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Research Article

Child Welfare Deprivation in Rural Nigeria: A Counting Approach

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The study applies the counting approach to explain the deprivation concept among children under 5 years of age using the 2008 DHS data. Five dimensions of deprivation were used: safe drinking water, sanitation, housing, health, and nutrition largely recognized in the SDGs. In all, a total of 13561 children were sampled. About half of the children were males with a mean age of 28.27 months old. The assessment of dimensional deprivation showed that children are most deprived in sanitation, health, and access to safe drinking water while they were least deprived in nutrition. The situation is also marked with regional disparities with northern regions reporting higher deprivation rates than the southern regions but this rate was significantly higher in the sanitation dimension across regions. Considering deprivation counts, 33.9% of children suffer from more than three deprivations and approximately 85.2% from at least two deprivations. Child deprivation should be tackled using a holistic approach through social protection programmes to resolve children's problems in an integrated manner which would in this case be more efficient and effective in safeguarding children's rights to survival and development. Identifying the children suffering from single and multiple deprivations can help to target the interventions.

1. Introduction

Over the past decade, Nigeria's economic growth has averaged about 7.4% annually [1] but this growth has not cut down poverty and deprivations suffered by the populace. The overall growth rate can be misleading as it reveals little about growth in different sectors and its real effect on livelihood [2]. Children account for a large percentage of the income-poor and the severely deprived worldwide. Over half of the world's children in developing countries (56%), just over one billion children, are suffering from one or more forms of severe deprivation of basic human need [3]. Every second, a child in developing countries is deprived of even the minimum opportunities in life. Despite Nigeria's increased economic growth in recent years, many children still struggle on the margins of survival.

People are poor if they lack the resources to obtain the types of diet, participate in the activities, and have the living conditions and amenities which are customary or at least widely encouraged or approved in the societies to which they belong [4]. Conversely, people are deprived if they lack the types of diet, clothing, housing, household facilities, and fuel and environmental, educational, working, and social conditions, activities, and facilities which are customary [5]. Deprivation therefore refers to peoples' unmet need whereas poverty refers to the lack of resources required to meet those needs. Iceland and Bauman [6] pointed out that persistent poverty could determine multidimensional deprivation through three different channels: it cumulatively increases the differential between the necessary and the available resources to fulfil basic needs, produces long term deficiencies in the ability to fulfil such needs, like the loss of social relationships or the creation of psychological problems, and gives rise to more erratic incomes.

A good deal of the economy of developing countries is non-monetary, especially for the poor who reside predominantly in rural areas. When considering child deprivation, the situation is even more complicated since children can hardly be expected to have money; categorizing a child as deprived or non-deprived depends therefore on the status of the household that he or she is living in. Children are particularly vulnerable to deprivation of their specific needs.

They cannot be regarded as full economic agents exercising consumer sovereignty: they are not able to secure their own income/resources until a certain age and they are not sovereign in making consumption decisions [7]. Moreover, for the fulfilment of their basic needs, they have to rely more than adults on the production of goods and services by public authorities (especially in areas of health and nutrition, but also in public provisions and services) [7–12]. These child deprivations according to Aliyu and Garba [2] and UNICEF [13] may be in either education, health, nutrition, water, sanitation, shelter, information, income, or any other fundamental rights. They also reported that 25 per cent of households with children less than 7 years of age are stunted due to malnutrition. Also, of the 59.1 million children in Nigeria, 44 per cent, 26 per cent, and 45.1 per cent suffered from water, sanitation, and shelter deprivations, respectively. The percentage of children growing up in severe deprivation of basic needs may therefore fall in a risk of excessive exploitation, rights violation, and dehumanization if necessary steps are not taken to address this situation. The specific position of children justifies a careful analysis of deprivation from a multidimensional viewpoint.

Children in Nigeria often face many problems such as poor health, lack of access to quality education, food and social insecurity, and lack of care. Gordon et al. [9] reported that 52.6% of the total children in the country in the year 2000 were deprived of the basic human needs. Nearly fifty per cent of Africa's children live in some form of housing deprivation. Each year in Nigeria, nearly one million children die before their fifth birthday. One-quarter of these children, 241,000, die in the first month of life as newborn. In spite of effort to reduce infant mortality, Nigeria still maintains a high ranking of under-five mortality rate in the world [14]. UNICEF also reports that 43% of children in sub-Saharan Africa do not have safe, accessible drinking water. 64% of children in sub-Saharan Africa do not have adequate sanitation. The United Nations System's Survey [15] on Nigeria reveals that although only 52.8% of Nigerians have access to adequate sanitation, the rural areas are most hit. The African Development Report [16] also put Nigerian rural dwellers among the most deprived Africans in terms of sanitation. Too many poor children die from avoidable diseases, and millions die or fall sick for lack of food and safe drinking water.

Several studies have appeared in the literature that attempt to measure multidimensional deprivation [17–22], but these studies were conducted on household level and were not in Nigeria. Also, empirical studies have applied the counting approach: Bossert et al. [23] and Keating and Hertzman [24] used the counting approach to analyse social exclusion in a dynamic context. Bossert et al. [25], Lasso de La Vega and Urrutia [26], Alkire and Foster [27], and Agbodji et al. [28] provide alternative axiomatic foundations of deprivation measures based on the counting approach. Empirical evidence with respect to multidimensional deprivation in Nigeria is scarce except the work of Ologbon [29], which was done on the household level. Following Alkire and Foster [27], this study employed the counting approach taking into account the child as the unit of analysis to estimate child welfare deprivation in rural Nigeria. As noted by Minujin et al. [30], this level of child deprivation is not taken into account in the growing dialogue on antipoverty policies or in the current debate on the definitions of poverty.

The calculations on the decomposition of overall deprivation, whether by region or by deprivation category, reflect the fact that for policy purposes and to devise effective policy interventions it is important to identify regions that are more deprived than the others and explore the reason for the deprivation by identifying the categories that contribute the most to overall deprivation. Also, the relevance of children in achieving the Sustainable Development Goals (SDGs) further justifies the study. This study seeks to add to existing literature with respect to multidimensional deprivation of children.

This research therefore seeks to assess the current state of child welfare deprivation research and answer the following questions: (1) How is child deprivation defined? (2) What are the dimensions of child deprivation? and (3) What is the deprivation status of rural children?

2. Objective

The broad objective of this paper is to examine the intensity of child deprivation in rural Nigeria. Specifically, it

(i) identifies the dimensions of child deprivation,

(ii) estimates the deprivation status of the children.

3. Methodology

3.1. Study Area. The study area is rural Nigeria. Nigeria is made up of 36 states and a Federal Capital Territory (FCT), grouped into six geopolitical zones: North Central, North-East, North-West, South-East, South-South, and South-West. The 2006 Population and Housing Census puts Nigeria's population at 140,431,790, with a national growth rate estimated at 3.2 percent per annum. With this population, Nigeria is the most populous nation in Africa. The survey covered both rural and urban populations, but for this study, only the rural data for children 0–5 years of age was considered.

3.2. Source and Type of Data. The study uses secondary data comprising mainly the Demographic and Health Survey (DHS) data collected by Macro International in 2008. The DHS survey data is a national representative data. It provides data on the welfare of children and adults in households.

3.3. Limitation of the Study. The study depended solely on the 2008 Demographic and Health Survey as the source of data.

3.4. Analytical Procedure. This paper uses the inertia approach and the Alkire and Foster [27, 33] counting methodology.

The inertia approach is used for aggregating indicators within each dimension when necessary. This is because there are some dimensions with several indicators such as housing and nutrition. This approach makes it easy and possible to convert group of indicators under a particular dimension to an index. This method is preferred because the data itself is

used to assign different weights to the variables/indicators of interest.

The Alkire and Foster methodology is then used to estimate multidimensional deprivation by counting individual deprivations.

The inertia approach follows the multidimensional deprivation index in literature, which defines and aggregates various specific deprivation magnitudes into a single measure. When a dimension is depicted by many indicators, it is often arbitrary and unrefined to say that households or individuals fall into only two categories: 0 when they are not deprived and 1 otherwise.

However, the deprivation index estimated by the inertia approach is a continuous value with a lower value for the least deprived people and an upper value for the most deprived people. The study makes use of the Multiple Correspondence Analysis (MCA) (for detailed MCA procedures, see Asselin [34]) which is more suitable for qualitative variables/indicators (as in the present case) than the principal component analysis to derive these deprivation indices. This method has been used by Kabubo-Mariara et al. [35], Booysen et al. [36], and Ezzrari and Verme [37] in multidimensional poverty studies. Weights assigned to dimensions in this study are presented in Table 2.

Let us consider N individuals indexed $i = 1, \ldots, N$ and J_k indicators for the dimension k indexed $j_k = 1, \ldots, J_k$. The approach is to estimate a deprivation index in each dimension k for each individual using a weighted sum of related indicators.

Let $x_{i,k}$ be the deprivation index in dimension k and for individual i, let x_{ij_k} be his or her endowment in j_k, while α_{jk} is the weight assigned to each indicator using MCA.

$x_{i,k}$ is then given by the following expression:

$$x_{i,k} = a_1 x_{i1} + \cdots + \alpha_{J_k} x_{iJ_k}. \tag{1}$$

After the estimation of the deprivation index, it is normalized into 0 and 1 where 1 represents the most deprived children and 0 represents the least deprived children as suggested by Krishnakumar and Ballon [38].

For binary dimensions, that is, dimensions with only one indicator (safe drinking water, sanitation, and health), it is straightforward to estimate the deprivation rate in a single dimension by counting individuals with $x_{i,k} = 1$. The deprivation rate $P_k(x_k)$ in the population is defined as follows:

$$P_k(x_k) = \frac{1}{N}\sum_{i=1}^{N} x_{i,k}. \tag{2}$$

By contrast, for continuous dimensions such as those derived as deprivation indices from MCA, it is necessary to define first a deprivation threshold z_k as a fraction of the mean or the median.

Then, the deprivation rate will be obtained from the following equation:

$$P_k(x_k z_k) = \frac{1}{N}\sum_{i=1}^{N} I(x_{i,k} \geq z_k), \tag{3}$$

where $I(x_{i,k} \geq z_k)$ is an indicator function taking the value 1 when the condition in the brackets holds and 0 otherwise.

3.5. Multidimensional Deprivation. Multidimensional deprivation is based on the method suggested by Alkire and Foster [27, 33]. This approach, called a counting method, is an extension of the class of decomposable poverty measures developed by Foster et al. [39].

Let us still consider a population of N individuals and $K \geq 2$ as the total number of dimensions, with some of them being represented by many indicators (housing and nutrition).

Now, let $x = [x_{i,k}]$ be the $N \times K$ matrix of deprivations, where $x_{i,k}$ is the deprivation status of individual i in dimension k ($k = 1, \ldots, K$). The matrix of deprivations could be expressed as follows:

$$x = \begin{bmatrix} x_{1,1} & \cdot & x_{1,k} & \cdot & x_{1,K} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ x_{i,1} & \cdot & x_{i,k} & \cdot & x_{i,K} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ x_{N,1} & \cdot & x_{N,k} & \cdot & x_{N,K} \end{bmatrix}. \tag{4}$$

By summing each row of the matrix x, we obtain a column vector of deprivation counts (c), which contains c_i, the weighted sum of deprivations suffered by individual i. c_i is then estimated as follows:

$$c_i = \sum_{k=1}^{k} w_k x_{i,k}, \tag{5a}$$

where w_k is the weight assigned to each dimension k:

$$\sum_{k=1}^{k} w_k = D, \tag{5b}$$

where D is the maximum deprivation an individual could suffer (the weighted number of dimensions).

In this paper, unequal weights (for weighting schemes in multidimensional poverty analysis, see Decancq and Lugo [40] and Alkire and Foster [27]) were used for all dimensions.

Let us define d as the minimum number of deprivations an individual should suffer to be considered to be deprived. In setting the criteria for identifying multidimensionally deprived children, the *union* approach, which defines an individual as deprived when his or her deprivation occurs in at least one dimension, is not the only case where $d = 1$. In fact, it can also include some cases where d is equal to any minimum deprivation suffered by individuals in the continuous dimensions. On the other side, the *intersection* approach considers an individual to be deprived when his or her deprivation covers all dimensions. d could take a value D or lower than D again because of the continuous dimensions. The differences between these approaches are not clear-cut, especially as the third approach, which is the *intermediate* one [22]; this paper defines multidimensional deprivation over the range of 0 and D.

3.6. Decomposing Multidimensional Deprivation. Like FGT measures, the class of multidimensional deprivation indices $P_\beta(x)$, by Alkire and Foster [27], can be decomposed by subgroup.

Table 1: Dimensions and deprivation thresholds.

Safe drinking water	Children using water from an unimproved source such as open wells, open springs, or surface water [31].
Sanitation	Children using unimproved sanitation facilities such as pit latrine without slab, open pit latrine, bucket toilet, and hanging toilet [31].
Housing	Children living in a house with no flooring (i.e., a mud or dung floor) or inadequate roofing [31].
Health	Children who have not been immunized by 2 years of age. A child is deprived if the child has not received eight of the following vaccinations, bcg, dpt1, dpt2, dpt3, polio0, polio1, polio2, polio3, and measles, or did not receive vitamin A supplementation [31].
Nutrition	Children who are more than two standard deviations below the international reference population for stunting (height for age) or wasting (weight for height) or are underweight (weight for age). The standardization follows the algorithms provided by the WHO Child Growth Reference Study [32].

If

$$P_\beta(x) = \frac{1}{N \times D^\beta} \sum_{i=1}^{N} S_i {c_i}^\beta{}_i I(c_i \geq d), \quad (6)$$

where $P_\beta(x)$ are the multidimensional deprivation indices, S_i is the sampling weight, and d are the deprivation cutoffs, and when = 0, we get the proportion of deprived children.

Let us consider that the N-size population could be divided into two partitioned groups, with N^a and N^b as the respective population sizes.

If the two subgroups are, respectively, represented by two matrices of deprivations, x^a and x^b, then the multidimensional deprivation index in (6) can be written as

$$P_\beta(x) = \frac{N_a}{N} P_\beta(x^a) + \frac{N_b}{N} P_\beta(x^b). \quad (7)$$

3.7. Choosing Deprivation Dimensions. The dimensions and indicators were selected to monitor the progress of the Sustainable Development Goals (SDGs): access to safe drinking water, access to improved sanitation, and health and nutrition [31]. This is shown in Table 1.

3.8. Housing. It is universally recognized that the house is the place where the child should be able to eat, laugh, play, and live in security and dignity. Despite this, however, more than 198 million sub-Saharan African children are said to be living in one or more forms of severe shelter deprivation. Housing is an important component of material wellbeing since the right to decent housing is recognized by most countries and organizations [41]. Children living in bad housing are almost twice as likely to suffer from poor health as other children [42].

The African Charter on the Rights and Welfare of the Child, which is mandatory for the 41 signatory countries including Nigeria, is clear about this issue. According to the United Nations [31], a child is deprived in housing if the household has no improved flooring, roof, and wall materials. Navarro et al. [43] explain that deprivation in housing not only reflects a failure of basic functioning but also has a negative effect on individual health. The links between inadequate housing and negative impacts on physical and mental health are recognized by the WHO [32]. Sahn and Stifel [44] also used these indicators to characterize the quality of housing.

Table 2: Weights generated through the multiple correspondence analysis (MCA).

	Weight
Housing	
Wall material	
Improved wall material	1.394
Unimproved wall material	−0.732
Roof material	
Improved roof material	0.819
Unimproved roof material	−1.113
Floor material	
Improved floor material	1.238
Unimproved material	−0.864
Nutrition	
Stunting	
Not stunted	0.734
Stunted	−0.863
Underweight	
Not underweight	0.790
Underweight	−2.119
Wasting	
Not wasted	0.356
Wasted	−1.941

3.9. Access to Safe Drinking Water and Sanitation. Children have a right to access safe drinking water and sanitation facilities. In addition to being a fundamental basic right, access to adequate water and sanitation services also has a direct influence on children's health, education, wellbeing, and social development, and improved water and sanitation will speed the achievement of all eight of the MDGs, now SDGs [45]. Improving the access of poor people to these basic services allows them to improve their quality of life, health status, and education level and thus be more productive in society. Public utilities such as water supply and sanitation promote poverty reduction and improve the standards of living of households in several ways [46]. Moreover, evidence establishes a robust association between access to water and sanitation and both childhood morbidity and mortality [47]. In most cases, African countries did not meet the MDG targets. Statistics show that the lack of basic utilities remains acute. More than one billion people experience extreme water deprivation in the world, while 40% lack access to clean sanitation services [48]. According to UNICEF and WHO, access to safe drinking water is estimated by the

percentage of the population using "improved" drinking water sources such as piped household connection, public standpipe, borehole, protected dug well, and protected spring and rainwater collection. A household with no access to either a pipe in dwelling, a neighbour's pipe, a public outdoor tap, or a protected well is considered to be water deprived, and so are all its members.

Access to improved sanitation also helps in ensuring environmental sustainability. Improved sanitation facilities are those more likely to ensure privacy and hygienic use and include connection to a public sewer, connection to a septic system, pour-flush latrines, some simple pit latrines, and ventilated improved pit latrines.

3.10. Health. Improving the health of children is a key factor in tackling poverty. The need to focus on infancy and childhood is paramount, given that increasing evidence from developmental health research suggests that the early years of development play a vital role in creating and maintaining socioeconomic health inequalities through to adulthood [24]. For the purpose of this study, a child was considered severely health deprived if they had not received ANY of the eight immunizations recommended by the WHO's expanded programme of immunization (EPI) and have not received vitamin A supplementation.

3.11. Nutrition. The lack of proper nutrition, particularly during the early years of a child's life, can have irreversible consequences inhibiting the potential of a child to lead a healthy and productive life. Of the 10 countries contributing to 60% of the world's wasted children under five, Nigeria ranks the second (Malnutrition is measured using three well-recognized parameters: stunting (height for age), wasting (weight for height), and underweight (weight for age)).

4. Results and Discussions

4.1. Child Demographic Characteristics. The demographic characteristics of under-5 children in rural Nigeria are presented in Table 3. The characteristics considered were gender of the child, age (months), household size, and region of residence in which the child resides. Both male and female children were evenly distributed within the households (49.5% and 50.5%, resp.). The age in months of children revealed a close distribution among the age categories with about 53% being less than 30 months of age. The mean age of children was 28.27 months. Households with 4 to 6 members constituted about 43% followed by those with 7 to 9 members (28.6%) and with a mean household size of 7.20 which means that the rural households are excessively large in size. Therefore, the use of contraceptives should be encouraged to reduce household size among rural populace since small households are less likely to be deprived of basic necessities than large ones as posited by Omonona [49].

4.2. Dimensional Deprivation Rates. The dimensional deprivation rates are reported in Table 4. Under-5 children in rural Nigeria are most deprived in sanitation (96.1%), followed by health (79.2%), and least deprived in nutrition (32.3%). This is in line with the MICS (2007) report for rural Nigeria that increased intensity of deprivation was experienced in health, sanitation, and nutrition. Also, the African Development Report [16] reported that Nigerian rural dwellers are among the most deprived Africans in terms of sanitation. There were improvements in areas of access to safe drinking water and housing following the MDGs report (2010) that showed significant progress in these dimensions.

Table 3: Child demographic characteristics.

Characteristic	Frequency	Percentage (%)
Gender		
Male	6717	49.5
Female	6844	50.5
Age (months)		
0–9	2530	18.7
10–19	2515	18.5
20–29	2176	16.0
30–39	2165	16.0
40–49	2114	15.6
50–59	2061	15.2
Household size		
1–3	1098	8.1
4–6	5830	43.0
7–9	3883	28.6
10 and above	2750	20.3
Region		
North Central	2481	18.3
North-East	3203	23.6
North-West	3889	28.7
South-East	996	7.3
South-West	1737	12.8
South-South	1255	9.3

$N = 13561$.

4.3. Decomposition by Gender. There are no significant differences in the deprivations suffered by male and female under-5 children across dimensions in rural Nigeria. However, a marginal significant difference was recorded in the nutrition dimension where 33% of males and 31.7% of females were deprived. This implies that, relative to the female child, the male under-5 child is more deprived in nutrition. This is shown in Table 5. This finding is in line with the general trend in sub-Saharan Africa for children below the age of five, that the deprivation rate in wasting (a measure of nutritional status) is higher among boys than girls [50].

4.4. Decomposition across Regions. The deprivation decomposition across regions is presented in Table 6. Regarding the deprivation, the South-East region is least deprived in access to safe drinking water while the North-East region is the most deprived. Significant differences exist in the deprivation intensity suffered in access to safe drinking water across regions. This could be a result of intensified efforts

Table 4: Deprivation rates.

Dimension	Deprivation cutoff	Deprived children (%)	All
Safe drinking water	Unimproved water source	63.1	63.1
Sanitation	Unimproved toilet facility	96.1	96.1
Housing	Rudimentary wall material	65.6	58.5
	Rudimentary floor material	58.9	
	Rudimentary roof material	42.4	
Health	No complete vaccination	79.2	79.2
Nutrition	Stunting (height for age)	45.9	32.3
	Wasting (weight for height)	15.6	
	Underweight (weight for age)	27.2	

Table 5: Dimensional deprivation rates of children by gender.

Dimension	All	Gender		Differences
		Male	Female	
Safe drinking water	63.1	63.7	62.6	1.1
Sanitation	96.1	96.3	95.9	0.4
Housing	58.5	58.8	58.2	0.6
Health	79.2	79.2	79.3	−0.1
Nutrition	32.3	33.0	31.7	1.3*

* means that there are significant differences.

Table 6: Dimensional deprivation rates of children by region.

(a)

Dimension	All	Region						Sig.
		North Central	North-East	North-West	South-East	South-West	South-South	
Safe drinking water	63.1	62.8	77.6	59.0	47.1	65.6	48.8	0.000
Sanitation	96.1	96.5	99.9	98.8	90.0	88.9	91.9	0.000
Housing	58.5	46.1	80.8	75.1	28.6	32.8	33.9	0.000
Health	79.2	74.2	90.6	93.8	49.4	67.2	55.5	0.000
Nutrition (see Table 6(b))	32.3	24.3	41.2	45.5	17.6	16.1	18.9	0.000

(b)

Indicator	All	Region					
		North Central	North-East	North-West	South-East	South-West	South-South
Stunting	45.9	46.8	50.7	54.5	27.5	33.2	37.8
Wasting	15.5	9.0	21.2	22.3	10.1	7.1	8.4
Underweight	27.2	21.5	34.4	39.0	12.6	13.1	14.5

by government to achieve the Millennium Development Goals (MDG report, 2010). High deprivation rates were reported across all regions with respect to sanitation. The northern regions reported the highest deprivation rates than the southern regions in the sanitation, housing, health, and nutrition dimensions. Significant differences were reported within regions across dimensions. Stunting and wasting rates remain a key concern for under-5 children [51]. This study therefore takes a close look at regional deprivation rates with respect to stunting and wasting among under-5 children. Results revealed that the proportion of rural under-5 children who are stunted is above the West African average of 40% [14]. Consistent with this finding is the report of NPC and ICF Macro [51] that rural children are more likely to be stunted than the urban counterpart and that under-5 children in North-West region are more stunted and this deprivation is the lowest in the South-East region. Wasting rates are also of concern and higher than the West African average of 10% [14]. Children in North-West region are more wasted and those in South-West are least deprived.

Table 7: Multidimensional deprivation counts by gender.

Cutoff	All	Gender	
		Male	Female
1	85.5	85.1	85.8
2	51.4	50.9	51.9
3	24.1	23.4	24.8
4	8.4	8.2	8.5
5	1.4	1.3	1.4

Table 8: Multidimensional deprivation rates by region.

Number of deprivations suffered	All	Region					
		North Central	North-East	North-West	South-East	South-West	South-South
0	1.4	1.2	0.0	0.2	3.2	4.0	3.5
1	7.0	7.1	1.5	1.5	20.3	11.5	21.0
2	15.8	23.3	5.8	7.5	35.0	23.4	26.1
3	27.3	32.4	19.2	27.2	26.3	36.3	26.5
4	34.0	27.0	48.1	43.6	12.4	20.6	18.2
5	14.5	9.0	25.4	19.9	2.7	4.2	4.7

4.5. Deprivation Counts by Gender. The number of deprived children reduces with increase in deprivation counts. Results suggests that under-5 children irrespective of gender are almost evenly deprived in one dimension or the other and efforts to combat deprivation among children should be directed to both gender (Table 7).

4.6. Deprivation Counts by Region. The deprivation count by region is presented in Table 8. The South-East (58.5%), South-South (50.6%), and South-West (38.9%) regions reported high proportion of children who were deprived in not more than two dimensions simultaneously than the northern regions. In contrast, a greater percentage of children were deprived in more than three dimensions simultaneously in the northern regions. This implies that children residing in northern regions of the country are more multiply deprived of basic necessities in terms of health, sanitation, and access to safe drinking water than the southern regions of the country. Efforts should be directed to improve sanitation throughout the country, but focus should be on rural communities in the northern regions while improving the performance in the southern regions.

5. Conclusion

Child wellbeing is closely linked to the activities of government, community, organizations, family, and parents to protect them. Thus, fulfilling their rights and values at early stage of childhood would certainly transform them to achieve their full potentials and to participate actively in the society. The study focused on multidimensional deprivation using the counting approach shows that deprivations in basic needs are widespread among under-5 children and particularly very high in sanitation, health, and access to safe drinking water. Gender disparities in the deprivations suffered by under-5 children were marginal with only a significant difference reported in the nutrition dimension. There were considerable regional variations in dimensional deprivations suffered by children as northern regions reported higher deprivation rates than southern regions though this rate was higher in sanitation dimension across regions.

Child deprivation specifically should be looked at in several dimensions as it is multidimensional. The results reconfirm the need for integrated approaches to address the multiple facets of children's deprivation. Children are multiply deprived in sanitation, health, and access to safe drinking water dimensions. Thus, addressing a dimensional deprivation of these children would only solve one of the many problems they are faced with; even if their nutritional status was improved, they would still suffer from other deprivations crucial to their survival. A holistic approach through social protection programmes to resolve children's problems in an integrated manner would in this case be more efficient and effective in safeguarding children's rights to survival and development. Identifying the children suffering from single and multiple deprivations can help to target the interventions. Efforts to combat deprivation among under-5 children should be directed to both genders with particular attention given to the northern regions of the country where household poverty is the highest.

Competing Interests

The authors declare that they have no competing interests.

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