



Original Article

Understanding Demographic Influences On Utilisation of Maternal Health Services in Maharashtra: Towards Sustainable Development Goal 3

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Abstract

Maternal health is one of the crucial indicators of development of any nation. It refers to the health of a woman from the time she conceives a baby, during pregnancy, during the delivery and post delivery period. It has been one of the pivotal issues faced by developed as well as developing countries like India. According to the Sustainable Development Goal Progress Report 2024, Sub Saharan Africa and Southern Asia accounted for around 87% of the estimated global maternal deaths in 2020 (SDG Progress Report, 2024). Among 17 Sustainable development Goals adopted by members of the United Nations, reducing Maternal Mortality Rate pertains to SDG 3. Present paper focuses on investigating the demographic factors that Influences utilisation of maternal health services in Maharashtra in achieving Sustainable Development Goal 3. Present study is exploratory study which is based on secondary data obtained from National Family Health Survey 5 (NFHS 5) which focuses on key demographic factors such as age of mother, education level, residence of the household etc. It is observed that demographic background factors influence the utilization of maternal health care services. Positive shift towards more women choosing to give birth in health facilities has been observed which indicates that Maharashtra is heading towards achieving the goal of enhancing maternal health. Differences in delivery practices between urban and rural areas in Maharashtra also underlines the reach of antenatal services across regions. Rural areas have a slightly lower percentage, which may be due to challenges in accessing healthcare providers in more remote regions.

Keywords: Maternal Health, Demographic factors, Sustainable Development Goals, utilization of maternal health care services

Introduction

Maternal health is one of the crucial indicators of development of any nation. It refers to the health of a woman from the time she conceives a baby, during pregnancy, during the delivery and post delivery period. It has been one of the pivotal issues faced by developed as well as developing countries like India. According to the Sustainable Development Goal Progress Report 2024, Sub Saharan Africa and Southern Asia accounted for around 87% of the estimated global maternal deaths in 2020 (SDG Progress Report, 2024) The United Nations have recognised 17 Sustainable development Goals (SDG) which are to be achieved by member nations by 2030. Among these 17 SDGs, reducing Maternal Mortality Rate and neonatal and child mortality are given utmost importance and recognised as Targets 3.1 and 3.2 respectively. The global SDG target 3.1 calls for reduction of maternal mortality ratio (MMR) to less than 70 per 100,000 live births by 2030. (WHO, 2025). India has undertaken strategic efforts to reduce it and gradually could march towards the goal of reducing maternal mortality and has made remarkable progress in reducing MMR. In 1990 MMR in India was 556 per 1,00,000 live births, it was 97 in 2018-19. (NFHS 5) According to Sample Registration Survey 2018-20 MMR of Maharashtra is 33 which is below SDG target. Despite this Maharashtra witnessed various obstacles in utilization and access of maternal healthcare services. Present paper focuses on understanding demographic factors influencing utilization of maternal health care services in Maharashtra.

Objective:

1. To study utilization of maternal health care services in Maharashtra.

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2. To understand the demographic factors influencing utilization of maternal health care services

Research methodology:

The study is based on secondary data compiled from the National Family Health Survey 2019-21. Selected data related to demographic factors influencing utilization of maternal health is extracted for the purpose of the study.

Significance of Study:

Present study focuses on understanding influences of demographic factors on utilisation of maternal health services in Maharashtra. It will help to understand how demographic factors are associated with utilisation of maternal health services by the women in Maharashtra. The outcome of the study will be helpful for addressing the issues and designing policies for fostering utilisation of maternal health services by women in rural and urban areas as well.

Limitations of the study:

Discussion in the paper is based on the data compiled from NFHS 5. Hence the discussion depicts the observation for the period of NFHS i.e. 2019 to 2021.

Review of literature:

Sebastian A, Kulkarni R and Begum S (2017) in the study based on secondary data considered 5 high priority tribal districts in Maharashtra. The study asserts that the age of marriage and pregnancy, education, literacy has influence on the utilization of maternal health services by the tribal women. The study found that tribal people living BPL spend less on health care and utilization of public health facilities was also found low. Menstrual and reproductive issues carry a taboo and hence the willingness of accessing the services is affected adversely. Availability of lady doctors at health centers and style of food intake, resources available to women, behaviors and beliefs of women influence their utilization of maternal health. Dhakne S and Phalke D, (2019) the study discussed the level of awareness aspect of JSY among beneficiaries. The focus is on finding correlation between level of awareness about the scheme and its impact on ANC and institutional deliveries in the rural, urban and tribal area of Ahmednagar district. The study found that the level of awareness about the Safe Motherhood Programme is comparatively high among the women who have registered in the first trimester. The percentage of ANC visits is high in the states West Bengal, Assam, Orissa and was comparatively low in Madhya Pradesh, Uttar Pradesh and Rajasthan. It also observed that maximum deliveries in civil hospitals were from BPL families and maximum home deliveries took place in tribal areas. Ambhore V. (2014) in the study found a remarkable increase in primary health centers and sub centers. The Public Health department, Government of Maharashtra is making constant and concerted efforts to formulate and execute schemes to ensure adequate health care services to the people in line with the National Health Policy.

Data and discussion:

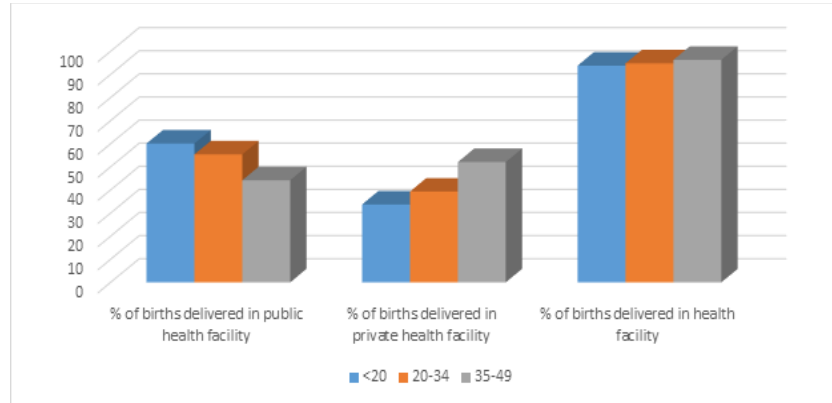
The data is compiled from National Family Health Survey 5 which was published in March 2021. The respondents who were surveyed had availed of maternal health care services during the period of 2019 to 2021. This paper aims at understanding the utilization of maternal health services in the state of Maharashtra and various demographic factors influencing utilization of maternal health services.

Table 1: Age wise distribution of mothers who Delivered at Facility at health facility

Age of respondents	% of births delivered in public health facility	% of births delivered in private health facility	% of births delivered in health facility
<20	60.1	33.7	93.8
20-34	55.4	39.3	94.8
35-49	44.2	52.1	96.3

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Graph 1: Age wise distribution of mothers who Delivered at Facility at health facility



(Source: Table 1)

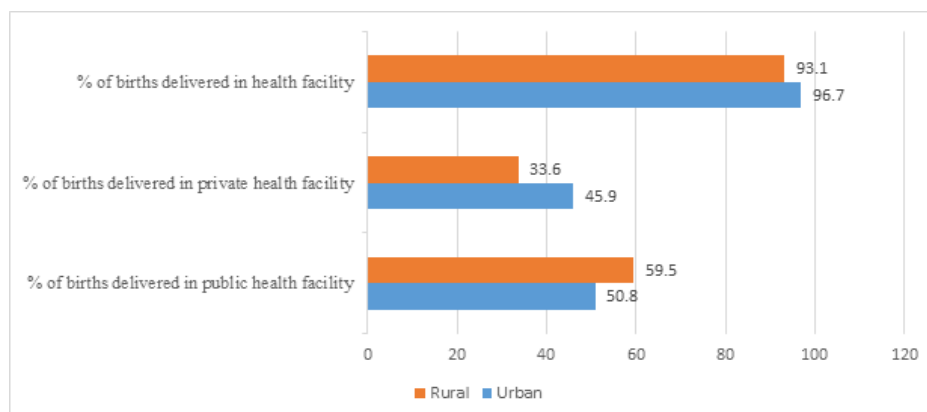
The age at which a woman gives birth to the child is a crucial factor in maternal health indices. Above data shows that among the mothers below the age of 20 years, 93% have delivered in the health facility. Out of them comparatively maximum (60%) availed public health facility for delivery whereas comparatively less percentage (33.7%) preferred to deliver baby in private hospitals. Most of the time due to social and cultural factors, girls in rural areas are married in early ages and become mothers at or before the age 20 years. In remote pockets of rural Maharashtra, private practitioners or hospitals are available, hence public health facilities are the only source of medical services. Under NRHM various maternal Health care programmes like Janani Suraksha Yojana, Janani Shishu Suraksha Karyakram, Pradhan mantri Matru Vandana Yojana are implemented to promote maternal health. ASHA, AWW and ANM take follow-up consistently. Counseling and motivating the expectant mother and her family for institutional delivery is an integral part of their work profile. Benefits under various maternal health schemes also motivate them to prefer institutional delivery. This might be one of the reasons for the comparatively greater number of women below 20 delivering in public health facilities. Considering geographical, financial and social constraints they prefer to deliver in public health facilities. Among the age group 20 to 40 years 94% delivered in the health facility. In the category percentage of delivering in public health facilities is comparatively higher (55%) than those who delivered in private health facilities (39%). Among the respondents of age group 35 to 49 around 96% have preferred institutional delivery. Among the women of this age group comparatively more percentage of respondents delivered in private health facilities. It shows that with time women and society have become aware of the importance of institutional delivery and make a choice of delivering the child at health facilities where they can receive required medical support. Data shows that the percentage of institutional delivery is considerably high among women of all age groups which indicates increased awareness about institutional delivery. This signifies a positive shift towards more women choosing to give birth in health facilities.

Table 2: Rural Urban distribution of Institutional Delivery

Residence of respondent	% of births delivered in public health facility	% of births delivered in private health facility	% of births delivered in health facility
Urban	50.8	45.9	96.7
Rural	59.5	33.6	93.1

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Graph 2: Rural Urban distribution of Institutional Delivery



The above table reveals the impact of place of residence on access to healthcare facilities and institutional delivery. In the context of residence of the respondents who chose delivery at a health facility, the percentage of deliveries at public health facilities

is greater in rural areas as compared to urban areas. On the other hand, the percentage of women in urban areas delivering private health care facilities is comparatively higher. Though births delivered in health facilities are above 90% for both urban as well as rural areas, it is comparatively high in urban areas. It shows that, with time, women and families have become aware about institutional delivery. They either go to public or private hospitals for delivery. Data shows that the rate of institutional delivery is high in urban areas which signifies that urban areas have better access to both public as well as private healthcare services. The percentage of mothers delivering public health facilities is comparatively more in both rural as well as urban areas. Women in rural areas prefer to deliver in public health facilities. Role of ASHA worker and Anganwadi workers and ANM is crucial in counseling the expectant mothers and their family. ASHA workers are in contact with the expectant mother right from the beginning. Through screening they take follow-up of women who missed their menstruation cycle to accompany them at the time of delivery.

Table 3: Maternal health care indicators for Maharashtra based on residence

Indicator	Urban	Rural	Total
% received ANC	89.9	91.0	90.5
% who had at least 4 ANC visits	72.2	68.8	70.3
% who received ANC within first trimester of pregnancy	69.4	72.2	70.9
% births in health facility	96.7	93.1	94.7
% deliveries assisted by health personnel	95.9	92.2	93.8

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

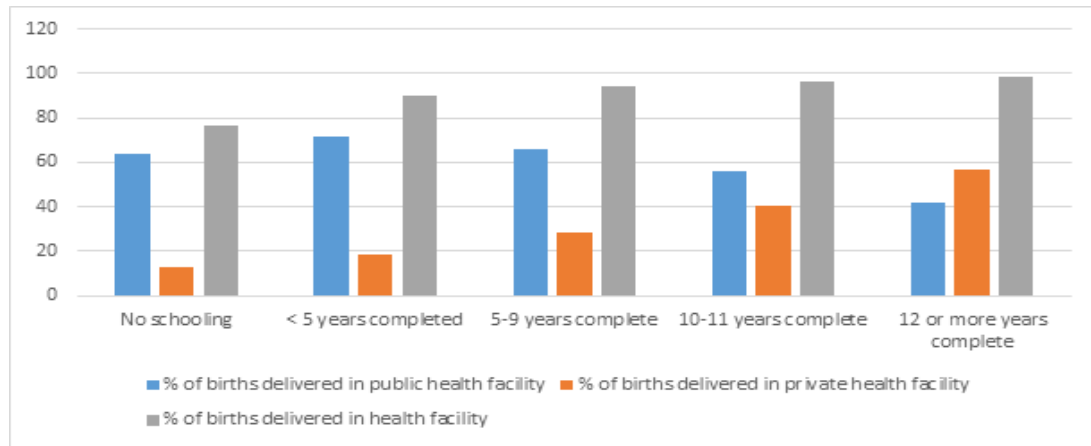
Antenatal Care is crucial for the expectant mother and the baby. For identifying and managing pregnancy-related risks antenatal checkup (ANC) should be initiated at an early stage of pregnancy. Approximately 90% of women in Maharashtra received ANC. Rural area comparatively greater percentage of ANC (91.0%) compared to urban area (89.9%). Among them approximately 70% women received at least 4 ANC checkups. Percentage of women receiving at least 4 ANC is comparatively higher (72.2%) in urban areas than rural areas (68.8%). Comparatively more women in rural areas received ANC within their first trimester. Under NRHM pregnant women are screened by community health workers at early stages of pregnancy. They keep track of checkups and follow ups of the pregnant woman safeguarding timely ANC. Rural areas show strong reliance on public health facilities. The percentage of institutional deliveries is comparatively higher in urban areas (96.7%) compared to rural areas (93.1%). Approximately more than 90% deliveries in Maharashtra are assisted by health personnel. The percentage is comparatively greater for urban areas (95.9%) than rural areas (92.2%). It highlights urban rural disparities in healthcare services accessibility showing women in urban areas have greater accessibility to public and private healthcare services and possess comparatively greater affordability for delivery expenses.

Table 4: Educational background of beneficiary and institutional delivery

Education	% of births (public health facility)	% of births (private health facility)	% of births (health facility)
No schooling	63.8	12.8	76.6
< 5 years completed	71.6	18.4	89.9
5-9 years complete	65.6	28.7	94.3
10-11 years complete	56.0	40.3	96.4
12 or more years complete	41.9	56.8	98.7

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Graph 3: Education Background of beneficiary and institutional delivery



(Source: Table 2: Education background and institutional delivery)

The percentage of respondents availing health facilities for delivery is higher in the respondents who have completed maximum years of schooling. It is approximately 98% among those who have completed 12 or more years of schooling followed by the respondents who have completed 5 to 9 years of schooling. Data reveals that the percentage of people availing public health facilities is comparatively higher among the respondents with less number of schooling whereas the percentage of respondents availing private health facilities is comparatively greater among the respondents who have completed maximum number of schooling. It shows that education level influences the decision of institutional delivery. Increase in education level increases preference of women for institutional delivery. Data shows that the percentage of women is comparatively high for private health facilities 56.8%. The preference for public health facilities remains high among less educated women, it decreases significantly as education levels rise. The data shows a positive relation between education and institutional delivery. The percentage of births delivered in health facilities is increasing with higher educational attainment.

Table 5: Education level of respondents and utilization of maternal health care services

Education level	% pregnancies registered	% four or more ANC visit	ANC visit in first trimester of pregnancy	% deliveries assisted by health personnel	% women with PNC within 2 days of birth
No schooling	89.5	54.0	60.0	80.7	73.8
< 5 years completed	94.7	61.3	60.9	89.2	83.2
5-9 years complete	97.1	69.7	68.5	94.0	84.7
10-11 years complete	96.6	69.6	72.0	93.6	85.4
12 or more years complete	95.4	75.1	75.6	97.2	89.7

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Data observes that the women with higher education consistently demonstrate higher utilization of maternal health services, including ANC visits, institutional deliveries, and postnatal care. 75.1% of the women who have completed 12 or more years of education have availed 4 or more than 4 ANCs whereas the number is comparatively low 54% for no schooling. Women with secondary education also utilised various maternal health services comparatively in greater percentage. This indicates that education increases awareness, decision-making, and access to healthcare facilities. Women with no formal education exhibit the lowest rates across all indicators, emphasizing the need for targeted interventions to increase access and awareness for this group.

Table 6: Religion Wise distribution of beneficiaries availing ANC from Skilled health personnel

Religion	Doctor	ANM/nurse/midwife/LHV	Dai	AWW/ICDS worker	Community village worker	ASHA	No ANC
Hindu	81.6	11.8	0.2	1.5	0.1	0.5	4.4
Muslim	78.3	12.8	0.1	0.8	0.1	0.4	7.6
Buddhist/Neo buddhist	76.5	13	0.3	1.2	0.1	1.4	7.6
Other	87.3	3.9	0	0	0	0	8.8

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Data shows that a significant percentage of women received ANC from a doctor. The percentage of receiving ANC from a doctor is highest for other categories (87.3%) and comparatively for Buddhists/Neo-Buddhists (76.5%). Women from all religions received ANC from ANMs, nurses, or midwives with the highest percentage among Buddhists/Neo-Buddhists (13%). It shows that expectant mothers prefer to visit doctors for their pregnancy care and delivery followed by ANM, nurse, midwife or LHV. Though the percentage of ANC provided by AWW, community village worker and ASHA worker is comparatively lower than doctor and ANM or nurses, they play catalyst roles in remote parts of Maharashtra. The percentage of ANC provided by dai is also lowest but can't be neglected since they provide assistance in the areas where medical facilities are scarce. It is worth noting that the percentage of respondents not receiving ANC is considerable in almost all religions. It is highest among Muslim women (7.6%) and lowest among Hindu women (4.4%). This shows religious disparities in access to maternal healthcare services.

Table 7: Caste wise distribution of ANC sought from health service providers

Caste of respondent	Doctor	ANM/nurse/midwife/LHV	Dai	AWW/ICDS worker	Community village worker	ASHA	No ANC
SC	79.6	11.9	0.1	1.2	0.1	0.8	6.4
ST	68.7	16.3	0.7	4.1	0.4	1.1	8.6
OBC	81.5	12.2	0.1	1	0.1	0.5	4.6
Other	84.7	10.4	0.1	0.8	0	0.3	3.7
Don't know	92.9	2.9	0	0.4	0	0.4	3.5

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Data reveals that among all the caste categories, women have sought ANC check ups from doctors. The percentage of women taking ANC from ANM, nurses and midwives is also considerable. It is highest among ST (16%) followed by OBC (12%) and SC (11%). Substantial number of women have availed ANC checkup from anganwadi workers and ASHA workers which belong to SC, ST and OBC category. ASHA, ANM and anganwadi workers are frontline health service providers in remote pockets of rural areas which do not have modern medical facilities. They give frequent home visits to reach pregnant women for their checkups. This highlights that AWW and ASHA workers play an important role in public healthcare towards increasing ANC and better maternal health care provision. It can be noticed that though in small percentage, pregnant women still approach dai in the period of pregnancy. The percentage of not availing ANC is seen among all caste categories. It is comparatively more among ST (8.6%) followed by SC (6.4%), OBC (4.6%). It signifies more attention at policy making and execution level.

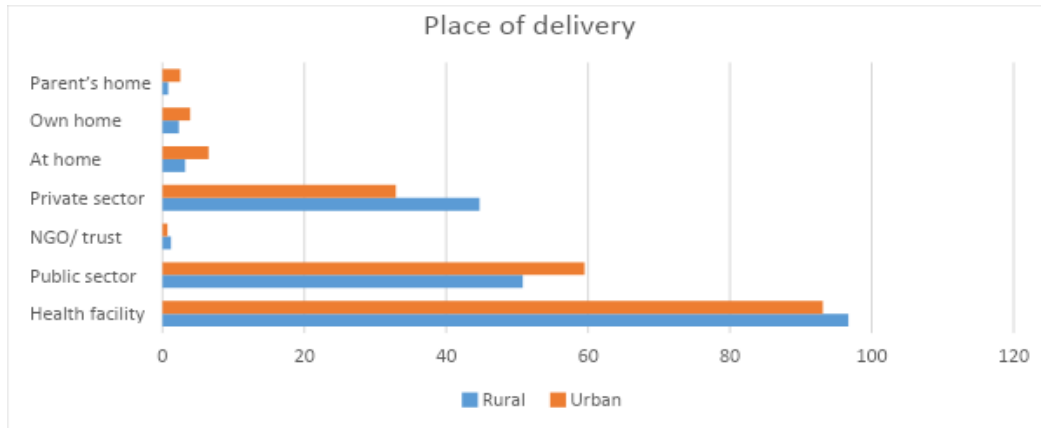
Table 8: Place of delivery

Place of delivery	Urban	Rural	Total
Health facility	96.7	93.1	94.7
Public sector	50.8	59.5	55.8
NGO/ trust	1.2	0.7	0.9
Private sector	44.7	32.9	38.0
At home	3.2	6.5	5.1
Own home	2.3	3.9	3.2

Parent's home	0.8	2.5	1.8
Other home	0.0	0.1	0.1
Other	0.1	0.4	0.3
Total	100.0	100.0	100.0

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Graph 4: Place of delivery



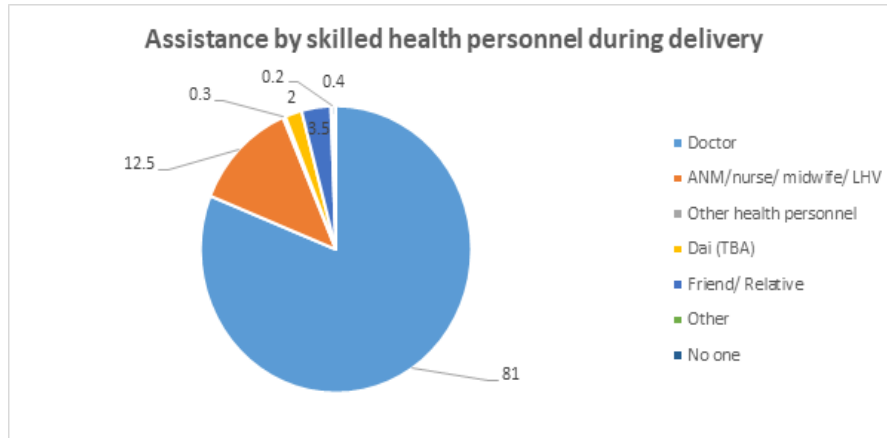
(Source: Table 7 Place of delivery)

The data highlights the differences in healthcare access and preferences in rural and urban areas, which shows the maximum number of beneficiaries (94%) preferred to deliver at a health facility constituting public and private hospitals. Respondents in urban areas have noted comparatively higher preference (96.7%) to health facilities than rural areas (93.1%). Women in rural areas have noted comparatively more preference to public health facilities (59.5%) than urban areas (50.8%). Women from urban areas have shown higher preference to private health facilities (44.7%) as compared to women in rural areas (32.9%). Urban areas have more accessibility and affordability to health services than people in rural areas. The percentage of home delivery is comparatively significant in rural (6.5%) and urban (3.2%) areas portraying the vulnerability of maternal health in Maharashtra in the globalized era.

Table 9: Assistance by skilled health personnel during delivery

Skilled provider	Urban	Rural	Total
Doctor	86.0	77.3	81.0
ANM/nurse/ midwife/ LHV	9.7	14.6	12.5
Other health personnel	0.3	0.3	0.3
Dai (TBA)	1.1	2.7	2.0
Friend/ Relative	2.7	4.1	3.5
Other	0.1	0.4	0.2
No one	0.2	0.6	0.4
Total	100.0	100.0	100.0

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Graph 5: Assistance by skilled health personnel during delivery

(Source: Table 6)

Deliveries attended by skilled health personnel ensures safety of mother and the baby. Data shows that 81% of respondents were attended by doctors during delivery. The percentage of assistance by skilled health personnel during delivery is comparatively higher (86.0%) in urban areas than rural areas (77.3%) followed by deliveries attended by nurses, midwives, and other health personnel. The percentage of deliveries attended by these healthcare workers is comparatively more in rural areas (14.6%) than urban areas (9.7%). Data also depicts a small but notable role played by dais (traditional birth attendants) especially in rural areas (2.7%) and urban areas (1.1%). While home births with traditional attendants are less common, this could indicate cultural preferences for certain groups, even in urban settings. Deliveries assisted by friends or relatives signifies that in the globalised era there are certain areas where health care services are not easily accessible. It is comparatively more prevalent in rural areas (4.1%) than urban (2.7%) where infrastructural facilities like roads, vehicles, and ambulances are not available in the time of emergencies and hence family members assist the pregnant woman to deliver her baby. A very small number of deliveries (0.4%) are attended by no skilled provider at all.

Table 10: Timing after delivery of mother's first postnatal check

Timing of mother's first postnatal check	Urban	Rural	Total
Less than 4 hours	78.9	76.5	77.6
4 to 23 hours	4.8	4.0	4.3
1 to 2 days	3.5	4.3	4.0
3 to 41 days	1.7	2.3	2.0
No postnatal checkup	11.1	12.9	12.1
Total	100	100	100

(Source: National Family Health Survey (NFHS-5), India, 2019-21: Maharashtra.)

Postnatal checkup is crucial for the mother and baby. It helps to detect post delivery complications and ensures wellness of both. Data depicts that postnatal checkup within 4 hours of delivery is comparatively less in rural areas (76.5%) than urban areas (78.9%). The percentage of mothers receiving a check within 4 to 23 hours is slightly higher in urban areas (4.8%) than in rural areas (4.0%). The percentage of women receiving postnatal checkup 1 to 2 days is comparatively higher in rural areas than urban areas. Percentage of women receiving no postnatal checkup is 12.1% which is comparatively higher for rural areas (12.9%) than urban areas (11.1%). Not getting a first postnatal checkup at all can have severe implications for the mother and overall maternal health amongst the women. The data highlights the percentage of women with delays in postnatal checkup. The government should focus on strategies which ensure universal access to postnatal checkups, especially for underserved regions in rural as well as urban areas.

Findings:

1. The percentage institutional deliveries above 93% for each group signifies a positive shift towards more women choosing to give birth in health facilities.
2. The shift from public to private healthcare facilities with increasing age suggests varying socio-economic factors influencing the choice of delivery location.

3. There are significant differences in delivery practices between urban and rural areas in Maharashtra. Urban areas show a nearly equal preference for public and private healthcare facilities, rural areas exhibit a stronger reliance on public healthcare services.
4. Percentage of women receiving ANC is high in both rural and urban areas. It underlines the reach of antenatal services across regions. Rural areas have a slightly lower percentage, which may be due to challenges in accessing healthcare providers in more remote regions.
5. The data shows that maximum rural women have received 4 ANC visits, suggesting rural healthcare programs are more effective in encouraging maternal care throughout pregnancy.
6. The higher percentage of rural births in health facilities suggests that public health facilities in rural areas are heavily utilized. In contrast, urban areas show more reliance on private health facilities.
7. Urban women are more likely to begin their ANC visits in the first trimester indicating better access to healthcare provisions.
8. Education plays an important role in improving maternal health outcomes. Higher education levels are associated with increased awareness of the benefits of institutional delivery and more frequent use of private healthcare options.
9. Maximum percentage women across all religious groups receive ANC from skilled health personnel.
10. There is a distinction in access to ANC among women from varied religions. Hindu women have the lowest percentage of non-ANC recipients, and Muslims and Buddhists/Neo-Buddhists report slightly higher percentages of non-ANC recipients.
11. There are variations in access to maternal health services. Scheduled Tribes (ST) have the lowest access to doctor-provided ANC and the highest rate of non-receipt of ANC as compared to other castes.
12. Majority of deliveries in both rural and urban areas are attended by skilled healthcare providers, with doctors being the most common. There are noticeable differences between rural and urban areas in terms of the roles of nurses, midwives, and traditional birth attendants.
13. Early postnatal care is widely practiced across both urban and rural settings still a significant proportion of delays in postnatal checkups are prevalent in urban and rural settings.

Suggestions:

1. Continued efforts to improve healthcare access, education, and affordability across different age groups are required.
2. Special efforts are required to be taken to improve ANC access for ST women.
3. Targeted interventions to increase access and awareness for women with no formal education who exhibit the lowest rates across all indicators are required

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Conflicts of interest

There are no conflicts of interest.

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