An analysis of the impact of minimum core human rights deprivation on under five mortality.

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Background

Most deaths of children under the age of five observed between 1990 and 2010 were due to preventable causes. These causes included poor nutrition, lack of safe water and proper sanitation, lack of access to basic vaccines. Yet, the Universal Declaration of Human Rights (UDHR) protects these rights and the World Health Organisation recognises that the right to health includes the right to these determinants of health. However, the clause ‘progressive realisation’ in the Convention on Economic, Social and Cultural Rights (CESCR) has left a loophole, allowing deferment of access to basic human rights. In 1989 the concept of a minimum core of human rights was introduced to establish a minimum set of protections. Our objective is to study the effect of deprivation of these rights on the chances of children surviving until they are five years of age and thus enjoying their right to life.

Method

In order to gauge the effect of deprivation of human rights on health status, we employed regression analysis. Specifically, we regressed under-five mortality (U5M) on a set of measures of deprivation of minimum core rights while controlling for other known determinants of U5M. The measures of deprivation used are the proportion of the population deprived of; safe water, improved sanitation, primary education, access to basic vaccines and stunting (as a proxy for food).

Results

Deprivation of minimum core human rights is associated with increased under-five mortality. All else being equal, a one percentage point increase in the proportion of the population deprived of safe water leads to a 1.5 percentage point increase in under-five mortality rate, while a one percentage increase in the proportion of the population deprived of improved sanitation leads to a 1.3 percentage point increase in under-five mortality rate. A one percentage point increase in the proportion of the population which do not complete primary education and with no access to basic vaccines and leads to, respectively, a 0.6 and 0.3 percent increase in under-five mortality rate. Therefore, where there is reduced access to primary preventative health care services and education, under-five mortality
increases. When the proportion of children who are stunted (as a proxy for lack of access to essential food) goes up by one percent, the rate of under-five mortality rises by 0.8 percent.

Conclusions

Deprivation of minimum core human rights reduces children’s chances of survival and enjoyment of their most fundamental right, the right to life. Therefore, we recommend that the essence approach to minimum core human rights should be adopted by the international community with immediate effect. In addition, since deprivation of these rights reduces chances of survival, these rights are better described as survival rights.

Keywords:

Minimum Core Human Rights
Determinants of Health
Low and Middle Income Countries
Under-five mortality
Water and sanitation
Primary school education
Basic vaccinations
**Background**

Most deaths of children under the age of five observed between 1990 and 2010 in low and middle income countries were due to preventable causes. These causes include poor nutrition, lack of safe water, proper sanitation and lack of access to basic vaccines. These preventable deaths have occurred despite our most fundamental right, the right to life being protected by Article 3 of the Universal Declaration of Human Rights (UDHR) and our right to health protected by article 25 of the same Declaration [1]. The UDHR made no distinction between civil and political rights on the one hand and economic, social and cultural rights on the other. This division appeared as a result of tensions between the market economies of the west and socialist economies of the east. This resulted in a cleavage of the UDHR and the subsequent adoption of two covenants [2], one for civil and political rights which were immediately available and one for economic, social and cultural rights which were subject to progressive realisation, depending on available resources. Progressive realisation left loopholes which have allowed rights essential for survival to be deferred[3].

Attempts to compensate for these loopholes were made in 1989, when the United Nations Committee on Economic, Social and Cultural Rights (UNCESCR) conceptualised a minimum core set of rights, in order to establish a legal minimum set of protections, which should be immediately available and applicable to all, in all nations, despite different resources[3]. The hope was to establish a baseline of socioeconomic protections across all countries at different stages of their economic development[4]. However, the definition of what constitutes minimum core rights is not universally agreed.

In order to concretise what constitutes minimum core rights, the UNCESCR issued General Comment number 14 in 2000 on the right to the highest attainable standard of health [5] and have defined minimum core obligations, as shown in Box 1 below. The important determinants of health such as food, water, sanitation, basic education and vaccinations are among these core rights.
Box 1: Minimum core obligations

The minimum core obligations as defined by the UNCESCR are of immediate effect and require states to - [2]

Ensure the right of access to employment, especially for disadvantaged and marginalized individuals and groups, enabling them to live a life of dignity;

Ensure access to the minimum essential food which is nutritionally adequate and safe, to ensure freedom from hunger for everyone;

Ensure access to basic shelter, housing and sanitation, and an adequate supply of safe drinking water;

Provide essential drugs as defined under the World Health Organisation (WHO) Action Programme on Essential Drugs;

Ensure free and compulsory primary education to all;

Ensure access to a social security scheme that provides a minimum essential level of benefits that cover at least essential health care, basic shelter and housing, water and sanitation, foodstuffs, and the most basic forms of education.

It is known that wealthier countries have lower levels of child mortality [6] and that this is mediated by midstream determinants of health [7], including water and sanitation [8][9], education [10] and basic healthcare [8]. The essence approach asserts that a rights based strategy will only reduce child mortality if minimum core rights are prioritized [11] and that a stronger minimum core could make a significant contribution towards global health equity [3]. However, the relationship between deprivation of minimum core rights and child survival has never been studied.

Objectives

We aim to study the impact of deprivation of their minimum core rights on children’s chances of survival until five years of age. Our hypothesis is that the right to life (as indicated by the reduced
under-five mortality rate) is more likely to be met in countries with high levels of access to minimum core human rights.

**Methods**

This is a cross country study on children aged less than five years living in low and middle income countries. It involved statistical analysis of country-level secondary data from 123 countries for a 16-year period from 1996 to 2012.

*Indicators to monitor access to minimum core human rights*

Quantitative indicators for access to minimum core human rights in terms of outcomes are critical for the implementation and attainment of these rights. However, there is not a significant body of literature which has identified and validated indicators. The other concern with commonly available data is that the required level of disaggregation to allow an analysis of non-discrimination and equality may not be available. None the less, commonly available socioeconomic indicators are useful to facilitate objective assessment [12] and we used these indicators in our study. The following measures of minimum core rights deprivation (MCRD) were used in the study: the proportion of the population not having access to improved water, the proportion of the population not having access to improved sanitation, the proportion of the population not completing primary school education, the proportion of children aged 1 year of age who had not received the three recommended doses of diphtheria, tetanus and pertussis containing vaccine (DTPCV3), and the proportion of children under the age of five who are stunted (less than two standard deviations below the median).

*Data*

The data used in this study is extracted from the World Bank’s World Development Indicators and Worldwide Governance Indicators databases [13]. There are 135 countries classified as low and middle income countries (LMIC) by the World Bank. Due to missing data on some variables in some of the countries, we included only 122 out of the 135 countries in our analysis. The period covered is from
1996 to 2012. This choice of the starting year for analysis was largely dictated by the availability of governance data.

Data were extracted on under five mortality rates, measures/indicators of minimum core rights and on the following socioeconomic variables: Gross domestic product per capita (GDPpc PPP), expressed in purchasing power parity terms, public spending on health per capita, quality of governance indicators (government effectiveness).

Analytic Procedure

In order to gauge the effect of Minimum core rights deprivation on child mortality, we employed panel data regression analysis techniques. We regressed under-five mortality (USM) on a set of measures of minimum core rights deprivations (MCRD), controlling for other known determinants of USM. Specifically, we control for GDP (PPP) per capita (denoted as Y), public spending per capita on health (PSH) and quality of Governance (QoG). For country i in year t, we have the following regression equation:

\[
\ln U5M_{it} = \beta_0 + \beta_1 MCRD_{it} + \beta_2 \ln Y_{it} + \beta_3 \ln PSH_{it} + \beta_4 QoG_{it} + \mu_i + \varepsilon_{it}.
\]  

(1)

Where \( \mu_i \) the individual-specific error term and \( \varepsilon_{it} \) is the white noise term. \( \varepsilon_{it} \) is assumed to be independently and identically distributed.

Income and public spending on health are on a natural logarithmic scale. This serves several purposes: it takes care of the nonlinearity in the relationship between these variables and health outcomes; allows for interpretation of the coefficients as elasticities in the case of USM (which is also in natural log form); and makes the results easily comparable with other studies.

In order to ensure the validity of the results, we addressed the following statistical issues when estimating the regression equations. Firstly, given the panel dataset used, we have to verify the presence of country-specific fixed effects. We employed the Hausman test to choose between random effects and fixed effects estimation for each regression that was run. Secondly, the assumption that
\( \varepsilon \) is independently and identically distributed is usually violated in most practical cases. The violation of this leads to heteroskedasticity and autocorrelation. Both problems could potentially invalidate any hypothesis testing. To take care of heteroskedasticity and autocorrelation, we used clustering which renders the standard errors robust to these two problems.

**Results**

Table 1 below provides summary statistics of the variables used in the study. The average under five mortality rate is 75 deaths per 1000 live births for the LMIC considered in the study. This is significantly higher than the global average of 43 per 1000. The GDP per capita and health expenditure per capita average $4776 and $284 respectively. A considerable proportion of the population in LMIC are deprived of their minimum core rights. For example, an approximately 21% of children do not get DTP vaccine within the first 12 months of life, while one-third of all children are stunted. Twenty four percent has no access to safe water and basic education while 46% do not have access to improved sanitation. Thus, deprivation of minimum core rights is a significant problem in LMICs.

**Table 1: descriptive statistics for deprivation of minimum core human rights in LMIC**

<table>
<thead>
<tr>
<th>Variable</th>
<th>No. of obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under five mortality rate</td>
<td>2789</td>
<td>74.99</td>
<td>57.93</td>
<td>6.6</td>
<td>327.3</td>
</tr>
<tr>
<td>GDP per capita PPP (USD)</td>
<td>2803</td>
<td>4776.30</td>
<td>3431.55</td>
<td>142.02</td>
<td>12605.77</td>
</tr>
<tr>
<td>Health expenditure per capita (USD)</td>
<td>2146</td>
<td>248.41</td>
<td>221.20</td>
<td>6.09</td>
<td>1323.52</td>
</tr>
<tr>
<td>Proportion with no DTP vaccination</td>
<td>2711</td>
<td>20.76</td>
<td>18.71267</td>
<td>1</td>
<td>90</td>
</tr>
<tr>
<td>Proportion with no safe water</td>
<td>2599</td>
<td>23.56</td>
<td>18.51184</td>
<td>0</td>
<td>86.8</td>
</tr>
<tr>
<td>Proportion with no improved sanitation</td>
<td>2572</td>
<td>45.81</td>
<td>29.8237</td>
<td>0</td>
<td>97.6</td>
</tr>
<tr>
<td>Proportion with no basic education</td>
<td>1597</td>
<td>24.11</td>
<td>23.99314</td>
<td>0</td>
<td>86</td>
</tr>
<tr>
<td>Proportion stunted</td>
<td>512</td>
<td>33.20</td>
<td>15.4029</td>
<td>1.2</td>
<td>76.7</td>
</tr>
</tbody>
</table>
Control of corruption index  | 1214 | -.57 | .5330085 | -1.82 | 1.25  
Government effectiveness index | 1212 | -.56 | .5443578 | -2.25 | 0.92

To gain further insights into the role of minimum core rights deprivation, we run a regression analysis using equation (1) and the regression results are shown in Table 2 below. The Table shows that our models have a good explanatory power. They explain between 67 percent and 73 percent of the variation in under-five mortality rate. The sample sizes for each regression vary depending on data availability. For example, the regression using stunting as a measure of deprivation has a sample of 228 observations because for most countries data on stunting is available at approximately a five-year interval. This contrasts with the other regressions where data on deprivation is published on an annual basis. Consequently, these have larger samples.

Both income and health expenditure has a negative and significant effect on under-five mortality. However, income consistently has a larger size effect than health expenditure. The elasticity of under-five mortality with respect to income ranges from -0.407 to -0.560, while that with respect to health expenditure is between -0.189 to -0.21.

A one percentage point increase in the proportion of the population deprived of safe water leads to a 1.5 percentage point increase in under-five mortality while one percentage point increase in the proportion of the population deprived of improved sanitation leads to a 1.3 percent increase in under-five mortality. A one percentage point increase in the proportion of the population which does not complete primary education and with no access to basic vaccines and leads to, respectively, a 0.6 and 0.3 percent increase in under-five mortality. Therefore, where there is reduced access to primary preventative health care services and education, under-five mortality increases. When the proportion of children who are stunted (as a proxy for lack of access to essential food) goes up by one percent, the rate of under-five mortality rises by 0.8 percent.
Table 2. The relationship between access to minimum core rights and U5M

<table>
<thead>
<tr>
<th>Log of under-five mortality rate</th>
<th>Log of under-five mortality rate</th>
<th>Log of under-five mortality rate</th>
<th>Log of under-five mortality rate</th>
<th>Log of under-five mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log of GDP per capita</td>
<td>-0.407***</td>
<td>-0.447***</td>
<td>-0.516***</td>
<td>-0.560***</td>
</tr>
<tr>
<td>(0.077)</td>
<td>(0.083)</td>
<td>(0.094)</td>
<td>(0.080)</td>
<td>(0.090)</td>
</tr>
<tr>
<td>log of health expenditure per capita</td>
<td>-0.189***</td>
<td>-0.200***</td>
<td>-0.231***</td>
<td>-0.211***</td>
</tr>
<tr>
<td>(0.043)</td>
<td>(0.048)</td>
<td>(0.040)</td>
<td>(0.043)</td>
<td>(0.050)</td>
</tr>
<tr>
<td>Government effectiveness</td>
<td>0.019</td>
<td>0.024</td>
<td>-0.003</td>
<td>0.052</td>
</tr>
<tr>
<td>(0.039)</td>
<td>(0.040)</td>
<td>(0.044)</td>
<td>(0.041)</td>
<td>(0.078)</td>
</tr>
<tr>
<td>Proportion with no access to safe water</td>
<td>0.015***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.003)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion with no access to improved sanitation</td>
<td>0.013***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.004)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion without education</td>
<td>0.006***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of children without DTPCV3 at 12 months</td>
<td></td>
<td>0.003**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion stunted</td>
<td></td>
<td></td>
<td></td>
<td>0.008***</td>
</tr>
<tr>
<td>(0.003)</td>
<td></td>
<td></td>
<td></td>
<td>(0.003)</td>
</tr>
<tr>
<td>Constant</td>
<td>7.876***</td>
<td>7.993***</td>
<td>9.189***</td>
<td>9.537***</td>
</tr>
<tr>
<td>(0.588)</td>
<td>(0.614)</td>
<td>(0.664)</td>
<td>(0.509)</td>
<td>(0.656)</td>
</tr>
<tr>
<td>r2_a</td>
<td>0.71</td>
<td>0.69</td>
<td>0.73</td>
<td>0.67</td>
</tr>
<tr>
<td></td>
<td>(0.664)</td>
<td>(0.664)</td>
<td>(0.664)</td>
<td>(0.664)</td>
</tr>
<tr>
<td>F</td>
<td>80.49</td>
<td>80.32</td>
<td>85.18</td>
<td>74.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>1192</td>
<td>1186</td>
<td>809</td>
<td>1199</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>280</td>
</tr>
</tbody>
</table>
Discussion

A one percentage point increase in the proportion of the population deprived of safe water, improved sanitation, primary education and basic vaccination leads to a 1.5, 1.3, 0.6 and 0.3 percentage point increase in under-five mortality. Therefore, where there is reduced access to primary preventative health care services and education, under-five mortality increases. When the proportion of children who are stunted (as a proxy for lack of access to essential food) goes up by one percent, the rate of under-five mortality rises by 0.8 percent. The elasticity of under-five mortality with respect to income of -0.407 to -0.560 is in line with the literature [6] as is the elasticity of -0.189 to -0.21 between health expenditure and under-five mortality [14].

These findings support our hypothesis that the right to life (as indicated by the reduced under-five mortality rate) is more likely to be met in countries with high levels of access to minimum core human rights. Since these minimum core rights are critical, we support the essence approach to their attainment.

Limitations

The main limitation is the lack of international agreement on definitions and indicators for minimum core human rights. While it is recognised that commonly available socioeconomic data are useful to facilitate an objective assessment of access to minimum core human rights [15], the definitions of these in the human rights literature are vague [12]. The socioeconomic indicators currently available, while important for other uses, do not adequately capture what must be measured in terms of human rights. However, data to be collected in the Sustainable Development Goal (SDG) era may be more suitable to measure access to minimum core human rights[16]. For instance, for improved water, the SDG definitions will include a definition of the collection time, ‘which should be less than 30 minutes’ and not just the percentage with access to improved water. While 76% in LMIC have access to improved water, for 33% this is not on their premises and may or may not be within the 30 minutes collection time [17]. Similarly, the SDG definition of sanitation includes ‘not being shared with other
households’ and not just the proportion with access to improved sanitation [18]. This is also an important distinction as 28% of the world’s population use shared facilities in urban settings in the least developed countries [19], and as urbanisation increases, this proportion will increase.

**Conclusions**

Deprivation of minimum core human rights, access to water, sanitation, primary school education, basic vaccinations and nutrition are associated with an increase in child mortality, therefore it could be argued that these minimum core rights would be better described as survival rights. All of us should have all of our human rights met, however where there are limited resources, then prioritisation of some rights over others is not only appropriate but essential. We, therefore, support the essence approach and argue for the prioritisation and immediate access to these rights in order to reduce child mortality. Large proportions of the populations in LMIC do not have these rights, which are the lowest bar, and this requires immediate attention so that countries can progressively realise other rights [20].

Engagement with rights as opposed to development goals may shift the dialogue from one of charity to one of rights and these findings lend support to a survival rights approach, whereby states, must fulfil their obligations to ensure provision for all, both within and across borders. In addition, in a globalised world, even though the obligations of non-state and supra-state entities are not yet strongly enshrined in law, the normative power of human rights is compelling [21] and actions or omissions which compromise access to minimum core rights also compromises the right to life.
Abbreviations

DTPCVD - Three doses of Diphtheria, Tetanus and Pertussis containing vaccine
GDP – Gross Domestic Product
GDPpc PPP - Gross domestic product per capita, expressed in purchasing power parity
LMIC - Low and Middle Income Country
MCRD Minimum Core Rights Deprivation
MDG - Millennium Development Goals
PPP - Purchasing Power Parity
PSH – Public Spending on Health
QoG – Quality of Governance
SDG - Sustainable Development Goals
USM – Under five mortality
UDHR – Universal Declaration on Human Rights
UNCESR - United Nations Committee on Economic, Social and Cultural Rights
USD – United States Dollars
WHO - World Health Organisation

Declarations

Ethics approval

Publically available data was used and ethics approval was not sought

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing Interests

We declare that we have no conflict of interest

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Author Contributions

Concept – BOH
Analysis – IM
First draft – IM and BOH
Final draft – IM, TC and BOH
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References


