CHANGES IN MATERNAL HEALTH CONDITION IN BIHAR & RAJASTHAN: A COMPARITIVE ANALYSIS FROM STATE FACT SHEET OF NFHS 3 & NFHS 4

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Abstract

Study objective

The study attempts to compare and evaluate the changes in maternal health condition in Bihar and Rajasthan. Using different variables from the NFHS 3 and NFHS 4 fact sheets.

Methodology

Study used a descriptive analysis on maternal health indicators acquired from National Health Family Survey 3 & 4 factsheet. Data from maternal health indicators of both states from NFHS 3 and NFHS 4 fact sheets were compared with each other and explained on the basis of improvement and downfall in the data.

Results

The percentage of pregnant women having at least four ANC visits increased by 3.2 percent in Bihar and 15.1 percent in Rajasthan from NFHS 3 to NFHS 4. However, around 60 percent women in Bihar and 47.1 percent women in Rajasthan were anaemic during the pregnancy as per NFHS 4. Moreover, around 55 percent pregnant women in both the states are taking financial assistance under JSY scheme. Furthermore, the percentage of institutional deliveries increased by 44 percent in Bihar and 47 percent in Rajasthan from NFHS 3 to NFHS 4. In last, around 57.7 percent women in Bihar and 36.3 percent women in Rajasthan are not getting PNC within the 48 hours of delivery from the health professionals.

Conclusion

Improvement has been seen in both Bihar and Rajasthan but still these states require special focus. Community health workers like ASHA, AWW & ANM must educate the women and the explain the importance of ANC and PNC. Specially to those women who are still delivering their baby at home without the help of any health professionals. So that it will help for achieving SDG goal 3 and their targets on time.

Key words

Maternal health, NFHS, Antenatal care, Postnatal care, Empowered Action group.

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Abbreviations

NFHS	National Family Health Survey
AMS	Academy of Management Studies
IIHMR	Indian Institute of Health Management Research
WHO	World Health Organization
MMR	Maternal mortality Ratio
IMR	Infant Mortality Ratio
SDG	Sustainable Development Goals
RGI	Registrar General India
SRS	Sample Registration System
EAG	Empowered Action Group
JSY	Janani Suraksha Yojana
JSSK	Janani Shishu Suraksha Karyakaram
MOHFW	Ministry of Health and Family Welfare, Government of India
ANC	Antenatal Care
PNC	Postnatal Care
LPS	Low Performing State
HPS	High Performing State
IFA	Iron Folic Acid
DLHS	District Level Household and facility Survey
AHS	Annual Health Survey
PHC	Primary health care
SBA	Skilled Birth Attendant
MCP	The Mother and Child Protection
OOPE	Out Of Pocket Expenditure
TT	Tetanus Toxoid
AWC	Anganwadi Centre
AWW	Anganwadi workers
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
CS	Caesarean Section

Introduction

Maternity period is a special time for all the families but for some it proves to be difficult one as they lose their baby due to the complications during the pregnancy and after the delivery. Maternal health is an essential part of any country's growth in terms of promoting equality and lowering poverty [1]. Mothers' survival and well-being are crucial not just for themselves, but also in addressing bigger financial, cultural, and developmental issues [1]. Prenatal care is critical for the mother's health as well as the unborn child's development. Pregnancy is an important time to instil healthy habits and parenting skills in your child. Good ANC connects a woman and her family to the formal health system, increases the likelihood of using a skilled attendant at birth, and promotes good health throughout the life cycle [2]. PNC is most important in the hours and days following delivery, women, babies, and children may be affected by a lack of care throughout this time period, which may result in death or impairment as well as missed opportunities to develop healthy behaviours [3].

As per the RGI SRS the MMR, in 1990, India had an extremely high MMR, with 556 women dying during delivery per 100,000 live births. Every year, almost 1.38 lakh women die during pregnancy period and childbirth [1]. MMR of India declined by seventeen points from 130 per 100,000 live births to 113 per 100,000 live births in three phases (2014-16, 2015-17, 2016-18). Where Bihar succeed to decrease MMR by 16 points and Rajasthan by 35 points during last three years period. But still numbers are quite high.

As per RGI SRS, the major causes of maternal deaths are septicemia, excessive bleeding, labour dystocia, unsafe abortion, and others. The government has formed a specific category for eight states that are socioeconomically backward and are frequently viewed as having the most inadequate socio-demographic indicators, and so require particular attention and are called EAG group states of India [4]. Bihar and Rajasthan are the two states from the EAG group that require special attention. In 2005, the government created the JSY scheme, which aims to bring pregnant women to health facilities in order to reduce fatalities during delivery. Furthermore, following the success of the JSY scheme, the MOHFW created the JSSK scheme in 2011, which provides free institutional births, free medications, free diagnostic testing, free meals throughout the stay, and subsequently, neonatal and postnatal care.

The Indian government is working tirelessly to enhance maternal health. But utilization of services is the main concern that people are participating or not. The present study will compare maternal health situation in Bihar and Rajasthan through various indicators that are available in NFHS 3 and NFHS 4 fact sheet of these two states.

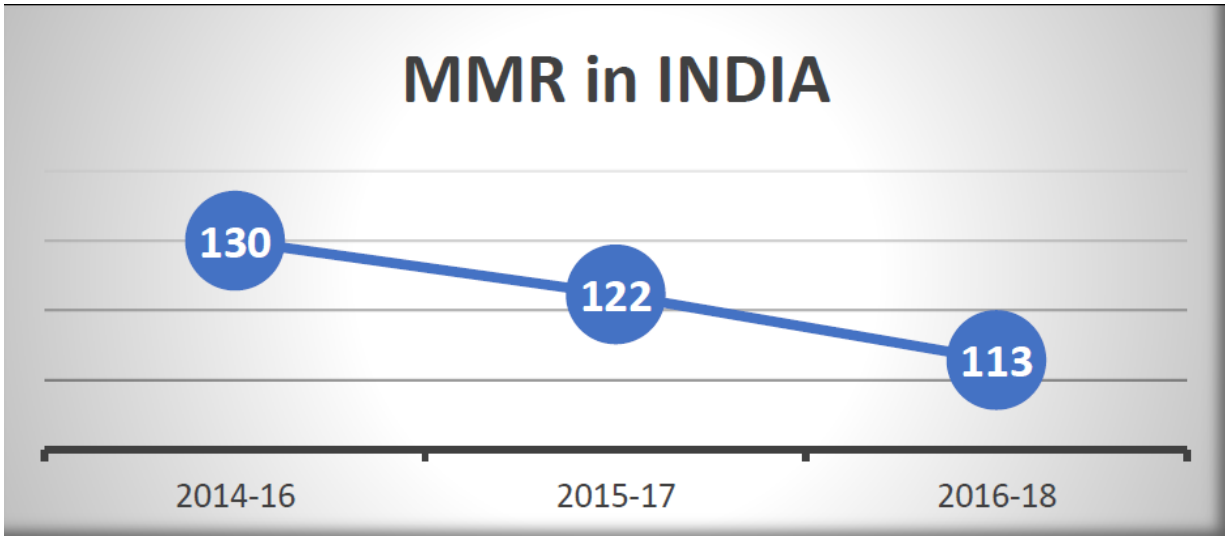

Figure 1: Maternal Mortality Ratio of India

Source: RGI SRS

Figure 1 illustrate the Maternal Mortality Ratio of India. From the graph it is quite evident that MMR of India kept on declining from 130 to 113 in these following three phases of years that is 2014-16, 2015-17 and 2016-18. With this declining rate India will surely achieve the target MMR to less than 70 per lac live births by 2030.

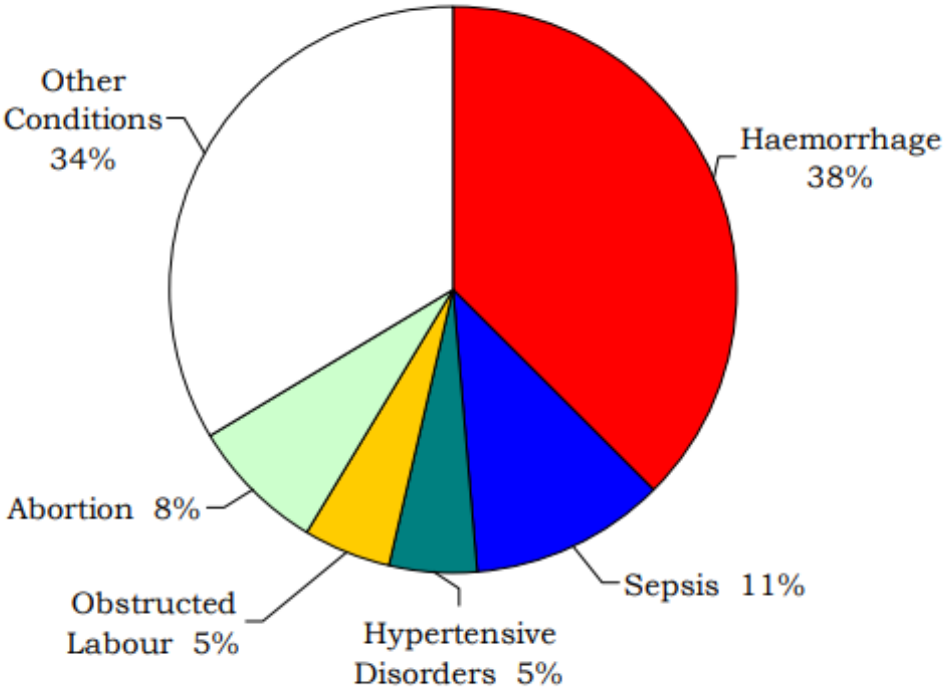

Figure 2: Causes Of Maternal Deaths in India

Source: RGI SRS

The percentage distribution of causes of maternal mortality in India is depicted in Figure 2. The leading causes of maternal mortality are haemorrage, sepsis, abortion, obstructed labour and hypertentive disorder. By providing appropriate ANC and PNC to pregnant women, the majority of fatalities can be avoided.

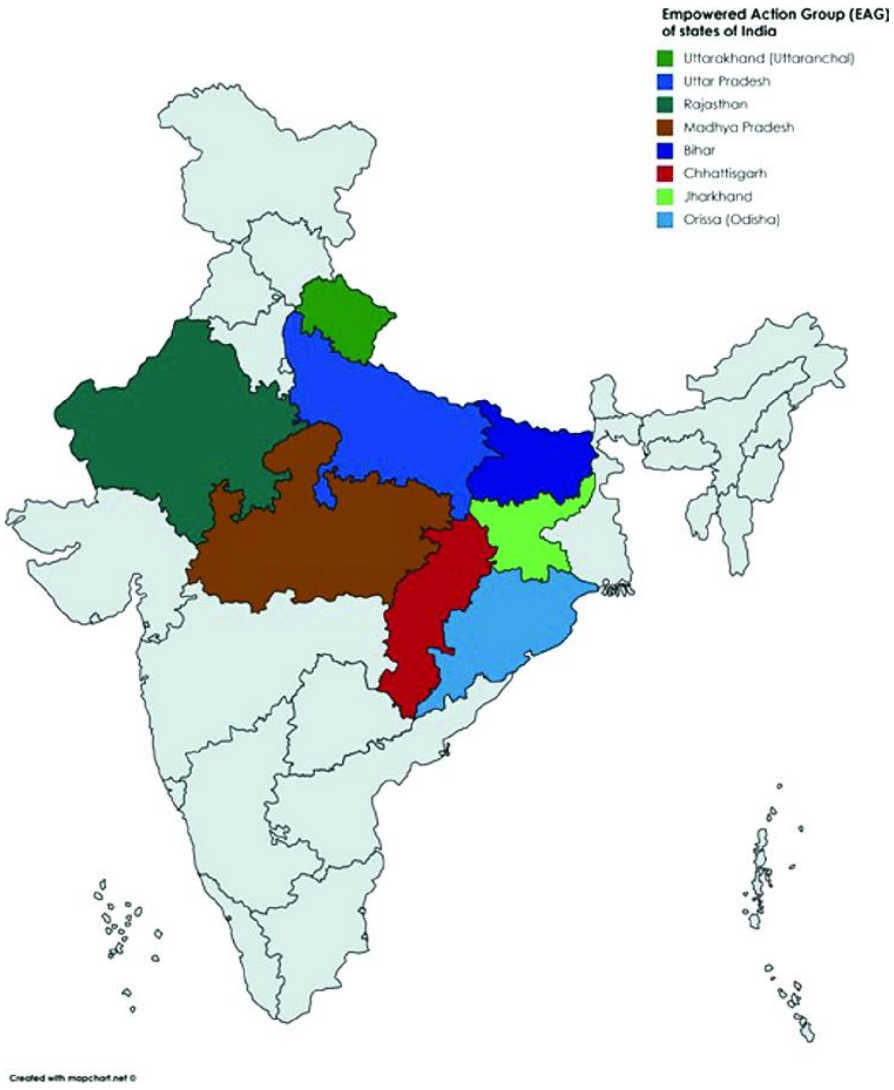

Figure 3: Map of India showing EAG States

Source: https://doi.org/10.2478/anre-2020-0022

Map (fig 3) shows the EAG states of India. Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttarakhand, and Uttar Pradesh are the eight states that make up the Empowered Action Group. The government has formed a specific category for these states that are socioeconomically backward and are frequently viewed as having the most inadequate socio-demographic indicators, and so require particular attention and are called EAG group states of India [4]

Rationale of Study

NRHM was established with the goal of providing equitable, accessible, and high-quality health care to rural residents, particularly those who are underprivileged. Under NRHM Empowered Action Group were given special focus to improve the health care of these states The two states from EAG are Bihar and Rajasthan, both of which have a large rural population. To find out the changes in maternal health condition, present study compared Bihar and Rajasthan with each other with various indicators to see the changes in maternal health condition from NFHS 3 to NFHS 4 factsheets. As many programs has been launched under NHM to improve the health care system with focus on EAG states.

Literature Review

Study Name/Author /Publish date	Sample number	Purpose	Results
"Unintended effects of Janani Suraksha Yojana on maternal care in India (Soumendu Sen, Sayantani Chatterjee, Pijush Kanti Khan, Sanjay K. Mohanty, 2020)"	NFHS 4	The purpose of this research is to see how JSY affects birth control usage, breastfeeding initiation, and postnatal check-ups in India.	• Recipients of JSY has the high number for the usage birth control, early breastfeeding, PNC check-ups than the non-recipients of JSY. • Recipients of JSY in low performing states (LPS) done well in PNC, birth control and breast feeding than the high performing states (HPS)
"Maternal health situation in Empowered Action Group of states of India: A comparative analysis of state reports from (NFHS)-3 and 4	NFHS 3 & 4 State reports.	The major purpose is to determine that the performance of these states has improved or deteriorated between the two survey reports.	• In terms of maternal health care, Bihar and U.P are at the bottom of the list. • Many critical metrics, including ANC, PNC, and IFA tablets, have improved in Orissa and Chhattisgarh.

(Shreyasi Roy, Jaydip Sen, 2020)"			
"Time trends in prevalence of anaemia in pregnancy (K. Kalaivani and Prema Ramachandran, 2018)"	NFHS 2, 3 & 4. DLHS 2, 4 AHS, CAB	The researchers wanted to investigate if the frequency of anaemia in pregnancy has altered over time.	• Almost half of all pregnant women in India were anaemic according NFHS 2,3&4. • Improvement was seen in HB status through distribution of IFA tablets during ANC.
"Status of Women's Health in Goa and Sikkim: A Comparative *Analysis of State Fact Sheets of National Family Health Survey (NFHS)-3 And 4 Ranjit Kumar Dehury, Janmejaya Samal, Nafisa Vaze Desouza, Parthsarathi Dehury, 2017)"*	NFHS 3&4 Fact sheets	To determine the health status of pregnant women of Goa & Sikkim using NFHS 3&4 fact sheet.	• Women's engagement in household decision-making has a strong track record in Goa and Sikkim. • There has been a decline in domestic violence in both Goa and Sikkim. • Both states have comparable levels of gender equality.
"The impact of a nurse mentoring program on the quality of labour	No of PHC: 319	The purpose of this study is to look at the effectiveness of	• The women who gave birth in NM PHC received better treatment as to

and delivery care at primary health care facilities in Bihar, India (Saifuddin Ahmed, Swati Srivastava, Nicole Warren, Kaveri Mayra, Madhavi Misra, Tanmay Mahapatra, and K D Rao, 2019)"		a NMP for intrapartum in PHC.	compared to women who gave birth in non-NM PHC. • In both NM and non-NM groups the figures for B.P, monitoring temperature, haemoglobin were low in both the group.
"Recent Changes in Health Status of Women in Bihar through National Family Health Survey Window (Rahul Singh, Alok, 2018)"	NFHS-3&4 Fact Sheets	To determine the health status of pregnant women of Bihar using NFHS 3&4 fact sheet.	• According to the figures, pregnant women's health in Bihar has improved moderately over the time frame but remains below county level. • Consumption of IFA, ANC, PNC has increased in Bihar. • IMR has reduced dramatically in Bihar it shows that pregnant women are now more aware about their health than in previous years. • Still Bihar figures are not much satisfying as other states figure and Bihar need better

			strategy to overcome from this situation.
"Inequalities in the utilisation of maternal health Care in Rural India: Evidences from National Family Health Survey III & IV (Balhasan Ali, Shekhar Chauhan, 2020)"	NFHS 3&4	This research looked at the level of disparity in maternal health care in rural India.	• This study finds out education, wealth play very important role in utilization of ANC, SBA, PNC. The women who are more educated are more likely to use these services than who are illiterate. • The most significant factor to differences in PNC receiving is media exposure.
"Utilisation, equity and determinants of full antenatal care in India: analysis from the National Family Health Survey 4 (Gunjan Kumar, Tarun Shankar Choudhary, Akanksha Srivastava, Ravi Prakash Upadhyay, Sunita Taneja, Rajiv Bahl, Jose Martines, Maharaj Kishan Bhan, Nita	NFHS 4	The use of resources, equality, and the factors that influence full utilisation of (ANC)	• In the previous 20 years, only around one-fifth of pregnant women have obtained complete ANC. • Low consumption IFA tablet is due to the less number of ANC visits. • Father participation and social media, counselling can help to increase in utilization of ANC.

Bhandari and Sarmila Mazumder, 2019)"			
"Maternal Health Situation in Bihar and Madhya Pradesh: A Comparative Analysis of State Fact Sheets of National Family Health Survey (NFHS)-3 and 4 (Ranjit Kumar Dehury and Janmejaya Samal, 2016)"	NFHS 3&4 Fact Sheet	To analyse maternal health condition in M.P & Bihar	• When compared to Bihar, MP has made more improvement. • In all three stages of maternal health, there is a lack of performance. • Both states require special attention from government and better strategy to make better health system specially for pregnant women.
"Maternal health care in India: A reflection of 10 years of National Health Mission on the Indian maternal health scenario (Arabinda Ghosh, Rohini Ghosh, 2020)"	NFHS 1,2,3&4	To investigate the impact of NHM on maternal health through indicators like 4ANC visits, institutional deliveries, inequalities in healthcare.	• Inequalities between states still exist today. • The women who live in rich households have more number of ANC visits as compared to those women who are living poor households. • ANC continues to rise from NFHS 1 to 4.

METHODOLOGY

The current study used a descriptive analysis on maternal health indicators acquired from National Health Family Survey. In Bihar, AMS collected data for NFHS 4 from 36772 households, 45812 women and 54812 men in 2015 and in Rajasthan, IIHMR university collected data for NFHS 4 from 34915 households, 41965 women and 5892 men in 2016. Data from maternal health indicators of Bihar and Rajasthan were compared with each other from the fact sheet of NFHS 3 and NFHS 4. The abstracted data compiled and analyzed using Microsoft Excel.

Objective: The study attempts to compare and evaluate the changes in maternal health condition in Bihar and Rajasthan. Using different indicators from the NFHS 3 and NFHS 4 fact sheet.

The indicators which are used to compare health situation in Bihar and Rajasthan

Teen age marriage and fertility

According to UNICEF teen age marriage has a harmful impact on children's education, health, and safety rights. The outcome of child marriage not only impact just on the girls, but also on their families and communities. Due to the social pressure girls generally drop out from the schools, face domestic violence and complications in reproductive health may results death as well. Contraceptive methods helps to improve the mother health as well as baby health as it prevents the unwanted pregnancies.

ANC services

Antenatal care help in the prevention of complications both during and after pregnancy. Pregnant women can learn about their health and what measures they should take throughout and after their pregnancy via ANC visits.

MCP card

MOTHER-CHILD PROTECTION CARD is extremely beneficial to both mother and child since it contains all pertinent information such as ANC visits, immunisation records, prescription records, prenatal care, government programmes, and so on.

Neonatal tetanus, Anaemia, Consumption of IFA

The mother and infant are protected by a neonatal tetanus shot and the use of IFA tablets throughout pregnancy. Doctors can identify whether or not a woman is anaemic during ANC checks, and anaemia is one among the variables that contribute to maternal death.

Financial assistance under JSY and OOPE

The JSY of the NRHM is a safe maternity initiative NHM, its purpose is to minimize maternal and infant mortality by encouraging pregnant women to give birth in a hospital. The plan is being implemented in all states and UT, with a focus on underperforming states.

Post-natal care, birth assisted by SBA

PNC is crucial for both mother and baby because health professionals check for bleeding, fever, infection, and ongoing newborn health monitoring during the PNC routine. All of these treatments should only be carried out by qualified medical personnel.

Institutional deliveries in public/private

Professional help during the delivery of baby is very important to minimize the complications and hospital is place where all the facilities are available to save the mother and child. Moreover, condition at home is not very hygienic and can cause infection to the baby and mother. JSSK provide free delivery, free c section delivery, free diagnostic tests, free drugs and so on those who are coming to government institutional facilities.

Caesarean section deliveries in public/private

When vaginal birth becomes problematic a CS delivery is usually undertaken. CS delivery is expensive at a private hospital, while it is free in a government facility under the JSSK scheme.

Results

Table 1 represents the trends of marriage and fertility. A marriage where both the partners are underage for marriage referred to as teen age marriage. Women in India must be 18 years old to marry legally. Both Bihar and Rajasthan have made significant headway in the battle against underage marriage from NFHS 3 to NFHS 4. According to NFHS 3 data, 69 percent women of Bihar marry before they reach the legal age of marriage, whereas in NFHS 4, this figure drops to 42.5 percent. Whereas marriage before reaching legal age fell to 35.4 percent in Rajasthan from 65.2 percent between NFHS 3 and NFHS 4 period. In comparison to Bihar, Rajasthan has a somewhat lower fertility rate, with a notable drop from 3.2 to 2.4 from NHFS-3 to NFHS-4. Both Bihar and Rajasthan were able to reduce teen age pregnancy to nearly half of what it was in NFHS 3.

Table 1 Trends of Marriage and fertility.		
State	**NFHS-3**	**NFHS-4**
Women between the age of 20 & 24 who married before reaching the age of 18 (%)		
Bihar	69	42.5
Rajasthan	65.2	35.4
The overall fertility rate (children/woman)		
Bihar	4	3.4
Rajasthan	3.2	2.4
Women between the ages of 15 to 19 who were already moms or pregnant during survey (%)		
Bihar	25	12.2
Rajasthan	16	6.3

Table 1 Source: NFHS 3& 4 fact sheet

Table 2 illustrates the proportion of women who got ANC services. ANC is essential for both the women and the unborn child because it helps to diagnose existing problems or disorders that might harm the mother and the baby later in the pregnancy. According to WHO, at least four antenatal check-ups are required for every pregnant woman who is in good health and has no serious medical conditions. The first visit should take place between eight to twelve weeks after the pregnancy has been verified, the second visit between twenty-four to twenty-six weeks, the third visit between thirty-two weeks, fourth visit between thirty-six to thirty-eight weeks. Antenatal checkups include medical history of pregnant women, examination of the body, laboratory testing, treatments, health education, advice, micro birth planning, counseling, and so on. In addition, attending the first visit of ANC benefits the mother's health [2].

Antenatal checkup rates in the first trimester have increased in both Bihar and Rajasthan. In Bihar, it increased by 16 percent and in Rajasthan, it increased by 29 percent, from NFHS 3 to NFHS 4, respectively. As per the data, it is quite evident that more than 60 percent of pregnant women obtained ANC services during the first trimester, however, only one-third of pregnant women received ANC treatments during the first trimester in Bihar. Attending antenatal care visits at least four times reduce the chances of prenatal death and increase maternal health throughout pregnancy (WHO). Looking at the percentage of women having at least four ANC visits in both Bihar and Rajasthan from NFHS 3 to NFHS 4 both states performed poorly. Bihar shows only 3.2 percent growth in four ANC visits, while Rajasthan managed to boost up to fifteen percent from NFHS 3 to NFHS 4 respectively. Full ANC for pregnant women requires at least four ANC visits, at least one Tetanus Toxoid (TT) injection, and a supply of IFA tablets or syrup for 100 days or longer [5]. In Rajasthan, the percentage of women who received comprehensive ANC services increased by around 55 percent from NFHS 3 to NFHS 4, however in Bihar, it decreased in NFHS 4.

Table 2 - The proportion of mothers that got ANC services.		
State	**NFHS-3**	**NFHS-4**
Women who get their first trimester ANC (%)		
Bihar	18.6	34.6
Rajasthan	34	63
Women who have had at least 4 ANC visits (%)		
Bihar	11.2	14.4
Rajasthan	23.4	38.5
Women who receive a full ANC package (%)		
Bihar	4.2	3.3
Rajasthan	6.3	9.7

Table 2 Source: NFHS 3& 4 fact sheet

Table 3 shows the percentage of women who are protected against newborn tetanus and anemia. Bihar and Rajasthan performed well in case of women who had their most recent child vaccinated against neonatal tetanus, around 90 percent pregnant women in both the states are protected against tetanus. According to NHFS 3 & 4 Rajasthan performed well to decrease in the percentage of women who are anemic during pregnancy to 15 percent and Bihar managed to decrease by 2 percent but still around 58.3 percent women in Bihar and 47 percent women in Rajasthan were anemic during pregnancy. Moreover, the percentage of women who consumed IFA tablets/syrup for more than hundred days when they were pregnant has been increased to 8.6 percent in Rajasthan from NFHS 3 to NFHS 4 while in Bihar it only raised to 3.4 percent.

Table 3- Women's protection against new-born tetanus and anaemia (%)		
State	**NFHS 3**	**NFHS 4**
Women who had their most recent child vaccinated against neonatal tetanus (%)		
Bihar	73.2	89.6
Rajasthan	65.2	89.7
Anaemic pregnant women aged 15 to 49 years (%)		
Bihar	60.2	58.3
Rajasthan	61.7	46.6
Women who consumed IFA for a period of at least one hundred days during pregnancy (%)		
Bihar	6.3	9.7
Rajasthan	8.7	17.3

Table 3 Source: NFHS 3& 4 fact sheet

Table 4 shows the percentage of MCP card issued to all registered mothers. The MCP Card is used to keep track of a pregnant woman's ANC visits, to discuss the necessity of institutional births, to describe the services offered at AWCs, to keep track of children's vaccinations, and so on. MCP card is very important for mother and she should keep it safe as it carry all the details of her services like ANC visits and vaccine records and so on. Rajasthan outperformed Bihar by around 12.4 percent when it came to distributing MCP cards to pregnant women.

Table 4- MCP card issued to all registered mothers (%)	
State	**NFHS 4**
Bihar	79.9
Rajasthan	92.3

Table 4 Source: NFHS 3& 4 fact sheet

Table 5 indicates the percentage of women who receive JSY financial aid but have to pay out of pocket cost. The JSY of the NRHM is a safe maternity initiative NHM, its purpose is to minimize maternal and infant mortality by encouraging pregnant women to give birth in a hospital. The plan is being implemented in all states and UT, with a focus on underperforming states. According to NFHS 4, around 55 percent of expectant women in Bihar and Rajasthan got the financial help under the JSY scheme. However, the woman of Bihar and Rajasthan had to pay extra charge per delivery of ₹1724 and ₹3052 respectively in public hospital.

Table 5 women who receive JSY financial aid but have to pay out of pocket cost (%)	
State	**NFHS 4**
Women receiving financial aid through JSY (%)	
Bihar	53.9
Rajasthan	56.1
In a public health institution, the average out-of-pocket expense per birth (₹)	
Bihar	1724
Rajasthan	3052

Table 5 Source: NFHS 3 & 4 fact sheet

Table 6 depicts, the percentage of women getting post-natal care. Promoting healthy habits, offering life-skills education, enabling breastfeeding, counselling women about family planning choices, supporting good mental health, and avoiding and treating childbirth-related problems are all important aspects of the postnatal period [6].

The percentage of women who receive postnatal treatment from any health care provider within two days after giving birth is shown on Table 6. In comparison to NFHS 3, the percentage of Bihar women receiving postnatal treatment from any health staff within two days of delivery has increased to 28.9 percent in NFHS 4, in case of Rajasthan the percentage improved to 36.8 percent in NFHS 4 from NFHS 3. Even though both states have improved, 57.7% of women in Bihar and 36.3 percent of women in Rajasthan are still unable to get PNC services through medical professionals.

Table 6- Women getting PNC (%)		
State	**NFHS 3**	**NFHS 4**
Women who receive PNC treatment from any health care provider within 2 days after birth of a child (%)		
Bihar	13.4	42.3
Rajasthan	26.9	63.7

Table 6 Source: NFHS 3& 4 fact sheet

Table 7 represents new-born being cared for in a health center by professional medical workers. To begin, in both states Bihar and Rajasthan, it is noticed that a low percentage of care is offered to children born at home by health institutions within 24 hours after delivery. From NFHS-3 to NFHS-4, there is a small rise in the percentage, 1.4 percent in Bihar and 1.1 percent in Rajasthan. According to NFHS data, the percentage of infants who had a health check-up after birth from a healthcare professional within two days after delivery is relatively low in Bihar (10.8%) than in Rajasthan (22.6%).

Table 7 New-born being cared for in a health centre by professional medical workers (%)		
State	**NFHS 3**	**NFHS 4**
New-borns who born at home and sent to a health facility within 24 hours of delivery for a check-up (%)		
Bihar	0.4	1.8
Rajasthan	0.1	1.2
Within two days after birth, a new-born receives a health check-up from a healthcare practitioner (%)		
Bihar	NA	10.8
Rajasthan	NA	22.6

Table 7 Source: NFHS 3& 4 fact sheet

Table 8 represent the proportion of delivery care. Institutional delivery refers to giving birth to a child in a medical facility under the supervision of qualified and competent medical personnel. It also denotes the presence of resources to deal with the problem and save the mother and child's lives. From NFHS 3 to NFHS 4, Institutional delivery has grown significantly in both Bihar and Rajasthan, the success of JSY implementation is the reason behind this. According to NFHS 4 data, only 16 percent women of Rajasthan choose home birth over institutional birth, whereas the percentage of those women in Bihar is 36.2 percent. Moreover, according to NFHS 4 statistics, 47.7% of Bihar women and 63.5 percent of Rajasthan women select public institutions for their deliveries, in both Bihar and Rajasthan, public institution delivery percentage increased roughly to 44% from NFHS 3 to NFHS 4. The percentage of home births attended by competent birth attendants is low in both Bihar and Rajasthan, and it is steadily falling from NFHS 3 to NFHS 4, indicating that more women are not preferring taking help from skilled birth attended. From NFHS 3 to NFHS 4, the percentage of births conducted by doctors, nurses, and other healthcare personnel grew from 29.3 percent to

70 percent in Bihar and from 41 percent to 86.6 percent in Rajasthan, on the other hand Rajasthan outperforms Bihar in NHFS 4 by 16.6%. This demonstrates that trained care professionals are performing the deliveries in both states. Caesarean Section (CS) births have increased somewhat in both Bihar and Rajasthan. However, a greater percentage of CS deliveries are made in private facilities than in public facilities in each of these states between NFHS 3 and NFHS 4.

Table 8 Care during Delivery (%)		
State	**NFHS 3**	**NFHS 4**
Delivery to institutions (%)		
Bihar	19.9	63.8
Rajasthan	20.6	67.8
Institutional births in government facility (%)		
Bihar	3.5	47.7
Rajasthan	19	63.5
Home births are carried out by SBA (%)		
Bihar	9.7	8.2
Rajasthan	11.5	3.2
Births that are aided by medical personnel (%)		
Bihar	29.3	70
Rajasthan	41	86.6
Total deliveries via caesarean section (%)		
Bihar	3.1	6.2
Rajasthan	3.8	8.6
Caesarean section in a private setting (%)		
Bihar	17.2	31
Rajasthan	14.9	23.2
Caesarean section in government health facilities (%)		
Bihar	7.7	2.6
Rajasthan	11.7	6.1

Table 8 Source: NFHS 3& 4 fact sheet

Discussion

There are several indicators to find out the maternal health situation in states or in country and in the present research we applied few indicators to compare the maternal health conditions in Bihar and Rajasthan and on the basis of these indicators we find that both the states are moving towards the better maternal health care and Rajasthan is doing better than Bihar.

Teenage marriage is a major problem in both Bihar and Rajasthan, with 42.5 percent of girls in Bihar and 35.4 percent in Rajasthan marrying before reaching the legal age of marriage as per NFHS 4 data. From NFHS 4 to NFHS 5 data, there is only a 1.7 percent drop in child marriage in Bihar. According to UNICEF it has a harmful impact on children's education, health, and safety rights. The outcome of child marriage not only impact just on the girls, but also on their families and communities. Due to the social pressure girls generally drop out from the schools, face domestic violence and complications in reproductive health may results death as well.

ANC is essential for women's and their unborn children's health. Women may learn from competent health workers about healthy habits throughout pregnancy, better understand warning signals throughout pregnancy and childbirth, and receive social, emotional, and psychological support at this important period in their life through this type of preventative health care [7]. WHO recommend that every pregnant woman must attend at least four Antenatal checkups for her and her baby's good health. But both the states failed to do so, in Bihar only 14.4 percent pregnant mothers attend four ANC and in Rajasthan the percentage is 38.5 percent.

Giving iron supplements to iron deficiency pregnant women during the pregnancy improves the iron deficiency during the pregnancy and after childbirth [8]. Pregnant mother in Rajasthan consumed 7.6 percent more IFA tablets than in Bihar but still 82.7 percent women in Rajasthan are not protected against anemia and around 90.3 percent in Bihar as per NFHS 4 data. Fatigue, weakness, dizziness, and sleepiness are all signs of anemia, pregnant women and children are especially susceptible, with a higher risk of maternal and infant death [9].

Study shows that recipients of JSY has the high number for the usage birth control, early breastfeeding, PNC check-ups than the non-recipients of JSY. Moreover, recipients of JSY in low performing states (LPS) done well in PNC, birth control and breast feeding than the high performing states [10]. According to NFHS 4, in both Bihar

and Rajasthan, more than half of pregnant women gets the benefit from the JSY. But the out-of-pocket expenditure in public hospital is high in both the states. Government should cut down the OOPE charges, so that more number of pregnant women choose institutional deliveries rather than home delivery. In terms of MCP card distribution to registered mother, Rajasthan is 12.4 percent ahead of Bihar. In Rajasthan, only 7.7 percent mother left from MCP card while in Bihar the percentage is 20.1 percent. From NFHS 3 to NFHS 4, both Bihar and Rajasthan have seen large increases in institutional delivery. Institutional deliveries are preferred by 64 percent of mothers in Bihar and 68 percent of women in Rajasthan. The mission of JSY is to minimize maternal and infant mortality by encouraging pregnant women to have their infants delivered in hospitals. The neonatal phase the first 28 days of life is critical for a child's survival since it has the highest chance of mortality per day of any other time of development in 2019, 17 deaths per 1,000 live births was the global average (UNICEF).

The percentage of CS births in private hospitals has increased greater than in public hospitals from NFHS 3 to NFHS 4. According to NFHS 4, 31 percent women in Bihar choose private hospital for CS delivery and only 2.6 per cent women choose public hospitals for CS delivery. According to NFHS 4, 31 percent of Bihar women choose private hospitals for CS deliveries, whereas just 2.6 percent prefer public hospitals. Whereas in Rajasthan 23 percent prefer private health care facility and 6.1 percent choose public institution for CS delivery in NFHS 4. On June 1, 2011, the Government of India introduced JSSK. Pregnant women who use government health facilities for their delivery would benefit from the initiative. Furthermore, it will encourage individuals who still prefer house delivery to switch to institutional delivery.

Recommendation

Bihar and Rajasthan must work to reduce the number of teen marriages because in both the states percentage of teen marriages is high. Government should increase girl's access to high quality education, increase community engagement through media and take strict actions against the people who are not obeying the laws (Prohibition of Child Marriage Act, 2006). ANC is essential for both the mother and the unborn child and skipping ANC checkups increases the risk of pregnancy problems or even maternal mortality [2]. Both Bihar and Rajasthan must work to raise knowledge about ANC visits or complete ANC visits through ANMs, ASHAs, AWWs, and other health professionals in order to protect mothers and infants. Most of the pregnant women in Bihar are found anemic during the survey and Rajasthan situation is not also great, as it is caused by iron deficiency so the distribution of IFA tablets/syrup to the pregnant mother should be the priority. Around 60 percent of pregnant mothers in Bihar and Rajasthan do not seek postnatal care within two days of delivery from medical professionals and the percentage of new-born receiving health check-up after birth from health professional are even worse in both the states. In both states, the percentage of institutional births is rising, yet most pregnant women choose private hospitals to government hospitals for their births. Government should maintain the required staff, medicines, beds and other facilities so that more number of deliveries can take place in government hospitals. And this could help in reducing the number of CS deliveries that are happening in private hospitals as the percentage of CS deliveries in private hospital is very high in both the states. To improve the health of mothers, newborn and offspring should be the priority of the country as their well-being decide the health of future generation.

Conclusion

Despite Bihar has improved maternal health in areas such as ANC, postnatal care, IFA tablets/syrup consumption, and institutional births, the numbers still fall short of those in Rajasthan. The women in Rajasthan shows tremendous performance in having at least four ANC visits. Bihar is 5 percent ahead of Rajasthan in terms of home births performed by experienced birth attendants, but still both the states need to work hard to improve good maternal health. Significant progress has seen as a result of the execution of numerous schemes, but this is insufficient; the government must pay special attention to EAG states.

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