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Mapping the Utilization of Maternal Healthcare Services in Odisha, India- A District Level Analysis

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ABSTRACT
Besides Odisha's remarkable growth in the field of providing public healthcare services both in terms of healthcare infrastructural and financial assistance supply, the situation of utilizing the maternal Healthcare (MH) services is quite distressing. The study aims to analyze the utilization of maternal health care services in Odisha in general and at district level in particular by using the NFHS-5 (2019-21) data. For analytical purposes a composite z-score value of components of maternal health care services for all the districts have been calculated to show the most significant and insignificant districts. The empirical study reveals a wide regional variation in the utilization of maternal healthcare services. Almost half of the district's performance are very significant while other 15 districts have a low level of attainment with respect to utilizing the MHC services in Odisha.

Keywords: Maternal healthcare, ANC, PNC, Odisha

1. Introduction

Maternal Health is one of the important aspects of human development. Overall development of a country is incidental to the well-being of maternal health. The survival and wellbeing of mothers are crucial for broader socio-economic development of a nation. As per WHO, the health of women during pregnancy, childbirth and the postnatal period is broadly considered as maternal health.[1] In order to promote maternal health within the developmental goals of any nation, UNICEF continuously advocates, "All women need access to antenatal care in pregnancy,skilled care during childbirth, and care and support in the weeks after childbirth. All births should be assisted by skilled health professionals, as timely management and treatment can make the difference between life and death for both the mother and the baby."[2] UNFPA is of the strong opinion that safe motherhood is a matter of human rights imperative and it is at the core of UNFAPA's mandates. [3] Maternal health care is vital in the context of reproductive health, as the mother's health has numerous ramifications. Poor maternal health causes a high prevalence of miscarriages and stillbirths, as well as high perinatal, neonatal, postnatal, and infant mortality. Complications can increase maternal mortality rates. Hence mother's health is sole responsible for both mother and child's survival.[4] Though India, is continuously dropping down in maternal morbidities and deaths and reached at 97 maternal deaths per 100000 live births, still we are lagging behind the target of Millennium Development Goals(MDG) that is less than 70/100000 by 2015.[5] The condition is even worse in the socio-economically disadvantaged state like Bihar, Chhattisgarh, Odisha which registers high maternal morbidities and mortalities above the national average.[6] In recent times Odisha's economic growth is

boost up by the intervention of various plans and programmes of the government. Development can be noticeable in public service sector as well as in infrastructural building with focus on health infrastructure. Despite its positive impact, the outcome of maternal health care services is quite unsatisfactory like the anaemia condition among pregnant and lactating mothers is higher in the state.[7] There is wide regional variation in case of WHO recommended Ante Natal Care (ANC) visit which is four times or more visit to any healthcare facility. In this context the present study is an attempt to analyze the utilization of Maternal Healthcare services across the Odisha state and find out the districts with high significance and insignificant in utilizing the MH services in the State.

Study Area: Odisha, is one of the most culturally rich picturesque state in eastern India with a population over 4.3 billion of which having more than 80 per cent of rural population. It has a significant proportion of population (40%) are from marginal section. The state poses sex ratio of 979 per 1000 males. The literacy rate is 78.2 per cent of which 36 percent of women are illiterate.[8] There are 13 tribal dominated districts which have inadequate economic infrastructure, less accessibility to medical facilities, and widespread poverty. The Maternal Mortality Ratio (MMR) is 119 per 1Lakh live births. MMR and under-five mortality continue to be at a higher level in the tribal regions.[9] To enhance the healthcare facilities with respect to MH in the state, the govt. has taken many initiatives like MAMATA, a cash funding scheme for pregnant mother, Maternity Waiting home and Mobile health unit in inaccessible area.

2. Objectives of the Study

With this background information an attempt has been made to

1. Access the level of utilization of Maternal Healthcare services at district level.
2. Mapping out the regional variation in Using MH services.

3. Data and Methods

- The National Family Health Survey 2019-20, Odisha, data has been used for analytical purpose. This NFHS is the most comprehensive health survey that has ever been conducted in India to track ongoing district-level health and family welfare initiatives. The fifth in the NFHS series had interviewed with 27,971 ever married women aged 15-49 for Odisha state. It provides information of many important indicators of demography, health and nutrition in India covering 707 districts and approximately 610,000 households. The purpose is to offer estimates on reproductive health indicators, family planning, and maternal and child health.
- The data were analyzed by the use of inferential statistical methods that is “Z score”. By calculating the z-score of each maternal health indicator for all 30 district and compute the composite z-score value.

z= Z-score
x= the value being evaluated
μ = the mean
σ=the standard deviation

Formula $z = (x - \mu) / \sigma$

- Grouping techniques has been used to group the district into 4 categories (from highly significant to highly insignificant district).
- 'Q' GIS software has been used for mapping the distribution of MH services across the state.

4. Maternal Healthcare Indicators

MH indicators meaning the healthcare started just from the pregnancy detection to six months of child delivery. It includes the Ante Natal Care (ANC), Delivery Care and Post Natal Care (PNC).

4.1 ANC and its Components

The type of ANC services received by women with pregnancy are called components of ANC. ANC check-up broadly covers Pregnancy Registration, ANC check-up services, health education and counselling to women under pregnancy rendered by qualified heath personnel and ANC related advices.

4.1.1 Pregnancy Registration

Towards better pregnancy outcome, pregnancy registration has been a recommended practice for the women with pregnancy. Early registration provides a window of opportunity to receive package of antenatal services in initial stage of pregnancy.[10] Since 2016, The Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) has been launched by the Ministry of Health & Family Welfare (MoHFW), Government of India. The program aims to provide assured, comprehensive, and quality antenatal care, free of cost, universally to all pregnant women. Under the programme registered woman would be provided with Mother andChild Protection (MCP) Card and Safe Motherhood booklet. As per NFHS-5 report in Odisha, 99.4% of pregnant women received MCP card against 95.9% in India.

4.1.2 Number of ANC Visits

As per WHO, recommended Focused Antenatal Care (FANC) Model, a pregnant woman should have at least four ANC visits under normal circumstances.[11] The first visit is recommended as soon as the pregnancy is suspected, followed by second visit between 4-6 months of pregnancy (around 26 weeks of pregnancy), the third one in the 8th month (around 32 weeks of pregnancy) and the 4th one in the 9th month (MoHFW, 2005).[12] In Odisha 78% of women had visited four or more times for ANC check up to a health facility against 59% in India.

4.1.3 TT taken during Pregnancy

Tetanus Toxoid injection helps the mother to make antibodies first, avoiding infection and disease during labour. In addition, vaccination also minimizing the risk of tetanus infection after birth in children. The World Health Organization (WHO) recommends at least two doses of TT for pregnant women to ensure protection against tetanus for both the mother and the new-born.[13] As per NFHS-5th round, more than 90 percent of the pregnant women in Odisha had received two ormore doses of TT injections which is slightly lower at all India level at 92.0 percent.

4.1.4 IFA tablets for 100 days or more

Iron deficiency or anaemia is the most common micronutrient deficiency in the world. It is a major threat to safe motherhood and to the healthand survival of infants.[14] The Government of India's National Iron Plus Initiative emphasizes the provision of IFA tablets for at least 100 days to pregnant and lactating women to address anaemia effectively. As per NFHS-5th Round data, about 60.2 percent pregnant women of Odisha had consumed IFA tablets for more than 100 days which is 44.1 percent at all India level.

4.2 Delivery Care

The World Health Organization (WHO) guidelines, emphasize the importance of delivery care for positive pregnancy outcomes which can be ensured with institutional delivery being undertakenby a skilled health personnel.[14] Delivery care implies safe delivery as either institutional delivery orhome delivery assisted by a skilled person. Ministry of Health and Family Welfare, Govt. of Indiahas prioritized safe delivery as a key component of maternal and child health programs.Initiatives, including Janani Suraksha Yojana (JSY) and other Maternity Benefit Programs are implemented for promoting safe deliveries and encouraging women to seek skilled healthcare during childbirth.

4.2.1 Institutional Delivery

Institutional delivery in Odisha as well as all India has tended to increase over time. The extent of Institutional delivery in Odisha was only 22.7 percent, lower than all India situation has been risen up to 90 per cent of which 92.2 per cent for deliveries conducted in a health facility as per NFHS-5 data which is above the National average.

4.3 Post Natal Care

Post natal care otherwise called as Maternal and Child Health (MCH) Care. MCH includes the health of a mother and her newborn child. This depends not only on the health care she receives during her pregnancy and delivery, but also on the care she and the infant are supposed to receive during the first few weeks after delivery. Recognizing the importance of postnatal check-ups, Ministry of Health, and Family Welfare, 1997 through its Reproductive and Child Health Programme (RCH) has recommended three postnatal visits within six weeks after delivery and a mandatory check-up of mothers within two days or 48 hours after delivery. It is evident from the NFHS-5 data, 92.2% of women get check-up within 48 hours out of which 84.2% get immediate check up just within 4 hours of child birth.

Apart from this counselling to women during ANC and PNC period about complication sign of pregnancy, healthy eating, delivery preparedness, after delivery conditions, child care, breastfeeding, keeping the warm, family planning are also important components in maternal healthcare service.

5. Inter-district Variation in Utilization of Maternal Healthcare services

To assesses the inter-district variations in maternal health care services in Odisha, indicators like ANC (mothers who had four or more ANC visits, received two or more TT injections, consumed Iron and Folic Acid (IFA) for 100 days or more), Delivery care (institutional delivery), PNC (women with a postnatal check within two days of birth) have been taken into considerations.

Table I: District wise utilization Maternal Healthcare Services

Sl.No	Districts	Percentage who had four or more ANC visits	Percentage who received two or more TT injections during the pregnancy	Percentage who took IFA for at least 100 days	Percentage of Institutional Delivery	PNC check-up within 2 days
1	Angul	84	99	54	86	85
2	Balangir	95	97	83	98	97
3	Balasore	57	95	36	98	88
4	Bargarh	70	91	52	100	93

5	Bhadrak	75	94	54	96	89
6	Boudh	79	96	58	93	90
7	Cuttack	84	96	63	99	93
8	Deogarh	78	94	60	91	89
9	Dhenkanal	76	96	51	95	91
10	Gajapati	83	99	65	76	78
11	Ganjam	83	97	67	93	89
12	Jagatsinghpur	83	95	64	98	89
13	Jajpur	74	95	49	94	92
14	Jharsuguda	94	97	85	99	96
15	Kalahandi	83	97	61	93	94
16	Kandhamal	81	98	73	94	91
17	Kendrapada	77	91	54	97	86
18	Kendujhar	57	91	48	80	75
19	Khordha	91	98	72	98	95
20	Koraput	79	98	72	82	84
21	Malkangiri	83	95	64	91	90
22	Mayurbhanj	53	91	42	92	86
23	Nabarangpur	88	99	83	88	89
24	Nayagarh	90	96	66	98	96
25	Nuapada	72	95	52	90	86
26	Puri	95	98	76	98	94
27	Rayagada	85	94	64	69	70
28	Sambalpur	89	91	63	100	91
29	Subarnapur	88	94	69	96	93
30	Sundargarh	73	93	60	96	80
ODISHA		**78.1**	**90.8**	**60.8**	**92.2**	**92.2**

Source: National Family Health Survey, 5th series, 2019-20

The above table-I showing a district wise use of maternal health care services covering ANC and PNC. In case of prenatal check-up, out of 30 districts. 9 have lower attainment of ANC visit (<4 times) then the state's average named Balasore, Bargarh, Bhadrak, Dhenkanal, Jajpur f kendrapara,Keonjhar and Mayurbhanj but being tribal dominated district Koraput, kandhamal and Rayagada's performance (> 85%) is commendable.

Column no. 2 representing the percentage of women receiving two or more tetanus toxoid (TT) during pregnancy. The state provides an impressive scenario. Performance of all 30 districts is more than 90% in taking TT injection.

Column 3 shows the percentage of pregnant women who have consumed Iron and Folic Acid (IFA) tablets for 100 or more days. As per the NFHS 5 survey result the consumption of IFA tablets is very negligible in Odisha. The state's average is only 60.8%. Only Nabarangpur, Jharsuguda and Balangir district have

more than 80 per cent of consumption of IFA tablets by pregnant women. Balasore being a developed district has the lowest consumption percentage (36%).

Column 4 illustrates that institutional delivery in Odisha appears outstanding and has improved over time. Financial assistance from the centre under Janani Suraksha Scheme (JSY) and state funding scheme called MAMATA, may be the contributing factors. However, the progress is not uniform among districts. Districts like Sambalpur and Bargarh have 100 percent institutional delivery and in Raygada it is confined to 69 percent only. The inaccessibility may be the reason. The column 5 reveal the percentage of mother who got a PNC check-up within two days after child birth. The results of districts are quite satisfactory. More than 85 percent of mothers gets PNC check -up after delivery in almost all district of Odisha.

Table-II District-wise composite Z-score value of MH Indicators

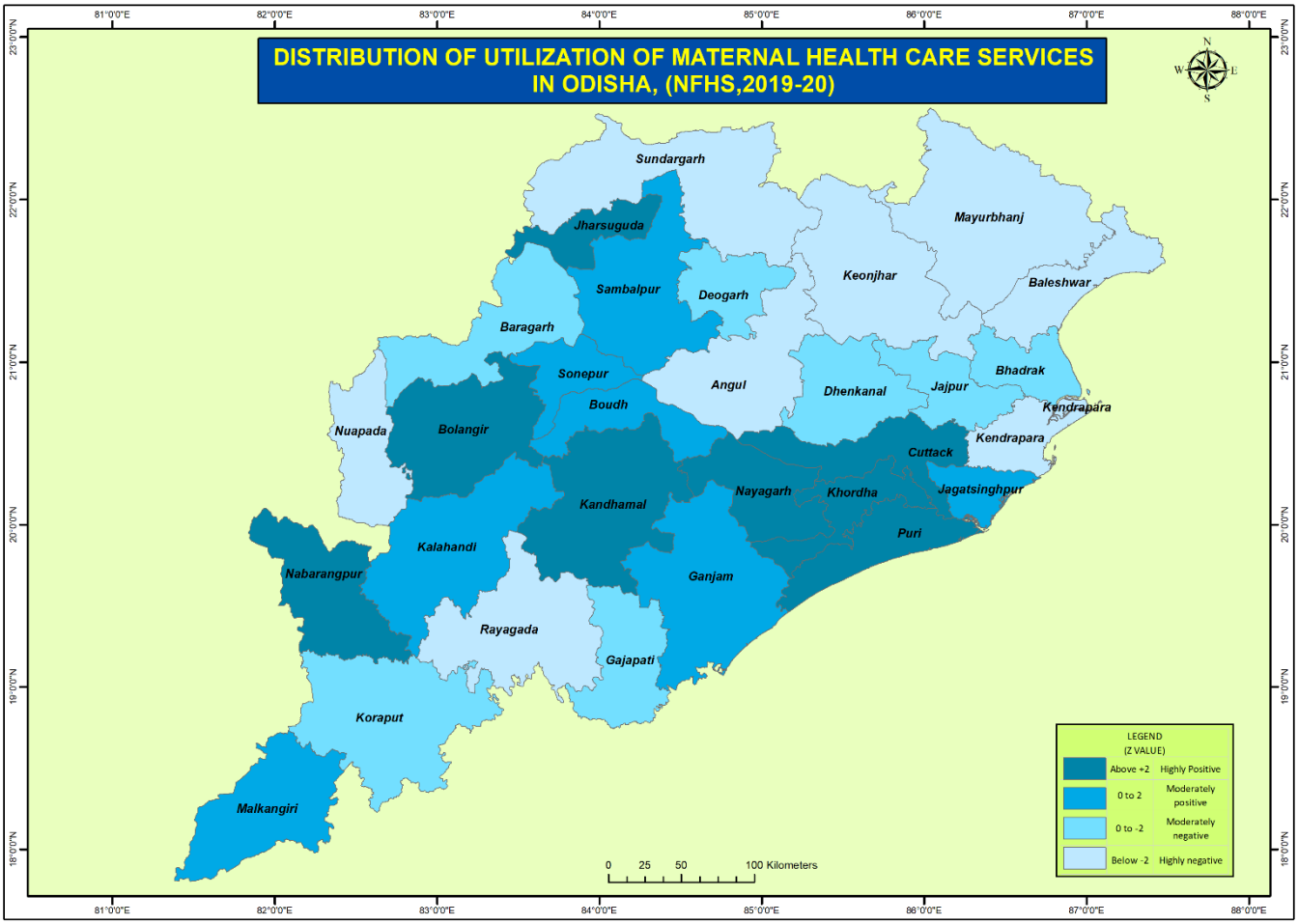
DISTRICTS	Composite Z-score Value of MH indicator	DISTRICTS	Composite Z-score Value of MH indicator
Angul	-0.33	Kandhamal	2.64
Balangir	5.91	Kendrapada	-2.49
Balasore	-3.88	**Kendujhar**	**-8.91**
Bargarh	-1.80	Khordha	4.67
Bhadrak	-1.16	Koraput	-0.36
Boudh	0.10	Malkangiri	0.33
Cuttack	2.28	Mayurbhanj	-6.44
Deogarh	-1.03	Nabarangpur	3.42
Dhenkanal	-0.35	Nayagarh	3.44
Gajapati	-1.94	Nuapada	-2.50
Ganjam	1.48	Puri	5.23
Jagatsinghpur	1.11	Rayagada	-6.01
Jajpur	-1.07	Sambalpur	0.61
Jharsuguda	**5.96**	Subarnapur	1.98
..Kalahandi	1.76	Sundargarh	-2.66

Source: Computed by the author

Table-II illustrate the district wise composite Z-score value of utilization of maternal healthcare services across Odisha. Among the districts, Jharsuguda stands highly significant in utilizing the MHC services with a composite z-score value of 5.96 followed by Bargarh (5.91) and Puri (5.23) as rank 3rd. Keonjhar and Mayurbhanj are the two tribal districts remain at the bottom of the ladder. The situation may be because of lack of information, illiteracy of the tribal and geographical inaccessibility.

Mapping the performance of the districts on the basis of utilization of MHC services.

Z Value	Level of Performance	Districts
Above +2	Highly Positive	Jharsuguda, Balangir, Puri, Khordha, Nayagarh, Nabarangapur, Kandhamal, Cuttack
0 to +2	Moderately Positive	Subarnapur, Kalahandi, Ganjam, Jagatsinghpur, Sambalpur, Malkangiri, Boudh
0 to -2	Moderately Negative	Angul, Dhenkanal, Koraput, Deogarh, Jajpur, Bhadrak, Bargarh, Gajapati
Below -2	Highly Negative	Kendrapara, Nuapada, Sundargarh, Balasore, Raygada, Mayurbhanj, Keonjhar



Conclusion

Based on the aforementioned findings, it can be concluded that, Utilization of maternal healthcare services is uneven at district level. There is a wide variation by regions. Almost half of the district performs positively where as other half performance are quite unsatisfactory. Districts like Puri, Khordha, Cuttack (coastal part) and Jharsuguda, Balangir, Nabarangapur and Kandhamal (western part) accomplishes the utilization of MHC services with coverage of more than 80 percent by the pregnant women and newly mother. The utilization of maternal healthcare services is considerably low in some coastal districts and mostly in the tribal dominated district like Koraput, Jajpur, Gajapati, Balasore, Raygada, Mayurbhanj,

Keonjhar. Therefore, distribution of MH services needs to be strengthened by improvement of health infrastructure including the placement of qualified medical staff in public health centres especially in rural and inaccessible areas of the state along with encouraging female literacy and implementing extensive healthcare awareness campaigns are important ways to improve Odisha's maternal healthcare seeking behaviour among the rural women.

REFERENCES

1. https://www.who.int/health-topics/maternal-health#tab=tab_1
2. https://www.unicef.org/india/what-we-do/maternal-health
3. https://www.unfpa.org/maternal-health
4. International Institute for Population Sciences (IIPS), District Level Household and Family Survey (DLHS-3),2007-08, International Institute for Population Sciences (IIPS), Mumbai, India, 2010.
5. United Nations, The Millennium Development Goals Report, United Nations, New York, NY, USA, 2013.
6. Office of Registrar General and Special Bulletin on Maternal Mortality in India 2010–12,
7. Sample Registration System, Office of Registrar General, New Delhi, India, 2013.
8. Agarwal N.K et al., "Prevalence of anaemia in pregnant & lactating women India," The Indian Journal of Medical Research, vol.124, no.2, pp.173–184, 2006
9. Planning Commission of India, Evaluation Study of National Rural Health Mission in 7 States, Programme Evaluation Organization, Government of India, 2002.
10. Devarajan S. and Shah S., "Making services work for India's poor," Economic and Political Weekly, vol.39, no.9, pp.907–919, 2004.
11. Tellis S.B, et al., "Utilization of antenatal care and out of pocket expenditure on delivery care in Dakshina Kannada", Int Journal on Community Med Public Health. 2018; 5:3553-58, 2018.
12. WHO, UNICEF, Mathers C. Global strategy for women's, children's and adolescents' health (2016–2030).Organization. 2016.
13. MoHFW (2005), "Guidelines for Pregnancy Care", Maternal Health Division, Department of Family Welfare,Ministry of Health and Family Welfare, Government of India.
14. https://www.vinmec.com/en/news/health-news/obstetrics-gynecology-and-assisted-reproductive-technologies-art/why-do-pregnant-women-need-tetanus-vaccine/#:~:text=Therefore%2C%20at%20childbearing%20age%2C%20women,infection%20and%20disease% 20during%20labor.
15. World Health Organization, WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience. World Health Organization; Geneva, Switzerland: 2016.
16. Singh P. K, et al., "Determinants of Maternity Care Services Utilization among Married Adolescents in Rural India" https://doi.org/10.1371/ journal. pone.0031666, February 15, 2012