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Promoting Informed Maternity Care for Young Women in India: Evidence from NFHS (2019-2021)

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Abstract

Despite improvements in maternal healthcare utilization in India, the quality of informed maternity care among young women (15–24 years) remains a concern. This study examines patterns and determinants of informed maternity care, focusing on antenatal care (ANC), cesarean deliveries, and family planning (FP) methods, using NFHS 2019–21 data. Data from young women (15–24) who had given birth in the preceding five years were analyzed. Informed maternity care was assessed through three components: (1) receiving four or more ANC visits with information on delivery complications and care-seeking; (2) undergoing a C-section with pre-labor decision-making information; and (3) using FP methods with adequate information on alternatives and side effects. Descriptive statistics and multivariate logistic regression examined patterns across Indian states. Findings reveal that while 57.5% of young women received four or more ANC visits, only 41.2% received comprehensive information during these visits. Among the 21.1% undergoing C-sections, just 11.3% received adequate pre-procedure information. In FP services, only 16% used modern methods, with half-informed about side effects and alternatives. Socioeconomic factors such as education, wealth, and media exposure influenced informed maternity care utilization. The study underscores gaps, highlighting the need for strengthened counselling and targeted interventions for disadvantaged groups and underperforming states.

Keywords

Informed maternity care, family planning, young women

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Introduction

Maternal healthcare utilization in India has increased significantly over the past few decades. The proportion of women receiving antenatal care (ANC) has risen by 21% from 1998-99 to 2015-16, while skilled birth assistance (SBA) has doubled and postnatal care (PNC) has increased four-fold during the same period (Chaudhuri & Mandal, 2020; Kothavale & Meher, 2021). Recent data from the National Family Health Survey (NFHS) 2019-21 indicates a 10% increase in the proportion of women receiving antenatal care compared to NFHS 2015-16. Additionally, institutional deliveries have risen, with 61% of mothers undergoing postnatal checkups within two days of delivery and 56% of women adopting modern contraceptive methods, reflecting an 8% increase since the previous survey. This progress can be attributed to various socioeconomic factors, including improved education, income levels, and targeted healthcare programs (Goel et al., 2015; Lee et al., 2024). Apart from WHO recommended services, quality of services focusing on each component and elements is required to pay attention.

Despite these advancements, the quality of maternal healthcare services remains a critical concern. One critical dimension of quality maternity care is person-centered maternity care (PCMC), a human rights-based approach that emphasizes respectful and individualized care. Studies have shown that PCMC significantly reduces maternal morbidity and mortality and improves maternal and neonatal health outcomes (Afulani et al., 2018; Vlad et al., 2016). However, gaps in quality persist, even in regions with relatively low maternal mortality rates compared to the national average. For instance, ANC coverage remains particularly low among young mothers aged 15-24 years, highlighting the need for targeted interventions (Singh & Singh, 2021). Studies suggest that while ANC coverage has improved, the quality of care provided is often insufficient due to inadequate service provision, socioeconomic disparities, lack of informed decision-making, and insufficient educational and counseling services (Dandona et al., 2022; Lee et al., 2024; Rani et al., 2007; Singh et al., 2019; Thakkar et al., 2023).

Informed maternity care encompasses the right of women to receive comprehensive information regarding their health and the healthcare services available to them during pregnancy and childbirth. Informed consent and shared decision-making are cornerstones of quality maternity care, significantly impacting women's satisfaction and trust in healthcare systems (Heatley et al., 2015; Jolly et al., 2019; Osamor & Grady, 2016). By actively involving women in their care decisions, healthcare providers can enhance the quality of care and foster a more trusting relationship with patients

(Cauldwell & Nelson-Piercy, 2018; Kingma, 2021; Lanphier & Lomotey, 2023). However, existing literature suggests that a substantial proportion of women in India lack access to comprehensive information and counselling during their maternity care experiences (Sharma et al., 2019; Vlad et al., 2016).

In India, where a significant proportion of the population resides in rural and semi-urban areas, access to informed maternity care is essential to address the challenges of maternal and child health. Informed maternity care goes beyond the mere provision of medical services; it includes equipping expectant mothers with the knowledge and resources they need to make informed decisions about their pregnancy, childbirth, and postnatal care. Despite great success of policies like, the Janani Suraksha Yojana (JSY) and the Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), young women, especially those from marginalized and economically weaker sections, continue to face barriers to accessing informed maternity care. These barriers include age, limited education, inadequate healthcare infrastructure, and cultural norms that discourage seeking timely care. Young women in India, often defined as those aged 15-24, represent a demographic that is particularly vulnerable due to their relatively limited autonomy and decision-making power. Many young mothers rely heavily on family members or healthcare providers for information, and in some cases, misinformation or lack of knowledge can lead to suboptimal outcomes. Studies indicate that young women who have greater control over their healthcare decisions are more likely to seek and receive appropriate maternal care (Mai & Phyu, 2019). This is particularly relevant in the context of India, where traditional gender roles often limit women's autonomy in health-related decisions. Furthermore, the involvement of male partners in maternal health care has been shown to positively impact women's access to services. Research indicates that when men are engaged in the decision-making process regarding maternal health, women are more likely to utilize ANC and skilled delivery services (Mohammed et al., 2019). This highlights the need for interventions that not only empower women but also encourage male involvement in maternal health discussions.

Likewise, women with higher levels of education are more likely to receive adequate antenatal care, understand the importance of nutrition, and recognize warning signs of complications. Conversely, those from lower-income groups or with limited educational backgrounds often face challenges in accessing quality care or comprehending its importance. Cultural and regional disparities also play a role in determining the quality and extent of informed maternity care. While states like Kerala and Tamil Nadu have robust healthcare

systems and higher literacy rates, others, such as Bihar and Uttar Pradesh, struggle with inadequate infrastructure and lower awareness levels among women. This disparity underscores the need for targeted interventions that address the unique challenges faced by young women in different regions.

Understanding the current state of informed maternity care among young women is crucial for improving maternal and child health outcomes in India and is essential for designing effective policies and programs. By focusing on young women and their specific needs, India can take significant strides toward improving maternal health outcomes and ensuring that every mother has the knowledge and support needed for a safe and healthy pregnancy and childbirth. Therefore, this study aims to examine the patterns and determinants of informed maternity care utilization among this vulnerable population, providing insights to guide targeted interventions and policy initiatives.

Data and Methodology

Data Source

The data source used in the study was fifth round of National Family Health and Survey (2019-2021) conducted throughout India. The survey provides information at national as well as state level on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia, utilization and quality of health and family planning services. The survey conducted by Ministry of Health and Family welfare targets collecting data that helps formulating necessary policy and programmes in each successive rounds and with the help of collected data look into emerging health and family issues. This survey has separate datasets for Household, Household members or Persons, Women, All Births, Kids, and Couples.

The NFHS conducted through uniform sampling design, which is representative at the national, state/Union territories and district level. The survey adopted multistage stratified and cluster sampling, district is stratified into urban and rural areas. Urban and rural sampling stratum further stratified consisting of PSUs. In the second stage cluster sampling adopted in each PSUs to select households after mapping and household listing. For the study of informed maternity care, young women of age 15-24 years. The final analytic sample size is 81,557 young women.

Outcome variable

On the basis of WHO recommendation, Quality maternity care should be safe, efficient, effective, timely, equitable, people-centred and deliver health outcomes the communities want. The

study examines two indicators of informed maternity care among young married women. The first indicator, maternity care without information, is defined as receiving four or more antenatal care (ANC) visits, undergoing a C-section delivery, and using family planning methods such as pills, intrauterine devices (IUDs), injectables, or female sterilization. The second indicator, maternity care with information, is defined as receiving four or more ANC visits accompanied by information on delivery complications and care-seeking, undergoing a C-section delivery with pre-labor decision-making, and using family planning methods with adequate information on alternatives and side effects. These indicators provide a comprehensive measure of the quality and adequacy of maternity care services.

Independent variable

The study incorporates a range of independent variables to assess their influence on informed maternity care. These include the place of services, categorized as home, public institution, or private institution for ANC, delivery, and family planning. Contact with healthcare providers, such as Accredited Social Health Activists (ASHAs), Auxiliary Nurse Midwives (ANMs), or Lady Health Visitors (LHVs), during the last trimester of pregnancy is also considered. Other variables include birth order (one child, two children, or three or more children), place of residence (urban or rural), and educational attainment, which is grouped into less than five years, five to ten years, or more than ten years of schooling. Socioeconomic factors such as wealth quintile (poorest, poorer, middle, richer, or richest) and media exposure, defined as weekly access to radio, newspapers, or television, are also included. Additionally, the study accounts for cultural and social factors such as religion (Hindu, Muslim, or other) and caste (scheduled caste, scheduled tribe, other backward classes, and other).

Statistical Analysis

The statistical analysis involves both univariate and bivariate methods to assess the levels and disparities in informed and non-informed maternity care across India and its states. To evaluate the influence of programmatic and socioeconomic factors on informed maternity care, multivariate analysis is conducted using binary logistic regression. The results are presented as adjusted odds ratios (AORs) with 95% confidence intervals (CIs). Adjusted odds ratio used to interpret the combine effect of socioeconomic and programmatic factors. The logistic regression model is expressed as follows:

$$\log (P/1-P) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots$$

where P represents the probability of informed maternity care, β_0 is the intercept, and $\beta_1, \beta_2 \ldots$ are coefficients for the independent variables $X_1, X_2 \ldots$. This approach ensures a rigorous examination

of the factors influencing informed maternity care.

Results

Table 1 highlights the gaps in informed maternity care among young women aged 15-24 years in India. Regarding the antenatal care (ANC), a significant portion (i.e., 56.25%) of women received at least four ANC visits without adequate information. Among young women undergoing C-section, 18.63% caesarean deliveries occurred without providing necessary information to the mothers, while only 9.91% of such deliveries were accompanied by adequate information. Similarly, Only, about 15% of young women used family planning methods without adequate information, compared to just 7.92% who were informed. These findings, raises concerns about the informed consent process and points to a critical need for better communication and education during antenatal checkups to ensure mothers understand their health needs and risks. Because, this discrepancy suggests that many women are making decisions about family planning without the necessary guidance, potentially leading to suboptimal outcomes (Table 1).

Table 1. Table shows Maternity care with and without information of young women in India NFHS (2019-21)

Informed Maternity care	Age 15-24 years	Total Number
ANC without information (4+ ANC)	56.25%	52,791
ANC with information	41.07%	
Delivery through C-section without information	18.63%	52,791
Delivery through C-section with information	9.91%	
FP use without information	15.15%	81,557
FP use with information	7.92%	

Informed maternity care

The coverage of 4+ ANC visits with and without information provision is given in **Figure 1**. In India, 57.5% of women have received four or more ANC visits, while 41.2% of women have received ANC visits with information. Lakshadweep has achieved the highest percentage (100%) of pregnant women receiving at least four ANC visits; however, only 35.13% of these women received accompanying information. Goa, Puducherry, and Tamil Nadu also demonstrate high ANC coverage with information provision, indicating effective healthcare practices. The Empowered Action Group (EAG) states, including Jharkhand, Uttar Pradesh, and Rajasthan, show lower percentages of women receiving four or more ANC visits compared to the national average. In Madhya Pradesh, Chhattisgarh, and Odisha, there is minimal disparity between women

receiving four or more ANC visits with and without information. Northeastern states, with the exception of Sikkim, demonstrate lower percentages of women receiving ANC with information, with Nagaland reporting the lowest at 6.88%. Manipur, Bihar, and Nagaland have particularly low ANC coverage with information (less than 10%), indicating areas requiring significant improvement in maternal healthcare services. In Kerala, while 74.4% of young women receive ANC visits, only half of them receive these visits with accompanying information (*Figure 1*).

The percentages of C-section deliveries with and without information among young women is illustrated in **Figure 2**. In India, 21.1% of young women undergo C-section deliveries, but only half of them (11.3%) receive information during the process. Southern states such as Telangana (54.9%), Andhra Pradesh (41%), Tamil Nadu (40.3%), and Puducherry (37.7%) report high percentages of women undergoing C-section deliveries, with 32.51%, 25.9%, 20.6%, and 20.5%, respectively, receiving informed C-section deliveries. In contrast, Northeastern states, except for Manipur (13.3%), have lower percentages of women receiving informed C-section deliveries compared to the national average (11.3%). Among these, Meghalaya, Nagaland, and Mizoram report less than 5% of women undergoing C-section deliveries with or without information. Overall, most states exhibit a significant gap between women undergoing C-section deliveries with and without proper information. This highlights the need for improved communication and counseling to ensure informed decision-making in maternal healthcare services (*Figure 2*).

The use of Modern Family Planning (FP) methods with and without information among young women across states is shown in **Figure 3**. In India, 16% of young women use FP methods without knowledge of side effects and alternative methods, while only half of these women are aware of the side effects of their current FP method and available alternatives. Young women in West Bengal (34.9%), Sikkim (27.7%), Tripura (31.9%), and Andhra Pradesh (26.3%) show higher rates of FP method usage without information, with less than half of them having comprehensive knowledge about their chosen method and associated information. In Ladakh, none of the young women report using FP methods with proper information. In contrast, all young women using FP methods in Chandigarh (6.7%) demonstrate knowledge of all available methods and their side effects. Among the Empowered Action Group (EAG) states, Madhya Pradesh and Chhattisgarh show minimal differences in the percentages of young women using FP methods with and without information. However, Northeastern states including Manipur, Nagaland, Mizoram, and Sikkim exhibit wide gaps between those using FP methods with and without information (*Figure 3*).

Figure 1. Coverage of 4 or more ANC with and without information among young women across states

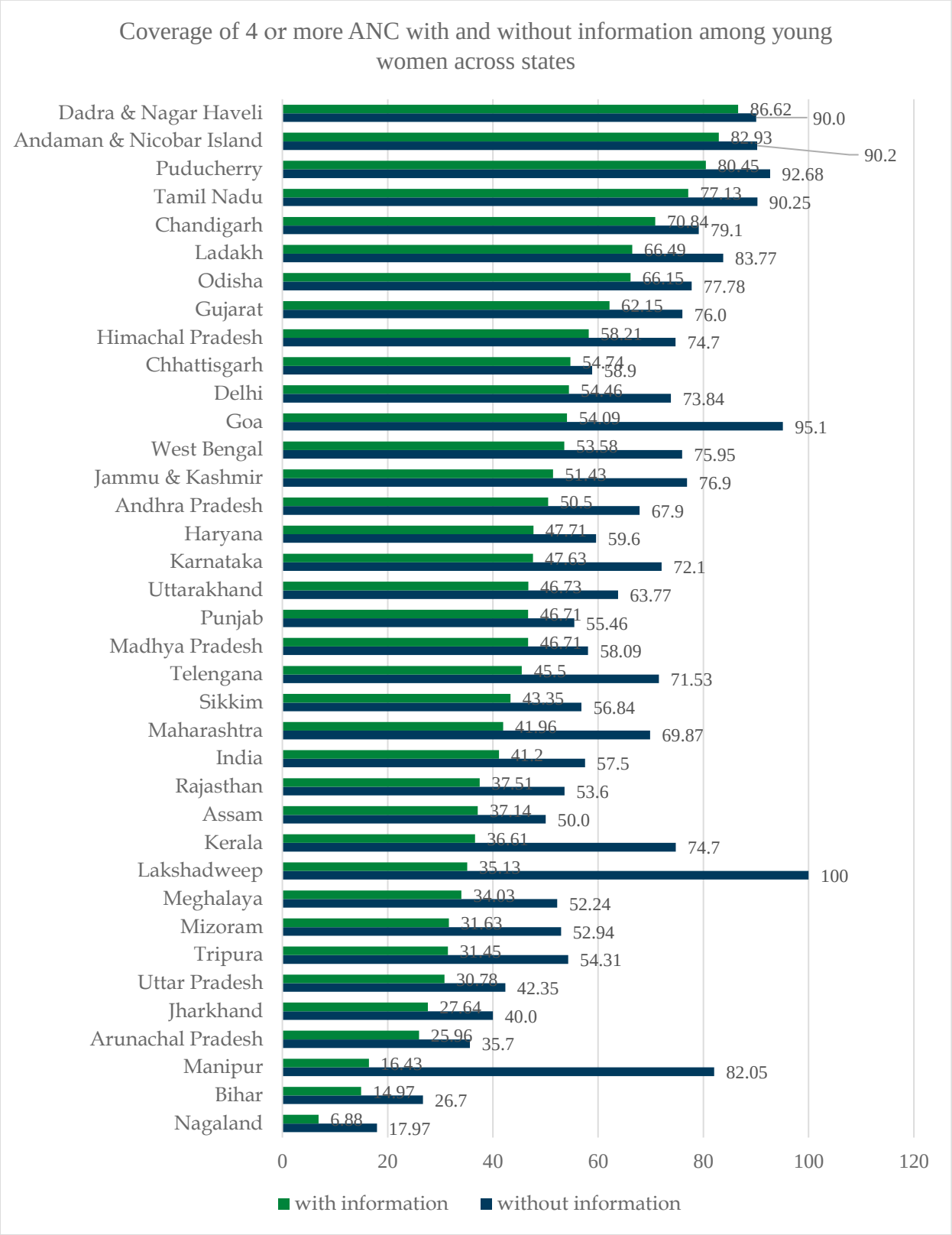


Figure 2. Percentage of C-section delivery with and without information among young women across states

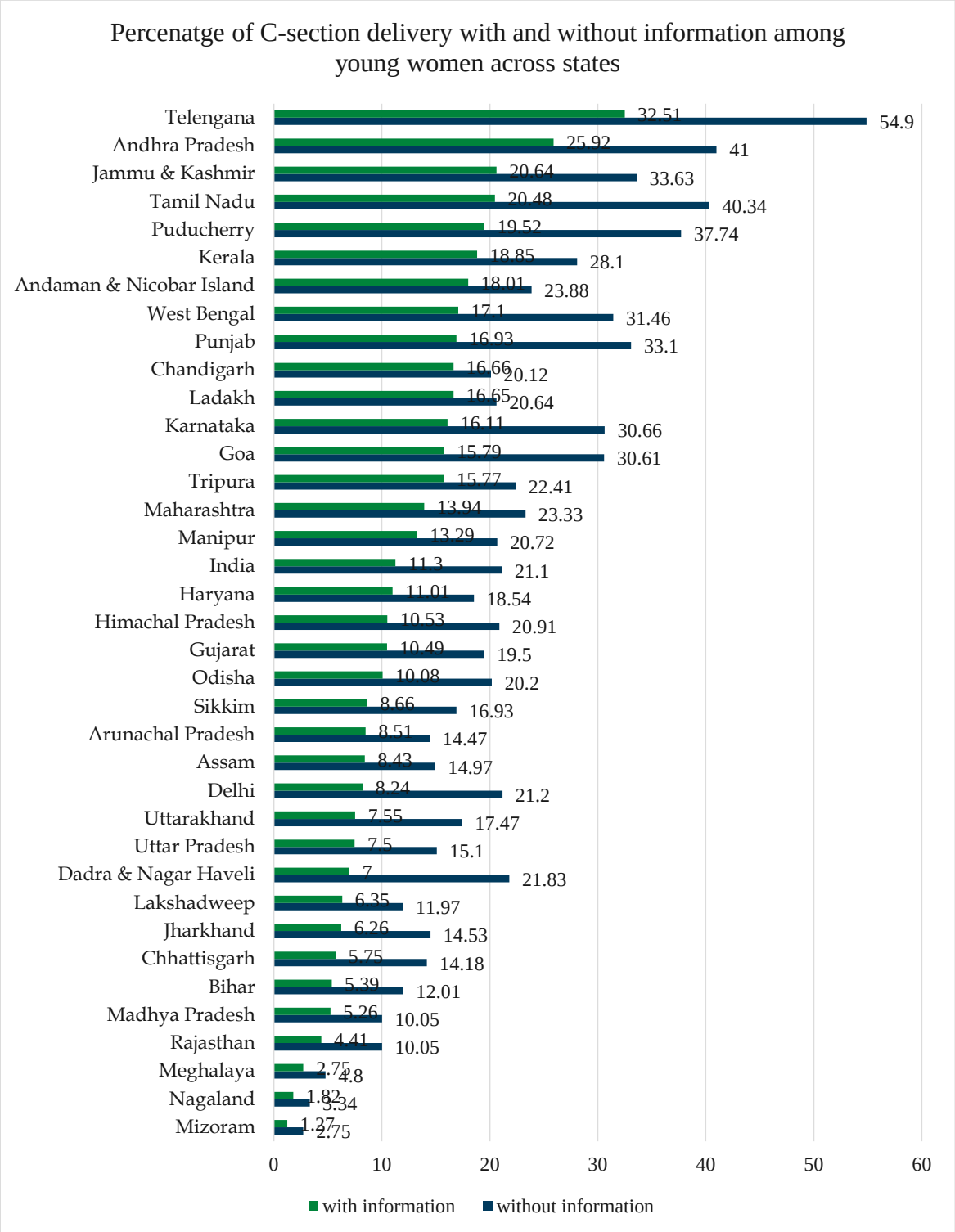
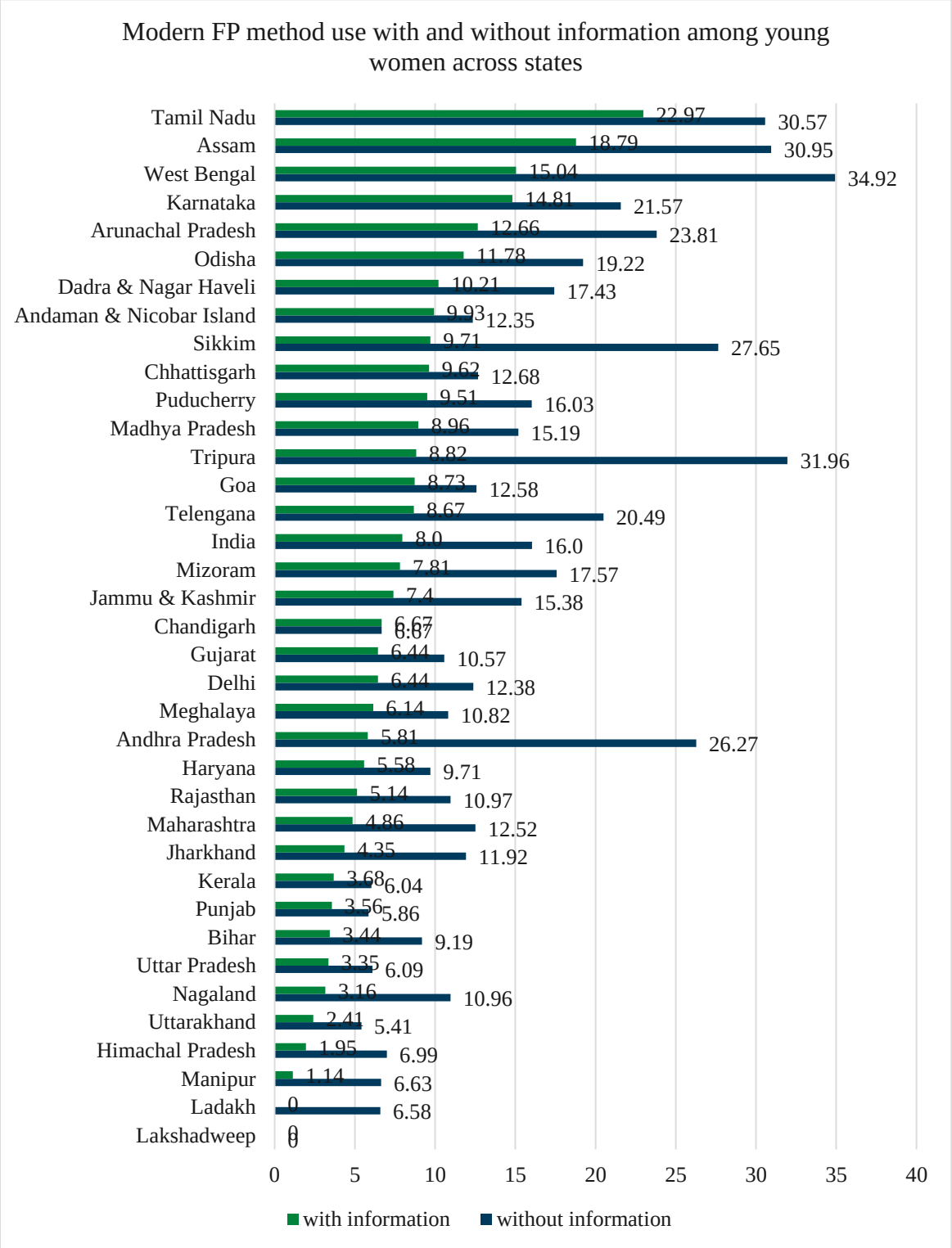


Figure 3. Modern FP method use with and without information among young women across states



Patterns of Informed Maternity care

Informed antenatal care among women in both age group is nearly same; 2% more women have informed C-section belongs to age group 20-24 years. Less than 10% young women in both age groups have informed FP method utilization. Among the places of service, young women in private institution going for ANC with information is 3.9% more and reverse is the case with FP use with information is higher in public institution. Three times more women opted for private institutions. Women having contact with healthcare providers (HCP) has higher informed antenatal care and FP method use but there is not much difference between informed C-section between no contact with healthcare providers (HCP) and contact with healthcare providers (HCP). Women with informed ANC and C-section increases with increase in education level. Women (6.7%) spent more than 10 years in education, informed during FP method use is less than the women (9.0%) spent 5-10 years in school. Wealth index as background characteristics shown in the table 3 that women in higher quintile use informed ANC and C-section delivery care. Women in richer and richest quintile have lower FP method use with information. Informed ANC and C-section delivery decreases to 30.8% and 4.9% women of 3 or more children from 44.5% and 12.3% women with one child. More women with two children have informed FP method use than women with 3 or more children. Women having exposure to media is 16.4%, 7.04% and 2.05% more seeking informed maternity services than those not exposed to media. Lesser Muslim women (39.9%) comparing to Hindu women (41.3%) and other (43.2%) seeking informed ANC. Women seeking informed C-section of other religion is 0.84% more than Hindu and Muslim women. Comparing to Hindu women (7.9%) and other women (5.4%), more Muslim women (9.1%) getting informed FP method. Comparing to other women, highest ST women (44.3%) getting informed ANC. Less than 10% of ST women giving birth in C-section mode of delivery with information. Less than 10% women of all caste getting FP method with information *(Table 2)*.

Factors affecting informed maternity care

Table 4 shows the adjusted odds ratio of informed maternity care with Place of services, contact with healthcare providers (HCP) and other socioeconomic, demographic factors. Young women are 19% more likely (AOR: 1.19; CI: 1.102, 1.28) more likely to get informed antenatal care in private institution; 2.35 times (AOR: 2.354; CI: 2.249, 2.465) more difference in those women contacting Healthcare providers. Higher birth order mothers are 77 times less likely (AOR: 0.776, CI: 0.72, 0.835) than birth orders 2 or less. Increasing years in Education of mothers and exposure to media leads to 20% more likely (AOR: 1.20; CI: 1.127, 1.283) & 41 times (AOR: 1.41; CI: 1.345, 1.483) more likely in getting informed maternity care adjusting other

socioeconomic factors. In public institution, young mothers are 9 times more likely (AOR: 8.603; CI: 7.328-10.1) which is higher than private institution (AOR: 4.152; CI:) to practice FP method with information. Those young women contacting HCP and have exposure to media are 51 times (AOR: 1.516; CI: 1.415-1.625) and 34% more likely (AOR: 1.344; CI: 1.226-1.474) more likely to get FP method utilization with information (Table 3).

Table 2. Association of Maternity care with information with sociodemographic and programmatic variables, 2019-21.

Background characteristics	ANC with information	Delivery through C-section with information	FP use with information
Age group	p<0.001	p<0.001	p<0.001
15-19 years	40.6	9.5	3.7
20-24 years	41.2	11.5	8.9
Place of services	p<0.001	p=0.338	p<0.001
Public	42.7	7.9	40.7
Private	46.6	24.4	21.8
Contact with HCP	p<0.001	p<0.001	p<0.001
No	25.5	10.1	6.4
Yes	47.3	11.7	10.6
Education	p<0.001	p<0.001	p<0.001
<5 years	29.8	5.7	7.1
5-10 years	41.9	10.4	9.0
10+ years	46.9	16.4	6.7
Wealth	p<0.001	p<0.001	p<0.001
Poorest	31.7	4.9	7.9
Poorer	38.6	8.6	8.5
Middle	45.6	13.6	9.2
Richer	47.9	16.1	7.8
Richers	49.4	19.8	5.1
Birth order	p<0.001	p<0.001	p<0.001
1	44.5	12.3	8.1
2	37.7	11.0	16.5
3+	30.8	4.9	13.7
Exposure to media	p<0.001	p<0.001	p=0.113
No	39.4	10.8	3.1
Yes	44.2	12.1	2.7
Delivery complication	p<0.001	p=0.223	p<0.001
No	37.4	12.0	1.6
Yes	44.3	10.7	11.8
Religion	p<0.001	p<0.001	p<0.001
Hindu	41.3	11.3	7.9
Muslim	39.9	11.3	9.1
Other	43.2	12.1	5.4
Caste	p<0.001	p<0.001	p<0.001
SC	40.1	10.1	8.3

ST	44.3	6.7	8.2
OBC	40.0	11.4	7.3
Other	42.6	15.2	6.7

Table 3. Multivariate Analysis of Maternity care with Information with socioeconomic, demographic and programmatic variables of women of age 15-24 years in India, NFHS (2019-21).

Background characteristics	Antenatal care with information	95% CI	C section with information	95% CI	Family Planning with information	95% CI
Place of services						
Public	1.045	0.974-1.122	3.327***	3.121-3.547	8.603***	7.328-10.1
Private	1.189***	1.102-1.284			4.152***	3.507-4.916
Contact with HCP						
Yes	2.354***	2.249-2.465	1.201***	1.119-1.289	1.516***	1.415-1.625
Education						
5-10 years	1.181***	1.118-1.248	1.351***	1.214-1.502	1.177***	1.065-1.3
10+ years	1.202***	1.127-1.283	1.559***	1.389-1.749	1.084	0.961-1.222
Wealth Index						
Poorer	1.118***	1.058-1.183	1.437***	1.286-1.606	0.953	0.861-1.054
Middle	1.333***	1.254-1.416	2.017***	1.807-2.251	0.889	0.796-0.993
Richer	1.401***	1.308-1.5	2.073***	1.845-2.330	0.77***	0.68-0.872
Richers	1.583***	1.455-1.722	1.908***	1.668-2.182	0.591***	0.504-0.694
Residence						
rural	0.854***	0.809-0.902	0.808***	0.748-0.873	0.931	0.845-1.026
Birthorder						
two	0.850***	0.815-0.886	1.127***	1.054-1.204	1.293***	1.201-1.392
three or more	0.776***	0.72-0.835	0.631***	0.54-0.736	1.123	0.998-1.263
Exposure to media						
Yes	1.412***	1.345-1.483	0.969	0.91-1.031	1.344***	1.226-1.474
Religion						
Muslim	0.879***	0.823-0.938	0.987***	0.893-1.09	0.959	0.844-1.089
Other	0.753***	0.696-0.812	1.13	0.994-1.285	0.901	0.786-1.034
Caste						
ST	1.446***	1.359-1.538	0.799***	0.713-0.896	1.270***	1.137-1.417
OBC	1.007	0.958-1.058	0.957	0.883-1.037	1.069	0.978-1.169
Other	1.055	0.99-1.126	1.065	0.965-1.174	0.885***	0.787-0.995

Discussion

The findings of this study underscore critical gaps in the provision of informed maternity care among young women in India. Studies suggest that while antenatal care coverage in India has improved, the quality of care remains insufficient due to inadequate service provision, socio-economic disparities, lack of informed decision-making, and insufficient educational and counselling services (Dandona et. al., 2022; Lee et. al., 2024; Rani et. al., 2007; Singh et. al., 2019; Thakkar et. al., 2023). Similarly, a recent study by Nihal & Shekhar, 2024 reported

that only 32% of mothers received adequate quality antenatal care during 2019-2021 (Nihal & Shekhar, 2024).

Informed consent is a cornerstone of quality maternity care in India, significantly impacting women's satisfaction and trust in healthcare systems. By actively involving women in their care decisions, healthcare providers can enhance the quality of care and foster a more trusting relationship with patients (Heatley et. al., 2015; Jolly et. al., 2019; Osamor & Grady 2016). Addressing the barriers to informed consent and implementing targeted strategies can lead to improved maternal health outcomes and a more equitable healthcare system (Cauldwell & Nelson-Piercy 2018; Kingma, 2021; Lanphier & Lomotey, 2023). However, our findings reveal that only 11.3% of young women received informed C-section delivery or family planning services, indicating a critical gap in communication and counselling. Analysis of the National Family Health Survey-5 (NFHS-5) data reveals concerning patterns in informed maternity care utilization among women aged 15-24 years in India. The study shows that informed care rates vary substantially across services: 41.07% for antenatal care, 9.9% for C-section delivery, and 7.92% for family planning methods.

Socioeconomic and programmatic factors, such as education, wealth, and media exposure, were found to significantly influence the utilization of informed maternity care. This aligns with global evidence suggesting that higher education levels and economic status are associated with better access to quality healthcare services (Ahmed et. al., 2018; Bhan et. al., 2020; Singh et. al., 2014; Wang et. al., 2021; Yadav et. al., 2021; Zajacova & Lawrence, 2018). Public healthcare institutions, particularly in underserved regions, must prioritize comprehensive counselling and information dissemination to bridge these gaps.

The WHO guidelines on antenatal care recommend at least four visits during pregnancy to ensure maternal and fetal health (WHO, 2016). However, adherence to these guidelines remains inconsistent across India, with significant disparities in service quality and access (Srivastava et. al., 2020).

The role of education and awareness in improving maternal health outcomes cannot be overstated. Young mothers, particularly those in rural and underserved areas, often lack access to accurate information about their rights and available services (Hong et. al., 2020; Sharma et. al., 2018). Community-based interventions, such as health education campaigns and peer support groups, have shown promise in bridging these gaps and empowering women to make informed decisions about their care (Haque et. al., 2022; Pradhan et. al., 2023; Sharma et. al., 2020).

Conclusion

This study highlights critical gaps in the provision of informed maternity care among young women in India. While there has been progress in the coverage of maternal healthcare services, the quality of information dissemination and counselling remains inadequate. The analysis reveals that a significant proportion of young women undergo maternal healthcare procedures without comprehensive information about complications, alternatives, and potential risks. Public Institution has to work on their counselling part, specifically on delivery complications to young women, and the frequency of contact with healthcare providers (HCPs) would help young women to attain good maternal health outcomes.

Declarations

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Ethical declarations

The present study utilizes a secondary dataset available in the public domain for legitimate research purposes with no identifiable information on the survey participants. Hence, there is no requirement for any additional ethical approval.

Consent for publication

Not applicable. No details, images or videos related to individual participants were obtained. In addition, data are available in the public domain.

Competing interests

The authors declare no competing interests.

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