A Critical Analysis of Malnutrition in India with Special Emphasis on Integrated Child Development Scheme (ICDS) : A Research Design

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Abstract : Despite India having implemented plethora of programmes to combat malnutrition over the last five decades, there has hardly been any improvement in malnutrition rates in the country. In fact India has the dubious distinction of having the maximum number of malnourished children in the world, and the nation languishes almost at the bottom of the list of countries with most malnourished children (considering the rates). There is wide disparity in malnourishment rates amongst States, since various determinants of malnourishment are tackled differently by them. There are glaring differences in the performance of the flagship malnourishment control programme, ICDS, between the states. It is worthwhile to study these differences in detail, to comprehend the situation so that the success stories of one State could be emulated by others. The paper deals with the research design for such a study.

1. Introduction

The Global Hunger Index released in October 2013, placed India among a group of countries with 'alarming' level of hunger, figuring at the bottom of the list, below China, Sri Lanka, Pakistan and even many Sub-Saharan African countries. (1,2)

Malnutrition is “a pathological state resulting from a relative or absolute deficiency or excess of one or more nutrients. (3) Malnutrition or under-nutrition in child and mother is a major preventable cause of death. In India, under-nutrition levels remain persistently and unacceptably high, despite plethora of programmes (ICDS, Mid Day Meal, NRHM and PDS, etc). There has hardly been any improvement between 1998-99 (NFHS-2) and 2005-6 (NFHS-3). On the contrary, anaemia levels amongst children and mothers as well as wasting amongst children increased. As per the government figures almost two fifth of all children (below 3 years) are underweight (40.4%) or stunted (44.9%) (NFHS 3). This severely persistent malnutrition status over the past four decades has contributed to high morbidity and mortality (amongst children and adults) and eventually hampering economic growth of the country. (4,5)

Malnutrition is a range of conditions occurring when intake of one or more nutrients doesn’t meet the requirements.

1.1 Indices of Malnutrition

Malnutrition is a complex condition to quantify, as is clear from the fact that a number of indices are available to quantify it. The commonly used methods are: Height, body weight and mid upper arm circumference. Normally, a combination of the above measures (often integrated with age) are used, which commonly include: Weight for age, weight for height, wasting and stunting.

1.2 Determinants of Malnutrition

There are multitude of determinants of malnutrition which include poverty, unemployment, poor diet, girl child, large family, poor
socioeconomic status, ignorance of nutritional need, etc. Socio-economic factors, inadequate food production, a defunct Public Distribution System and poor health services also contribute to malnutrition.

1.3 Magnitude of the problem

As per the above indices India performs poorly in malnutrition. A brief account of the incidence of Malnutrition in the world and India is given below.

1.3.1 World. The magnitude of problem at a global level can be reckoned from the fact that malnutrition contributes to 60% of total 10 million deaths of children under five years of age. Its contribution to child deaths is highest during first six months of life. While malnutrition is on the decline in Asia (from 130 million cases in 1990 to a projected 70 million in 2015), situation is grim in Africa, where the number of cases is likely to increase from 25 million to 40 million over the same period.

1.3.2 India. The trends in malnutrition over the past decade are shown in figure 1. As per National Family Health Surveys (NFHS-2 for year 1998-99 and NFHS-3 i.e. National Health Profile 2007) there has not been a significant improvement in malnutrition rates. Currently, as many as 45% of children under three years of age are stunted, 23% are wasted and 40% are underweight. India fares poorly even among the South East Asian countries, occupying third place from the bottom with only Nepal and Bangladesh faring worse than India.

Even during the first six months of life, when most babies are breastfed, 20-30% of children are undernourished according to each of the three criteria, (stunting, wasting and underweight). However, malnutrition peaks during the first two years of life. From 11.9% prevalence among 0-6 month old infants, it reaches to 58.5% in one to two year old children. This steep rise in malnutrition during the first two years is mainly due to poor infant feeding practices. The malnutrition figures from different states are summarized in table 1.

Table 1: Malnourished children (grade of malnutrition %) in large states (2005, 2007, 2011)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Moderate</th>
<th>Severe</th>
<th>Moderate</th>
<th>Severe</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP</td>
<td>32.5</td>
<td>9.9</td>
<td>53.2</td>
<td>0.1</td>
<td>48.7</td>
<td>0.08</td>
</tr>
<tr>
<td>Assam</td>
<td>36.4</td>
<td>11.4</td>
<td>40.1</td>
<td>1.4</td>
<td>31.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Bihar</td>
<td>55.9</td>
<td>24.1</td>
<td>82.1</td>
<td>25.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chhatis</td>
<td>47.1</td>
<td>16.4</td>
<td>54.1</td>
<td>1.8</td>
<td>38.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Guj</td>
<td>44.6</td>
<td>16.3</td>
<td>70.7</td>
<td>0.85</td>
<td>38.7</td>
<td>4.5</td>
</tr>
<tr>
<td>Har</td>
<td>39.6</td>
<td>14.2</td>
<td>45.3</td>
<td>0.1</td>
<td>42.9</td>
<td>0.05</td>
</tr>
<tr>
<td>J&amp;K</td>
<td>25.6</td>
<td>8.2</td>
<td>32.6</td>
<td>0.7</td>
<td>31.1</td>
<td>0.06</td>
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<tr>
<td>Jharkh</td>
<td>56.5</td>
<td>26.1</td>
<td>47.4</td>
<td>1.7</td>
<td>40.0</td>
<td>0.7</td>
</tr>
<tr>
<td>Kar</td>
<td>37.6</td>
<td>12.8</td>
<td>53.4</td>
<td>0.3</td>
<td>39.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Kerala</td>
<td>22.9</td>
<td>4.7</td>
<td>38.8</td>
<td>0.07</td>
<td>36.9</td>
<td>0.08</td>
</tr>
<tr>
<td>MP</td>
<td>60.0</td>
<td>27.3</td>
<td>49.6</td>
<td>0.75</td>
<td>28.5</td>
<td>1.88</td>
</tr>
<tr>
<td>Maha</td>
<td>37.0</td>
<td>11.9</td>
<td>45.4</td>
<td>0.2</td>
<td>23.3</td>
<td>2.6</td>
</tr>
</tbody>
</table>
ICDS has been the flagship programme of the Government of India for alleviation of Malnutrition, running since 1975. Despite huge amount of funds having been allocated, there has hardly been a dent in the National malnutrition figures. This calls for a detailed study on the subject. The present work endeavors to critically analyze the complex and multifaceted problem of malnutrition in four states of India, one each from North, South, East and West, with particular reference to financial allocation and its effective utilization. The role of ICDS happens to be crucial, thus it deserves a special emphasis in the present study. The study design is discussed in this paper.

2. Aim & Objectives of the Study

The aim of the study will be to critically analyze malnutrition in four states of India, one each from Northern, Southern, Eastern and Western India with special reference to Integrated Child Development Scheme (ICDS).

The objectives of the study will include:

2.1 Studying the evolution and present status of economic policies and programmes impacting malnutrition.

2.2 Studying the determinants and perpetuating factors of malnutrition.

2.3 Undertaking a critical analysis of ICDS in four states, one each from Northern, Southern, Eastern and Western India with reference to financial allocation and its effective utilization.

2.4 To study various 'Best-practices' in India and abroad in the field of malnutrition.

2.4 To recommend a possible way forward, to mitigate the problem of malnutrition.

3. Methodology

3.1 Type of Study

This would be an exploratory study. Data will be collected through the technique of 'Secondary data collection' from various sources.

3.2 Review of Literature

To begin with a critical review of relevant literature will be undertaken keeping the research questions and the objectives of the study in mind. This will include literature on fundamentals and perpetuating factors of malnutrition, evolution and present status of economic policies and programmes related to malnutrition. Literature with respect to implementation of ICDS in various states of India, with reference to financial allocation and its effective utilization would be studied. Literature on malnutrition control programs and policies and the 'Best-practices' in India and abroad in the field of malnutrition will also be studied.

To further elaborate, the review of literature will incorporate the definition and forms of malnutrition. The ecology and determinants of malnutrition in terms of demographic, social and economic factors will be studied. The data on food production, relative food insufficiency, health and other services will be collected. Various indices measurement used for malnutrition will be studied. These include: Weight for Age, Weight for Height, Wasting & Stunting.

The magnitude of the problem in various states of India and the world-over, esp. the neighboring Asian countries will be studied. The interface of malnutrition with macroeconomics, in terms of GDP, State specific economic parameters will also be studied.
Various measures that are currently being used to manage malnutrition, like Medico-social measures and the many Government Policy Measures and interventions that have been put in place will be studied and analysed in detail. These include ICDS and other government schemes. Since the study includes an elaborate in depth critical analysis of ICDS functioning, its details with respect to ICDS objectives, services offered, financial allocation, performance of ICDS and its pitfalls will be studied in detail.

Other government schemes that have a bearing on malnutrition like the Public Distribution System, Mid Day Meal Programme, *Balika Samriddhi Yojana*, *Kishori Shakti Yojana*, Nutritional Program for Adolescent Girls, etc. will also be studied in detail.

Further the inter State performance of ICDS will be studied. This will include the impact of various socio economic Indicators, like the Net State Domestic product on malnutrition indices of various states. Likewise the impact of demographic Indicators like the sex-ratio, literacy rate, family size, etc on malnutrition rates will also be compared. The Health expenditure of various states too has a bearing on malnutrition. Hence, elaborate analysis of the impact of health expenditure will also be undertaken.

The Best Practices for malnutrition control that have made a difference to the malnutrition rates in a particular region in India will be studied. Likewise, the Best Practices that have proved to be examples for malnutrition control, the world-over will also be studied.

### 3.3 Data Collection

The data will be collected through various sources that will include the following:

- **Government reports.** e.g. data from National Family Health Survey 2 & 3 (NFHS), National Census data, NSSO, Planning Commission reports, State level reports, District Level Health Survey (DLHS) Reports, Reports from various Ministries (e.g. Ministry of Health & Family Welfare, Woman and Child Development, Rural Development), NRHM Reports, etc.

- **International Organizations.** Data and Reports from WHO, UNICEF, UNDP, World Bank

- **Critical appraisals.** From independent bodies

- **Non Govt Organizations.** NGOs of repute - Indian Academy of Paediatrics, Indian Public Health Association, Nutrition Foundation of India etc.

### 3.3.5 Journals & Publications

### 4. Results

Results will be collated on a Master Chart where various determinants of malnutrition are taken as the exposure variables. These exposure variables will include:

#### 4.1 General Exposure Variables

**4.1.1 Social and demographic indicators.** These could be literacy, family size, sex-ratio, female literacy, rural-urban habitation.

**4.1.2 Economic indicators.** Poverty indices, GDP, Per Capita Income, employment indices, health expenditure, expenditure on ICDS.

**4.1.3 Impact of poverty alleviation and malnutrition control schemes.** Further, impact of various poverty alleviation and malnutrition control schemes will also qualify to be the exposure variables, eg. impact of programmes like the Mid Day Meal scheme, Public Distribution System, NREGA, etc.

**4.1.4 Miscellaneous Exposure Variables.** Miscellaneous factors like availability of Health Services, social infrastructure, activity of NGOs, industrialization, etc.

#### 4.2 Exposure Variable related to ICDS

Since a critical analysis of ICDS is envisaged in the study, the following aspects related to ICDS will be taken up as exposure variables.

- **Fund Allocations.** Details of funds with respect to total funds allocated, funds utilized, un-utilized funds, ICDS Funds diverted to other schemes will be studied. Funds allocated and utilized for various components of ICDS, eg. Infrastructure, training, etc. will also be studied.

- **Performance Indicators.** Performance indicators (of processes) like posts filled/vacant, availability of Supplementary Nutrition Programme, infrastructure present (buildings/equipment/food material) and training imparted would be analyzed.

#### 4.3 Outcome Variables

Various malnutrition indices will be taken as the outcome variables. These will include:
4.3.1 **Parameters on Results/outcome of ICDS.** Parameters like functional indices of AWCs, public satisfaction, comparison between other states/countries would be analysed.

4.3.2 **Changes in various malnutrition indicators.** This can be ascertained through assessing improvements in grades of malnutrition, over time (say, past 3 decades, with respect to mild, moderate, severe malnutrition, deaths attributed to malnutrition, or recovery/reversion from malnutrition.

5. **Statistical analysis**

The data will be analyzed using suitable statistical techniques. Stepwise Logistic regression techniques could be used to grade various exposure variables, in order of their importance.

6. **Interpretation & Discussion**

An in-depth theoretical interpretation and critical analysis of this data vis a vis the best practices will be undertaken, with a view to comprehend the problem and with an eventual aim of reaching a solution. This will be done by putting up recommendations to alleviate malnutrition from the community through charting a concrete agenda/roadmap for action.

7. **Conclusion**

Despite increased food production, implementation of multitude of National Programmes for the malnourished and an apparent concern from all, the plight of Indian children, remains pathetic. In the words of former Prime Minister Mr Man Mohan Singh “It’s a National Shame”. It is high time that stock of the situation is taken in an independent and scientific manner, which would contribute to bridging the gap between theory and practice, policy and implementation, and a hungry and a happy child. The present study is an attempt to do that.

**Conflict of Interest** Nil

**References**