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Gender inequality and the use of maternal healthcare services in rural sub-Saharan Africa

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ABSTRACT

In this study, we measure gender inequality both at individual level by women's household decision-making and at contextual level by permissive gender norms associated with tolerance of violence against women and assess their impact on maternal healthcare services utilisation in rural Africa. We apply multilevel structural equation modelling to Demographic and Health Survey (DHS) data from Ghana, Kenya, Tanzania and Uganda to gain better measure and effect of the gender norms construct. The results show that women in Ghana and Uganda, who live in areas where gender norms are relatively tolerant of violence against women, are less likely to use skilled birth attendants and timely antenatal care. In Tanzania, women who live in this type of environment are less likely to attend four or more antenatal visits. In contrast, the effects of a woman's decision-making authority on maternal health service use are less pronounced in the same countries.

1. Introduction

Reducing infant mortality by two-thirds and maternal mortality by three-quarters – Millennium Development Goals 4 and 5, respectively – may not be reached in many low income countries partly because of under-utilisation of maternal healthcare services (Bhatia and Cleland, 1995; Koblinsky, 1995; Campbell and Graham, 2006; Islam and Yoshida, 2009). Sub-Saharan Africa carries the heaviest burden of maternal and infant mortality: about a quarter of a million women die each year from pregnancy complications and four million children die before they turn five years (The Partnership for Maternal, Newborn and Child Health 2006). Moreover, the WHO (2009) estimates that, during the period 2000–2008, one in two women who gave birth did so without qualified personnel. In other words, of the 30 million women who get pregnant each year in the sub-region, roughly 18 million give birth at home without the assistance of a health professional (Lawn et al., 2005).

Recently, the research agenda on maternal and infant health has shifted to consider women's autonomy or empowerment, defined as "*women's ability to make decisions which affect outcomes of importance to themselves and their families*" (Malhotra and Schuler, 2005, p.5), as a fundamental factor for understanding their reproductive behaviour in developing countries (Bloom et al., 2001; Stephenson et al., 2012; Singh et al., 2013). However, most previous studies have not considered the broad context of gender inequality and the social norms under which women live, which define and structure their status (Kritz and Makinwa-Adebusoye, 1999; Dixon-Mueller and Germain, 2000; Blanc, 2001; Desai and Johnson, 2005). Many of these studies dealt with Asian countries and focused on family planning issues, limiting their value for understanding behaviour and maternal healthcare use in the African context (Fotso et al., 2009; Corroon et al., 2013).

This paper examines the influence of the gender inequality on the use of antenatal care and skilled birth attendance in rural sub-Saharan Africa, where gender norms discouraging women's autonomy persist, and where the use of maternal health services remains low (Beninguisse et al., 2005). Conceptually, it assesses the gender inequality both in terms of individual women's decision-making power within the household, and of gender norms regarding intimate partner violence in the community. Methodologically, the study combines the structural equations modelling approach to multilevel modelling to derive an appropriate measure of the gender inequality and to assess directly and indirectly its "contextual effect" (Sampson et al., 2002; Raudenbush, 2003; Lüdtke et al., 2007). Models are estimated on data from four Demographic and Health Surveys, the results demonstrating the value of applying this approach to other health behaviour outcomes in sub-Saharan Africa.

2. Background

Gender inequalities describe the disparities in roles, characteristics and behaviours between men and women that are grounded in the expectations and social norms prevailing in local society (Blanc, 2001). These norms are strengthened by sanctions that may occur

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when an individual refuses to conform to a specific acceptable behaviour, and by the fear of sanctions and shame sometimes dissuades to act (Horne, 2001). Examples of gender inequalities considered by previous research include the practices of purdah or of seclusion that occur in Bangladesh, India, and Nigeria that limit women's interaction with others or their mobility outside the household (Balk, 1997; Kritz and Makinwa-Adebusoye, 1999; Desai and Andrist, 2010). Another example reported in Ghana concerns the multiple domestic duties that the society expects from women (Amoakohene, 2004). These and similar inequalities are found throughout sub-Saharan Africa; they are reproduced informally, aim to maintain male dominance and are thought to be prejudicial to women's status (Heise, 1998; Moursund and Kravdal, 2003; Desai and Andrist, 2010; Wang, 2010). Several studies have shown that these gender inequalities have a negative effect on women's reproductive health practices and outcomes by limiting their access to information, increasing their vulnerability to gender-based violence and also by limiting their access to health services (Mason, 1987; Riley, 1998; Blanc, 2001; Dodoo and Frost, 2008; Stephenson et al., 2012).

In empirical research, the operationalization of gender inequality has mainly been done at the individual level, with an emphasis placed on women's decision-making authority (Blanc, 2001). Previous research has shown that gender inequality at the household level has significant effects on infant mortality and morbidity (Caldwell and Caldwell, 1993), family size (Balk, 1994), contraceptive use (Woldemicael 2009), age at marriage (Desai and Andrist, 2010) and health services utilisation (Beegle et al., 2001; Bloom et al., 2001; Pallikadavath et al., 2004; Ahmed et al., 2010). However, limiting the analysis to the individual or household level can provide only partial explanations of the relationship between gender inequality and maternal health service use (Caldwell, 1990; Dodoo and Frost, 2008). Gender and social norms at contextual level may also shape and define the imbalance of power at individual level (Caldwell and Caldwell, 1993; Balk, 1994; Kritz and Makinwa-Adebusoye, 1999; Mumtaz and Salway, 2005; Adjiwanou, 2013). Therefore, by defining the way women should behave in society and by limiting their autonomy and decision-making authority, gender norms can indirectly influence women's use of health care services (Mason, 1987; Caldwell and Caldwell, 1993; Balk, 1994; Kritz et al., 2000; Desai and Johnson, 2005; Stephenson et al., 2006a).

Gender norms may further have a direct impact on the use of maternal health service by limiting women's mobility and access to employment opportunities or resource management, lowering their self-esteem and creating an environment of fear and stress. Specific norms regarding violence are essential to consider, as they are directly related to the exercise of violence against women (Moore, 1999; Koenig et al., 2006; Sarkar, 2008; OECD, 2010; Stephenson et al., 2012) and are more susceptible to "*create a climate of fear and intimidation*" (Gilfus et al., 2010; Nanda et al., 2013). Intimate-partner violence (IPV) is said to be grounded in patriarchal society that gives primacy and privilege to men (Amoakohene, 2004; Kishor and Subaiya, 2008), and "*serves to maintain the unequal balance of power*" between men and women (Watts and Zimmerman, 2002; Wilson-Williams et al., 2008). Qualitative research by Hatcher et al. (2013) in the province of Nyanza in Kenya has shown that at times violence against women was motivated by what men and the "society" considered as women's challenging of the social norms and of men's authority.

3. Methodology

3.1. Data

The analysis is based on Demographic and Health Survey (DHS) data from the period 2003–2006 for four sub-Saharan African countries (Ghana, 2003; Kenya, 2003; Tanzania, 2004/2005; and Uganda, 2006). These countries share a common history as former British colonies and, according to the Atlas of Gender and Development produced by OECD (2010), the gender context in all four countries is highly discriminatory against women.

DHS data are comprehensive and cover multiple topics related to reproductive health behaviour. The information collected allows both for a direct measures of women's decision-making authority in the household, and to assess attitudes with regard to intimate-partner violence that can be used to measure gender inequality at the contextual level. The DHS are considered to be the most important source of high quality data for comparative studies in developing countries in the general social and health spheres of research (Pullum, 2008; Subramanian et al., 2011).

Our analysis focuses on the behaviour of women of reproductive age 15–49 who have had a live birth in the past five years in a rural area. Limiting the study to rural residents was done for three reasons: (1) access to health care service is relatively low in those areas, (2) consequences of non-use of care are correspondingly dramatic, and (3) prevalent norms and attitudes are more homogeneous in the countryside. The primary sampling unit in the surveys are clusters and these were used to assess the local context (Montgomery and Hewett, 2005). As was done by previous studies (Franzini et al., 2005), clusters in which fewer than five women had been interviewed were omitted from the study. The number of clusters per country included in the analysis thus ranges from 237 in Ghana to 361 in Tanzania, and the average number of women aged 15–49 years old interviewed per cluster ranges from 14 in Ghana to 23 in Uganda. In all, these clusters cover 1814 women in Ghana, 2662 in Kenya, 4223 in Tanzania and 3529 in Uganda.

3.2. Method

Multilevel structural equation models (MSEM) are used to measure gender norms regarding violence against women and to estimate their direct and indirect effects (acting through women's decision-making authority) on maternal health service use. Structural equation modelling (SEM) comprises two components namely, that are the measurement and the regression model. The measurement model, commonly called confirmatory factor analysis (CFA), specifies the relationships between the latent and the observable variables (indicators) that attempt to provide an approximate measure. In this study, this model is used to assess the contextual latent variable for gender norms related to the local acceptability of violence against women.

The regression model estimates the relationship between the dependent and independent variables. This model has been developed and presented elsewhere (Adjiwanou, 2013). Appendix A presents and describes the main system of equations used in the present study.

Overall, the model estimated can be understood as a two-level logistic regression model with two notable differences: a contextual-level variable is measured as "latent" factor, and two dependent variables are included at level 1. These two dependent variables are related to the measure of maternal health service use and also to the variable that captures women's decision-making authority (cf. Fig. 1). The system of equations was estimated simultaneously using *Mplus* 6.11. Standard errors were estimated using the maximum likelihood method with the MLR estimator based on the expectation maximisation algorithm (Gottfredson et al., 2009). This is a robust estimator in cases of non-normality of dependent variables (Muthén and Muthén, 1998–2010).

3.3. Variables

3.3.1. Dependent variables

Maternal health service utilisation is captured by three separate dichotomous variables relating to the last pregnancy occurring in the