REVIEW ARTICLE

Status of institutional delivery in the state of Odisha: Challenges and opportunities

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ABSTRACT

Maternal health is an area of prime concern in India. National Rural Health Mission (NRHM) has fast forwarded the progress in improving maternal health through initiatives like promoting institutional deliveries and improving access to reproductive health services etc. However, glaring differences exist between different states and also among the districts within each state. In Odisha, even though overall picture indicates that the state is on the road-map to achieve the target for institutional deliveries, a lot more is desired in some of its most backward districts like Kalahandi, Balangir, Koraput (KBK). Some of the challenges include geographical inaccessibility, poor quality of care, female illiteracy, and huge tribal population. However, central and state sponsored initiatives are contributing significantly in improving this situation. Initiatives of policy makers need to be supplemented with need based research and critical analysis of district level data. Here, academic institutes through active collaborations can assume leadership role. Besides focussing on achieving the targets for institutional deliveries, there is need to improve the quality of care particularly in hard to reach areas.

Key words: *Institutional delivery, Maternal Health, Odisha*

I. BACKGROUND

Females between 15-49 years comprise 54.5% of the total population of India. [1] This age group has special health problems arising out of pregnancy and its complications, besides the triple burden of epidemiological transition like communicable diseases, chronic conditions, and nutritional disorders. India is signatory to the millennium declaration for implementing interventions and monitoring progress of the health related targets as envisioned under the Millennium Development Goals. [2] One of the goals i.e. MDG-5 aim at improving maternal health. The targets for improving maternal health include reducing by three-fourths the maternal mortality ratio, and achieving universal access to reproductive health.

Maternal health refers to the health of women during pregnancy, childbirth and postpartum period. [3] Early diagnosis during pregnancy can prevent maternal ill-health, injury, maternal mortality, foetal death, infant mortality and morbidity. Natal care depends on availability of skilled manpower, infrastructural facilities to handle emergencies like haemorrhage, birth asphyxia which are the common determinants of maternal and neonatal mortality.

Maternal mortality ratio (MMR) is an important indicator for natal care, and a rough indicator of overall maternal health situation in any region.[4] Globally, an estimated 287,000 women died during pregnancy and childbirth in 2010, a decline of 50% from levels in 1990.[5] In India, the decline in MMR from 1990 to 2009 was 51%.[6] The Sample registration system (SRS) data indicates that, India had recorded a deep decline in MMR by 35% from 327 in 1999-2001 to 212 in 2007-09 and a fall of about 17% happened during 2006-09.[6] However, the progress is below national average in all the Empowered Action Group (EAG) states. One of the key determinants in reducing maternal mortality is access to quality antenatal and natal care. Institutional delivery is the corner stone in reducing maternal mortality and thus improving overall maternal health. Percentage of institutional deliveries is one way to estimate coverage of antenatal and natal care services within the country. This paper reviews the current status and factors associated with institutional delivery in the state of Odisha. It also explores various challenges and opportunities to improve the status in this region.

II. INSTITUTIONAL DELIVERY

A. Current status

One of the socio-demographic goals mentioned in the National Population Policy-2000 of India is to achieve 80% institutional deliveries and 100% deliveries to be assisted by skilled health personnel by 2015.[7] These two interventions have also been identified as important initiatives to reduce the maternal mortality ratio - the fifth Millennium Development Goal.[8] However, the rate of increase in coverage of institutional deliveries in India was rather slow. It increased from 26% in 1992-93 to 73% in 2010-11.[9] In spite of this, the likely achievement for 2015 will be well beyond 80%.

In the last two decades, if one compares the performance of EAG states [10] with that of the best performing state of India i.e. Kerala, it appears that there has been a slow but steady progress, particularly after the launch of National Rural Health Mission (NRHM) [1] in 2005 as seen in figure 1. In last 5 years, considerable progress has been made in the states of MP, Rajasthan and Odisha. As per this trend, Odisha may have achieved the target of 80% institutional deliveries by 2012 and will progress to 100 % by 2015 (Figure 2).

Fig 1: State wise performance in institutional deliveries among the EAG States

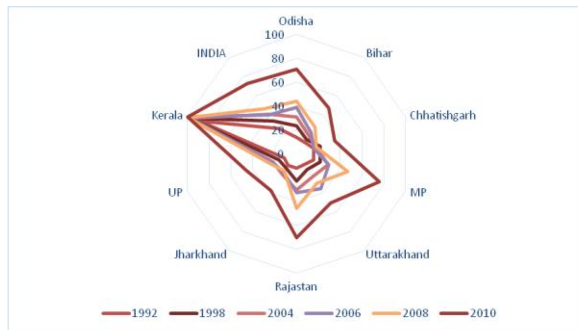
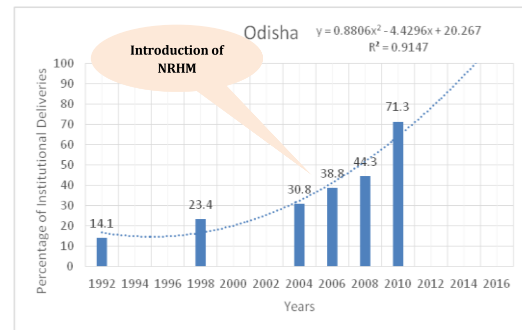


Figure 2: Trend for institutional deliveries in the state of Odisha



B. District-wise institutional deliveries in Odisha

The poorly performing districts of Odisha with regards to institutional deliveries include Rayagada, Nabarangapur, Koraput, Malkangiri, and Gajapati. The best performing districts include Jagatsinghapur, Khordha, Cuttack, Jharsuguda, and Puri; as per district level household facility survey-3 data [DLHS 3: 2007-2008 [11]]. Thus, there is wide variation in progress among the 30 districts of the state of Odisha (Table 1). Some of the worst performing districts belong to the infamous Kalahandi, Balangir, Koraput (KBK) districts.

Table 1: Rank wise distribution for institutional deliveries in 30 districts of Odisha (DLHS 3)

SR No.	Districts	Institutional Births (%)	RANK	SR No.	Districts	Institutional Births (%)	RANK
1	Bargarh	43.7	16	16	Nayagarh	44.1	15
2	Jharsuguda	64.9	4	17	Khordha	70.8	2
3	Sambalpur	56.6	7	18	Puri	63.6	5
4	Debagarh	44.5	14	19	Ganjam	55.4	8
5	Sundargarh	45.3	13	20	Gajapati	19.7	26
6	Kendujhar	34.3	21	21	Kandhamal	25.3	25
7	Mayurbhanj	43.1	17	22	Baudh	28.8	22
8	Baleshwar	52.6	9	23	Sonapur	40.9	19
9	Bhadrak	42.7	18	24	Balangir	51.7	10
10	Kendrapara	46.9	11	25	Nuapada	28.8	23
11	Jagatsinghapur	79.7	1	26	Kalahandi	27.5	24
12	Cuttack	68.3	3	27	Rayagada	18.3	28
13	Jajapur	61.6	6	28	Nabarangapur	15.9	29
14	Dhenkanal	46.9	12	29	Koraput	18.9	27
15	Anugul	40.7	20	30	Malkangiri	14.8	30

C. Factors associated with institutional delivery

1. **Proportion of tribal population**: This exhibits inverse relationship with the institutional deliveries as strikingly seen in KBK districts (Figure 3). [11, 12]

2. **Female literacy**: The proportions of institutional deliveries are lower in those districts that have lower female literacy (Figure 4A). [11]

3. **Low standard of living**: Districts with higher proportions of populations with low standard of living have lower proportions of institutional deliveries (Figure 4 B). [11]

4. **Age at marriage (girls):** Districts with higher proportions of below 18 marriages (girls) have lower proportions of institutional deliveries (Figure 4 C). [11]

5. **Antenatal care:** Data from most districts except KBK districts indicate that mothers registering early during pregnancy for ANC are more likely to come for at least 3 ANC visits and undergo institutional deliveries. Further research may be required to identify reasons for contrary findings in some of the KBK districts (Figure4 D). [11]

Figure 3: Comparison of institutional deliveries with distribution of tribal population (ST) of 30 districts in Odisha

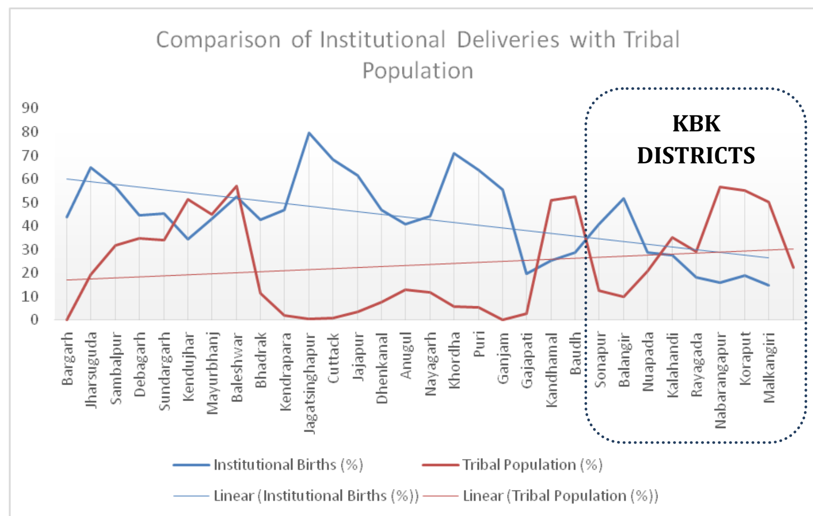
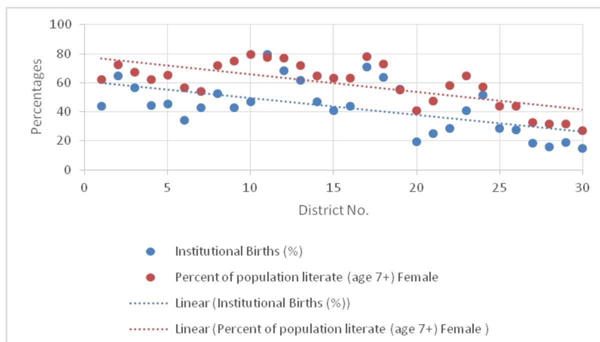
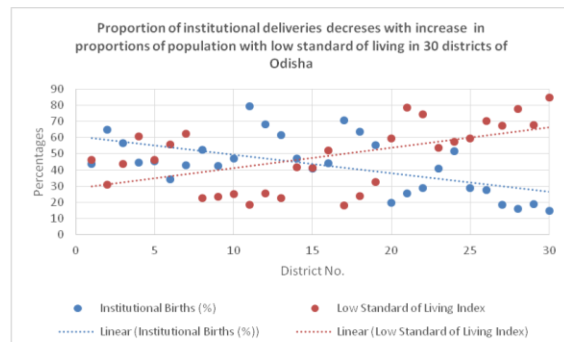


Figure 4A: Scatter diagram showing relationship between institutional deliveries and female literacy for 30 districts of Odisha



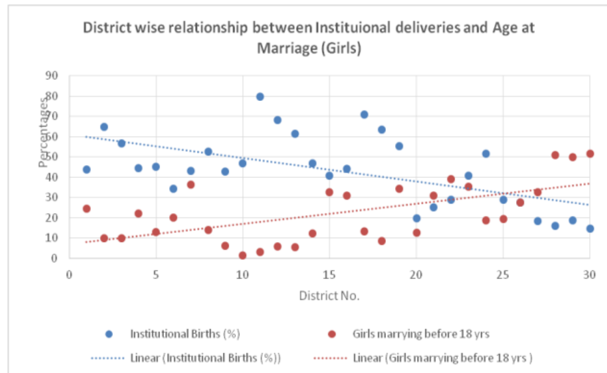
X axis: District No follow the Sr. no for Districts in Table 1

Figure 4B: Scatter diagram showing relationship between institutional deliveries and low standard of living for 30 districts of Odisha



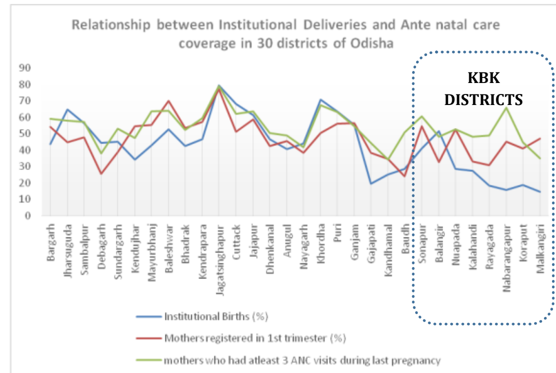
X axis: District No follow the Sr. no for Districts in Table 1

Figure 4C: Scatter diagram showing relationship between institutional deliveries and age at marriage (Girls) for 30 districts of Odisha



X axis: District No follow the Sr. no for Districts in Table 1

Figure 4D: Relationship between institutional deliveries and antenatal care coverage for 30 districts of Odisha



III. CHALLENGES

1. Universal coverage of institutional delivery

Odisha has a huge tribal population in southern and western parts (KBK region) which are mostly rural and backward regions. As per 2001 census, about 38.41% people of these districts belong to the scheduled tribes (ST). Female literacy in this region is only 24.72%. During 2009-10 National Sample Survey (NSS), 61.1% people belonged to below poverty line (BPL) families, which was 72% during 1997 and 82% during 1992 census. (13)

More specifically, 49 community development (CD) blocks of KBK districts are regarded as “very backward” and 28 CD blocks are considered as “backward”. Persistent crop failure, lack of access to the basic service and entitlements, starvation, malnutrition and migration are the leading manifestations in the region. Lower population density (153 persons/ sq.km) in comparison to 236 for Odisha indicates difficult living conditions and an underdeveloped economy. Other socio-economic indicators including population composition and density, net area irrigated, hospital beds, and connectivity of villages (due to crisscrossed terrains) to growth centres and service centres are also far from satisfactory.

Severe droughts and floods also often visit this region and some areas in quick succession. Therefore, backwardness of this region is multi-faceted: (i) Tribal backwardness, (ii) Hill area backwardness, (iii) Backwardness due to severe natural calamities and, (iv) Apathy of state and central government towards this region. To improve coverage of institutional delivery in this region is a formidable task and requires multipronged approach from the government like poverty alleviation schemes, generating employment opportunities, improving health care infrastructure, etc.

2. Adequacy of health care infrastructure

This includes availability of right number of health care institutions; proper equipments for conducting safe deliveries and managing complications; adequately trained and motivated health personnel; uninterrupted supply of essential medicines and transport services for prompt referral.

Even though there is improved funding through NRHM, the situation in many parts of southern and western region of Odisha is far from desirable. The adequacy of health care infrastructure in this region need to be studied and factors for its current status has to be identified to guide action of policy makers.

3. Ensuring quality service

Even today in Odisha, 41.4% women between 15-49 years are malnourished, 61.2% are having anaemia (Hb<12 gm/dl). Only around 50% women register very early in pregnancy and complete at least 3 antenatal check-ups during pregnancy. Only 1 out of 4 mothers has complete antenatal check-up during pregnancy.(14)

Thus, merely achieving the target for institutional deliveries is not sufficient. There needs to be a mechanism to ensure provision of quality care. The indicator needs to be viewed along with percentages of health facilities with availability of minimum infrastructure to prevent maternal death. Common determinants of maternal mortality are anaemia, bleeding, malnutrition, unregulated fertility. All these factors need preventive services during antenatal care, besides availability of appropriate curative services during natal care. This is possible if more and more institutional deliveries are encouraged, so that subsequent pregnancies can be made safe, family size moderated, nutritional status of women improved and thus lead to overall development of women. This calls for integrated monitoring of five indicators namely, maternal mortality, rate of institutional deliveries, prevalence of anaemia and under-nutrition during post natal period, adequacy of first referral units (FRUs) for dealing with challenges of natal care.

4. Increasing female literacy

Though both male (82.4%) and female (64.36%) literacy rates are fast approaching national averages, there is still a gender gap of 18 percentage points in literacy. The scheduled tribe communities have very low levels of literacy. [15] Unless, literacy is improved health seeking behaviour will not be favourable.

IV. OPPORTUNITIES

A. Central and state government initiatives

1. **The National Rural Health Mission (NRHM)** [16]**:** NRHM was launched in April 2005 throughout the country with special focus on 18 states, including eight Empowered Action Group (EAG) states, the north-eastern states, Jammu and Kashmir and Himachal Pradesh. The objective was to provide accessible, affordable and quality health care services to rural population, especially the vulnerable sections. The progress made in Odisha between 2006-09 is clear reflection of impact of various schemes under NRHM and liberal funding. The *Rogi Kalyan Samitis* has helped the peripheral health institutions to improve their infrastructure in most parts of Odisha. NRHM has provided the platform for training of health manpower within the state.
2. **Janani Suraksha Yojana and Janani-Sishu Surakhya Karyakram** [17,18]**:** The Janani Suraksha Yojana (JSY) is a 100% centrally sponsored scheme and it integrates cash assistance with delivery and post-delivery care. The scheme focussed on promotion for institutional deliveries and targeted lowering of MMR by ensuring that deliveries were conducted by skilled birth attendants at every birth. The Yojana has identified the Accredited Social Health Activist (ASHA), as an effective link between the government and the poor pregnant women. The Janani-Sishu Surkhya Karyakram (JSSK) entitles all pregnant women delivering in public health institutions to absolutely free and no-expense delivery, including caesarean section.
3. **Tracking of mothers and children** [19]**:** It has been decided to have a name-based tracking whereby pregnant women and children can be tracked for their ANCs and immunisation along with a feedback system for the ANM, ASHA etc. to ensure that all pregnant women receive their ante-natal care (ANC) and post-natal care (PNC) check-ups; and the children receive their full immunisation. All new pregnancies detected/being registered from 1st April, 2010 at the first point of contact of the pregnant mother are being captured as also all births occurring from 1st December, 2009. State of Odisha has already established the system and is putting in place systems to capture such information on a regular basis.
4. **Large Scale/Demographic Surveys** [1]**:** A number of surveys are being conducted to monitor the progress made in maternal health besides other health conditions. These include, National Family Health Survey (NFHS 1, 2, 3) [20]; Annual Health Survey [21] District Level Household and Facility Survey (DLHS 1, 2, 3) [22] etc. Planning for fourth round for DLHS is underway. These kinds of surveys help to perform trend analysis and promote district based planning to guide policy makers suitably.

5. **E-blood bank services** [23]: This has been launched in the year 2012 and is first of its kind in the country. It is a web-enabled system for electronic monitoring of blood collection, testing, storage and final use or disposal. Such a step will minimise wastage as blood has a shelf life of 32 days. This initiative is likely to improve access to blood at peripheral health institutes thereby providing opportunities to handle emergencies in the periphery and promote safe motherhood.
6. **E-Janani services [24]:** As per the scheme, expectant mothers would register their names with ANM/ASHA and receive SMS regarding various schemes and benefits available to them and thus promoting institutional delivery.
7. **Janani Express [25]:** Free non-stop transportation facilities are being provided to pregnant women to promote institutional deliveries since 2008. It would benefit the women in rural and hilly areas to cope with emergencies, which arise during pre as well as post-delivery periods.

B. Role of academic institutions

State of Odisha has 4 government and 4 private medical colleges besides two public health institutes. Majority are present in and around the capital city of Bhubaneswar. AIIMS, Bhubaneswar being one of the recent additions to the pool of centrally sponsored institutes in the EAG states under the Pradhan Mantri Swasthya Suraksha Yojana (PMSSY), started with the objective of correcting regional imbalance in the availability of healthcare services. Medical colleges in Odisha can contribute towards improving the institutional delivery within the state of Odisha with active participations of the Department of Community Medicine and Departments of Obstetrics and Gynaecology as mentioned below.

1. **Training component**: They can take leadership role in training of ASHAs, auxillary nurse midwife (ANMs), medical officers in various areas like:
   a. **ASHAs**: Screening high risk pregnancies, health communications, tracking of mothers, etc.
   b. **ANMs**: For conducting safe delivery depending upon the availability of resources. Making a birth plan, etc.
   c. **Medical officers**: They can be equipped with skills to do normal delivery, instrument assisted deliveries, handle abnormal presentations, use ultrasonography for optimal antenatal care, training in anesthesia to assist caesarean deliveries etc. depending upon the availability of resources in their work place.
2. **Research :** There is need to support primary care research to look into various issues determining health seeking behavior of the people, impact of various benefit schemes rolled out under NRHM, coverage of services under NRHM, gaps between needs and supply etc.
3. **Telemedicine:** Expert care can be provided from these institutes to most needy areas like that of KBK districts to handle elective and emergency cases in the near future.

CONCLUSION

Though overall statistics indicates progress in increasing institutional deliveries, glaring differences within the districts tell a different story. There is need to shift attention from mere number of institutional delivery to quality of care if any noticeable dent has to be made on the maternal mortality and morbidity in the state of Odisha. Proper data is not available on adequacy of infrastructure within the public health care delivery system for ensuring safe, uncomplicated delivery in Odisha, an area of future research. Critical analysis of district level data is essential to fix up priorities for various regions within the state. Need based interventions and active collaborations between the academic institutions and service providers are essential for witnessing a visible change in the near future.

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