BIOSCIENTIST
The Salford Biomedicine Society Magazine

Lack of IVF success in ethnic minority communities

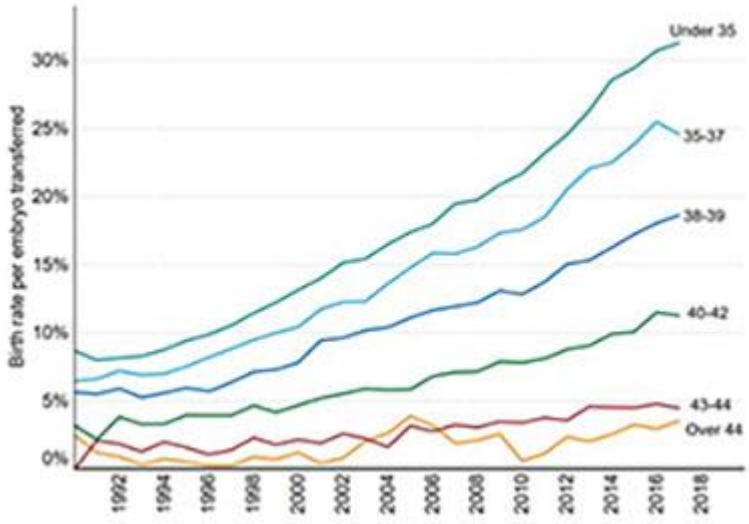
Eghosa Enoriomwaniha

In vitro fertilisation (IVF) is a fertility technique for individuals that cannot conceive naturally. It consists of collecting eggs from ovaries which are fertilised in vitro with sperm to form an embryo which is then transferred to the uterus to develop[6,10].

Is IVF a successful fertility treatment in the UK?

It is widely reported that IVF is a safe and successful fertility treatment, although factors such as age (women between the age of 20 and 30 are more likely to have a successful treatment), embryo and sperm quality, and underlying conditions like PCOS have an impact on the success rate[1]. There are also physicochemical factors that can contribute to the outcomes of IVF procedures in the laboratory such as regulating the temperature, preserving osmolarity and pH, and preventing harmful chemicals[2]. The governing body that oversees the guidelines that laboratories must follow for IVF treatment is the Human Fertilisation and Embryology Authority (HFEA).

According to the Human Fertilisation and Embryology Authority, in 2016, there was a 4% increase in the number of IVF procedures carried out[3]. The average birth rate per transferred embryo with IVF has increased over the years, reaching 23% in 2018. In 2018, the highest birth rate with this treatment was among those under 35 which has increased since HFEA was founded in 1991 (Figure 1)[4]. Since the early 2000s, there has been a steady increase in the success rate of IVF for most age groups. In fact, all women under the age of 43 undergoing IVF now have higher chances of having a live birth thanks to medical advancements.



DOI: https://doi.org/10.57898/biosci.63

Figure 1. Rates of births per embryo implanted using patient eggs by age group, from 1991 to 2018 in the UK[4].

IVF therapy was performed on almost 55,000 people in 2021 at UK fertility clinics with HFEA licences, an increase from about 53,000 patients in 2019[5]. Additionally, data indicates that the IVF birth rate employing fresh embryo transfers improved or stayed the same in all age groups (Figure 2)[7].

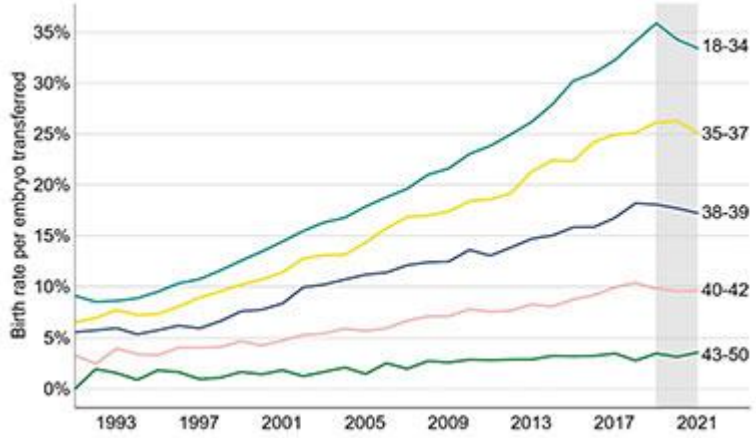


Figure 2. The average birth rate per embryo transferred using patient eggs from 1991 to 2021 in the UK relating to fresh embryo transfers[7].

In terms of numerical impact, IVF has resulted in more than 390,000 babies being born in the UK. This a combined result of 260,000 donor insemination treatments and 595,000 IVF from partner egg/sperm[5].

Is IVF treatment successful in ethnic minority communities in the UK?

In 2013 4,613 women from ethnic minority backgrounds used IVF in the UK, which rose to 5,563 by 2018, a 20.6% increase overall. In the UK, the number of Chinese women using IVF increased by 38%, and the number of women with Indian origin increased by 24%. Furthermore, there were 20% more women of a Pakistani origin in 2018 than there were in 2013 accessing IVF treatment, rising from 744 to 885[4,6].

According to a HFEA study, women from ethnic minorities who receive fertility treatment are less likely to become pregnant, with Black patients having the lowest success rates. Black patients aged 30-34 have an estimated birth rate of 23%, compared to 30% for Mixed raced and White patients[6]. Compared to only 18% of all the patients, a study found that 31% of Black fertility patients experience problems with their fallopian tubes. Studies have also shown that Black individuals begin IVF approximately two years later than other ethnic groups[6]. While Black patients experience the greatest disparities, other ethnic minorities also have low fertility treatment outcomes. Asian patients, who make up 7% of the UK population and 14% of IVF patients, have a challenge obtaining access to donor eggs. In 52% of IVF cycles with an Asian patient, the eggs of white donors are used because 89% of egg donors are White, 4% are Asian, 3% are Mixed, and 3% Black[6].

Actions in place to reduce inequalities in IVF treatment

The poor outcomes in ethnic minority communities can be influenced by several factors such as age, underlying conditions, and lifestyle. There are also significant difficulties with getting egg and sperm donors,

DOI: https://doi.org/10.57898/biosci.63

which coupled with cultural issues and fear of prejudice that delay accessing treatment may feed into IVF success rates[9].

Disparity in healthcare is also widely documented, so the possibility of discrimination from the healthcare professionals through the journey of access and completion of IVF is possible. Indeed, eligibility of free IVF treatment through the NHS depending on the area they live, which may disproportionally disadvantage ethnic minority coupled[6].

There is currently no specific reason to explain the inequalities in ethnic minority groups when receiving IVF treatment, but some studies found that the eggs of the donors and recipients is associated between the race of the patients and the outcome of the treatment. For example, research showed that in comparison to women who used Hispanic oocytes, which often had better outcomes despite the recipient race, Black women were likely to have poorer outcomes when using oocytes from young and healthy donors[8].

Some actions that have been placed by the HFEA to tackle the poor outcomes and disparities of ethnic minority groups when using IVF include:

- Making sure that patients' ethnicity is recorded which will facilitate future studies as in the register, it was discovered that 12% of patients had no information on their ethnicity.
- Using the feedback provided by patients to improve the services.
- Doing further research on the inequalities experienced by ethnic minority groups using this treatment.
- Working with other companies and organisations to gain understanding about cultural and religious beliefs that may influence the outcomes of the treatment such as the Royal College of Obstetricians and Gynaecologists which launched the Race Equality Taskforce to educate individuals and the Fertility Network UK which is a charity that launched peer support groups for women of different ethnicities[6].

These actions will allow new beginnings as there will be an improvement in the trends of IVF efficacy which will also have a positive effect on the public as it will encourage and motivate them to try the treatment.

References

1. Amini, P., Ramezanali, F., Parchehbaf Kashani, M., Maroufizadeh, S., Omani Samani, R., & Ghaheri, A. (2021). Factors Associated with In Vitro Fertilization Live Birth Outcome: A Comparison of Different Classification Methods. *International Journal of Fertility and Sterility*, *15*(2), 128-134. https://doi.org/10.22074/ijfs.2020.134582

2. Consensus Group Cairo. (2020). 'There is only one thing that is truly important in an IVF laboratory: everything' Cairo Consensus Guidelines on IVF Culture Conditions. *Reproductive BioMedicine Online*, *40*(1), 33-60. https://doi.org/10.1016/j.rbmo.2019.10.003

3. Human Fertilisation & Embryology Authority. (2018). *IVF treatment safer, more available and more successful than ever before, new report shows.* https://www.hfea.gov.uk/about-us/news-and-press-releases/2018-news-and-press-releases/press-release-ivf-treatment-safer-more-available-and-more-successful-than-ever-before-new-report-shows/

4. Human Fertilisation & Embryology Authority. (2020). *Fertility treatment 2018: trends and figures*. https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2018-trends-and-figures/

5. Human Fertilisation & Embryology Authority. (2021). *Fertility treatment 2019: trends and figures*. https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2019-trends-and-figures/

6. Human Fertilisation & Embryology Authority. (2021). *Fertility treatment less successful for ethnic minority patients, new figures reveal* https://www.hfea.gov.uk/about-us/news-and-press-releases/2021-news-and-press-releases/fertility-treatment-less-successful-for-ethnic-minority-patients-new-figures-reveal/

7. Human Fertilisation & Embryology Authority. (2023). *Fertility treatment 2021: preliminary trends and figures*. https://www.hfea.gov.uk/about-us/publications/research-and-data/fertility-treatment-2021-preliminary-trends-and-figures

8. Liu, Y., Hipp, H. S., Nagy, Z. P., Capelouto, S. M., Shapiro, D. B., Spencer, J. B., & Gaskins, A. J. (2021). The effect of donor and recipient race on outcomes of assisted reproduction. *American Journal of Obstetrics and Gynecology*, *224*(4), 374.e371-374.e312. https://doi.org/10.1016/j.ajog.2020.09.013

9. Mosalanejad, L., Parandavar, N., & Abdollahifard, S. (2013). Barriers to infertility treatment: an integrated study. *Glob J Health Sci*, *6*(1), 181-191. https://doi.org/10.5539/gjhs.v6n1p181

10. National Health Service. (2021). *Overview - IVF*. Retrieved 05/08/2023 from https://www.nhs.uk/conditions/ivf/

DOI: https://doi.org/10.57898/biosci.63