

The Role of Ethnicity in Clinical Outcomes for Women Undergoing IVF

ELHEM LOUKILY¹ SIMON HANASSAB^{1,2,3}, SCOTT M. NELSON^{4,5}, ZIYAD ANSARI⁶, ARTUR AKBAROV^{2,3}, TOM W. KELSEY⁷, ARTSIOM HRAMYKA⁷, ARTHUR C. YEUNG¹, SOTIRIOS SARAVELLOS⁸, REHAN SALIM⁸, ALEXANDER N. COMNINOS^{1,9}, GEOFF H. TREW⁵, THOMAS HEINIS^{2,3}, WALJIT S. DHILLO^{1,9}, ALI ABBARA^{1,9}

IMPERIAL

RCOG WORLD
CONGRESS 2025

INTRODUCTION

- Infertility affects around 1 in 6 couples¹.
- 23% of IVF cycles in the UK are accessed by women of non-White ethnicity².
- Age³ and BMI⁴ are consistently recognised as key predictors of IVF success, but the independent effect of ethnicity is less clearly defined.
- Studies suggest that Black and South Asian women experience significantly lower live birth rates compared to White women⁵, but the underlying factors for this observation are still not well understood.

This study investigates the impact of ethnicity on clinical outcomes in IVF treatment, specifically on:

1. Pre-treatment prognostic characteristics
2. Response to IVF treatment

METHOD



Study Design:

Retrospective cohort study of 17,702 women undergoing first IVF cycle (2007–2023) with fresh embryo transfer across nine UK clinics.

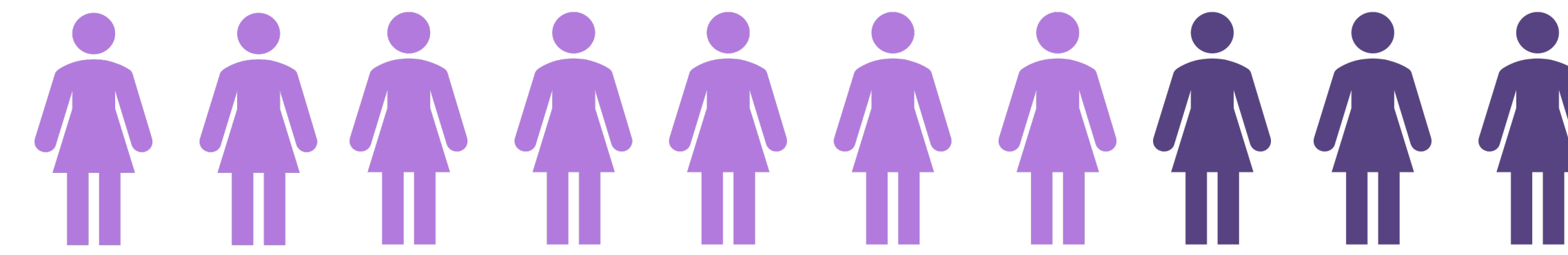
Multivariable regression analyses were used to adjust for age, BMI, primary infertility cause and socioeconomic status ($n=10,252$).



Ethnicity Classification:

Self-reported ethnicity was classified into broad groups (Asian, Black, Mixed, Other, White) and additional subcategories⁶.

RESULTS



BLACK WOMEN UNDERGOING IVF ARE 70% LESS
LIKELY TO ACHIEVE A LIVE BIRTH

After adjusting for confounders

Pre-treatment Characteristics

- Black women were similar in age to White women but had a significantly higher BMI (26.8 vs. 25.0 kg/m²; $p<0.001$).
- Asian women were significantly younger than White women (34.0 vs 34.7 years; $p<0.001$), with a similar BMI.

Post-Treatment Response

- Asian women had a higher pre-treatment antral follicle count than white women (14 vs 13).
- Despite this, Asian women had a lower number of mature oocytes retrieved after adjusting for confounders (exponent $\beta = 0.97$; $p = 0.041$).
- Black women (OR 0.66, 95% CI [0.51– 0.85]; $p=0.001$) and South Asian women (OR 0.64, 95% CI [0.43–0.95]; $p=0.027$) had a significantly lower live birth rate than White women.
- After adjusting for cofounders, Black women had a 70% lower live birth rate (OR 0.30, 95% CI [0.14–0.64]; $p=0.003$, fig. 1) than White women.
- Miscarriage rates did not differ significantly between ethnic groups.

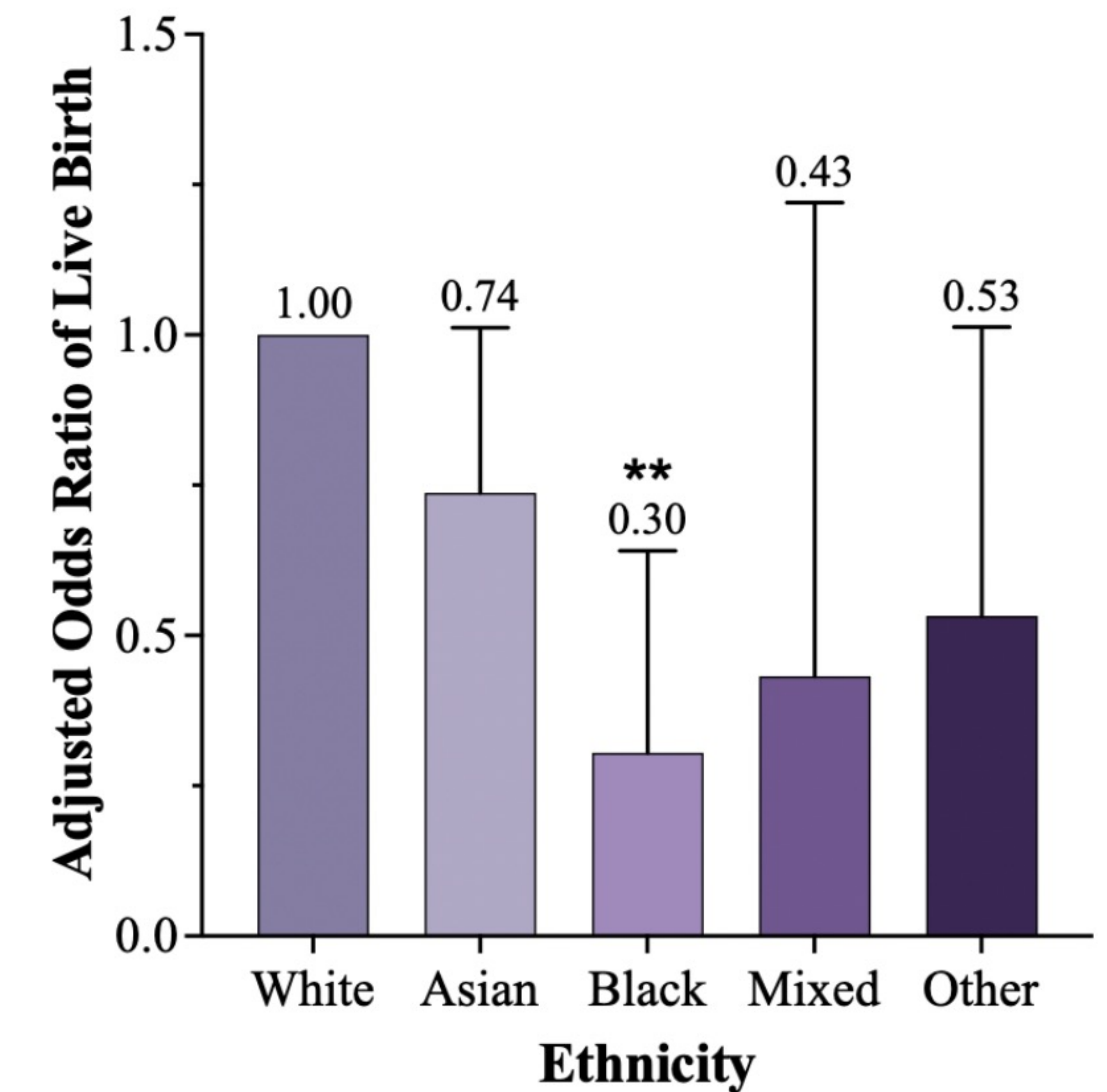


Figure 1. Live Birth Rate by Ethnicity: Multivariable logistic regression analysis adjusted for age, BMI, cause of infertility & SES. Odds ratios ($\pm$ 95% CI) for each ethnicity shown above each bar. ** $p<0.01$

CONCLUSION

- Similar miscarriage rates across groups suggest lower live birth rates in Black and South Asian women may reflect impaired implantation, not early pregnancy loss.
- Socioeconomic disadvantage may further worsen outcomes in ethnic minority groups.
- This highlights the complex and multifactorial impact of ethnicity on IVF success.

1. Department of Metabolism, Digestion, and Reproduction, Imperial College London, London, UK.

2. Department of Computing, Imperial College London, London, UK.

3. UKRI Centre for Doctoral Training in AI for Healthcare, Imperial College London, London, UK.

4. School of Medicine, University of Glasgow, Glasgow, UK.

5. Institute of Reproductive Science, The Fertility Partnership, Oxford, UK.

6. Department of Electrical and Electronic Engineering, Imperial College London, London, UK

7. School of Computer Science, University of St Andrews, St Andrews, UK.

8. Department of Fertility and Reproductive Medicine, Imperial College Healthcare NHS Trust, London, UK.

9. Department of Endocrinology, Imperial College Healthcare NHS trust, London, UK.

Scan for references
→

