The Role of Social and Material Inequalities in Use of Biomedical Obstetric Care: Combining Logistic Regression with Ethnographic Insight in Rural Tanzania

Short Abstract

Increasing the availability of biomedical care at childbirth in is widely recommended to improve global maternal-newborn outcomes and to achieve MDGs 4 and 5. However, emerging evidence suggests that strategies aimed at accomplishing this objective are not reaching the poor. The purpose of this study is to better understand use of intrapartum care in rural Tanzania where this care is being supplied. It first identifies who is using and is not using this care. It then explains how and why women in different social and material positions act in relation to it. To approach the issue comprehensively, a mixed-method design is used. The quantitative component evaluates statistics from a population-based survey while the qualitative component analyzes ethnographic data on perceptions and experiences of childbearing women. Early findings indicate that local states and processes of inequality are deeply implicated in the type of care women seek and receive at childbirth.

Background and Purpose

Despite considerable investment of public health resources over the past 20 years, complications related to pregnancy and childbirth continue to threaten the lives and health of women in many poor countries. However, recent estimates from the World Health Organization indicate that just 13 countries account for approximately 70% of maternal deaths in the world, nearly half of which are in sub-Saharan Africa (1). As a region, sub-Saharan Africa has the one of the highest maternal mortality ratios in the world, with an estimated 940 maternal deaths per 100,000 live births. This figure stands in stark contrast with industrialized nations, which have a combined ratio of 13. As one of the handful of countries that bear a disproportionately high burden of global maternal deaths, Tanzania is well acquainted with the consequences of these losses. Women here face an estimated one in 15 lifetime chance of dying from childbirth-related complications, as compared to one in 4,000 for women in industrialized nations (1).

In light of its severe costs to public health and human rights, the United Nations community has recognized this issue as a priority problem. Reducing maternal mortality by three-fourths is included as one of eight UN Millennium Development Goals to be reached by the year 2015. However, as of yet there are no signs of progress towards this goal in most African countries South of the Sahara. The crisis in this region appears to have stagnated or even become worse since the first international Safe Motherhood Conference in 1987 (2). As complications of childbirth cannot be adequately predicted or prevented, it is widely argued that the most effective strategy for improving this situation is to ensure that some form of biomedical obstetric care is available to all women during childbirth. Whether defined as skilled attendance, professional care at childbirth, emergency obstetric care, or the health centre intrapartum care strategy, most experts agree that a core strategy of providing facility-based obstetric care at delivery is necessary to save women's lives and reduce high levels of maternal mortality (3).

Unfortunately, sub-Saharan Africa demonstrates dire figures on use of biomedical obstetric care as well, where over 95% of women receive antenatal care but an estimated 20-40% of women

deliver with health professionals or in facilities (4). Certainly, lack of availability contributes to this under-use. However, even where this care is provided, women who appear to have access to it may not receive it. Thus, although improving the supply of services is clearly necessary, it is not sufficient. Biomedical obstetric care must be sought if it is to be received, and there is reason to believe that women neither seek nor receive it homogenously. In particular, recent evidence from the World Bank indicates that interventions increasing the proportion of deliveries in health facilities and with skilled providers are not reaching the poor. At the same time, women at the upper end of the socioeconomic continuum are obtaining more and higher-quality services. In favoring better-off groups, these interventions may be contributing to uneven maternal outcomes between the relatively poor and the well off – a troubling effect given that the need for this service is generally greater among disadvantaged women (5-6).

Despite this problem, most maternal-newborn health organizations are committed to making biomedical obstetric care more available to those who continue to be seen as an aggregate of "third world women" in discourses of international development. Given this situation, how and why obstetric care is taken up at the local level by women in differing positions across economic, educational, ethnic, religious, age, and other lines become critical questions. At present, there is insufficient knowledge on the ways in which states and processes of inequality influence demand for, decisions about, and behavior related to this service in rural sub-Saharan Africa. The purpose of this study, therefore, is to better understand use of obstetric care at childbirth in a rural Tanzanian setting where this care is being supplied. More specifically, it seeks to explain how and why women of different social and material positions use or do not use this service, with an explicit emphasis on inequality and particularity.

Methodology/Research Design

A concurrent mixed-methods study design is used to address the above-stated objectives. In converging broad numeric trends and detailed local perspectives, this study is able to capture the complexities inherent in the topic of interest. Data for the quantitative component of the study is part of an ongoing population-based survey (Postpartum Interview Study) conducted by the Centers for Disease Control and Prevention in conjunction with the Ifakara Health Institute and INDEPTH Demographic Surveillance Site (DSS). Summary statistics and multivariate logistic regression is used to describe the study population and compare women who used biomedical obstetric care with those who did not on various social and material indicators. The group using skilled attendance is further assessed on where care was obtained and on key characteristics of this care through links to facility-level data. The group not using skilled attendance is evaluated with closed-ended questions regarding what kind of birth attendance they did obtain and possible reasons for this.

At the same time, how and why women with different social and material positions use or do not use skilled attendance is explored with ethnographic procedures, such as participant-observation and semi-structured in-depth interviews. This qualitative component includes participants living in the communities covered by the Postpartum Interview Study and, in purposefully sampled cases, some of the same women participating in this survey. Broad categories deriving from existing literature served as the starting point for data collection. Particular themes then emerged and were developed in the field through an iterative process of data collection and analysis. In addition to providing insights into women's perceptions and experiences, this component also

contextualizes the study. A postmodern feminist perspective provides the theoretical lens for the qualitative study component, along with relevant concepts from the fields of social epidemiology and medical anthropology.

IRB approvals for this study have been obtained from the University of North Carolina at Chapel Hill (UNC-CH), the Tanzanian National Institute of Medical Research (NIMR), the Tanzanian Commission for Science and Technology (COSTECH), and the Ifakara Health Institute (IHI).

Findings

Findings from both components indicate that social and material inequalities play a significant role in whether women seek biomedical obstetric care at childbirth. Quantitative findings from the DSS and preliminary Postpartum Interview Study data show that women living in a house with a tin roof or radio are far more likely to seek and receive obstetric care in a facility and with a skilled provider than women with a thatched roof and no radio. Women with a completed primary education or who belong to a secondary ethnic group are also more likely to deliver with this care than those with incomplete primary education or those in the dominant ethnic group.

The ethnographic analyses offer a deeper understanding of how this inequality plays out and in what ways it affects use of biomedical obstetric care. This assessment shows why the reasons women don't go to health facilities or seek skilled providers cannot simply be summarized into straightforward categories (often called "barriers"). Rather, the range of these explanations should be stratified in terms of women's social and material positioning. For example, proximity to services, costs of receiving care, autonomy/decision-making power, perceived quality of care, and individual risk perception all emerged as important factors in this study. However, the particular mechanisms through which these factors affect women's and families' choices depend greatly upon *which* women are being looked at. The ways in which distance, costs, autonomy, quality of care and risk perception affect poor or less educated women differ from how they influence women who are better off. This intricate interplay allows for a wide array of what kind of care women in the study community want, what they can access, and how they navigate between these according to their relative position in society.

The types of questions addressed in the integration of quantitative and qualitative components include the following. First, who is using and not using biomedical obstetric care in the study setting is considered in light of what this care actually consists of and how it is performed there. Second, quantitative measures of social and material status are compared to local meanings of well off and poor off. Third, variables that are significantly different between women using and not using biomedical obstetric care are evaluated alongside descriptions and inferences from qualitative methods. Finally, findings that don't converge smoothly are treated as an opportunity for deeper interpretation.

Significance of Study

With energy and resources currently being committed to increasing the proportion of deliveries with biomedical obstetric care in sub-Saharan Africa, the project is especially timely. The information it provides could be used to inform interventions still in the development phase,

potentially improving effectiveness while minimizing unintended consequences and misallocated resources. In particular, the findings on how and why different groups of women use this care are expected to motivate policy and program recommendations on ways to improve it expressly for women who are disadvantaged. Increasing the use of biomedical obstetric services *among all women* may ultimately assist in reducing maternal mortality and morbidity rates in the region. Last, this research has methodological implications. It will contribute a mixed-method study to a body of literature sorely lacking in this kind of design. It will also allow opportunity to further determine the usefulness of applying mixed-method approaches to other public health problems involving complex human behavior.

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