Annals of Epidemiology 26 (2016) 7–13

Contents lists available at ScienceDirect

Annals of Epidemiology

journal homepage: www.annalsofepidemiology.org

Original article

Racism in the form of micro aggressions and the risk of preterm birth among black women

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ARTICLE INFO

Article history:
Received 8 May 2015
Accepted 9 October 2015
Available online 17 October 2015

Keywords:
Premature birth
Racism
Depression
Stress
Psychological

ABSTRACT

Purpose: This study sought to examine whether perceived interpersonal racism in the form of racial micro aggressions was associated with preterm birth (PTB) and whether the presence of depressive symptoms and perceived stress modified the association.
Methods: Data stem from a cohort of 1410 black women residing in Metropolitan Detroit, Michigan, enrolled into the Life-course Influences on Fetal Environments (LIFE) study. The Daily Life Experiences of Racism and Bother (DLE-B) scale measured the frequency and perceived stressfulness of racial micro aggressions experienced during the past year. Severe past-week depressive symptomatology was measured by the Centers for Epidemiologic Studies-Depression scale (CES-D) dichotomized at ≥23. Restricted cubic splines were used to model nonlinearity between perceived racism and PTB. We used the Perceived Stress Scale to assess general stress perceptions.
Results: Stratified spline regression analysis demonstrated that among those with severe depressive symptoms, perceived racism was not associated with PTB. However, perceived racism was significantly associated with PTB among women with mild to moderate (CES-D score ≤22) depressive symptoms. Perceived racism was not associated with PTB among women with or without high amounts of perceived stress.
Conclusions: Our findings suggest that racism, at least in the form of racial micro aggressions, may not further impact a group already at high risk for PTB (those with severe depressive symptoms), but may increase the risk of PTB for women at lower baseline risk.

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Introduction

Reducing the rate of preterm birth (PTB) has been a national priority in the United States for decades [1,2]. Efforts to better understand PTB and implement interventions have only led to a small decrease in the PTB rate (2006: 12.8% vs. 2013: 11.4%) [3]. Yet, racial disparities persist; 2013 U.S. vital records show that blacks have a PTB rate of 16.3% compared to 10.2% for whites [3]. A better understanding of the mechanisms that underlie the disadvantage of black women with regard to PTB is needed.

In a race-conscious society like the United States, racism likely plays an important role in health disparities [4–8]. Racism is a system of oppression that structures opportunity and assigns value for interpersonal exchange based on someone's perceived race [4,6,7]. Racism operates at multiple levels: institutional, interpersonal, internalized, and cultural [6,7]. The focus in this article is the interpersonal racism, which is defined as prejudiced assumptions

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http://dx.doi.org/10.1016/j.annepidem.2015.10.005
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about an individual's abilities, motives, and intentions due to the individual's race and discrimination, defined as unfair treatment of an individual due to his or her race [6,7]. Experiences of interpersonal racism and racial discrimination can be stressful; it has been suggested that these racism-related stressors lead to heightened states of psychological and physiological stress responses and result in poor physical health outcomes [6,9]. For example, induced stress responses may increase risk of PTB via adoption of adverse health behaviors (e.g., smoking, poor diet) known to be risk factors for PTB as a way of coping; as well as psychological pathways such as depression; and/or immune or infection pathways [10].

Recent literature reviews on interpersonal racism or racial discrimination and birth outcomes report mixed results with both null and adverse findings [11,12]. For example, Dole et al. [13], Rosenberg et al. [14], Mustillo et al. [15], and Rankin et al. [16] each found perceived experiences of racial discrimination increased black women's risk of PTB with excess risk ranging from 1.3–3 fold [12]. However, other studies have not found a significant association with PTB [17,18] or gestational age [19,20]. The heterogeneity in findings may be due in part to the application of different scales or instruments and their conceptualization and measurement of individual's experiences of interpersonal racism and racial discrimination [21]. Racism-related stress is multidimensional. Minorities may experience interpersonal racism or racial discrimination through significant but acute or discrete, observable life events (e.g., being denied a loan); these are often called major experiences of discrimination [6,21,22]. They may also experience interpersonal racism or discrimination via racial micro aggressions or micro experiences, -chronic or episodic daily race-related hassles or events [21] that are "subtle, innocuous, preconscious, or unconscious degradations and putdowns" [23]. Racism is fundamental and embedded in all aspects of black women's lives, which transfers to differential stressors and health risks with potentially consequential racially disparate perinatal health outcomes [19].

Most studies examining the relationship between interpersonal racism or racial discrimination and birth outcomes have focused on the impact of major experiences of discrimination, rather than on micro aggressions [12]. Racial micro aggressions are often encountered with greater frequency than major experiences, and "create an atmosphere of expectation that something racist will happen."[6] Although a single perceived event may not be perceived as serious, accumulation of these seemingly innocuous events on a weekly or even daily basis over the life course may more readily overtax an individual's stress response systems than major experiences of racial discrimination [6,23].

Beyond the measurement of interpersonal racism or racial discrimination, the variation in associations with birth outcomes could be due to underlying effect modification. Research suggests [24] that other psychosocial risk factors may moderate the relationship between interpersonal racism and PTB, such that the impact of racism on PTB may only be expressed in the presence or absence of these other psychosocial factors. For example, in work by our team [24] in a low-income cohort of Black women residing in Baltimore, Maryland, there appeared to be no effect of lifetime exposure to interpersonal racism in the form of major experiences of discrimination. However, the interpersonal racism-PTB association was modified by the presence of depressive symptoms and perceived stress. Among all women, except those reporting low levels of stress and depressive symptoms, perceived racism was associated with a sizable increased risk of PTB. This suggests that the impact of racism on PTB may be missed when examined in isolation without considering the influence of psychosocial factors in women's lives, an idea which is also supported in the developmental literature for outcomes influenced by other social causes [25].

The aim of this study was to assess the association between perceived interpersonal racism in the form of racial micro aggressions and the rate of PTB in a cohort of black women. We also investigated whether the relationship between racial micro aggressions and the rate of PTB was modified by psychosocial risk factors during pregnancy.

Methods

Sample and study design

The Life-course Influences of Fetal Environments (LIFE) study, a retrospective cohort study, was conducted between June 2009 and December 2011. Women were eligible for this study if they self-identified as Black or African-American, were aged 18–45 years and recently gave birth to a singleton at a suburban hospital in Metropolitan Detroit, Michigan. Women eligible to participate in the LIFE study were approached for enrollment ($n = 1999$). A total of 1410 (70.6%) women consented and participated in structured interviews within 24–48 hours after delivery during their postpartum hospitalization. Black women born outside the United states were eligible to participate in LIFE; however, they accounted for less than 2% of enrolled participants. All interviewers were black females to reduce the possibility of bias as a result of race-of-interviewer effects [26]. Additional information was obtained about the woman and her newborn via medical record abstraction by trained study staff. LIFE was approved by university and hospital institutional review boards.

Measures

Exposure

Racism. Racism was operationalized with the Daily Life Experiences of Racism and Bother (DLE-B) scale [27], which measures the extent to which daily racial micro aggressions are perceived to occur and bother an individual during the index pregnancy and up to 1 year before the index pregnancy. Examples of micro aggressions assessed include being ignored or overlooked, being treated rudely or disrespectfully, being mistaken for a server, and overhearing an offensive joke. Using a 6-point Likert scale, participants were asked to report how often (1—"never" 2—"less than once a year", 3—"few times a year", 4—"about once a month", 5—"few times per year", 6—"once a week or more") because of race they experienced each of the 20 listed racial micro aggressions in their daily life; and how much the experiences bothered them (1—"never happened to me", 2—"not at all", 3—"a little", 4—"somewhat", 5—"a lot",6—"extremely"). To create the DLE-B summary score, the frequency of occurrence for each micro aggressor was weighted by the participant's response to how much the micro aggressor bothered them. The 20 items were summed; summary scores ranged from 20 (low) to 720 (high). The DLE-B has been shown to be a valid and reliable instrument for use with historically oppressed racial and/or ethnic groups [27]. In the LIFE study, the DLE-B had a Cronbach α of 0.92.

As some literature has found independent effects of racism exposure, from the appraisal of that exposure [28], we did disaggregate and test these two constructs in sensitivity analyses but found similar associations with PTB (not shown). Therefore, we present results from the overall measure here.

Outcome

Preterm birth. PTB was defined as birth less than 37 completed week's gestation. Based on the American Congress of Obstetricians and Gynecologists recommendations [29], the following algorithm was used to estimate the "best" gestational age (GA) using information abstracted from the medical record. GA based on early

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