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Levels and Trends of Health Status Disparities in Odisha: A Review of the Post-NRHM Period

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ABSTRACT

In 2005, the programme of National Rural Health Mission (NRHM) was implemented by the Government of Odisha to improve the poor health status prevailing in the state. Since then, evaluation of the health status has been going on, the current effort being an addition. In this paper, both theoretical and empirical literature have been reviewed and analysed to assess the levels and trends of disparities present in the health status in the state. Although simple and complex measurements of disparities are recommended in literature, simple pair-wise comparisons have historically been the dominant type of measurement used in inequality/disparity monitoring. This post-NRHM health status review based on simple measurement explored the presence of marked disparities in health status indicators like mortality, morbidity, disability, maternal and child health, nutritional status and public health service infrastructure. The main reasons of these disparities are found to be lopsided socioeconomic and demographic development, and poor health and health facility awareness among the people. Therefore, there has to be all-round effort at different levels of policy-making for undertaking appropriate measures to eliminate the hindrances emerging in the path of the field of health in Odisha for ensuring achievement of real universal health coverage.

KEYWORDS: Health Status, Healthcare, Disparity, Inequality, Difference

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INTRODUCTION

This paper aims at reviewing and analysing the available literature for assessing the levels and trends of different types of disparities in the health status indicators, which may still exist across Odisha even after the implementation of the programme of National Rural Health Mission (NRHM) in the state since long. Besides, the paper also intends to look at the possible reasons that are critically responsible for persistence of such disparities. Of course, implementation of the NRHM programme in Odisha has improved the overall health status of the state to a significant extent. But, discrepancies also remain to be clearly visible between different regions and groups of population, which pose alarming concern. Health disparities are sometimes referred to as health inequities[1] the removal of which is one of the seven important elements of healthcare quality according to the Institute of Medicine.[2] A desirable state of health is thus not attainable without ensuring equity. According to the World Health Organization (WHO), "equity in health" implies that the absence of avoidable, unfair, or remediable differences among groups of people, whether those groups are defined socially, economically, demographically or geographically or by other means of stratification.[3] While health inequity – observable differences between sub-groups within a population – is a normative concept and as such cannot be precisely measured or monitored, its measurement is necessary for evaluating health service quality. The WHO summarized a total of eight equity stratifiers known as PROGRESS: Place of residence (rural, urban, etc.), Race or ethnicity, Occupation, Gender, Religion, Education, Socioeconomic status, Social capital or resources to assess health inequity.[4]

Historically, the two unachieved major goals "Health for All", set in 1977 by the World Health Assembly to be achieved by the year 2000[5] and the Millennium Development Goals (MDGs) by 2015[2] along with the present Sustainable Development Goals (SDGs) to achieve universal health coverage by the year 2030[2] indicate that presence of disparity in health is the worldwide concern and is linked to the sustainable socio-demographic development and results in health inequity. When the difference or differential is great, marked, unfair and noticeable one, it is called as a disparity. According to Hartley, the differences that make a difference are known as disparities.[6] Therefore, it is imperative to understand the concept of health disparity in order to have a clear understanding of health inequity. The term disparity is used in the literature as a gap, difference, discrepancy, inequality, disproportion, variation, breach, contrast, distinction, distinctive, different, dissimilar, deficient, discriminate and differential. More specifically, health disparity is a population-specific difference in the presence of disease, health outcomes, or access to care.[1,7] The Institute of Medicine defines a disparity as a difference in treatment provided to members of different racial (or ethnic) groups that are not justified by the underlying health conditions or treatment preferences of patients.[8]

The term "health disparities" is broadly defined as "observed clinically and statistically significant differences in health outcomes or healthcare use between socially distinct vulnerable and less vulnerable populations that are not explained by the effects of selection bias". Health disparities also reflect gaps in the quality of care delivered and can provide scope for its improvement. Hence, disparity studies that focus on the detection of potential gaps or differentials in the health status and healthcare quality are important for the providers, administrators, leaders and policy-makers of health.[9]

Moreover, discussions of disparity in health generally focus on differences between two groups in a population classified on the basis of race or ethnicity, gender, educational level, or other criteria. Differences are shown as pair-wise comparisons and may be demonstrated using the ratio of two rates, a simple comparison of rates, hazard ratios, or relative risks. Other methods of describing disparity—including range, Gini coefficient, index of dissimilarity, and slope index of inequality—have been considered, but may be inappropriate in some situations. However, pair-wise comparisons may be appropriate when the goal is to improve health status for a particular group or population.[10]

DISPARITIES IN HEALTH STATUS: A WORLDWIDE PROBLEM

Health of the people is determined by two key factors, i) the conditions in which people live, and ii) the healthcare that the people receive.[11] Therefore, disparity in health is observed when there are differences in the levels of socio-demographic development and healthcare quality. Good quality healthcare is not guaranteed for the majority of the global population today. Disparities in the quality of healthcare delivered to different socioeconomic groups have been noted in studies and government reports in several countries.[12]

In the developed countries, statistically significant disparities in a variety of indicators exist in four very different health systems, viz. Canada, England, New Zealand, and the United States. The causes of the disparities are differential access to care, differential treatment by healthcare providers, and differences in behaviour, social networks and environment that may make populations with lower socioeconomic status require more treatment or be more difficult to treat. In the United States, large uninsured population is usually considered a leading contributor to disparities. Further, service quality deficiencies in healthcare are ubiquitous and so common that they appear to be the norm among medical inpatients, which leads to service incidents, waits and delays, problems with communication between staff and patients, and the environmental issues and amenities. Specifically, credible evidence of healthcare disparity is seen among the African Americans.[1,13] The problem of access to healthcare has also been documented in England, New Zealand and Australia.[12] Similarly,

health reporting differentials cause inequalities that lead to health disparity among the elderly European population.[14] Based on the Black Report of 1980, socioeconomic health differentials in Britain are maintained among the socially disadvantaged and advantaged populations.[15]

The health disparities in the developing countries are even worse. In the Philippines, insufficient, harmful and unnecessary treatments of children under-five are reported. Both over- and under-treatment coexist in healthcare, which indicate the presence of differentials in the delivery of health service.[16] Within Asian countries, poor are not benefiting from the government subsidies in Nepal and not using the government health services in Mongolia due to the presence of socioeconomic disparity.[17] In Bangladesh hospitals, female patients have experienced gender disparities and subjected to more baksheesh pressure from the health service providers, which is a disparity in the delivery of health service to female patients after taking baksheesh from them.[18] Presence of health disparity in the developing country such as India is more common and frequently observed. India has inadequate physical access to high-quality health services and human resources for health.[19] Evidence of socioeconomic disparities exists in the overall health system responsiveness in six Indian States among the users of publicly managed health facilities. Differential access to quality health services, patient- and provider-related factors are the three possible reasons for the disparities observed in the Indian health system.[20]

According to the 11th Five Year Plan 2007-2012, India has a persistence of extreme inequality and disparity both in terms of access to care and outcomes. A wide disparity is also seen in the health spending and resources allocation; health service delivery at various levels.[21] Many smaller public health facilities function with less than optimum standards, while larger public health facilities are often over-crowded leading to long waiting times and limited consultation time per patient.[20] The inter-state disparity in the availability and utilization of health services, and health manpower are distinctly marked in India,[22] which in turn leads to disparity in health service quality. These disparities are due to variations among the states in terms of economic development, social conditions, and political governance.[23]

Differential resources and infrastructure at primary, secondary, and tertiary levels indicate the presence of inequities in health capabilities. Numerous researchers claim that the health outcome variations result largely from differences in availability, accessibility, affordability, quality, and utilization of healthcare services. Some further claim that in a country such as India, these differentials influence overall health disparities across regions, states, and segments of the population. Inappropriate distribution of healthcare centres, hospitals, and critical care facilities has caused barriers towards to some groups and individuals across geographical locations and

socioeconomic factors and has given rise to inequities, especially at the level of health-seeking behaviours—the ability to seek appropriate, adequate and timely care, and avoid disease and death.[24]

In India, maternal and reproductive health inequity shows significant differences in the quality of Antenatal Care (ANC) between poor and non-poor population groups in Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu. Due to the wide disparities between and within states, which are often caused by varying policies and programs, health infrastructural shortcomings and governance challenges, analysis of inequities in maternal healthcare needs to be undertaken at the state and district levels.[25] Significant socioeconomic and north-south differentials in antenatal care (clinical and interpersonal) are observed in India. Though the ANC quality is found significantly better in southern states, it is poor in the other parts, especially among the disadvantaged women.[26] Besides, disparities in the child mortality trends are found in Chhattisgarh and Jharkhand across urban-rural areas, ethnic groups, wealth groups, and districts. And, child health improvements vary at levels indicative of differential levels of care.[27] In India, during the post-NRHM period, wide rural-urban differentials are seen in the access to care and quality of maternal healthcare.[28] Regional patterns of rural-urban differentials in childhood malnutrition indicate that the gap has increased in many of the poor states such as Rajasthan, Uttar Pradesh, Jharkhand, and Orissa.[29]

HEALTH STATUS DISPARITIES IN ODISHA: TYPES AND LEVELS

Odisha has various types of disparities in health status along with their high levels. That is why, the health sector plan of Odisha, having the maximum percentage of its population as socioeconomically disadvantaged with prominent disparities in health achievements among them, aims to achieve equity in health outcomes and has a key focus on the access and utilization of services by vulnerable and marginal groups, including women, scheduled caste (SC) and scheduled tribe (ST) populations. Because, level of immunization, use of antenatal and postnatal care, share of institutional deliveries, and access to health information are low in the state.[30] Addressing the health needs of the population, the Government of Odisha launched National Rural Health Mission flagship programme throughout the state in June, 2005 to improve the prevailing poor health status and to achieve the goals set under the National Rural Health Policy and the Millennium Development Goals.[30,31]

The NRHM was implemented to increase the level of healthcare utilization significantly across all districts and to enhance equity by reducing health disparity between districts. However, district-wise differentials are still observed in health status and health facility awareness among different categories of marginalized people[11] and between rural-urban, male-female, literate-illiterate, employed-unemployed, poor-rich populations.[32,33,34] In Odisha, health inequality is strikingly high as

compared to income inequality in the districts of Baleshwar, Kandhamal, Bolangir, and Dhenkanal. On the whole, disparities have been observed in the areas of service delivery, health facility performance and access to healthcare across the districts.[35]

Besides, disparity in availing the institutional delivery services and other pertinent maternal health services is observed among tribal women due to differentials in public health infrastructure in general and non-compliance to Indian Public Health Standards (IPHS) in particular.[36] While the NRHM was implemented in Odisha to reduce health disparities within the state and between districts, they are still found to exist in abundant quantities even after a decade. This definitely leads to a situation of concern for the public authorities and the people at large. Therefore, causes for such persistence of the various types of disparities in health input and outcome indicators at different levels across regions and different vulnerable population groups need to be investigated further for understanding the differences across populations identified in terms of race/ethnicity, income, and so on and also to develop a reliable method for measuring these disparities.[10]

POST-NRHM HEALTH DISPARITIES IN ODISHA: MEASUREMENT AND TRENDS

At the beginning, measures of inequality can be divided into simple and complex ones. The simple measure makes pair-wise comparisons of health between two sub-groups, such as the most and least wealthy. Complex measurement, on the other hand, makes use of data from all sub-groups to assess inequality.[37] The Index of Disparity also provides a way to measure disparity and can serve as a preliminary step in seeking to address as to who are most at risk, where they are, and why they are disadvantaged. While pair-wise comparisons of inequality have certain limitations, they are straightforward in nature and preferable over complex measures in situations where complex measures do not present a substantially improved picture of inequality. Moreover, simple pair-wise comparisons have historically been the dominant type of measurement used in inequality monitoring.[37]

The two most basic measures that can be used to describe inequality are difference and ratio. The difference is an expression of the absolute inequality that exists between two sub-groups, that is, the mean value of a health indicator in one sub-group subtracted from the mean value of that health indicator in another sub-group. On the contrary, ratio is an expression of the relative inequality that exists between two sub-groups, that is, the mean value of a health indicator in one sub-group divided by the mean value of that health indicator in another sub-group. When there are only two sub-groups to compare, difference and ratio are the most straightforward ways to measure the absolute and relative inequality between those two sub-groups.

As the literature suggests, different types of disparities in health status persist in Odisha with significant across regions. These disparities are measured in terms of both difference and ratio that exist in the health status in terms of indicators of mortality, morbidity, disability, maternal and child health, nutrition and public health infrastructure. Secondary data are used from the Annual Health Survey (AHS) for 2010-11 and 2012-13 for the measurement of disparity. This measurement tries to answer the research questions: Is there a difference in health status between population groups in various strata? Is the difference too large and noticeable?

Disparity in Mortality

The state of mortality in Odisha has been improved after the NRHM implementation. All the mortality rates and the ratio (crude death rate, infant mortality rate, neonatal and under-five mortality rates, and maternal mortality ratio) show a reduction in trend. However, the reductions are not satisfactory and all mortality rates show disparities across districts and rural-urban, male-female, and socioeconomic groups. Crude Death Rate (CDR) in rural Odisha remains higher than that of urban Odisha and CDR for females is lower as compared to that of the males.[32,33,34] Despite the declining trends in CDR, the magnitude of disparity among the districts shows only marginal improvement. Of the 30 districts, 14 each have achieved a CDR range of 6-8 and 8-10 and the remaining 2 districts are still within a high CDR range 10-12.[38]

Although Infant Mortality Rate (IMR) has been reduced in Odisha after implementation of the NRHM, it still remains high to cause concern in Odisha.[39] Also, IMR in rural Odisha remains significantly higher than that of urban Odisha and more female infants die as compared to male infants. A wide variation is observed in the infant mortality status across 30 districts. According to the AHS 2012-13,[34] eleven districts (36.7%) have recorded an IMR above the state level (56) as compared to three districts (10%) which have an IMR equal to that of the state and sixteen districts (53.3%) which have recorded an IMR below that of the state.[38] Similar situation is observed in case of Neonatal Mortality Rate (NMR) which remains to be much higher in rural than urban areas although the state has recorded the highest fall in NMR from the baseline. The state of Under-five Mortality Rate suggests no exception with rural Odisha recording significantly higher figure than that of urban Odisha. Overall picture indicates that the gap between male and female mortality remains significant.[38] Of course, disparities across socioeconomic classes are the highest for under-five mortality, while wealth-related disparities in mortality persist for both under-five and neonatal mortality as the high-income population continues to maintain a considerable advantage over the low- and middle-income populations.[40]

Maternal Mortality Ratio (MMR) in Odisha has been reportedly higher than the national level despite the state standing third among the states that showed the highest points of MMR decline during the period, 2004-2013. The NRHM was credited for achieving a decline in the maternal mortality ratio,[41,42] but the state shows a huge disparity in MMR across the three administrative divisions, viz. central (218), northern (253) and southern (245) against the state average of 230 during the second updating of AHS 2012-13.[38] The measured rural-urban and gender disparities in mortality indicators (crude death rate and infant mortality rate) are presented in Tables, 1-2. The rural-urban disparity in crude death rate is decreased, while gender disparity is increased in Odisha. However, the rural-urban disparity is still larger compared to the gender disparities. Opposite is the case with infant mortality rate where rural-urban disparity is increased but gender disparity is decreased.

Table 1 Rural-urban health status disparities in Odisha

Health status indicator	Absolute disparity		Relative disparity	
	Difference (Rural – Urban)		Ratio (Rural / Urban)	
	2010-2011	2012-2013	2010-2011	2012-2013
Crude Death Rate per 1000 Population	2.3	2.1	1.35	1.32
Infant Mortality Rate per 1000 Live Births	21	22	1.47	1.59
Prevalence of Acute Disease per 100,000 Population	2.61	3.18	1.35	1.42
Prevalence of Chronic Disease per 100,000 Population	–1.93	–2.37	0.76	0.79
Prevalence of Disability per 100,000 Population	0.71	0.72	1.51	1.41
Percentage of Mothers Receiving 3 or more ANC	–12.6	–6.6	0.85	0.92
Percentage of Mothers Receiving 3 or more ANC from Government Sources	10.2	7.7	1.20	1.15
Percentage of Institutional Deliveries	–14.8	–7.1	0.82	0.91
Percentage of Deliveries Attended by Trained Personnel	–13.6	–6.3	0.84	0.92
Percentage of Children Aged 12-23 Months Fully Immunized	–5.2	–0.7	0.91	1.01

Source: Annual Health Survey 2010-11, 2012-13
Note: ANC - Antenatal Care

Disparity in Morbidity

Morbidity (prevalence of both acute and chronic diseases) rate are on the rise in Odisha. The levels of prevalence in acute disease found to be increased in 14 districts and decreased in 16 districts. On the other hand, the levels of prevalence of chronic diseases are found to be increased in 28 districts and decreased in only 2 districts.[43] Evidently the prevalence of each acute disease is higher among females as compared to males. Likewise, the prevalence of acute diseases is reported as higher from rural areas as compared to urban ones. The incidence of acute illnesses (such as diarrhoea, dysentery, acute respiratory infection, and fever) is more common among the rural

population, especially among the rural females. Chronic diseases such as diabetes, hypertension, and tuberculosis are more common among the urban population, especially the females.[32,33,34]

The rural-urban and gender disparities in the morbidity indicators (prevalence of acute and chronic diseases) are presented in Tables, 1-2. The rural-urban disparity (both difference and ratio) in the prevalence of the acute disease is increased, while gender disparity is decreased but yet remains large in Odisha. The rural-urban disparities (both difference and ratio) in the prevalence of chronic disease are found large and increased. In case of chronic disease however, gender disparity is increased in terms of difference while decreased in terms of ratio.

Table 2 Male-female health and nutritional status disparities in Odisha

Health status indicator	Absolute disparity		Relative disparity	
	Difference (Male ─ Female)		Ratio (Male / Female)	
	2010-2011	2012-2013	2010-2011	2012-2013
Crude Death Rate per 1000 Population	1.2	1.2	1.15	1.16
Infant Mortality Rate per 1000 Live Births	─7	─6	0.89	0.89
Prevalence of Acute Disease per 100,000 Population	─0.49	─1.50	0.94	0.86
Prevalence of Chronic Disease per 100,000 Population	─0.51	─0.92	0.92	0.88
Prevalence of Disability per 100,000 Population	0.21	0.41	1.11	1.19
Percentage of Under-weight Children Aged 0-59 Months in HBDs	3	-	1.07	-
Percentage of Under-weight Children Aged 0-59 Months in NHBDs	4	-	1.13	-
Percentage of Anaemic Children aged 6-59 Months in NHBDs	─5		0.91	
Percentage of Children Aged 6-23 Months Exclusively Breast-fed for 6 Months in HBDs	─2	-	0.96	-

Source: Annual Health Survey 2010-11, 2012-13 and Nutrition Baseline Survey 2011
Note: HBDs - High Burden Districts, NHBDs - Non-High Burden Districts

Disparity in Disability

Disability prevalence is found to be higher among the rural population in Odisha and among the males. The increasing trend of disability and severe/major injuries in Odisha reflects a poor state of health among the population and implies constraints for socio-economic productivity of the population.[43] Rural-urban and gender disparities are measured for the disability status in Odisha. The findings are presented in Tables, 1-2, which show that rural-urban disparity in disability status is significantly decreased in terms of ratio but slightly increased in terms of difference.

Disparity in Maternal and Child Health

Maternal and Child Health (MCH) status has been improved in the state after the effective implementation of NRHM. However, there are huge disparities. The number of institutional deliveries is found to be increased dramatically in Odisha in a relatively short period of time from an

estimated 44% in 2007 to an estimated 80% in 2011. However, the percentage of institutional delivery varies greatly from district to district ranging from 45% in Koraput to 95% in Jagatsinghpur. In districts such as Koraput, Malkangiri, and Nabarangpur, home deliveries remained as high as 55%, 46% and 43% respectively.[44]

For Antenatal Care (ANC), it is found that there is an increase in the number of mothers who received ANC, but in general, the percentage of mothers who received a full ANC package is found to be lower and the percentage is also found to be lower in rural areas. For Delivery Care, it is found that the trend is increasing for institutional and safe deliveries. However, the institutional deliveries are found more in urban areas as compared to rural areas. In rural areas, the percentage of mothers who received delivery care from government institutions is found to be higher as compared to urban areas. For Post-neonatal Care (PNC), the percentage of mothers who received PNC is found to be increasing. However, it is alarming that among all the children (aged 6-35 months), around 30 % only are exclusively breastfed for at least six months although more than 70% children are reportedly breastfed within 1 hour of their birth.[32,33,34]

The prevalence of childhood morbidity is increasing both in urban and rural areas. However, health-seeking behaviour indicates that more than 80% of children have received treatment. Child immunization coverage in Odisha presents a gloomy state with only 68% of children being fully immunized. Although child immunization trends show an increase, the actual coverage is not satisfactory even for polio and DPT. The rural-urban differentials are also present in the immunization coverage but they are small. The percentage of mothers who received financial assistance for institutional delivery under JSY is 88.1 in rural and 59.6 in urban areas, whereas publicly provided institutional delivery under JSY are recorded to be 95.5% in rural and 87.2% in urban areas.[32,33,34] The MCH infrastructure in Odisha has the lowest median score at 32.5 with a lot of variability in the district hospitals.[44]

In maternal and child health status, rural-urban disparity is measured for Odisha and the findings are presented in Table 1, which show that rural-urban differences are decreased for all the maternal and child health indicators; 3 or more ANC coverage, 3 or more ANC from the government sources, institutional delivery, safe delivery and full immunization coverage for children. But, the disparity ratios for all the MCH indicators are found to be increased, except for the indicator of 3 or more ANC from the government sources, indicating thereby the presence of disparity in the utilization of government facilities for ANC.

Disparity in Nutritional Status

Odisha has made the journey from the situation of lowest to the highest malnourished state in the course of quarter of a century. Educationally advanced (relatively) coastal districts with a relatively low poverty ratio and safe sources of drinking water (tap, tube-well, and hand pumps) are expected to have a low level of malnutrition compared to the other districts of the state. Many researchers reveal that the tribal-dominated districts of Odisha have a higher level of malnutrition as compared to the non-tribal districts. While poverty is reduced by more than 20 percentage points in the last 25 years, malnutrition has declined by only 2 percentage points.[45] This indicates the continuance of large nutritional status disparity in the state for too long.

Anaemia remained high among all categories (children, adolescents and pregnant women) irrespective of caste and wealth quintile, which certainly raises questions about differentials in nutritional practices and awareness. The caste, class and education play a major role in under-nutritional status. It is found that children above the age of three years and especially those from SC and ST communities and lower wealth quintiles are more susceptible to under-nutrition. But, the overall gap between the high burden districts (HBDs) and non-high burden districts (NHBDs) does not get reflected in the behaviour related indicators. Moreover, service delivery is seen to be definitely better in NHBDs than in HBDs. The percentage of under-weight children in NHBDs is slightly higher. It indicates the presence of disparity in the quality of nutritional service delivery across districts in Odisha.

The state of child nutritional status among the disadvantaged social groups (ST, SC, and OBC) is poor as compared to the general population and the former are more vulnerable in the 15 high burden districts. Similarly, there is a visible disparity in child nutritional practices and immunization status across the districts, as the NHBDs are found to be better-off as compared to the HBDs in these respects. Women's nutritional practices are also reported to be better in NHBDs as compared to the HBDs.[46,47]

The gender disparities in the nutritional status of children are presented in Table 2. The findings suggest presence of significant gender disparities in the child nutritional status (under-weight children) along with variation between high burden and non-high burden districts, depending on the sex of the children. Both high and non-high burden districts show gender disparity in under-weight children, but it is marked in the non-high burden districts. Anaemic children status in the non-high burden districts shows a high negative gender disparity in terms of difference, indicating thereby more prevalence of anaemia among the female children. In child breast-feeding practice, gender disparity is noticed in the high burden districts where less male children are exclusively breast-fed for 6 months compared to female children.

Conversely, disparities between high and non-high burden districts in women and child nutritional status are presented in Table 3. The findings show that the disparity in terms of difference is positive for the under-weight children, anaemic children and anaemic pregnant woman, indicating thus high prevalence of both under-weight and anaemia among the children and anaemia among the mother in the high burden districts. However, exclusive 6 months breast-feeding practice shows negative disparity in terms of difference indicate this practice is low in the high burden districts.

Table 3 HBD- NHBD Nutritional status disparities in Odisha, 2011

Nutrition status indicator	Absolute disparity	Relative disparity
	Difference (HBD ─ NHBD)	Ratio (HBD / NHBD)
Percentage of Under-weight Children Aged 0-59 Months	7	1.21
Percentage of Children Aged 6-23 Months Exclusively Breast-fed for 6 Months	─7	0.89
Percentage of Anaemic Children Aged 6-59 Months	11	1.2
Percentage of Anaemic Pregnant Women	5	1.09
Source: Nutrition Baseline Survey 2011 Note: HBD - High Burden District, NHBD - Non-High Burden District		

Disparity in Public Health Service Infrastructure

Public health infrastructure is defined as the systems, competencies, relationships, and resources that enable performance of the essential public health services in every community. The goal of public health infrastructure is to ensure that central, state and local health agencies have the infrastructure in urban, rural and tribal areas to provide essential public health services effectively to all the population without any disparity.[48]

In terms of adequacy of publicly provided health service facilities and infrastructure, although Odisha has added infrastructure substantially during the NRHM implementation period of 2005-2012, the same is found to be neither sufficient nor efficient to tackle the present health needs of the population. The infrastructure in the labour rooms is inadequate in many of the district hospitals.[49,50] Besides, there is a wide gap between the demand for and supply of health professionals. There are wide differences in the vacancy of health manpower of 33% for gynaecologists, 69% for anaesthetists, 52% for paediatricians and of 84% for staff nurses along with 27 % vacancies in district and block level programme management units.[51]

Although utilization of publicly provided health service facilities in Odisha is one of the highest in the country with more than 75% people generally using public health services, quality of service delivery is undermined by poor availability of supplies (e.g. medicines, equipment, etc.) and services (e.g. high absenteeism of qualified medical personnel, poor infrastructure, diagnostics, and emergency transport), particularly in the remote western and southern tribal-dominated districts. While there are no user charges for public sector primary healthcare services, the lacklustre service

results in dissatisfaction for many people which in turn forces them to spend on largely unregulated private sector healthcare services. In Odisha, this accounts for 77% of total health spending according to Sample Registration Survey-2012. Also, the burden of such out-of-pocket expenditure falls heavily on the vulnerable populations, viz. STs and SCs.[47]

The availability of essential equipments in public facilities is found to be grossly insufficient in Odisha, For instance, only 73% of the maternity wards had functional BP equipment, 70% had a thermometer and 60% had a stethoscope, while just one third of the district hospitals had sterilization equipment in the labour room and with satisfactory condition in only one district hospital.[44] As per the proposal of Orissa State Integrated Health Policy 2002, the state should spend 2% of GSDP (Gross State Domestic Product) and 5-6% of the state budget as public expenditure on healthcare with shares of 55%, 35% and 10% respectively on primary, secondary and tertiary healthcares. This Integrated Health Policy also advocated equitable distribution of resources between rural and urban areas, worse-off and better-off districts, and between allopathic and Indian systems of medicine. However, in reality, there is a decline or stagnation in state government expenditure on healthcare (around 1 per cent of GSDP).[52] The budget allocated for health remained more or less at 4–5% of the state's total expenditure and just 1% of the gross state domestic product from 1996–97 and again from 2007–08.

The levels of public spending are clearly less than those articulated in 2002 health policy, and would definitely influence service delivery by affecting capital expenditure and health inputs. With regard to budget allocations by type of healthcare functions such as primary, secondary and tertiary, the spending of 17% on an average on secondary care is abysmally low against the recommended 35% stated in the National Health Policy document. Even spending on primary care had not reached the prescribed level of 55% in most of the years under study. With a substantially higher administrative expenditure, the state is constrained to allocate more resources to these heads. Again, low spending on primary and secondary cares reflects a wrong priority setting which affects equity issues in the health system.[53]

The disparities between pre- and post-NRHM periods in terms of difference for health facilities functioning in government buildings are presented in Table 4. The findings show that number of PHCs functioning in government buildings has been decreased during post-NRHM period compared to pre-NRHM period. On the contrary, the number of sub-centres functioning in government buildings has been increased during post-NRHM period compared to pre-NRHM period. The disparities between tribal and non-tribal areas in public health infrastructure are presented in Table 5, which show a large positive difference in post-NRHM doctor shortfall in PHCs located in

tribal areas. Similarly, government functioning PHCs are more in non-tribal areas compared to tribal areas.

Table 4 Pre- and post-NRHM public health infrastructure disparities in Odisha, 2012

Public health infrastructure indicator	Absolute disparity	Relative disparity
	Difference (Post-NRHM ─ Pre-NRHM)	Ratio (Post-NRHM / Pre-NRHM)
Percentage of SCs Functioning in Government Building	10.5	1.24
Percentage of PHCs Functioning in Government Building	─5.3	0.94
Percentage of CHCs Functioning in Government Building	0	1
Source: Rural Health Statistics in India 2012 Note: SCs - Sub-centres, PHCs - Primary Health Centres, CHCs - Community Health Centres		

Overall, the post-NRHM health status in Odisha wears a mixed picture. There has been definitely growth and improvements in the health facilities. But, the distribution of these facilities is far from efficient. As a result, marked inequalities across regions and different groups of population have emerged in terms of both input and outcome indicators. Therefore, disparities continue in health status as measured by the rates of mortality, morbidity, disability, and levels of maternal and child health and nutrition which solely depend on both quantity and quality of public health infrastructure.

Table 5 Tribal and non-tribal public health infrastructure disparities in Odisha, 2012

Public health infrastructure indicator	Absolute disparity	Relative disparity
	Difference (Tribal ─ Non-Tribal)	Ratio (Tribal / Non-Tribal)
Percentage of Post-NRHM Doctor Shortfall in PHCs	9	1.75
Percentage of PHCs Functioning in Government Building	─2.7	0.97
Source: Rural Health Statistics in India 2012 Note: PHCs - Primary Health Centres		

DISCUSSION

The assessment of existing literature added with available health statistics pertaining to the post-NRHM period suggests that everything is not alright in Odisha in the area of health provisioning. There is no doubt that substantial growth in health infrastructure; increased healthcare coverage, improved trend in vital health indicators and increased investment trend in healthcare budget have been recorded during the implementation of NRHM in the state. But, the various disparities present in relation to mortality, morbidity, disability, maternal and child health, nutritional levels and public health service infrastructure are also alarming. In balance, what is achieved in the last decade is an unstable and lopsided health system with obvious weak health status of Odisha.

Different types of disparities are found in the health status of Odisha. Most of the health status indicators show rural-urban and gender disparity. It is found that the rural-urban disparity is increased for IMR, acute disease, chronic disease, and disability, while decreased for crude death rates and maternal and child health status indicators such as ANC care, institutional delivery, safe delivery and full immunization coverage. Gender disparity is increased for CDR, chronic disease and disability, while decreased for IMR and acute disease. Similarly, nutritional status and public health infrastructure show wide ranges of disparities across socioeconomic groups. These disparities are believed to be influencing health status and quality of healthcare in Odisha.

The main reasons for these disparities in the health status of Odisha are,

1. lopsided socioeconomic and demographic development, and
2. poor health and health facility awareness among the people.

Quality is integral to healthcare services. Globally, poor quality of care is responsible for persistently high levels of maternal and child mortality in low- and middle-income countries, despite substantial increases in access to essential health services achieved during the MDG era.[2] Agenda for Sustainable Development recognizes the urgent need to place quality of care in the fabric of national, regional, and global action towards promoting well-being of all.

Quality of care is fundamental to universal health coverage. For if the quality of care is not ensured, what is the point of expanding access to care? Access without quality can be considered an empty universal health coverage promise. According to the World Health Organization (WHO), Organization for Economic Cooperation and Development (OECD) and International Bank for Reconstruction and Development (IBRD)/The World Bank, the universal health coverage is not just a dream for the future.[2] It is already a reality in many countries. Therefore, it is important to measure, detect and manage the disparity in publicly provided health service.

Service quality differentials, gaps, discrepancies or disparities represent a significant hurdle to achieving a satisfactory level of service quality in healthcare.[54] Service quality gaps also affect service delivery, so managers must prevent, detect and eliminate them as early as possible in any service operation.[55] Both international[56] and national[57] reviews reveal that the SERVQUAL[58] model has been widely used to measure differentials/gaps in HSQ in relation to five SERVQUAL dimensions (tangibles, reliability, responsiveness, assurance, and empathy) with or without modifications. However, only a few studies are found that used the SERVQUAL instrument to measure the gaps in publicly provided HSQ in India but none in Odisha. So, the health service administrators and managers are required to plan, design and conduct a study to measure health service quality differentials and gaps across Odisha.

CONCLUSION

In Odisha, during the post-NRHM period, large scale disparities are observed across the different regions in terms of socio-economic and demographic development. These disparities possibly act as significant barriers not only to the provision of health for all but also to the achievement of quality of the health service delivered by the public sector. In a way, the disparities critically pose hurdles to achieving real universal health coverage and what is available and accessible at the end for the people is nothing but poor quality services. Therefore, the policy-makers and others involved in the public provision of health should consider undertaking appropriate measures towards elimination of the various bottlenecks prevalent in the state, which harm the field of health and prevent it from achievement of universal health coverage in reality.

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