

Study finds both cousin marriage and older mothers double risk of birth defects

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Important research has shed light on the prevalence of congenital anomalies. Credit: US National Institutes of Health

Marriage between first cousins can more than double the risk of giving birth to a baby with a congenital anomaly (eg, heart and lung defects, Down syndrome), although the absolute risk is low, according to a multiethnic study of more than 11300 babies from the city of Bradford in the UK, published in *The Lancet*.

The high level of consanguineous marriage (marriage between blood relatives) within the large Pakistani community in the study* accounted for nearly a third (31%) of [birth defects](#) in babies of Pakistani origin.

A similar but expected increased risk in [older mothers](#) (over 34 years of age) was seen among white British women.

"It is important to note that the absolute increase in risk is small (from 3% to 6%), meaning that only a [small minority](#) of babies born to couples who are

blood relatives or older mothers (older White British mums have an increase in risk from 2% to 4%) will develop a congenital anomaly***, cautions lead author Eamonn Sheridan from the University of Leeds in the UK.

The investigators looked at the influence of various maternal lifestyle and clinical risk factors (eg, smoking, obesity, and deprivation) in children with one or more anomalies from the Born in Bradford (BiB) study, which is tracking the health of 13 500 babies born at Bradford Royal Infirmary between 2007 and 2011, but found that the greatest risk factor was closely-related parents.

Overall rates of congenital anomalies in the BiB babies (305.74 per 10000 livebirths) were almost double national rates (165.90 per 10000 livebirths).

Socioeconomic status did not explain the increased rates of birth defects in offspring of blood relatives, despite two-thirds of the babies in the study coming from the most deprived fifth of the UK population.

What is more, in contrast with previous research, maternal smoking, [alcohol consumption](#), and obesity were not identified as [risk factors](#) for birth defects in this cohort, although the study may not have been large enough to detect the increases in risk associated with these factors.

A high level of maternal education was protective irrespective of ethnic origin, roughly halving the risk of having a baby with a congenital anomaly.

Consanguinity is a deeply rooted social trend with more than one billion people worldwide currently living in communities where consanguineous marriages are commonplace.

According to Neil Small from the University of Bradford who co-led the research, "This is the first study that has been able to explore all causes of [congenital anomaly](#) in a population where there are

sufficient numbers in both consanguineous and non-consanguineous groups to come to reliable conclusions. Clear and accessible information on these small but significant avoidable risks should be widely disseminated to local communities and be included as part of antenatal counselling and in the planning of healthcare services." **

Commenting on the study, Alan Bittles from Murdoch University and Edith Cowan University in Perth, Australia writes, "Sheridan and colleagues deserve major credit for their complex, time-consuming, and socially sensitive study... In view of the high community support for the Born in Bradford programme, a complementary substudy to determine the effects of consanguinity and community endogamy [when individuals marry within the same ethnic, class, or social group] on adult-onset diseases would be an invaluable investment for the future."

More information:

[www.thelancet.com/journals/lan ...](http://www.thelancet.com/journals/lan...)
 [\(13\)61132-0/abstract](http://www.thelancet.com/journals/lan...)

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