

A Critical Appraisal of NFHS-5 Data on Maternal Health Indicators: Trends and Implications for India

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Abstract

The National Family Health Survey (NFHS) data is useful in setting benchmarks and examining the progress of various health indicators over time. The main objective of the present paper is to critically review the findings of NFHS-5 and NFHS-4 regarding the trends on maternal health indicators and implications for India. Data from NFHS-5 (First round 2019-2020) and NFHS-4 (2015-16) for 17 states and five Union territories (UTs) pertaining to maternal health indicators was extracted from the factsheets. Trends and implications in line with Sustainable Development Goals (SDGs) and National Health Policy (NHP) 2017 have been critically appraised. Substantial improvement in maternal health indicators in NFHS-5 over NFHS-4 is noted; however, there is a lot of interstate variation. NFHS-5 findings indicate that the percentage of women in the age group 15-19 years, already mothers or pregnant, has increased in four states while the percentage of mothers who had antenatal checkup in first trimester has increased in 12 states. Percentage of those with anaemia during pregnancy has increased from 15 to 17 states in NFHS-5 as compared to NFHS-4. Institutional births are over 90% in 14 states while only three states have below 79%. Out of pocket expenditure (OOPE) per delivery at public health facilities has increased in 12 states over the time period and it is above 5000 INR in 8 states. In India, improvement in maternal health indicators can be achieved by increasing quality of care, strengthening the Janani Suraksha Yojana (JSY), skilled birth attendants training program, reduction of anaemia among pregnant women and reduction in OOPE per delivery at public health facilities.

Keywords: NFHS 5, NFHS 4, maternal, indicators, India

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Introduction

The National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India. Four rounds of NFHS (1992–93, 1998–99, 2005–06 and 2015–16) have been successfully completed in India. For each round, the main objective was to provide high-quality data on important health issues in our country. The survey of NFHS-5 – phase 1 was conducted in 2019-20 for 22 states/Union territories (UTs) and the factsheets were released recently in December 2020.^[1] The preliminary findings will be useful for tracking the progress made so far in attainment of Sustainable Development Goals (SDGs),^[2] to monitor various flagship programmes launched by Ministry of Health and Family Welfare, Government of India^[3] and the vision of National Health Policy (2017).^[4] These findings give leads regarding the utilization of various services provided by Government of India. These estimates will be crucial for the various stakeholders and the central and state governments to arrive at informed decision making, examining the progress of the health sector over last few years and drafting policies for implementation of interventions accordingly. Data from NFHS not only provides evidence for effectiveness of the ongoing programmes, it helps to identify the need for initiation of new programmes in specific areas and identifying groups, which are in need of essential services.

The present paper describes the salient findings of phase I of the NFHS-5 survey in the area of maternal health. The main objective of the paper is to examine the trends of maternal health indicators during NFHS-4 and NFHS-5 in the selected states of India and its implications.

Methods

NFHS-5 and NFHS-4 data pertaining to maternal health indicators have been extracted from the factsheets for 17 states (Andhra Pradesh (AP), Assam (AS), Bihar (BH), Goa, Gujarat (GJ), Himachal Pradesh (HP), Karnataka (KR), Kerala (KE), Maharashtra (MH), Manipur (MN), Meghalaya (MG), Mizoram (MZ), Nagaland (NG), Sikkim (SK), Telangana (TG), Tripura (TP), West Bengal (WB) and five Union territories (Andaman Nicobar Islands, (ANI) Dadra and Nagar Haveli (DNH) and Daman and Diu (DD), Jammu & Kashmir (J&K), Ladakh and Lakshadweep (LK)).^[1]

The maternal health indicators reviewed are demographic indicators such as Total Fertility Rate (TFR), percentage of women of ages 20-24 years married be-

fore age 18 years and women of ages 15-19 years who were already mothers or pregnant at the time of the survey; ANC indicators such as mothers who had an ante-natal check-up in the first trimester, mothers who had at least 4 antenatal care visits, mothers who consumed iron and folic acid tablets for 100 days or more during pregnancy and pregnant women of age 15-49 years who are anaemic; delivery and post-delivery care indicators such as average out-of-pocket expenditure (OOPE) per delivery in a public health facility; institutional births in public facility, births attended by skilled health personnel, births delivered by caesarean section and mothers receiving post-natal care from a doctor/other health personnel within two days of delivery.

The data entry and analysis for the maternal health indicators was done in MS excel. Data of these indicators for NFHS-4 & 5 was compared to understand the trends. The analysis was carried out using MS Excel and SPSS (V19.0). Descriptive statistics is presented in tables.

Results

Demographic indicators

TFR has come down to 2.1 or below (replacement level) in all states and UTs, except BH (3.0), MG (2.9) and Manipur (2.2). Among the states having more than 25% women married before 18 years of age, the number of states has reduced from eight in NFHS-4 to five (AP, AS, BH, TP and WB) in NFHS-5. It is maximum for WB (41.6% in NFHS 5) and no change was observed over the time period (41.6%: NFHS-4). It has increased in NFHS-5 as compared to NFHS-4 for AS and TP while decreased for AP and BH. The percentage of women in age groups 15-19 years who were already mothers or pregnant at the time of the survey has increased in AP, HP, Manipur and TP and it has decreased for rest of the states. For UTs, it has decreased for all, except LK. It is minimum for Kerala (NFHS-5: 2.4%; NFHS-4:3.0%) followed by Goa (NFHS-5:2.8%; NFHS-4:2.9%) over the time period. While it is found to be maximum for TP, (NFHS-5: 21.9%; NFHS-4:18.8%) followed by WB (NFHS-5:16.4%; NFHS-4:18.3%). (Table I).

ANC Indicators

As per NFHS-5, the percentage of mothers who have ante-natal checkups in their first trimester has increased in states of AS, BH, GJ, HP, Karnataka, MH, WB, Manipur, Meghalaya, Mizoram, TG, NG and all the UTs as compared to NFHS-4. However, NG is the only state which has below 50% (49.5%) mothers who have ANC check up in their first trimester. Maximum

Table I: Distribution of States/UTs according to demographic and ANC indicators during NFHS-4 and NFHS-5

Indicators	NFHS-5		NFHS-4	
	n	%	n	%
Total Fertility Rate				
2.1 or less	19	86.4	15	68.2
More than 2.1	3	13.6	7	31.8
Women of ages 20-24 years married before age 18 years				
<5%	3	13.6	2	9.1
5-10%	6	27.3	8	36.4
15-25%	8	36.4	4	18.2
25+%	5	22.7	8	36.4
Women of ages 15-19 years already mothers /Pregnant before age of 18				
<5%	11	50	8	36.4
5-10%	6	27.3	8	36.4
10+%	5	22.7	6	27.3
Mothers who had an antenatal check-up in the first trimester				
<50%	1	4.5	2	9.1
50-75%	11	50	11	50
>75%	10	45.5	9	40.9
Mothers who had at least 4 ANC visits (%)				
<50%	2	9.1	3	13.6
50-75%	10	45.5	11	50
>75%	10	45.5	8	36.4
Mothers who consumed Iron and FA for 100 days or more during pregnancy				
<50%	9	40.9	14	63.6
>=50%	13	59.1	8	36.4
Pregnant women age 15-49 years who are anaemic (<11.0 g/dl)				
20-39.9%	5	22.7	7	31.8
40.0% and above	17	77.3	15	68.2

(93.6%) is in Kerala while it is above 75% in AP, GJ, Manipur, TG and all the UTs. There is increase in the percent of women receiving the recommended four ANC visits by health providers in states of AS, Bihar, Goa, GJ, HP, Karnataka, Manipur, MG, NG and all selected UTs except ANI, in NFHS-5 as compared to NFHS-4. The States like NG, BH and WB demonstrated highest increase in percentage over the time period (Figure 1). However, this indicator is less than 50% for only two states (BH (25.2%) and NG (20.7%) while it is

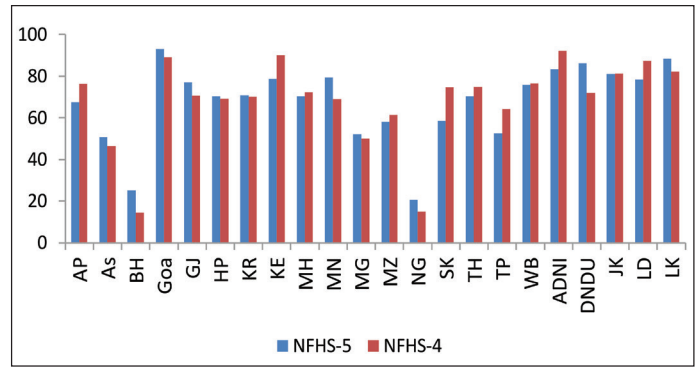


Figure 1: Percentage of women who received at least 4 ANC visits

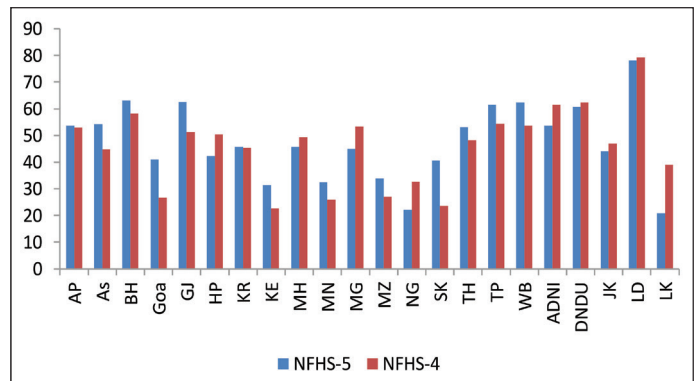


Figure 2: Trends of anaemia during pregnancy

maximum for Goa 93%. Anaemia during pregnancy is a severe public health problem. The states with more than 40% women having anaemia has increased from 15 States/UTs (ANI, AP, AS, Bihar, DD, GJ, HP, J & K, LK, Kerala, Meghalaya, MH, TN, TP, WB) to 17 States (Goa and Sikkim). (Table I and Figure 2). The percentage of mothers who consumed iron and FA tablets for 100 days or more was minimum in NG over the time period (NFHS-5:10.2%; NFHS-4:4.4%). It is maximum for Goa which shows a 20% increasing trend (NFHS-5: 87.5%; NFHS-4: 67.4%)..

Delivery and Post Delivery Indicators

According to the (NFHS-4), institutional deliveries were 79% at national level, and seven states (AS, BH, MG, HP, MN, NG, WB) were below this estimate (Table II). However, this number decreases to 3 (BH, MG, NG) during NFHS-5; however, Institutional births have declined over the time period in only two states (Goa & KE) (Figure 3). Similarly, there is improvement in delivery at public health facilities in the states BH, MH, MN during NFHS-5; however the states AP, GJ, KE, MG, NG, TG remained below the national level during the time period. Institutional births have increased substantially as per data of NFHS-5 when compared to NFHS-4. NFHS-5 data indicates that institutional de-

livery is over 90% in 14 out of the total 22 States and UTs. The institutional births for NFHS-5 for Nagaland is lowest 47.7% as compared to 32.8% for NFHS-4. Thus, though it has shown improvement as compared to NFHS-4, the improvement is not satisfactory.

Table II: Distribution of States/UTs according to delivery and post-delivery indicators during NFHS-4 and NFHS-5

Indicators Percentage	NFHS-5		NFHS-4	
	n	%	n	%
Institutional births				
<79.0%	3	13.6	7	31.8
>=79.0%	19	86.4	15	68.2
Institutional births in public facility				
<=52.1%	6	27.3	9	40.9
>52.1%	16	72.7	13	59.1
Births attended by skilled health personnel				
<=90.0%	8	36.4	12	54.5
>90.0%	14	63.8	10	45.5
Caesarean delivery				
<10%	3	13.6	3	13.6
10-20%	2	9.1	7	31.8
20-30%	7	31.8	6	27.3
30+%	10	45.5	6	27.3
Mothers receiving postnatal care from a doctor/other health personnel within 2 days of delivery				
<=50.0%	2	9.1	3	13.6
50.1-75.0%	7	31.8	12	54.5
>75.0%	13	59.1	7	31.8
Average out-of-pocket expenditure per delivery in a public health facility (Rs)				
<5000	14	63.6	17	77.3
>=5000	8	36.4	5	22.7

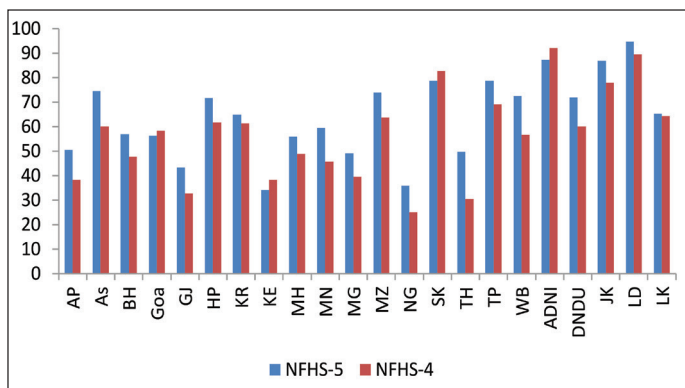


Figure 3: Trends of institutional delivery

Data regarding births attended by skilled personnel indicate that the number of states with more than 90% deliveries by skilled personnel has increased to 14 states in NFHS-5 as compared to NFHS-4. There are still eight states (HP, BH, AS, MN, MG, MZ, NG and TP) as per NFHS-5 in which it is below 90%. However, the states with lowest figures as per NFHS-5 are MG (64%) and NG (55.3%). The percentage of caesarean deliveries has increased in all the states except Mizoram and NG where there is a decreasing trend. However, the decrease is marginal (Mizoram – from 12.7% to 10.8%) and NG (from 5.8 to 5.2%) as per NFHS 5 and NFHS-4 respectively. It is maximum in Telangana (60.7%) in NFHS-5. The percentage of mothers receiving post-natal care from a doctor/other health personnel within two days of delivery as per NFHS-5 is less than 50% in only two states (Meghalaya and Nagaland). It is maximum (95.4%) for Goa as per NFHS-5. OOPE per delivery at public health facilities was maximum in Manipur (Rs 14518) as per NFHS-5 which has increased from Rs 10348/- in NFHS-4. It has increased in 12 states as compared to NFHS-4. It was observed that OOPE was above 5000 INR in eight states (AS, Kerala, MN, MZ, NG, Sikkim, TP, and J&K) as per NFHS-5. This number has increased to eight in NFHS-5 as compared to five in NFHS-4 (Table II).

Discussion

The NHP Policy (NHP) 2017 mentions the target of reduction of TFR to 2.1 at national and sub-national levels by 2025. This target is achieved in all the states and UTs, except BH (3.0), MG (2.9) and Manipur (2.2). However, based on the trends it seems that BH and MG are unlikely to achieve the target of 2.1 by 2025 for which extra efforts may be needed in these two states.

Substantial improvement in maternal health indicators in NFHS-5 over NFHS-4 is noted; however, there is a lot of interstate variation. State wise review of the demographic indicators such as percentage of women with age at marriage below 18 years and women in ages of 15-19 years who were already mothers or pregnant clearly shows that there are some low performing states for these indicators. For both these indicators, the states of AP, AS, BH, TP and WB have 25% or more women with age at marriage less than 18 years and 10% or more women aged 15-19 years who were already mothers or pregnant at the time of survey. This indicates that more efforts need to be taken in these five states to raise the age at marriage which will in turn improve the indicator on age at pregnancy among the women.

The coverage of ANC services is quite satisfactory as per the NFHS-5 figures. The percentage of mothers who have ante-natal checkup in their first trimester has increased in 12 states as compared to NFHS-4. However, NG is the only state which has below 50% mothers who have ANC check up in first trimester; hence the ANC needs to be strengthened to great extent in this state. While Kerala is the only state with above 90% coverage of ANC in first trimester, it is above 75% in AP, GJ, Manipur, TG and all the UTs. The coverage can be improved further by more efforts by the health system and also community participation in the activities by the state governments. There is increase in the percent of women receiving the recommended four ANC visits by health providers in nine states and all selected UTs except Andaman and Nicobar islands in NFHS-5 as compared to NFHS-4. As per NFHS 5, this indicator is less than 50% for only two states BH (25.2%) and NG (20.7%); hence it needs to be improved substantially in these two states. Anaemia during pregnancy is a severe public health problem. It has increased from 15 to 17 States in NFHS-5 as compared to NFHS-4. The percentage of mothers who consumed iron and FA for 100 days was more than 50% in 13 states as per NFHS-5, however states with 40% and above women with anaemia are more (in 17 States), which indicates that consumption of iron and folic acid is not enough for correction of anaemia. More efforts need to be taken at local levels for creating awareness for consuming nutritional foods which are locally grown, cheaper and acceptable to the community during pregnancy as well as during adolescence. This will ensure provision of more natural sources of iron, folic acid and other micronutrients in the diet.

Delivery and post delivery indicators show a satisfactory improvement over the time period. Institutional births show an increasing trend in from NFHS-4 to NFHS-5 among the states. The only three states below 79% institutional births are BH, MG and NG. BH showing figure close to 79% (76.2%), however MG (58.1%) and NG (47.7%) are low performing states and need a substantial improvement. The NHP 2017 aims to increase utilization of public health facilities by 50% from current levels by 2025, however this is not limited to institutional deliveries. However, percentage increased in institutional births in public health facilities was observed in all the states and it ranges from 1% to 20%. Although currently this is not achieved in any of the states, it may be achieved by 2025. Nevertheless, the states of AP, GJ, Kerala, MG, NG and TG will need to take more efforts as the current levels are 50% or be-

low. The NHP 2017 mentions the goal of skilled attendance at birth above 90% by 2025. NFHS-5 findings indicate that this has been achieved by 14 states as compared to 10 in NFHS-4. There are still eight states (HP, BH, AS, MN, MG, MZ, NG and TP) as per NFHS-5 in which it is below 90%. However, based on the trends it is expected that these states will achieve to 90% and above by 2025. However, the low percentage of institutional deliveries at public facilities as well as of skilled birth attendance in MG and NG will need special efforts if this goal is to be reached by 2025. In these states the percentage of institutional births is also very low (MG [58.1%] and NG [47.7%]). It is also noted that in these states, there is low percentage of skilled attendance at birth. Also the percentage of mothers receiving post-natal care from a doctor/other health personnel within two days of delivery as per NFHS-5 is less than 50% in only two states (MG and NG). Low percentage of institutional births in these states may be one of the reasons for the low performance of post natal care in these states. In general, this can be achieved by creating awareness by ASHAs, improving quality of care, strengthening the Janani Suraksha Yojana (JSY), Skilled Birth Attendants (SBA) training program and reduction in OOPE in these states. Also, the facilities at public health facilities need to be improved further so that the community can avail these services better.

One of the objectives of NHP 2017 is achieving a significant reduction in OOPE due to health care costs and achieving reduction in the number of households who experience very high health costs resulting in poverty. The finding indicates that OOPE per delivery at public hospitals has increased in 12 states over the time period and it is above Rs 5000 in eight states which is more than the cash received in JSY by beneficiaries, and hence is a major concern.

Under health targets, SDG-3 mentions, "Ensure healthy lives and promote wellbeing for all at all ages". The goal is to reduce the global Maternal Mortality Ratio (MMR) to less than 70 per 100 000 live births (LB). Currently, for India it is 113 per 100 000 LB.^[5] If there is improvement in the maternal health indicators over next few years, India will be achieving the goal of reduction of MMR to 70 per 100 000 LB.

Limitations

We have only presented the trends and appraised the NFHS-5 findings with SDG and NHP of India. In depth analysis of the data is needed to find out the gaps and cause of low performance in some states

over the time period so that the state governments of the respective states can take the action accordingly to achieve the SDG or NHP 2017 goals.

Conclusion

There is overall improvement in maternal health indicators in NFHS 5 as compared to NFHS 4; however this needs to be accelerated further in some states if the SDG goals and goals envisaged under the NHP 2017 are to be achieved for India. In general, improvement in health indicators can be achieved by increasing quality of care, strengthening the JSY, the SBA training program and reduction in OOPE.

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