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Female excess mortality in West Africa: A phenomenon fueled by inequalities and discrimination?

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Extended abstract

Introduction

Research in demography and epidemiology has long addressed inequities in the face of death. It has emerged that gender is a key differentiating factor in child survival, and that girls have a biological advantage, thanks to their chromosomal make-up, which protects them from many diseases from birth compared with their brothers (Waldron, 1983, 1998). Thus, when girls and boys have similar conditions, the mortality of boys is generally higher than that of girls (Sawyer, 2012).

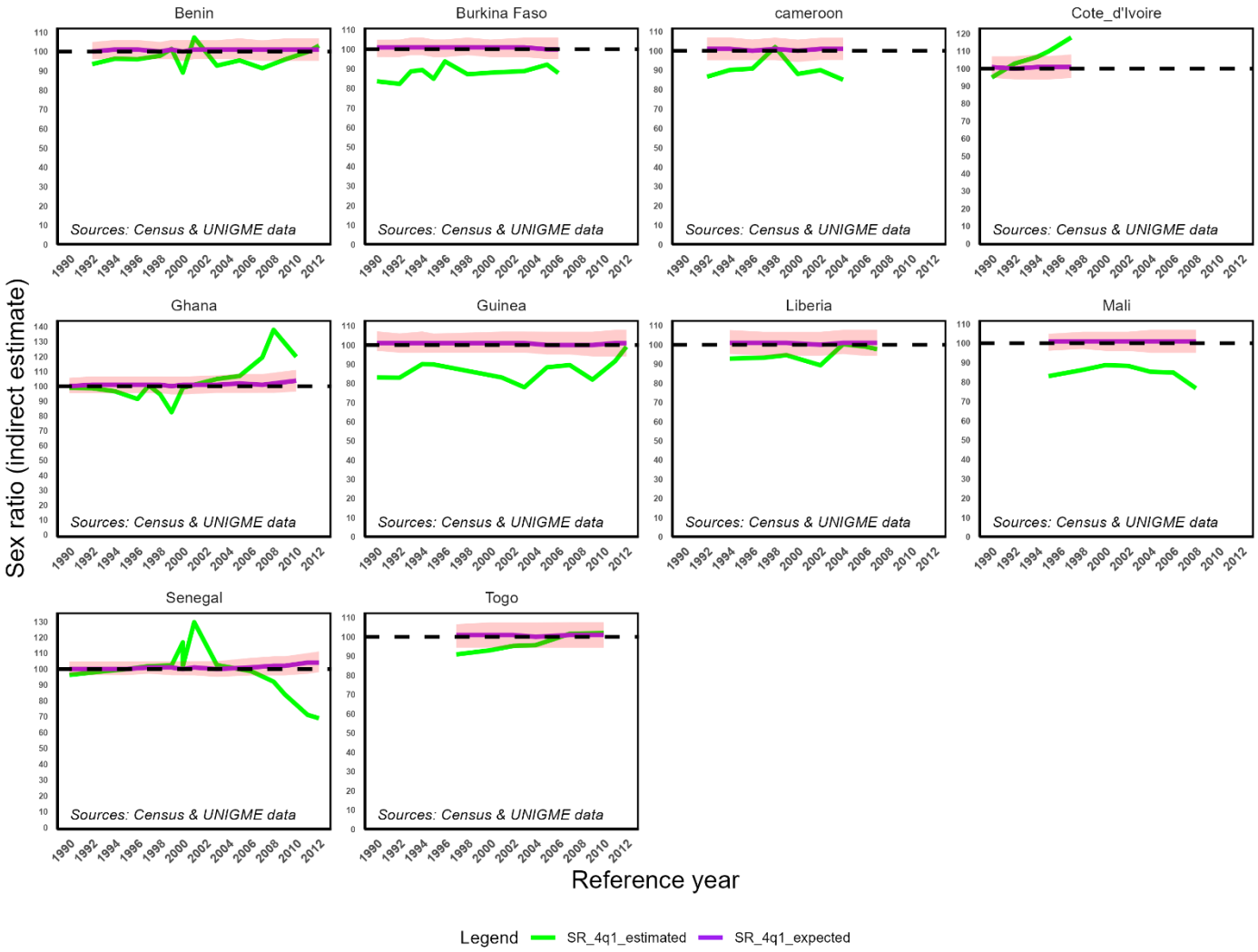
In addition, expected levels have been proposed by (Hill & Upchurch, 1995) based on the experience of Western countries and more recently by (Alkema et al., 2014) who have adopted a Bayesian approach to estimating ratios from a large corpus of global data. The latter model suggests that, in the absence of discrimination, the expected mortality of girls under 5 years would be around 10 to 20% lower than that of boys, with variations depending on the overall level of mortality: except for situations of very low mortality, where the gap tends to decrease with the level of mortality.

However, it can happen that, despite their innate advantage, girls can be more exposed to mortality than boys. This was the case in European societies in the 19th century (Tabutin, 1978; Tabutin & Eggerickx, 1994) and in Asia in the 20th century and even today (Arnold et al., 2002; Chun & Das Gupta, 2009; Guilmoto, 2008).

For a long time, West and Central Africa countries have been perceived as being free from the phenomenon of female excess mortality. Indeed, no significant imbalance in births, a key indicator of such inequalities, had been observed in this region. This reality remains largely true today for new-borns. However, the situation is not so clear when it comes to children aged 1 to 4. In our previous analyses, where we cross-examined various data sources (census and UNIGME[1]) and methods, we sought to explain the sporadic mortality anomalies observed in several West and Central African countries. We concluded that three West African countries, Burkina Faso, Guinea, and Mali show clear signs of excess female mortality at this age during the period 1990-2012, and that a fourth West African country, Senegal, exhibits a similar trend, though this becomes more apparent towards the late 2000s, around 2007, as shown in the figures below.

[1] Estimates by the Inter-agency Group for Child Mortality Estimation (childmortality.org).

Figure 1: Comparison of estimated sex ratios with expected sex ratios in West and Central African countries



Objective

The aim of this presentation is to rely on the analysis results presented above to analyse and understand the unusual sex-based discrepancies observed in child mortality in West African countries. Specifically, it seeks to explore potential explanations for the female excess at two main levels: (i) health-related behaviors, such as preventive and curative care as well as nutrition (including breastfeeding and nutritional adequacy); and (ii) cultural practices, such as female genital mutilation, which is still practiced in West Africa (Andro & Lesclingand, 2016) and could also impact the health of young girls.

[2] The estimated sex ratios of mortality are based on sex-specific mortality levels estimated from the most recent national datasets available, derived from the latest censuses of each country. The calculation method used to estimate mortality levels is the Brass indirect method and the expected sex ratios of mortality are based on estimates provided by UNIGME.

[3] Graph reading note: Only the countries where the green curve is below both the black and purple curves, and outside the confidence interval range (red shaded area), are the countries where the phenomenon of female excess mortality is confirmed

Data and methods

The data sources are DHS from the DHS program. DHS are nationally representative surveys that provide retrospective information on child deaths for interviewed women. These data which provide detailed information on child health remain the primary source for estimating child mortality in developing countries and analyzing its determinants in developing countries, most of which do not have civil registration data. These data enabled us to establish three analytical samples, namely: the sample on child vaccination, the sample on their nutritional status, and finally the sample related to female genital mutilation in very young women.

The vaccination sample consists of surviving children who have reached their first birthday, meaning children who are alive after celebrating their first birthday, as well as those who died afterward, up until the age of 5, as we are specifically interested in children aged 1 to 4 years old. In this study, we considered the three vaccines that a child should have received by their first birthday: the BCG, the third doses of the DPT, and the polio vaccine. A child is considered fully vaccinated if they have received one dose of BCG and the final doses of the DPT and polio vaccines before their first birthday. Vaccination at 1 year old was recoded into two categories: "1" for children who were not fully vaccinated on time, and "0" for those who were.

The nutritional sample consists of all children aged 1 to 4 years who were alive at the time of the survey and for whom anthropometric measurement data are available. To assess the nutritional status of the selected children, we used anthropometric measurements. The most commonly used anthropometric indices are height-for-age, weight-for-height, weight-for-age, and, to a lesser extent, arm circumference. However, we chose to use weight-for-age to determine the children's nutritional status. This choice is based on the advantages and limitations of each index as described in the literature (Soura, 2009). The variable for weight -for-age is also recoded into two categories: "1" for children with poor nutritional status and "0" otherwise.

The sample related to female genital mutilation (FGM) consists exclusively of women aged 15 to 19, as it is difficult to address this issue with children under 5 years old. Countries have enacted laws prohibiting the practice of FGM, but a 2016 UNICEF study reveals that the taboo surrounding this topic results in a lack of precise information. For example, due to fear of legal repercussions, mothers may be reluctant to disclose information about their children, such as the exact age at which FGM occurred or whether the child has undergone the procedure. Many prefer to describe themselves as victims of FGM rather than practitioners of the practice. This explains why data on FGM among women of reproductive age is available, even though many studies (Andro & Lesclingand, 2016) indicate that these women generally underwent the procedure before the age of five. DHS primarily provide information for women and girls aged 10 to 14. However, the available data allow for the analysis of the phenomenon only among women aged 15 to 49, who are directly surveyed on this subject.

The variable for female genital mutilation (FGM) is recoded as "1" for women who report having undergone FGM and "0" otherwise.

Various approaches are used to study the excess mortality of girls in a selection of West African societies. Indeed, the demographic data available to us allow for different statistical modeling, including multivariate and multilevel analyses of health behaviors, as well as spatial regressions for regional analyses.

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