

Study suggests demographic factors can predict risk of operative births in UK women

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Independent maternal demographic factors such as social status, ethnicity and maternal age can predict the likelihood of operative births in the UK, according to a new study published today (20 March) in *BJOG: An International Journal of Obstetrics and Gynaecology*.

The study, conducted by researchers in the Department of Health Sciences at the University of York, explores which women are at an increased risk of an operative birth, including [caesarean section](#) (CS) or instrumental vaginal birth. It looks at data from the Millennium Cohort Study of babies born in the UK between 2000-2002 and includes 18,239 mother-infant pairs.

Rates of CS in the UK have increased since the 1980s, however, there has been no associated decrease in instrumental vaginal births. Operative births can lead to longer hospital stays and poorer psychological wellbeing, and represent a substantial financial cost to the NHS.

The researchers looked at four categories of mode of birth, including unassisted vaginal birth, instrumental vaginal birth, emergency CS and planned CS, and the impact of [demographic factors](#) such as age, ethnicity and socio-economic status, while controlling for a wide range of individual factors.

Findings showed that age played a significant role in determining mode of birth for all women, with operative [birth rates](#) rising with increasing [maternal age](#). For example, 9.4% of first-time [teenage mothers](#) required

an emergency CS compared with 30.3% of first-time mothers aged 35 or older.

Researchers found that some independent [maternal factors](#) differed when comparing primiparous (first-time mothers) to multiparous (have had one or more previous births) women.

Socio-[economic factors](#) impacted women differently, with first-time mothers from lower occupational status households 1.5 times more likely to have an instrumental vaginal birth and over twice as likely to have a planned CS.

While for multiparous women, [educational level](#) was more predictive of mode of birth in women with A-level qualifications at a reduced risk of planned CS compared to women with degree-level qualifications.

Finally, mode of birth varied again in women according to migration status and ethnicity, with multiparous immigrant women who had lived in the UK for more than 5 years at an increased risk of emergency caesarean section compared to their UK or Ireland born counterparts.

Moreover, in comparison to white women, primiparous black women were less likely to have an instrumental vaginal birth and multiparous Pakistani and Bangladeshi women were less likely to have a planned or emergency CS.

Holly Essex, Research Fellow at the Department of [Health Sciences](#), University of York and lead author of the study, said:

"Our results show that socio-demographic characteristics of women in the UK can independently predict mode of birth.

"In this country there are significant variations in rates of CS between

maternity units in different geographical areas and this research goes to show that it could be due in part to the characteristics of the population they serve.

"We found that first-time mothers in lower social class bands were more likely to have an instrumental [vaginal birth](#) and a planned CS, which counters other studies showing women in more deprived areas are less likely to have planned CS births. Our study used individual-level rather than area-level measures of socio-economic status, and controlled for a larger range of factors than any other study of this type has been able to before.

"Further research is needed to establish to what extent socio-demographic differences in mode of birth are a reflection of the attitudes and behaviours of women, or health professionals, or whether they reflect deeper health differences among these women."

Aris Papageorghiou, *BJOG* Scientific Editor, added:

"The large scale of this study provides strong support for the independent effect of maternal demographic factors on mode of birth in the UK population.

"It is important to have these figures and understand why there has been a growing rate of operative births over the past few decades.

"[Women](#) should be aware of all modes of birth available to them and discuss options and any concerns with a healthcare professional."

More information: dx.doi.org/10.1111/1471-0528.12177

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