

**“REVIEW THE LEVEL OF MATERNAL CARE
SERVICES AND FACTORS ASSOCIATED IN THE STATE
OF RAJASTHAN”**

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1 ABSTRACT:

BACKGROUND: Although at national level MMR has reduced significantly, the estimates show higher figures in the state of Rajasthan. There has been launch of various initiatives to improve maternal care services, but the higher MMR has increased the concern for content and quality of the services being provided.

The aim to know the current level of maternal services in Rajasthan and the association of sociodemographic factors with receiving the services.

METHODOLOGY: Data obtained was from NFHS-5 (National Family Health Survey). 7097 women out of 12573 women interviewed were included in the study. Chi-square test using SPSS version 26 was performed to check the proportion of women receiving each level of services and association between the sociodemographic factors of women and the receipt of different levels of maternal care services.

RESULTS: Majority of the women (69.5%) received moderate quality maternal care, followed by inadequate quality (20.3%), while only 10.2% women received adequate quality maternal care services. There is an association between receiving the three levels (inadequate, moderate, and adequate) of quality services depending on the sociodemographic factors. Women with higher level of education, literate husband, higher wealth quintile, social caste other than SC/ST and urban place of residence were associated with receiving lower proportion of inadequate maternal care services and higher proportion of adequate quality services. However, the women with no education and poor background, whose husband is not literate, belonging to SC or ST and residing in rural areas were associated with receiving higher proportion of inadequate maternal care services and lower proportion of adequate maternal care services,

2 BACKGROUND:

Pregnancy is a vital time for women and their families to prepare for good health and parenthood intellectually and emotionally. Large number of women have lost their lives because of the complications occurred during and after the pregnancy phase. Most of the complications occur during pregnancy and can be either prevented or treated. Some existing complications get worsened during pregnancy, if proper care of women's health has not been taken¹. Globally, 287000 women were estimated to have lost their lives during, and following pregnancy and delivery in 2020. Nearly ninety-five percent of the maternal deaths among these occurred in economically disadvantaged nations, nearly all of which could possibly have been prevented¹. The UN target for sustainable developmental Goals 3.1 is to bring down maternal mortality ratio (MMR) to 70 per 1,00,000 live births by 2030². As per the World health Organization report, 2020, the global estimated maternal mortality rate is 223 per 100,000 live births and the same figure for India is 97 per 1,00,000 live births in 2020³. The Government of India has taken various initiatives to support the pregnant women for a positive experience throughout the pregnancy such as JSY (2005), JSSK (2011)⁴ and PMSMA (2016). The focus was also initiated which entitled pregnant women for extensive package, including high standard antenatal care, at no cost in a public health center⁵⁻⁷ (see annexure I)

Out of 29 states in India, eight states have been able to achieve the SDG goals including Kerala, Karnataka, Telangana, Andhra Pradesh, Tamil Nadu, Maharashtra, Jharkhand, and Gujarat by 2020⁸.

However, the state of Rajasthan, with an estimated MMR of 113 per 1,00,000 in 2020 remains among the states which contributes significantly to India's burden of maternal death⁸. Despite significant improvement in regular monitoring and implementation of numerous policies and programs, the MMR in Rajasthan is strikingly high compared to the state with the lowest MMR

(Kerala; MMR 19 per 1,00,000 live births) ³. The higher maternal mortality ratio and maternal health complications may be owing in part to a failure to consider the content and quality of maternal care offered.

3 LITERATURE REVIEW:

3.1 Maternal Care Services:

ANC:

The goal of antenatal care (ANC) is to ensure that both the mother and her unborn child have the best possible health. It involves the watchful, systematic examination and monitoring of pregnant women ⁹. Each ANC visit involves a clearly specified array of services attributed to three equivalently essential common areas, including examining for conditions which can possibly increase adverse outcomes, delivering therapeutic measures which are commonly helpful, and instructing pregnant women regarding planning for a safe birth, emergencies during pregnancy, and how to deal with them ¹⁰. Components of ANC mostly include IFA supplementation for 100 days, TT injections, and services such as weight measurement, blood pressure check, testing of urine and blood sample and abdominal examination. Component also includes providing information about specific pregnancy complications such as vaginal bleeding, convulsions, prolonged labor, severe abdominal pain and where to go in case of emergency. ¹⁰ (see Annexure II). Three separate studies conducted in Gambia reiterated that an important part of ANC is the provision of education and information ¹¹⁻¹³. A systematic study conducted by Moloro et al. enlightens the importance of information about obstetric danger signs among pregnant women for timely seeking of emergency care and preparedness for the delivery and any associated complication which may prevent maternal as well as child mortality ¹⁴. Apart from these the essential elements of ANC include promoting health and

wellbeing through nutrition education and support, stopping substance abuse, using family planning, recognizing danger signs, and birth preparedness.¹⁵

PNC:

In contrast to antenatal care (ANC), figures show that postpartum care (PNC) is received by significantly lower proportion of women and newborns globally, with only half the percentage of mothers having a visit within 48 hours of delivering the child.^{22,23} It is advised that women deliver in the presence of a trained professional in a hospital and obtain immediate postnatal care and remain there for at least 24 hours or received the checkup up within 48 hours.²⁴

3.2 Maternal care services by sociodemographic factors

Numerous studies have suggested the importance of the women's sociodemographic factors with the receipt of maternal health care services. Studies have repeatedly revealed that receiving maternal health services and the mother's survival are related to women's years of education, decision-making ability, social status, and household wealth quintile.²⁵⁻³⁷ and studies also significantly demonstrate variations in healthcare coverage in India's rural and urban areas (including regional variations).³⁸

4 STUDY RATIONALE:

To meet the global goals of reducing maternal mortality ratio, there is a need to draw attention towards the content and level of maternal care services in Rajasthan as it stands among the states with highest MMR.

5 STUDY AIM:

The aim is to study the current level of quality maternal care services in Rajasthan and the association of sociodemographic factors with these services.

6 STUDY OBJECTIVES:

To estimate the proportion of women receiving different levels of maternal care services by sociodemographic factors in Rajasthan

7 METHODOLOGY:

The data used for the study is obtained from National Family Health Survey- 5 (NFHS-5) conducted in Rajasthan between 2020-2021

7.1 Inclusion and Exclusion criteria:

All women in age group 15-49 years who have given minimum one live birth in five years before the survey were included in the analysis. All the women who did not give any birth in the five years back of the survey, who gave birth, but the baby was dead or had stillbirth, and the missing cases in the data were excluded from the study.

7.2 Operational definition:

Quality maternal care services consists of three components quality ANC, quality intrapartum care and quality PNC services as per the specific components of each.

Quality antenatal care was referred as the provision of following services to the mother - measurement of weight and blood pressure, abdomen check, urine and blood sample taken, provision of IFA tablets for 100 days or more and were given information on all the specific complications related to pregnancy- vaginal bleeding, convulsions, extended labor, severe abdominal pain, high blood pressure and where to go if any complication occurs.

Quality intrapartum care was considered if the women had institutional delivery.

Quality PNC services were considered if check up on respondent happened within two days after the delivery.

7.3 Dependent variable:

The cumulative index of quality (CIQ) with scoring ranges from 1-14 by assessing the combined score of all variables during maternal care were analyzed. Hence, CIQ the dependent variable is created by combining individual scores of Quality ANC, quality intrapartum and Quality PNC services. To achieve the desired classification, variables were recoded. Each component had binary outcome (1 = yes or 0 = no) and all were assigned a single score resulting in a range of score from 0-14. The CIQ was further categorized as ‘inadequate’ for score 1-3, ‘moderately adequate’ for score 4-9 and ‘adequate’ for above 9.

7.4 Independent variable:

Sociodemographic factors such as women’s educational level (0 = illiterate women, 1 = primary education, 2 = secondary education, 3 = high school, 4 = graduation and above), wealth quintile (0 = poorest, 1 = second poorest, 3 = middle class, 4 = richer and 5 = richest category), caste (1 = Scheduled Caste, 2 = Scheduled Tribe, 3 = Others), place of residence (0 = rural area, 1 = urban area) and husband’s educational status (0 = literate, 1 = illiterate) were included to examine the association with the dependent variable.

7.5 Analytical method:

SPSS version 22 has been used to perform the analysis. The analytical test performed in this study is Pearson’s chi-square test to know the simple association between the dependent and each category of the independent variable. Further, multivariate linear regression was performed to see the expected change in the outcome variable for each of the independent variables.

8 RESULTS:

Level of quality maternal care services by sociodemographic factors:

Table 1 illustrates that the majority of the women (69.5%) received moderate quality maternal care, followed by inadequate quality (20.3%), while only 10.2% women received adequate quality maternal care services. There is an association between receiving the three levels (inadequate, moderate, and adequate) of quality services depending on the sociodemographic factors. Women with higher level of education, literate husband, higher wealth quintile, social caste other than SC/ST and urban place of residence were associated with receiving lower proportion of inadequate maternal care services and higher proportion of adequate quality services. However, the women with no education and poor background, whose husband is not literate, belonging to SC or ST and residing in rural areas were associated with receiving higher proportion of inadequate maternal care services and lower proportion of adequate maternal care services,

Table 1: Percentage of women receiving various levels of maternal care services by sociodemographic factors in Rajasthan, NFHS-5 (N= 7097)

Sociodemographic factors	Inadequate maternal care services (CIQ = 1-3))	Moderately adequate maternal care service (CIQ=4-9)	Adequate maternal care services (CIQ=10-14)
Mother's education			
Illiterate	27.8	66.9	5.3
Primary	18.2	72.8	9
Middle	13.0	75.2	11.8
Secondary	6.3	71.9	21.9
HS	2.5	71.8	25.6
Graduation and above	1.8	66.8	31.4
Husband's Literacy Status			
Illiterate	32.7	63.4	3.9
Literate	17.2	71.0	11.8

Social Caste			
SC	24.4	70.8	4.8
ST	25	67.6	7.4
Other	18.4	69.6	12.0
Household Wealth Quintile			
Poorest	31.8	63.8	4.4
Second poorest	28.6	67.0	4.3
Middle	22.9	70.7	6.4
Richer	16.4	71.3	12.3
Richest	5.3	73.1	21.7
Type of locality			
Rural	23.6	68.2	8.1
Urban	9.0	73.7	17.3
Total	20.3	69.5	10.2

Chi-squared test applied for each variable and were significant at $P < 0.001$

9 DISCUSSION:

As we have included various indicators of the information being provided to the mother on pregnancy complications for scoring, the answers reported by them could possess potential recall bias. There also possibilities that the information given was not well understood by the women who is not literate. Inclusion of only the dimensions of services and information provided does not entirely cover all the aspects of quality of maternal care. However, these indicators have a significant role in preventing potential complications during pregnancy and influence the maternal health and pregnancy outcome. of maternal care. This association of sociodemographic factors with the level of maternal care received raises the concern of discrimination by the providers towards the disadvantaged women. The difference could also be due to the increased ability of the educated women or the advantaged section to seek for the quality services. Although there is a tremendous increase in coverage of maternal care services maternal care outcomes can be improved only providing quality service.

10 CONCLUSION

Although there have been various national programs with the objective of delivery of high-quality maternal care with zero tolerance for denial of services to any women, there should be an evidence-based approach focused to improve the attitude and accountability of the service provider for assuring the provision of services and information. Findings of this study also suggest need for educational reform for the sake of disadvantaged women population which can thereby enable the women to demand for better quality services.



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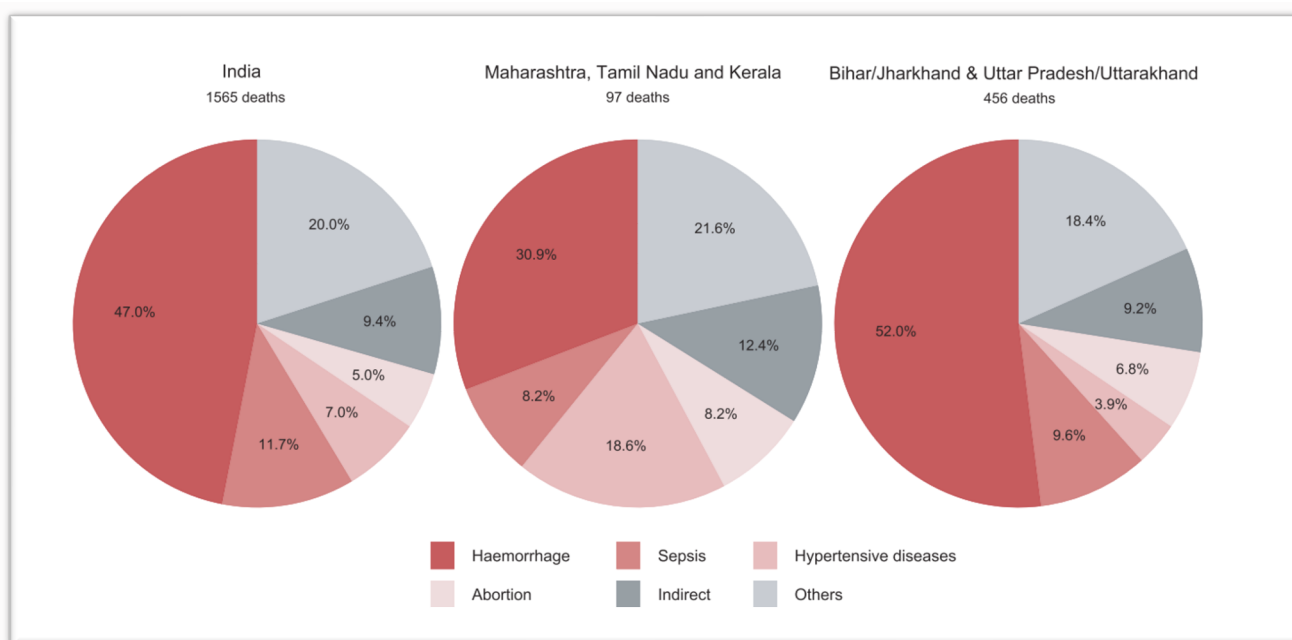
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12 ANNEXURE

12.1 ANNEXURE I

Causes of maternal death in India and in selected states, 2007–2014: sepsis (pregnancy-related infections); others (other obstetric complications); HDP (hypertensive disorders of pregnancy)



Source: Meh C, Sharma A, Ram U, et al. *Trends in maternal mortality in india over two decades in nationally representative surveys* ³⁹

12.2 ANNEXURE II:

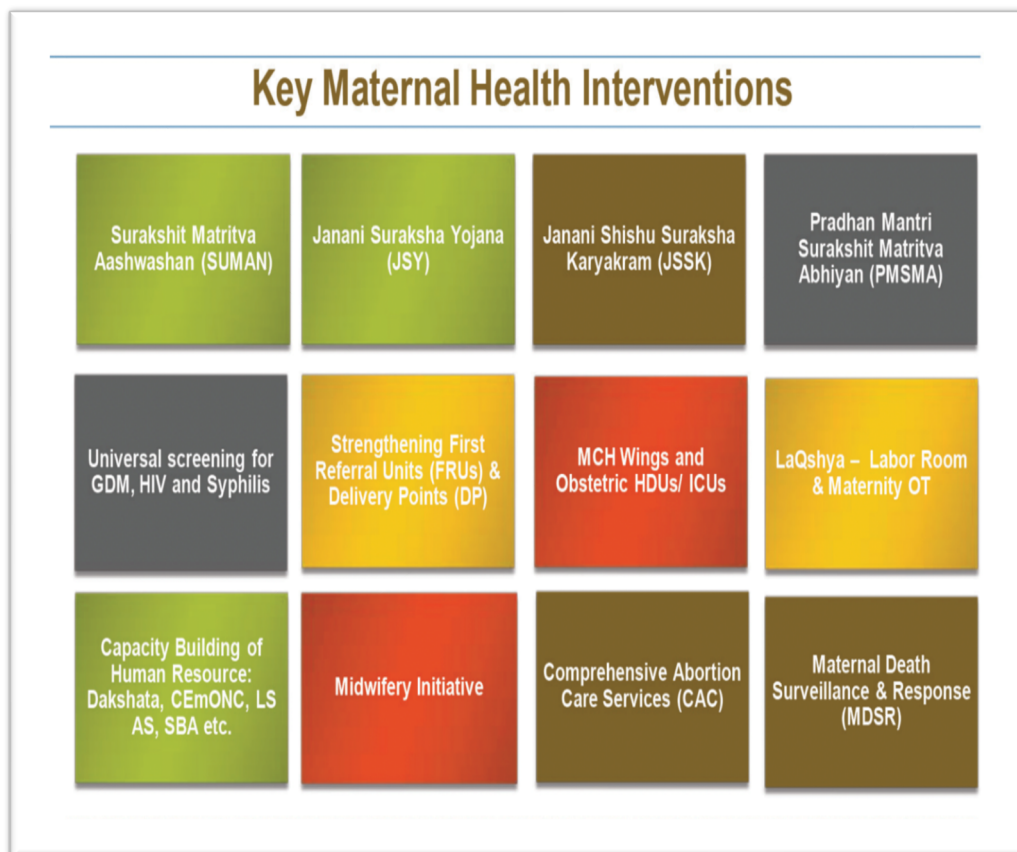
Maternal Mortality Ratio (MMR), Maternal Mortality Rate and Life Time Risk: India, EAG & Assam, South and Other states, 2018-2020

India & Major States	MMR	95% CI	Maternal Mortality Rate	Lifetime risk
INDIA	97	(88 - 106)	6.0	0.21%
Assam	195	(117 - 272)	12.1	0.42%
Bihar	118	(78 - 157)	11.2	0.39%
Jharkhand	56	(10 - 101)	4.2	0.15%
Madhya Pradesh	173	(126 - 220)	15.3	0.53%
Chhattisgarh	137	(54 - 219)	9.9	0.35%
Odisha	119	(71 - 167)	7.3	0.25%
Rajasthan	113	(71 - 155)	9.6	0.33%
Uttar Pradesh	167	(126 - 207)	14.3	0.50%
Uttarakhand	103	(52 - 154)	6.3	0.22%
EAG AND ASSAM SUBTOTAL	137	(121 - 154)	11	0.38%
Andhra Pradesh	45	(13 - 78)	2.4	0.08%
Telangana	43	(4 - 83)	2.3	0.08%
Karnataka	69	(35 - 103)	3.5	0.12%
Kerala	19	(0 - 42)	0.9	0.03%
Tamil Nadu	54	(24 - 85)	2.7	0.09%
SOUTH SUBTOTAL	49	(35 - 64)	2	0.09%
Gujarat	57	(28 - 86)	3.9	0.14%
Haryana	110	(58 - 162)	8.0	0.28%
Maharashtra	33	(10 - 56)	1.8	0.06%
Punjab	105	(40 - 170)	5.4	0.19%

Source: https://censusindia.gov.in/SRS_MMR_Bulletin_2018-2020.pdf

12.3 ANNEXURE III

Key Maternal Health Interventions in India



Source: <https://nhsrcindia.org/sites/default/files/2021-.pdf>