

Ethnicity of women undergoing fertility treatment can affect outcomes, study finds

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The ethnicity of women undergoing fertility treatments like IVF can affect the rate of successful live births, according to new research by experts at The University of Nottingham and the Royal Derby Hospital's Fertility Unit.

The research looked at nearly 39,000 women undergoing their first cycle of In-Vitro Fertilisation or Intra Cytoplasmic Sperm Injection between 2000 and 2010. The work was carried out using data from the Human Fertilisation and Embryology Authority.

The study found that certain ethnic groups have significantly lower chances of live births using fertility treatments than other groups. The research is published on Friday 19 August 2016 in *BJOG: An International Journal of Obstetrics and Gynaecology* (BJOG) and is the largest to date to look at individual sub-ethnic groups as an independent factor on the success rates of fertility treatment.

The cohort of women included White British (73.39%), White Irish (1.64%), White European (8.27%), South-Asian Indian (3.17%), South-Asian Bangladeshi (0.27%), South-Asian Pakistani (2.27%), Chinese (0.35%), Black British (0.43%), Black African (2.27%), Black Caribbean (3.86%), Mediterranean European (0.37%), Middle-Eastern (0.44%), Mixed Race (0.95%) and Other Asian (2.32%). The average age of patients ranged from 29.7 years to 35.8 years.

The study analysed fertility outcomes such as number of eggs retrieved,

number fertilised, number of embryos created, implantation rate and live birth rate, which was the main outcome measure in the study.

After adjusting for certain factors including age of patient at time of treatment, cause of female or male infertility, and type of treatment (ICSI vs IVF), the study found that White Irish, South Asian Indian, South Asian Bangladeshi, South Asian Pakistani, Black African, and Other Asian women had a significantly lower odds of a live birth than White British women. For example the live birth rate for White British women was 26.4% compared to 17.2% for White Irish women and 17.4% for Black African women.

The study also found that some groups of women including South Asian Bangladeshi, Black African, Middle Eastern, have a significantly lower number of eggs collected than White British women.

Moreover, South Asian Indian, South Asian Bangladeshi, South Asian Pakistani, Black British, Black African, Black Caribbean and Middle Eastern women were at a higher risk of not reaching the embryo transfer stage.

The paper explores the possible reasons behind the variation and states that while genetic background could be a potential determinant of egg and sperm quality, variation in environmental exposures relating to lifestyle, dietary factors, socio-economic and cultural factors could be influencing egg and sperm quality, accessibility of fertility treatment and behaviour towards seeking medical care and consequently reproductive outcomes.

Furthermore, the increased prevalence of polycystic ovary syndrome (PCOS) in south Asian women may have an impact on egg quality and lower implantation rates.

Dr Kanna Jayaprakasan, Consultant subspecialist in Reproductive Medicine, Derby Fertility Unit, Royal Derby Hospital, Hon. Associate Professor in Gynaecology, University of Nottingham and senior author of the paper said:

"The data suggests that ethnicity is a major independent factor determining the chances of IVF or ICSI treatment success.

"While the reason for this association is difficult to explain, the potential factors could be the observed differences in cause of infertility, ovarian response, fertilisation rates and implantation rates, which are all independent predictors of IVF success.

"The main strengths of the study are the use of the UK HFEA national database which includes a large number of women treated in all UK units. However, the numbers in some of the sub-ethnic minorities, such as Bangladeshi women, were low in the study."

Professor Adam Balen, spokesperson for the Royal College of Obstetricians and Gynaecologists (RCOG) and Chair of the British Fertility Society (BFS), said:

"Infertility affects 10-15% of the population and more people are seeking fertility treatment.

"This interesting study looking at maternal ethnicity provides useful data based on a large number of women undergoing [fertility treatment](#). The reasons behind the variation need to be looked at in more detail but in the future could potentially help improve success rates amongst all groups of women."

Dr Patrick Chien, Consultant in Obstetrics & Gynaecology and Deputy Editor-in-Chief of BJOG said:

"This study will be helpful for future treatment and could aid tailored treatment for women to maximise success rates. Further research is needed to understand the reasons behind the variation in treatment outcome between ethnic groups and future studies should incorporate ethnicity as a major determinant factor."

More information: W Maalouf et al. Effect of ethnicity on live birth rates after fertilisation/intracytoplasmic sperm injection treatment: analysis of UK national database, *BJOG: An International Journal of Obstetrics & Gynaecology* (2016). [DOI: 10.1111/1471-0528.14241](https://doi.org/10.1111/1471-0528.14241)

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