Effects of Birth Spacing on Maternal Health in the Tanzanian Lake Region

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Introduction

Effects of birth spacing on the self-perceived health of mothers and changes therein are studied for 807 women from 54 villages in Tanzania's Lake Region (Kagera, Mwanza, Mara). Women were interviewed in 2004 and 2010 providing a rich source of data for two time points. Dependent variables are self-reported health of the woman and changes therein. Main independent variables are time spacing between last two pregnancies and births, number of children, age of children, problems during pregnancies and deliveries, family planning use and knowledge, characteristics of available (reproductive) health facilities. Control factors are illnesses and injuries of the mother, socio-economic factors and changes therein, demographic factors and changes therein, cultural indicators. Data are analyzed using multilevel regression models, with variables at individual, household and village level.

There is some evidence that both short and long birth and pregnancy intervals have negative health effects for maternal health (Winikoff, 1983; Conde-Agudelo et al., 2006). A cause for negative maternal health effects related to short intervals might be maternal nutritional depletion, i.e. the woman not being able to recover from the physical stress of the preceding pregnancy, resulting in a depletion of maternal nutrient reserves (Winkvist et al., 1992). Negative effects of long birth intervals might be due to a woman's physiologic reproductive capacities gradually declining (Zhu et al, 1999). Other causes of long intervals might be sexually transmitted infections or other illnesses.

Existing evidence is insufficient to draw definitive conclusions about the negative maternal health effects of short and long birth intervals (Conde-Agudelo et al., 2006, 2007). Moreover, most studies have been conducted in developed countries. More research is needed to determine whether effects of birth spacing differ between developed and developing countries (Conde-Agudelo et al., 2006, 2007).

Data

The data we use for this study come from a household survey conducted in the summer of 2010 in the Lake Region of Tanzania (Kagera, Mwanza and Mara). This survey was a follow up of an

earlier household survey conducted in 2004. For 807 women living in 54 communities in the three regions, data for two points in time were obtained. The two surveys constitute a rich source of panel data on a wide range of topics, including information on health and changes therein, birth histories, pregnancies, knowledge and use of contraceptives, fertility preferences, family composition, education and work of all household members older than five years, possession of assets, major events influencing household well-being. Besides the household surveys, in 2010 also community questionnaires were conducted in each of the villages, adding valuable information regarding the available (reproductive) health facilities and changes therein over the past six years.

Dependent variables are self-perceived health of a woman and the change therein. Major independent variables are time spacing between the last two pregnancies of the mother, her number of children and their ages, problems during pregnancy and delivery, whether the pregnancies were wanted, family planning use and knowledge, characteristics of available (reproductive) health facilities (distance, highest level of health worker, arrangements for emergency health problems, etc.). Control factors include illnesses and injuries of the mother, level of education, work status, household wealth and changes therein, factors indicating household composition (e.g. extended household, polygamous household, husband missing from the household, etc.) and changes therein, major shocks between 2004 and 2010, cultural indicators, women's bargaining power, level of development and urbanization.

Methods

The effect of the included characteristics on maternal and children's health are studied using bivariate and multivariate logistic regression analysis. Because we use explanatory variables at three levels of aggregation (individual, household, village), we apply multilevel versions of the logistic regression models. With multilevel analysis it is possible to include explanatory variables at different levels simultaneously and to study interactions among levels (Hox, 2002). Models are estimated in MlwiN 2.18 using MCMC estimation.

Literature

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