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Social Determinants of Under-Five Mortality in Ethiopia: Issue Brief for Stakeholders

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Abstract

Introduction: Under-five mortality is an important indicator of countries' developmental status. Higher proportions of child deaths occur in developing countries including Ethiopia. However, in Ethiopia where there is no continuous event registry and most information comes from the periodic surveys, it is not common to obtain information on the determinants of under-five mortality. To this effect the output in this analysis is based on the Ethiopian health and demographic survey 2011 aiming to put indicative potential policy perspectives on social determinants of under-five mortality in Ethiopia. Results: A total of 11,654 live births were extracted from fertility history of women of the reproductive age for the 5- year period preceding the year 2011 and a total of 846 deaths were identified. There was a high burden of under-five mortality (incidence rate ratio of 24.95 per 1000 person years) with the highest risk of death on the neonatal age. In multivariate analysis, males, children born from uneducated mothers and children living in developing and marginalized regions were conferred the highest risk of under-five deaths. Conclusion: Though Ethiopia has made tremendous progress in reducing child mortality, mortality is still high in developing and marginalized regions of the country and among children from uneducated mothers. There is a need to institute interventions targeting empowering women and filling regional inequalities in Ethiopia.

Keywords

Under Five Mortality, Social Determinant, Policy Brief

1. Introduction

Under-five mortality is one key indicator of development and a critical component of the millennium development goals (MDGs) for the reduction of child mortality (WHO, 2013). It is one of the measures that determine population size and distribution. Decreasing childhood mortality is a focus of communities and governments all over the world. However, children in the developing countries are still more likely to die before their fifth birthday compared to children in rich countries; in 2011 the under-five mortality rate in developing regions was 57 deaths per 1,000 live births—more than 8 times the rate in developed regions (UNICE,2010, UNICEF, 2012). Under-five mortality varies across different physical, ecological, and political structures within countries. One such contextual determinant is the regional environment (Antai, 2011, Montgomery and Hewett, 2005, Wang, 2002). In Ethiopia, marked regional disparities in mortality of children under age 5 have been reported, with higher rates observed in the developing and marginalized regions (Dejene 2013, Child Health in Ethiopia, 2004). Furthermore, studies have also shown regional differences in coverage for maternal and child health services with most of the services being concentrated in urban areas, and its accessibility being biased towards the richer parts of the population. Education level of mothers have also been reported as a determinant of access to health, mothers with formal education have a higher likelihood of seeking maternal and child health services as opposed to those with low literacy level (Getiye, 2011, Mahfouz, 2009).

To develop polices and design future strategies aiming at narrowing inequality in child mortality, it is vital for policy makers to better understand factors associated with under-five mortality. This study aimed at investigating factors associated with inequalities in under-five mortality by various social indicators, and identify key areas of focus for future intervention strategies.

To assess the social determinant of under-five mortality in Ethiopia, we carried out a study using the Ethiopian Demographic and Health Survey (EDHS) 2011 in

collaboration with researchers at the Harvard Center for Population and Development Studies.

2. Methods

2.1. Source of Data

Ethiopian DHS 2011

2.2. Sampling

The sample was selected using a stratified, two-stage cluster design. Samples of 11,654 women of reproductive age were interviewed. Births that have occurred in the last 5 years prior to the date of the interview were extracted for the analysis.

2.3. Data Collection

The questionnaire used to collect information from these women includes background characteristics of women, birth history of these women and the survival of each birth at the time of the interview.

2.4. Data Analysis

Descriptive statistical methods were used to describe the distribution of the characteristics of the data. Kaplan Meier plots and incidence rates per 1000 person years were used to compare survival across different categories of the risk factors. The effect of the risk factors on survival was analyzed using Cox proportional hazards regression. Data management and analysis were carried out using STATA 12.

3. Results

During the period, a total of 846 deaths of under five children were identified, and the overall incidence rate of under-five deaths was 24.95 per 1000 person years.

The under-five mortality was prominent among males, rural residents and economically deprived families. After adjusting for other factors, mortality was significantly higher among twin births and children from less educated mothers. Our findings also showed that there was a significant difference across different geographic areas; i.e the under-five mortality was high in less developed and marginalized regions, namely Affar, Benshangul Gumuz and SNNPR have registered the highest under-five mortality risks, 3.8[1.4-10.0], 2.8[1.05-7.4] and 2.7[1.01-7.1] respectively.(Table 1) This suggests that the survival outcome of the children is more strongly associated with the living environment, highlighting the urgent need to improve access to education, economic development, improving access to health care especially for pregnant women and around delivery.

4. Policy Analysis

In spite of the fact that during the last decades, the Ethiopian government has made tremendous progress on enrollment of students at various levels of education, large proportions of mothers and adolescents remain outside the school system. Less developed regions in Ethiopia are receiving the higher share of the budget. However, this does not mean that the grant system brings equity, availability and accessibility of basic health care for the community. There are other issues that enter the picture affecting the extent of reducing the exposure for under-five mortality. Internal allocation of benefits and access to benefits are equally important for reducing child mortality in the regions.

Based on these findings and policy analysis, we make the following recommendations for a coordinated response, both at the National Government and District Government levels, in collaboration with non-governmental organizations, to address gaps in policy, and programming toward reducing under-5 mortality.

Table 1. *Determinants of under-five mortality in Ethiopia, 2011.*

Variables	Unadjusted HR* [95% CI]	Adjusted HR* [95% CI]
Sex		
Male	Reference	Reference
Female	0.95[0.7-1.3]	0.9[0.7-1.0]
Wealth index		
Poorest	Reference	Reference
Poorer	0.86[0.66- 1.13]	1.0[0.8-1.3]
Middle	0.85[0.64- 1.13]	1.0[0.77-1.4]
Richer	0.72[0.54-0.97]**	0.9[0.6-1.2]
Richest	0.65[0.48-0.87]**	1.0[0.74-1.5]
Mother education		
No education	Reference	Reference
Primary	0.76[0.6-0.97]*	0.84[0.65-1.0]
Secondary	3.6[0.15-0.9]*	0.4[0.17-0.99]*
Higher	0.12[0.2-0.9]*	0.16[0.02-1.13]
Mother age		
<18	Reference	Reference
18-34	1.16[0.6-2.2]	0.75[0.52-1.1]
>35	1.8[0.9-3.7]	0.1[0.6-1.5]
Twin		
Yes	Reference	Reference
No	1.8[0.9-3.7]***	3.4[2.4-4.8]***
Region		
Tigiray	2.09[0.8-5.3]	1.6[0.6-4.4]
Affar	5.0[2.0-12.5]**	3.8[1.4-10.0]**
Amahara	1.8[0.7-4.6]	1.4[0.5-3.8]
Oromia	2.9[1.2-7.2]**	2.3[0.9-5.9]
Somali	3.3[1.3-8.4]**	2.5[0.9-6.6]
Benshangul G.	3.5[1.4-8.9]**	2.8[1.05-7.4]**
SNNPR	3.3[1.3-8.3]**	2.7[1.01-7.1]**
Gambela	3.2[1.3-8.3]**	2.6[0.9-5.0]
Harari	2.0[0.8-5.6]	1.7[0.6-5.0]
Addis Ababa	Reference	Reference
Diredawa	2.8[1.0-7.3]	2.2[0.8-6.0]

Ref: References
**significant at 5% CI

5. Ministry of Health

Interventions should be targeted at empowering women and more attention needs to be paid to regional inequalities. Moreover, the federal government should seek the need for comprehensive prevention strategies to further reduce child mortality.

6. Regional Government and Non-Governmental Organizations

- Develop a short and long-term implementation plans to promote female education, and adolescent education.
- Coordinate governmental efforts and budgeting across Ministries and between national and district levels to provide support for uneducated mothers and other most vulnerable regions.
- Give more attention to developing regions, in budgeting, education and sustaining various effective intervention

7. Researchers

More researchers are required to explain the cause of the variations across the regions.

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