 to 1.24) for age 12-18) and covid-19 related hospital admission (1.18 (1.06 to 1.31) for children aged 0-11; 1.26 (1.12 to 1.40) for age 12-18). Living with young people aged 12-18 years was associated with an increase of 160-190 per 10 000 in the number of SARS-CoV-2 infections and an increase of 2-6 per 10 000 in the number of hospital admissions. The study did not examine the direct association between children and adults within a household testing positive for SARS-CoV-2.

What this study adds In contrast with wave 1, during wave 2, risk of reported SARS-CoV-2 infection and covid-19 outcomes increased among adults living with children. This did not, however, translate into a materially increased risk of covid-19 mortality, and absolute increases in risk were small.



Adjusted hazard ratios for SARS-CoV-2 infection and covid-19 related hospital admission among adults aged 65 years and under, for waves 1 and 2 of UK pandemic

Funding, competing interests, and data sharing This work was supported by the Medical Research Council. See bmj.com for competing interests. Detailed pseudonymised patient data are potentially re-identifiable and therefore not shared. All code is shared openly for review and reuse under an MIT open licence.

Clustering and longitudinal change in SARS-CoV-2 seroprevalence in schoolchildren in the canton of Zurich, Switzerland

Ulyte A, Radtke T, Abela I A, et al

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Study question What are the longitudinal changes in SARS-CoV-2 seroprevalence and how frequently do clusters occur in children who are seropositive within school classes in the canton of Zurich, Switzerland?

Methods In this prospective cohort study, children from randomly selected schools and classes, stratified by district, were invited for serological testing for SARS-CoV-2 in June-July and October-November 2020. Parents completed questionnaires on sociodemographic and health related questions. 275 classes in 55 schools were enrolled; 2603 children participated in the summer testing and 2552 in the autumn testing (age range 6-16 years). Bayesian logistic regression was used to estimate seroprevalence, which allowed adjustments for the sensitivity and specificity of the SARS-CoV-2 antibody test and the hierarchical structure of the cohort (individual and school levels).

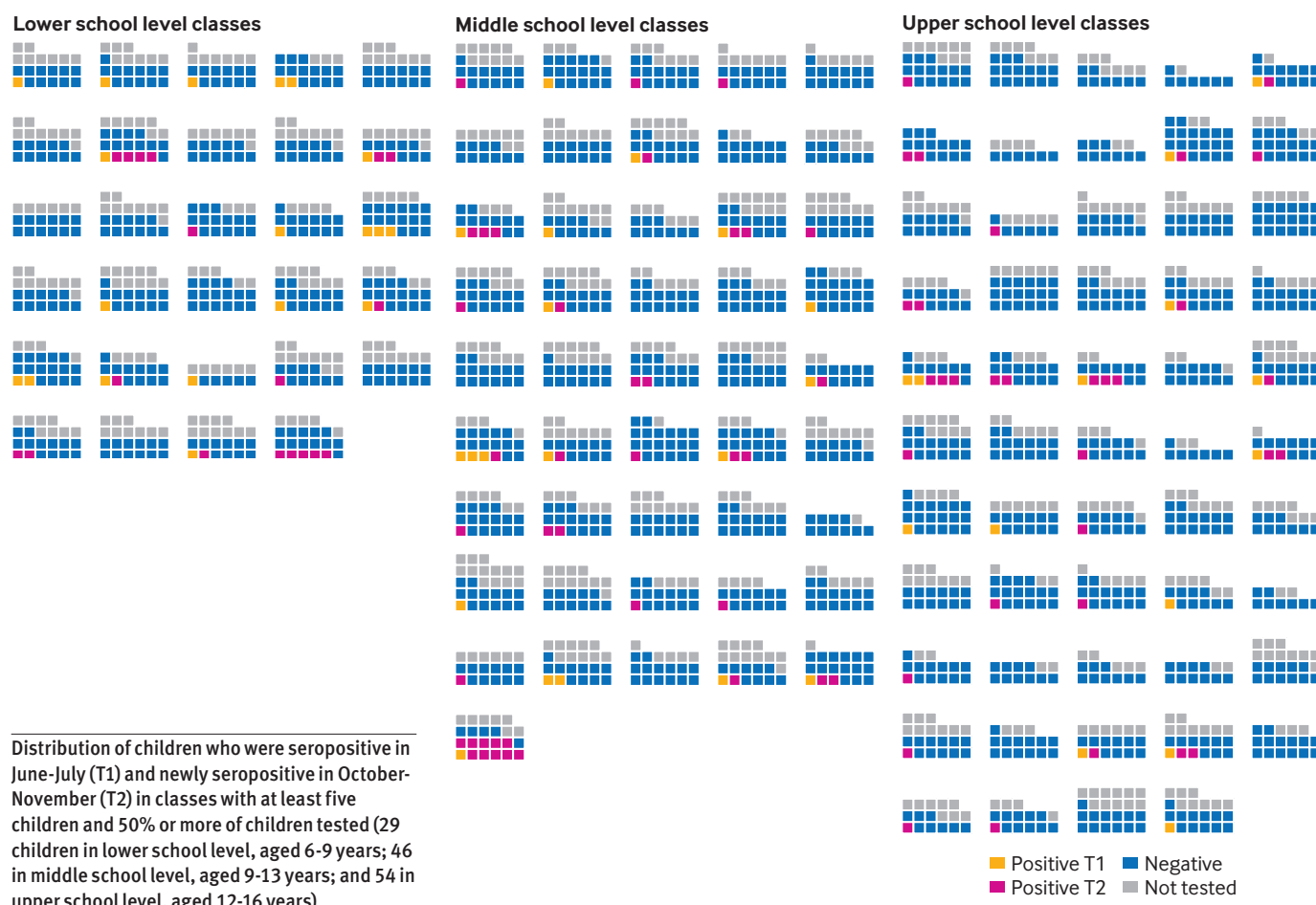
Study answer and limitations In June-July, 74 of 2496 children with serological results were seropositive; in October-November, the number had increased to 173 of 2503. Overall SARS-CoV-2

seroprevalence was 2.4% (95% credible interval 1.4% to 3.6%) in summer and 4.5% (3.2% to 6.0%) in late autumn in children who were not previously seropositive, leading to an estimated 7.8% (6.2% to 9.5%) of children who were ever seropositive. At least one child who was newly seropositive was detected in 47 of 55 schools and in 90 of 275 classes. Among 130 classes with a high participation rate, no children with seropositivity were found in 73 (56%) classes, one or two children were seropositive in 50 (38%) classes, and at least three children were seropositive in 7 (5%) classes. In the multilevel logistic regression models, class level explained 24% of variance and school level 8% of variance in seropositivity. The limitations of this study include the delay between infection and seroconversion, retrospective identification of infections, and suboptimal participation rates.

What this study adds With schools in the canton of Zurich open since August 2020 and some preventive measures in place, clustering of children who were seropositive occurred in only a few classes despite an increase in overall seroprevalence during a period of moderate to high transmission of SARS-CoV-2 in the community. Uncertainty remains as to whether these findings will change with new variants of SARS-CoV-2 and dynamic levels of community transmission.

Funding, competing interests, and data sharing This study is part of the Corona Immunitas research network, coordinated by the Swiss School of Public Health. Full funding details given on bmj.com. No competing interests. Deidentified participant data might be available at later stages of the study.

Trial registration NCT04448717.



ORIGINAL RESEARCH Double blind randomised controlled trial

Continued versus discontinued oxytocin stimulation in the active phase of labour (CONDISOX)

Boie S, Glavind J, Uldbjerg N, Steer PJ, Bor P, on behalf of the CONDISOX trial group

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doi: 10.1136/bmj.n716

Study question Does discontinuation of oxytocin stimulation, once the active phase of induced labour is achieved, reduce the overall caesarean section rate?

Methods This double blind, randomised controlled trial was conducted in nine hospitals in Denmark and one in the Netherlands between 8 April 2016 and 30 June 2020. The study population comprised 1200 women (two subsequently withdrew consent) stimulated with intravenous oxytocin infusion during the latent phase of induced labour who were randomly assigned to have their oxytocin stimulation discontinued or continued in the active phase of labour. The primary outcome measure was delivery by caesarean section.

Study answer and limitations Discontinuation of oxytocin stimulation was associated with a slightly higher rate of caesarean section compared with continuation (101/607 (16.6%) v 84/593 (14.2%)) but with a significantly lower risk of uterine hyperstimulation (20/546 (3.7%) v 70/541 (12.9%)) and abnormal fetal heart rate (153/548 (27.9%) v 219/537 (40.8%)). The main limitation was the relatively high proportion of women who stopped the assigned treatment.

What this study adds In a setting where close monitoring of the fetal condition and uterine contractions can be guaranteed, routine discontinuation of oxytocin stimulation might lead to a small increase in the rate of caesarean section, but the significantly reduced risk of uterine hyperstimulation and abnormal fetal heart rate may be an important advantage in settings where monitoring resources are limited.

Funding, competing interests, and data sharing The funders (see bmj.com) had no role in any aspects of the conduct of the study. The authors declare no competing interests. In line with Danish legislation, data will be available only after approval by the Danish Data Protection Agency and with a signed access agreement.

Trial registration ClinicalTrials.gov NCT02553226.

Key outcomes. Values are numbers (percentages) unless stated otherwise

Key outcomes. Values are numbers (percentages) unless stated otherwise				
Outcomes	Study population		Relative risk (95% CI)	P value
	Discontinued (n=607)	Continued (n=591)		
Primary outcome				
Caesarean section	101 (16.6)	84 (14.2)	1.17 (0.90 to 1.53)	0.25
Secondary outcomes				
Uterine tachysystole during intervention	20/546 (3.7)	70/541 (12.9)	0.28 (0.17 to 0.46)	<0.001
Fetal heart rate abnormalities during intervention	153/548 (27.9)	219/537 (40.8)	0.68 (0.57 to 0.81)	<0.001

thebmj Visual Abstract



Reduced oxytocin stimulation in labour

The impact of discontinuing infusion in active phase

Summary



Routine discontinuation of oxytocin stimulation in the active phase of labour (≥ 6 cm of cervical dilation) may lead to a small increase in caesarean section rate but a significantly reduced risk of uterine hyperstimulation and abnormal fetal heart rate patterns

Study design



Randomised controlled trial



Double blind



People recruited from one Dutch and nine Danish hospitals

Population



1198 pregnant women



Mean age 31 years old

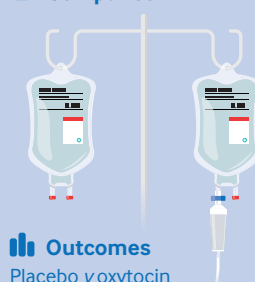


Nulliparous 67%



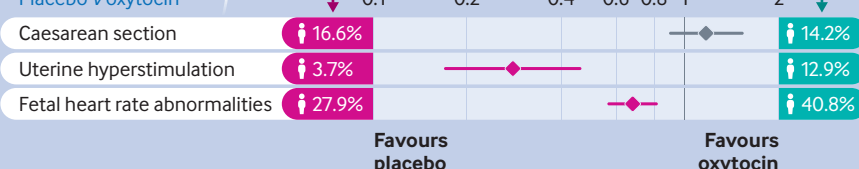
Median prepregnancy body mass index 25

Comparison



Outcomes

Placebo v oxytocin



<http://bit.ly/BMJoxylab>

ClinicalTrials.gov: NCT02553226

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Associations of healthy lifestyle and socioeconomic status with mortality and incident cardiovascular disease

Zhang Y-B, Chen C, Pan X-F, et al

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Study question Can overall lifestyles mediate the associations of socioeconomic status (SES) with mortality and incident cardiovascular disease (CVD), and what are the extent of the interactions and joint relations of lifestyles and SES with health outcomes?

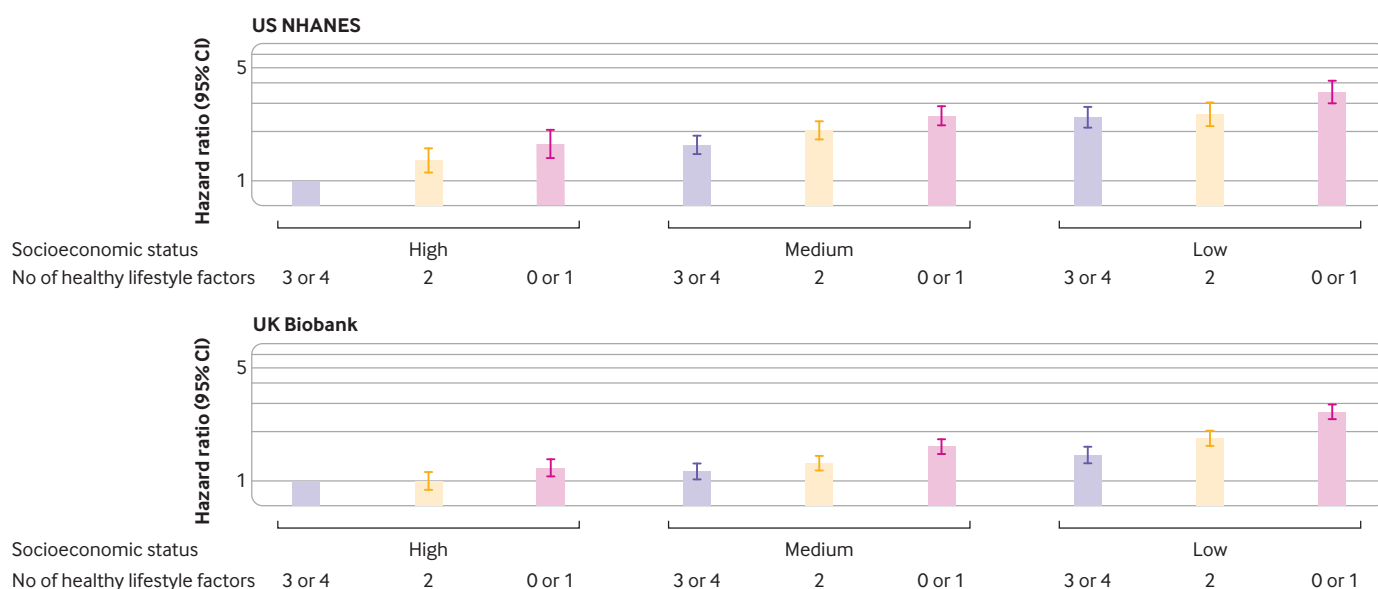
Methods 44 462 adults aged 20 years or older from the US National Health and Nutrition Examination Survey (US NHANES) and 399 537 adults aged 37 to 73 years from the UK Biobank were included. An overall individual level SES variable with three levels (low, medium, and high) was derived by latent class analysis using family income level, occupation or employment status, education level, and health insurance (US NHANES only). A healthy lifestyle score was constructed using information on never smoking, no heavy alcohol consumption, higher physical activity level, and a higher diet quality score. All cause mortality and CVD mortality or morbidity were obtained through linkage to relevant registries.

Study answer and limitations US NHANES documented 8906 deaths over a mean 11.2 years of follow-up, and UK Biobank documented 22 309 deaths and 6903 incident CVD cases over a mean 8.8-11.0 years of follow-up. Among adults of low SES, age adjusted risk of

death was 22.5 (95% confidence interval 21.7 to 23.3) and 7.4 (7.3 to 7.6) per 1000 person years in US NHANES and UK Biobank, respectively, and age adjusted risk of CVD was 2.5 (2.4 to 2.6) per 1000 person years in UK Biobank. The corresponding risks among adults of high SES were 11.4 (10.6 to 12.1), 3.3 (3.1 to 3.5), and 1.4 (1.3 to 1.5) per 1000 person years. Compared with adults of high SES, those of low SES had higher risks of all cause mortality (hazard ratio 2.13, 95% confidence interval 1.90 to 2.38 in US NHANES; 1.96, 1.87 to 2.06 in UK Biobank), CVD mortality (2.25, 2.00 to 2.53), and incident CVD (1.65, 1.52 to 1.79), and the proportions mediated by lifestyle ranged from 3.0% to 12.3%. Compared with adults of high SES and three or four healthy lifestyle factors, those with low SES and no or one healthy lifestyle factor had higher risks of all cause mortality (3.53, 3.01 to 4.14 in US NHANES; 2.65, 2.39 to 2.94 in UK Biobank), CVD mortality (2.65, 2.09 to 3.38), and incident CVD (2.09, 1.78 to 2.46). Single measured and self-reported information might bias the results.

What this study adds Unhealthy lifestyles mediated a small proportion of the socioeconomic inequity in health in both US and UK adults. Nevertheless, healthy lifestyles were associated with lower risks of mortality and incident CVD in different SES subgroups, especially those of low SES in the UK.

Funding, competing interests, and data sharing AP had financial support from the National Nature Science Foundation of China and National Key Research and Development Program of China. YL received research funds from California Walnut Committee and Swiss Reinsurance Company, outside the submitted work. US NHANES data are available from www.cdc.gov/nchs/nhis/index.htm and UK Biobank data are available on application (www.ukbiobank.ac.uk/register-apply).



Joint associations of healthy lifestyle score and socioeconomic status with all cause mortality. The US population and study design weights were considered in US National Health and Nutrition Examination Survey (US NHANES). Hazard ratios were adjusted for demographic characteristics, body mass index, and prevalent comorbidities