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Racial inequalities in maternity outcomes: what are the causes?

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Data from the annual MBRRACE reports[1], [2] have for some years been highlighting the fact that mothers and babies of Black, Asian and mixed ethnicity backgrounds are significantly more likely to die than their white counterparts. Campaigning groups such as Five X More have been working to draw attention to this issue, and this has led to the setting up of various initiatives to try to tackle the problem. These include the RCOG Race Equality Taskforce and Birthrights Inquiry into racial injustice in UK maternity services. Recently NHS England published five pledges[3] and guidance to Local Maternity Systems[4] on how they should plan for and implement actions to improve equity for mothers and babies from Black, Asian and mixed ethnic groups and those living in the most deprived areas, and race equality for staff. For AIMS comments on the NHS England plans, and our calls for action, see this AIMS Journal article and look out for our position paper on Racial Inequalities in Maternity Services, to be published soon.

What has been lacking to date is a clear research-grounded explanation of the underlying causes of the observed inequalities between racial groups. It is sometimes suggested that this is simply due to people in these groups being more likely to be socially and economically deprived, to give birth at older or younger ages than average, or to suffer from underlying health conditions such as high blood pressure or diabetes. There has also been debate about the possible contribution of underlying biological differences that might make people from some ethnic backgrounds more prone to develop problems during pregnancy or labour. However, it has become increasingly apparent that it is likely to be due, at least in part, to differences in the care that is offered as a result of racial discrimination, bias, stereotyping, and cultural insensitivity. This article reviews several recent reports that have started to shed light on the question of what causes the observed inequalities.

MBRRACE data on perinatal deaths

The most recent MBRRACE-UK Perinatal Mortality Surveillance Report for births in 2019[1] published in October 2021, included analysis of stillbirth and neonatal death rates both by the mother's ethnicity and by the level of social deprivation in the area in which the mother lived. Small areas across the country were grouped into quintiles, with group 1 consisting of the areas of lowest social deprivation and 5 the highest. This shows that, for areas within a given quintile, the death rates are higher for babies born to

mothers of Black and Asian ethnicity compared with babies born to white mothers from similar areas. This means that social deprivation cannot be the whole story. What is even more shocking is that the stillbirth rate for babies of Black mothers living in the least deprived areas was markedly higher than for babies of white mothers living in the most deprived areas – 6.05 per 1,000 births, compared with 4.65.

Data taken from Table 19 of the MBRRACE report for births in 2019: stillbirth per one thousand births

	Level of social deprivation				
Ethnicity	**1=lowest**	**2**	**3**	**4**	**5=highest**
White	2.84	3.11	3.35	3.84	4.65
Mixed	2.92	3.47	3.97	4.44	5.31
Asian	4.13	4.44	5.84	6.22	6.0
Black	6.05	7.06	7.22	7.61	8.43

Some more detailed analysis of the last six years of ethnicity data was presented at the perinatal report launch meeting, but has not been published yet[5]. This suggested that stillbirth rates across all ethnicities are highest in mothers under 25 or over 35, but in each age group the stillbirth rates were higher for babies of Black, Bangladeshi and Pakistani ethnicity than for white babies born to mothers in that group. They were also higher for babies of these ethnicities born to mothers in the 'lower risk' age groups (between 25 and 35) than for white mothers in the 'higher risk' age groups (under 25 or over 35). This data analysis shows that the inequalities of outcome are not fully explained by differences in deprivation or in the age at which women of different ethnicities give birth.

NMPA sprint audit on ethnic and social inequalities

This report from the National Maternity and Perinatal Audit (NMPA)[6] looked at data on 1.37 million births in England, Scotland and Wales over the three years to March 2018. The audit reviewed variations in outcomes for mothers and babies across ethnic and socioeconomic groups. This is really important as previous reports have focused on inequalities in the most serious outcomes of maternal and perinatal deaths, but we know that those must only be the tip of the iceberg of health inequalities.

The authors note that, "The results presented in this report are crude and therefore descriptive." Such a study can describe the differences that are observed but cannot explain the factors which may be causing

them, although it does comment on some variations between ethnic and socio-economic groups. For example, there were higher rates of high blood pressure and pre-existing diabetes, but less smoking, amongst women from South Asian and Black ethnic groups compared with white women.

There is a lot of detail in the report, but one interesting finding was that women from Black ethnic groups were slightly more likely to experience a birth without intervention (defined as spontaneous onset of labour, and spontaneous vaginal birth, without epidural/spinal/general anaesthesia or episiotomy) than those from either white or South Asian ethnic groups. This could be positive if these women were having straightforward labours and not being offered unwanted interventions, but the concern is that it could in part be because they were not offered interventions that were "desired or indicated". We know from other research that women of Black, Asian and mixed ethnicity are less likely to receive pain relief in labour.[7] This is an area where more research into Black and Asian people's experiences of care would be valuable.

In contrast, though rates of planned caesareans were similar across ethnic groups, the rates of unplanned caesareans were "*highest for women from Black ethnic groups and higher for women from South Asian groups when compared with those from white ethnic groups.*" Taken together, these two findings could indicate that some Black and Asian women were not receiving interventions that could have helped them avoid an unplanned caesarean, although without more detailed research, we can't be sure whether or not this is the case. The fact that Black women in the sample were more likely than other ethnic groups to have a BMI of 30 kg/m2 or above, to be aged over 35, have high blood pressure or have had a previous caesarean, could all have contributed to their higher caesarean rate and higher chance of experiencing serious blood loss.

Babies born to mothers from Black ethnic groups were more likely both to have a low Apgar score[8] and to be admitted to a neonatal unit when born at term than were white babies. However, whilst those born to women from South Asian ethnic groups were less likely to have a low Apgar score, they were more likely than those born to white mothers to be admitted to a neonatal unit. Again, the audit cannot give the reasons for this, though the authors comment that babies of South Asian ethnicity are more likely to be admitted for jaundice, and also more likely to be classed as 'small for gestational age' (SGA). The latter might reflect the use of growth charts standardised for white babies.

This audit raises some interesting questions and AIMS supports the authors' call to, "*prioritise further research in NHS maternity and perinatal care that could improve outcomes for women, and their babies, from ethnic minority groups and those in the most deprived areas*", which should include both quantitative analysis to investigate the causes and qualitative research to explore the experiences of people accessing maternity care.

Cohort study: Adverse pregnancy outcomes attributable to socioeconomic and ethnic inequalities in England

Further information on the underlying causes of some of the main inequalities comes from a recently

published NMPA cohort study[9] looking at data on stillbirth, preterm birth (before 37 weeks of pregnancy), and fetal growth restriction (FGR: defined as babies with a birthweight below the third centile - in the lowest 3% of the population). The data covered about 1.2 million births in 132 hospitals in England in the two years to March 2017. The authors looked at how these three 'adverse outcomes' varied by level of social deprivation and ethnicity and calculated the 'population attributable fraction' (PAF). This is defined as the proportion of a group that would *not* have experienced an adverse outcome had their group had the same rates of these outcomes as the 'reference group.' For social deprivation, the reference group was mothers in the least deprived areas, and for ethnicity it was white mothers.

The analysis showed a significant excess of stillbirths, pre-term births and FGR for those from more deprived areas, which increased with the increasing level of deprivation. Similarly, there was an excess of stillbirths and FGR for those of Black, South Asian, mixed or other ethnicity compared with white mothers, though little difference in preterm births.

The authors then looked at the impact of adjusting the PAF to correct for other risk factors. Here is the data from Table 2 of the report for PAF before and after adjustment.

PAF due to:	Socioeconomic deprivation			
	Unadjusted	Adjusted for ethnicity	Adjusted for ethnicity, smoking and BMI	Adjusted for ethnicity, smoking, BMI & all maternal factors
Stillbirth	23.6%	19.0%	11.6%	12.4%
Pre-term birth	18.5%	18.4%	11.9%	10.1%
FGR	31.1%	25.3%	16.4%	16.5%

In the case of socioeconomic deprivation, adjusting for ethnicity, smoking status and BMI resulted in substantial lower PAFs, with most of the impact coming from the adjustment for smoking and BMI. In other words, much of the difference that is apparently due to social deprivation can be explained by these other factors, although there remains a substantial contribution from social deprivation in itself. A further adjustment for other maternal risk factors made little difference to the figures.

PAF due to:	Ethnicity

	Unadjusted	Adjusted for socioeconomic group	Adjusted for socioeconomic group, smoking and BMI	Adjusted for socioeconomic group, smoking, BMI & all maternal factors
Stillbirth	11.7%	10.8%	13.0%	12.6%
Pre-term birth	1.2%	0.1%	2.6%	1.2%
FGR	16.9%	15.2%	19.2%	19.5%

In contrast, in the case of ethnicity, adjusting for socioeconomic deprivation, smoking, BMI and additional maternal risk factors made little difference to the PAF. This shows that higher rates of stillbirth and FGR seen in Black, South Asian and mixed/other ethnic groups compared with the white population is unlikely to be due to socioeconomic deprivation alone, or to factors such as rates of smoking or BMI, and we need to look elsewhere for the cause.

The authors comment that, "Other factors related to discrimination based on race, religion, and culture can contribute to a societal disadvantage and increase the risk of poor pregnancy outcomes" but also speculate on possible biological differences between ethnic groups. They call for research to understand the role of these possible causes to be a priority, but also for recognition that public health approaches and action to address wider inequalities are likely to be needed.

Conclusion

What these three pieces of research show is that racial inequalities in maternity outcomes are not a simple matter of socioeconomic or health/biological factors alone. AIMS welcomes the recognition that they are likely to be due at least in part to differences in the care that is offered, and to institutional racism, unconscious bias and lack of individualised, culturally competent care. These issues need to be acknowledged and addressed throughout the maternity services.

There is also a growing understanding of the impact of long-term everyday racism (for example, everyday microaggressions[10]) on health, which means that there will be disparities in the underlying health of women preceding the point at which they access maternity services. AIMS welcomes the recognition in the NHS Long Term Plan[11] that "we cannot treat our way out of inequalities", but that the NHS can (and AIMS would say *must*) "ensure that action to drive down health inequalities is central to everything [it does].

[1] MBRRACE-UK Perinatal Mortality Surveillance Report for births in 2019Reports | NPEU > MBRRACE-UK (ox.ac.uk)

[2] MBRRACE-UK Saving Lives, Improving Mothers' Care – Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2017-19Reports | NPEU > MBRRACE-UK (ox.ac.uk)

[3] NHS England pledges to improve equity for mothers and babies and race equality for staffSeptember 2021 NHS England » Equity and equality: Guidance for local maternity systems

[4] NHS England Equity and equality Guidance for local maternity systems September 2021NHS England » Equity and equality: Guidance for local maternity systems

[5] Matthews R, 'Understanding ethnic inequalities in stillbirth rates', presentation at Virtual Conference – Presenting the MBRRACE-UK Perinatal Report 2021, October 2021

[6] Webster K, NMPA Project Team. 'Ethnic and Socio-economic Inequalities in NHS Maternity and Perinatal Care for Women and their Babies: Assessing care using data from births between 1 April 2015 and 31 March 2018 across England, Scotland and Wales.' London: RCOG; 2021 maternityaudit.org.uk/FilesUploaded/Ref%20308%20Inequalities%20Sprint%20Audit%20Report%202021_FINAL.pdf

[7] Henderson, J., Gao, H., & Redshaw, M. (2013) Experiencing maternity care: the care received and perceptions of women from different ethnic groups. BMC Pregnancy Childbirth 13 (196) bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-13-196

[8] Editor's note: Named after Virginia Apgar, the Apgar score is a test given to newborns soon after birth. This test checks a baby's heart rate, muscle tone, and other signs to see if extra medical care or emergency care is needed.

[9] Jardine J. et al 'Adverse pregnancy outcomes attributable to socioeconomic and ethnic inequalities in England: a national cohort study' The Lancet, 398:10314, pp1905-1912 November 2021 www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01595-6/fulltext

[10] Editor's reading suggestion: Racial Microaggressions in Everyday Life: Implications for Clinical Practice www.cpedv.org/sites/main/files/file-attachments/how_to_be_an_effective_ally-lessons_learned_microaggressions.pdf

[11] NHS Long Term Plan Chapter 2, section 2.28 www.longtermplan.nhs.uk/online-version/chapter-2-more-nhs-action-on-prevention-and-health-inequalities/stronger-nhs-action-on-health-inequalities/