

Perinatal epidemiology

Dr Dawn Misra has been investigating the extent to which racism affects infant mortality rates among African-American women. Here, she discusses the unique approaches she uses to confront this sensitive issue

DR DAWN MISRA



How did you become involved in research concerning infant mortality among African-American women?

I first discovered the field of public health through an undergraduate course on Medical Sociology at Johns Hopkins University in Baltimore, Maryland. I learned about the importance of infant mortality with regard to its tremendous effect on life expectancy, but also how it was seen universally as a symbol of a community's care for the vulnerable.

When our professor shared with us the dismal international ranking of the US for infant mortality and the profound and persistent racial disparities here, I was stunned and energised to find a solution. I went on to study maternal and child health for a Master's degree at Johns Hopkins. While there, I learned more about this area and began to wonder whether racial discrimination might play a role, given that even college-educated black women are at a higher risk than white women.

This passion led me to seek a PhD in epidemiology with a focus on perinatal epidemiology as I felt this field was the discipline with the best methods for studying this problem.

Could you summarise the aims of your work?

My primary aim is to understand the causes, but with an eye towards implementing changes in the world that will reduce infant mortality and its social and racial disparities.

Could you explain what the Daily Life Experiences of Racism and Bother (DLE-B) scale is and how it was used in your research?

Psychologist Shelly Harrell developed this 20-item multipart scale to measure racism experienced in the general population with a recall period of the previous year. Our interviewers ask the participant to think about experiences that some people have as they go about their daily lives. Women are asked to first determine how often they have had each experience because of their race or because of racism.

Experiences include: 'others expecting my work to be inferior', 'being observed or followed around in public places' and 'overhearing or being told an offensive joke or comment'. Next, women are asked to tell the interviewer how much the experience bothered them at the time. While all experience is 'perceived', this scale improves upon simple reports of experiences by capturing the extent to which women may have been affected.

How do you hope to improve upon your results?

I am currently developing a number of projects focused on specific factors related to preterm birth. These include a study of the vaginal microbial environment, the role of fathers, and physical activity behaviours. All of these projects consider the particular factors within a multiple determinants and life course model.

Our current study included the mothers of our participants in an effort to better assess the participant's life course and this has led to a better understanding of how to measure those factors. Future work will attempt to consider other methods to validate such measures.

What plans do you have for your continuing research?

I have three broad areas of interest: studying perinatal health in the context of my 'life course multiple determinants perinatal framework'; studying the role of the placenta in perinatal and paediatric outcomes; and developing and applying new approaches to the study of the foetal origins of disease.

Are you involved in any upcoming conferences or events?

We have just returned from presenting our work at the US Society for Pediatric and Perinatal Epidemiologic Research (SPER). I was just invited to present this autumn at an upcoming National Institutes of Health (NIH) workshop on the role of paternal involvement in pregnancy.

Our current LIFE study team has been exploring the role of fathers and our current study includes several measures as reported by the mothers that may shed light on paternal factors and lead to the development of interventions.

Later this summer our placental research team will present our work together at the International Conference on Applied Mathematics, Modeling and Computational Science in Waterloo, Ontario.



Reducing infant mortality

Researchers from **Wayne State University** in Michigan, USA, are investigating why infant mortality rates are so much higher for Blacks than whites and are exploring the impact of racism on women throughout their lifetimes to unveil any relevant factors that could lead to more positive birth outcomes



RECENT RESEARCH HAS shown that infant mortality rates among the Black community have been approximately twice as high as the rates for whites in the US for almost a hundred years despite advances in healthcare. The reasons for this racial disparity are not entirely clear. As preterm births (PTBs) account for the vast majority of infant deaths, it is becoming increasingly clear that more research on the etiology of this problem is needed if infant mortality rates for Blacks are to decrease to the level of their white counterparts.

SOCIOECONOMIC FACTORS

Significant research has already been undertaken to assess the differential impact of socioeconomic status (SES) in PTB. However, rather than focusing specifically on the Black community, the majority of studies to date have examined women from all ethnic backgrounds within the same study and thus results have been averaged across the different racial cohorts and differences between these two distinct subject groups have not been considered. To correct for this oversight, a new study taking place at Wayne State University's School of Medicine specifically examines the role of SES among PTB for Black women.

Leading the research project entitled 'The Impact of Racism on Risk of Preterm Birth in African-American Women' within Wayne State University's Department of Family Medicine, Dr Dawn Misra explains: "Using more nuanced

measures of current SES, such as scales to assess the extent of unmet needs as well as measures of SES over the life course, demonstrates an important role for SES, although it does not appear to explain risk completely within or between racial groups".

Even for Black women who are more affluent and better educated, there continues to be a discrepancy between Black and white women. According to Misra, a failure to "rigorously and comprehensively" include racism among the factors that are contributing to this unbalanced trend among Black women has prevented real progress from taking place in the past. Whether racism is perceived internally by the individual, has become institutionalised or has led to segregation across entire communities, this prejudice is believed to have a profound impact on the birth outcomes of Black women. However, despite growing evidence, few studies have focused purely on the link between racism and adverse birth outcomes.

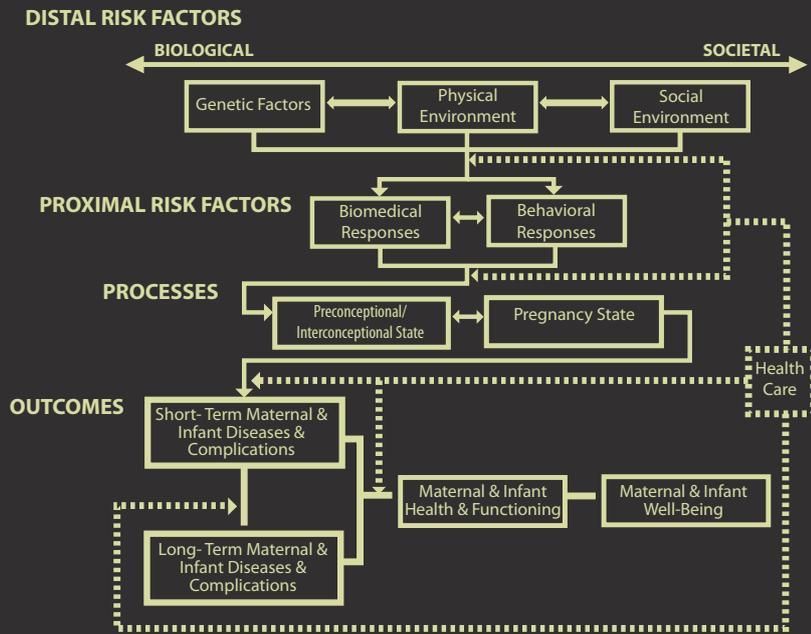
Although racism is difficult to measure as a concept, it is believed that it may be one of the more significant factors behind the increased PTB risk faced by many Black women. It has also been suggested that racism is related to several PTB risk factors such as obesity, chronic disease and stress. For the first time, the current study is considering the influence of racism, not only during the prenatal period, but also throughout the woman's life: "We recognised that powerful influences occur long before pregnancy begins;

that birth outcomes are shaped by social, psychological, behavioural, environmental and biological forces and that the demography of pregnancy has changed with more women delaying their first birth," explains Misra.

MULTIPLE DETERMINANTS MODEL

In order to try to qualitatively and quantitatively analyse the impact of racism on Black women, the team recently developed a new framework with a focus on perinatal health. This model, which takes a life course approach and includes a range of determinants, is expected to shed more light on the way multiple and distant factors across the life course – including racism in all of its forms – affects perinatal health in Black women. Unlike previous studies, the new approach considers racial incidents and risk factors that affect perinatal outcomes before pregnancies, leading up to birth and during the pregnancy itself.

The intent of the framework is to influence how policymakers, public health professionals, clinicians and researchers approach perinatal health: "We argue for creating a system of care that integrates the multiple determinants of perinatal outcomes across the lifespan of women," explains Misra. By determining whether and how perceived racism and residential environment are associated with PTB, the team hopes that its research will lead to a reduction in infant mortality rates within the Black community.



CONCEPTUAL FRAMEWORK

While infant mortality rates have fallen for white and Black women over the years, rates for Black women remain much higher and improvements in perinatal outcomes appear to be slowing for both groups. Misra attributes the latter to a combination of two main factors: that the healthcare provided throughout a woman's lifetime may be disjointed and hard to piece together; and the fact that interventions are often based only on the risk factors in the prenatal period, to the exclusion of other key determinants that may be more distant in time.

"Overcoming these impediments will require bold and innovative changes in both the public health and medical care arenas," Misra continues. "We do not expect that this effort will be the final framework, but view our work as a contribution to an ever-evolving set of ideas."

BODY WEIGHT AND EXERCISE

One new strand of the research project focuses on body weight. While previous studies have looked at body weight at birth, Misra's study focuses on life course body weight. Working alongside Dr Jennifer Straughen, she has been able to measure trajectories of maternal body weight and relate these to foetal growth and PTB. According to Misra, this has proved extremely

While evidence relating racism to adult health has expanded considerably in the past decade, only a small number of studies have explored the impact of racism on birth outcomes

significant, revealing that: "The trajectory of body weight that leads to a woman's body weight at the time of pregnancy may alter the influence of the later time point, with women who start low and end high differing in risk from those who start low and end low".

The project will now investigate other factors that have arisen during the woman's whole life span that could have a similar impact on Straughen's trajectory model. One related issue is the effect of physical activity in reducing the risk of PTB. There has never before been a comprehensive trial of physical activity focused on Black pregnant women: "We hope that intervention studies will be next and that they will be followed by efforts to change environments so that they enhance women's participation in physical activity," Misra says.

WILLING PARTICIPANTS

One of the biggest challenges for Misra and her team is convincing others of the need to carry out this research exclusively within the Black community rather than comparing Black and white subjects as earlier studies have done. However, the main problem here was obtaining funding; once this was addressed there was strong support from both the medical community and potential study subjects: "This issue resonates strongly with the Black community," explains Misra.

The women who took part were recruited from the community-based Providence Hospital, so that the team could conduct interviews as well as examine medical records and existing databases. Misra says: "None of the work we have done would have been possible without the women who have been so generous and thoughtful in sharing their lives with us. These women have recognised the value of what we are endeavouring to accomplish and that means a great deal to me".

INTELLIGENCE

IMPACT OF RACISM ON RISK OF PRETERM BIRTH IN BLACK WOMEN

OBJECTIVES

The primary objective of this work is to determine whether and how risk of preterm birth relates to racism. We hypothesise that a failure to rigorously and comprehensively consider racism as a fundamental factor has limited our understanding of the etiology of preterm birth among Black women. If risks of preterm birth are rooted in experiences of racism, whether personally mediated, institutional, or internalised, current strategies aimed at improving pregnancy outcomes and eliminating disparities will need to be broadened to address the influence of racism in the US.

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School of Medicine