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Review

Contextualizing racial disparities in preterm delivery: A rhetorical analysis of U.S. epidemiological research at the turn of the 21st century

Erica Prussing [a], [b], [*]

[a] *Department of Anthropology, University of Iowa, 114 Macbride Hall, Iowa City, IA 52242, USA*
[b] *Department of Community & Behavioral Health, University of Iowa, 100 CPHB, Iowa City, IA 52242, USA*

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ABSTRACT

Preterm delivery (PTD), defined as delivery prior to 37 weeks gestation, is a key contributor to persistent racial disparities in infant mortality in the United States. Five major funding initiatives were devoted to advancing PTD epidemiology during the 1990s and 2000s. By examining content and rhetorical features of 94 studies conducted under these initiatives, and published between 1993 and 2011, this paper considers how calls for more "contextual" approaches (focusing on social and environmental contexts) interacted with more "conventional" approaches (focusing on individual-level risk factors) to PTD epidemiology during this period. Contextual advocates initially emphasized complex biosocial reasoning to better connect social adversity with embodied outcomes. Yet responses by researchers invested in conventional approaches, as well as in studies published under new initiatives that explicitly claimed to incorporate contextual insights, often reframed this complex reasoning in biologically reductionist terms. Subsequent contextual advocates then focused on developing statistical methods to support research about social and environmental causes of PTD, and this strategy appears to have gained some traction with conventional researchers. These findings call for closer attention to language and power in both social scientific studies of epidemiological knowledge production, as well as among epidemiologists themselves.

1. Introduction

Calls for change in epidemiological research in the United States by the late 20th century sparked intense debates that some called the "epidemiology wars" (Poole and Rothman, 1998). Conventional approaches in the profession by this era focused on assessing risk factors at the individual level, and identifying statistical links between risk/exposure variables and disease outcomes in populations (Susser and Stein, 2009). Advocates for change called for a more contextual approach that clearly conceptualized the social, cultural and environmental settings in which adverse exposures emerge and interact to produce population patterns in health outcomes (e.g., Krieger, 2011).

By the 1990s, research about racial disparities in health offered key support for contextual research, examining race as a cultural construction linked with socially patterned experiences of inequality (e.g., economic deprivation, environmental hazards, psychosocial stress, targeted marketing of unhealthy foods and substances, inaccessible and/or inadequate health care) that demote health (James, 1993; Geronimus, 2000; Jones, 2001; Kaufman and Cooper, 2001; Krieger, 2005; Williams, 1997). These efforts supported a new focus on health disparities by U.S. public health agencies, advanced by President Clinton's 1998 Presidential Initiative on Race.

Social epidemiologists like Krieger (2005, 2011) and those in allied fields like Dressler et al. (2005) and Gravlee and Sweet (2008) in medical anthropology, have argued compellingly that research linking bodily outcomes to social experience can productively destabilize popular American cultural assumptions that racial differences are innate and immutable. Yet tracing the shifting course of epidemiological research about preterm delivery (PTD) the 1990s and 2000s poses new questions about how the persuasive power of this important strategy may vary across different research topics. In this paper, I examine the interplay between "conventional" and "contextual" approaches in studies produced under five major

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[*] Department of Anthropology, University of Iowa, 114 Macbride Hall, Iowa City, IA 52242, USA.
E-mail address: erica-prussing@uiowa.edu.

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research initiatives for PTD epidemiology in the 1990s and 2000s. Initial efforts to promote contextual approaches emphasized connecting social environments with biological outcomes. Yet close readings of how these calls for change were made, and responded to, indicate that this biosocial reasoning was often reinterpreted in ways that moved to reassert the primacy of conventional perspectives and agendas in the field. This reformulation occurred not only in PTD research initiatives that were expressly committed to conventional approaches, but within new initiatives in the early 2000s that explicitly claimed to integrate contextual with conventional approaches. This rather ambivalent engagement of contextual approaches in these sectors of PTD epidemiology contrasted markedly with how policies in major U.S. public health institutions, like the American Public Health Association, had fully endorsed contextual research about PTD by the mid-2000s.

By the later 2000s, contextual advocacy in PTD epidemiology no longer explicitly focused on linking biological factors with social determinants, but instead on developing and publicizing statistical methods to better measure social and environmental exposures. Shortly afterwards, researchers who had previously worked in either contextual or conventional research streams entered into new collaborations (e.g., Culhane and Goldenberg, 2011).

While both conceptual and methodological tools are needed to support change in any field of scientific research, attending to how different advocacy strategies figured within these transformations in PTD epidemiology poses key questions for social scientific studies of how epidemiologists produce knowledge (Janes et al., 1986; Shim and Thomson, 2010; Trostle, 2005). Tracing the interplay of contextual and conventional approaches through a series of successive research initiatives foregrounds the significance of rhetoric in epidemiological research, and asks how we can better comprehend the ways in which rhetorical strategies may reflect the distinctive networks of resources and researchers that coalesce around particular topics at given points in time. As I suggest here, for example, the prominence of clinical biomedical practitioners and perspectives in epidemiological research about pregnancy outcomes may help to account for the apparent resistance to biosocial reasoning within conventional PTD research, and seemingly greater responsiveness to new technical developments in statistical methods there. How might the specific social worlds of research that develop around a given topic shape how the cultural and political authority of conventional approaches are enacted, perpetuated, and contested when advocates propose alternative approaches? When and how do biomedical perspectives wield particular cultural and institutional authority in U.S. epidemiology? How do these social, cultural and political processes in turn shape the impact of specific strategies for change that advocates employ?

I approach these questions here through analysis of the content and rhetorical features of studies from five PTD epidemiology research initiatives that unfolded through the 1990s and 2000s. This analysis extends recent social scientific studies of U.S. epidemiology at the turn of the 21st century. Shim and Thomson (2010) describe how distinctive “inductive” and “deductive” approaches to epidemiology (equivalent to what I designate as “contextual” and “conventional” here) had become embroiled in open conflict by the 1990s. As they conclude, the cultivation of a “flexible but robust” (2010:175) concept of multi-factorial causation in the 2000s superficially smoothed over this divide, but major tensions remained such that the profession continues to be in a state of “tremendous flux” (2010:176). I argue here that social scientific understandings of these dynamic tensions are enriched by examining a series of studies about a specific topic, not only for their explicit causal reasoning but also for their more implicit rhetorical strategies for articulating and legitimating knowledge claims.

Change in any research field clearly involves a broad array of cultural, technological, structural and institutional factors. In epidemiology these range from the availability of concepts, measures, and methods to the institutional pressures that shape epidemiological training and research funding. It is beyond my scope here to provide a full analysis of how all have contributed to the evolving course of PTD research, and I do not claim that any particular advocacy strategy has single-handedly shaped its trajectory. My goal instead is to highlight how close attention to rhetorical strategies can help to illustrate the cultural and political dimensions of interactions among distinct approaches to epidemiological research.

2. Understanding PTD epidemiology: social scientific perspectives

Research initiatives throughout the 1990s and 2000s supported new epidemiological studies about PTD, as researchers and policymakers responded to PTD's connection to infant mortality. Infant mortality first emerged during the 19th century as a key indicator of population well-being (Brosco, 1999; McElhinny, 2005; Meckel, 1990), and the U.S.'s poor international ranking on this measure (MacDorman and Mathews, 2008; National Research Council and Institute of Medicine, 2013) has provoked recurrent concern. This ranking is widely attributed to the disproportionate prevalence of infant mortality among racial and ethnic minority populations. Although national infant mortality rates steadily declined throughout the 20th century, racial disparities have persisted (Wise, 2003) and even increased in recent decades (David and Collins, 2007), despite recurrent efforts to define and address their causes.

Concern with low birthweight organized many epidemiologic studies of infant mortality, but by the 1970s researchers focused increasingly on PTD as a key cause of low birthweight and more accurate indicator of infant mortality (see also Basso et al., 2006). Studies consistently report PTD rates at least 2–3 times higher among African Americans than white Americans (Reagan and Salsberry, 2005). Yet efforts to understand the causes of PTD and the reasons for its unequal social distribution have not yet yielded effective interventions. PTD researchers recurrently use terms such as “stubborn challenge” (Johnston et al., 2001: 3) and “enigma” (Muglia and Katz, 2010:529) to highlight these challenges.

The puzzles and prospects of PTD research generated five major funding initiatives for epidemiological research through the 1990s and 2000s. Here I analyze 94 of the resulting studies published between 1993 and 2011, focusing on both content themes and rhetorical strategies. Previous social scientific studies have constructively examined the cultural and political dimensions of epidemiological knowledge (e.g., Fujimura and Chou, 1994; Janes et al., 1986; Shim and Thomson, 2010; Trostle, 2005), considering epidemiology's role in the emergence and elaboration of new diagnostic categories (Armstrong, 1998; Treichler, 1999), medical therapies (Kahn, 2009), academic disciplines (Clarke, 1998), and national research policies (Epstein, 2007). Analyses of the controversies that arise around specific hypotheses about the causes of health conditions (e.g., Garrety, 1997) also help to document how cultural influences shape the conceptualization, measurement, and interpretation of epidemiological variables. Analyses of causal hypotheses that enjoy popular legitimacy, despite limited and questionable evidence (e.g., Kaufman and Hall, 2003), similarly highlight how political processes influence the legitimacy, authority, and circulation of epidemiological knowledge claims.

In explicitly examining the politics of legitimation that accompany advocacy for change in health research, Shim (2005) and