E-ISSN: 3048-6041 | Volume- 2, Issue- 5 | May 2025

Disparities and Determinants in Utilization of Antenatal: A Comparative Analysis of Rural and Urban India

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Abstract

The study tries to examine disparities in the utilization of antenatal care (ANC). The study tries to see the utilization disparity between rural and urban areas in India. For the study data has been used from the National Family Health Survey (NFHS-5, 2019–20). By analyzing a sample of 176,875 women aged 15–49 who had given birth in the five years preceding the survey. The research finds key socio-demographic determinants influencing ANC utilization. For analysis descriptive statistics and multilevel logistic regression has been used. The study tries to see the which variable is the most dominant in the utilization of four or more ANC. Results show significant urban-rural differences and also reveal that variables like maternal education, wealth, timing of first ANC , and place of delivery are strong predictors of ANC utilization. The study highlights the inequities in access to maternal health services. It recommends the need for targeted interventions to improve ANC uptake among unprivileged section of society.

Keywords: Antenatal Care (ANC), Maternal Health Disparities, Rural-Urban Inequality, Multilevel Analysis

Introduction:

Maternal health remains a highly important topic of public health initiatives globally. It highlights a nation's seriousness to the well-being of women and children. Antenatal care (ANC), defined as the medical supervision a pregnant woman receives during her pregnancy. It is a crucial component of maternal healthcare. ANC is a preventive measure for detecting, monitoring, and managing potential health complications that may arise during pregnancy. Therefor reducing maternal and neonatal mortality (World Health Organization [WHO], 2016). The importance of ANC has been acknowledged worldwide as a priority area under the Sustainable Development Goals (SDGs), particularly Goal 3. SDG goal is to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030 (United Nations, 2015). Despite various government policies tailored around maternal health aspects in India, significant disparities in utilisation of ANC services still persist. The fifth round of the National Family Health Survey (NFHS-5, 2019–21) offers valuable information and insights into the progress and continuing gaps in ANC utilization across different regions and socio-economic strata. While the national average of women receiving at least four ANC visits is rising, large disparity still exists between rural and urban populations.

It is evident across different states, castes, religions, and economic classes (International Institute for Population Sciences [IIPS] & ICF, 2021). This uneven progress highlights the structural, social, and economic barriers that hinder access to maternal healthcare services in India. Urban-rural differences are among the most striking in the distribution of maternal health

services in India. Women in urban areas are having timely and adequate ANC due to better infrastructure. (Singh et al., 2019). Whereas, rural women often face challenges such as long distances to health facilities, lack of transportation, lack of healthcare staffs, and complex socio-cultural norms that discouraged utilization (Barua & Teijlingen, 2007). Additionally, the state-level policy implementation has resulted in stark regional inequalities, with states like Kerala and Goa achieving near-global ANC coverage, while counterparts like Bihar and Uttar Pradesh continue to lag behind (IIPS & ICF, 2021). Educational attainment, both of the woman and her partner, have strong positive influence on maternal health utilisation. Education not only improves health literacy but also increases women's decision-making capacity. (Bloom et al., 2001).

Women with higher levels of education are more inclined to utilize health services and understand the importance of routine check-ups. Similarly, household wealth plays a positive role in accessing ANC services. Wealthier households can afford better healthcare, transportation, and associated costs. On the other hand, that may otherwise that not be the case with poorer families (Chakraborty et al., 2003). Caste and religion also have great say and influence on maternal health service utilization. Scheduled Castes (SC) and Scheduled Tribes (ST), often experience systemic discrimination in healthcare settings and have lower access to services (Desai & Dubey, 2012). In contrast, women from upper castes or socially dominant communities may experience fewer barriers. Religion affects health-seeking approach through differential gender norms, fertility choices, and level of education and employment. This is most prominent among Muslim women in India, who are often disadvantaged in terms of healthcare utilization (Bhalotra et al., 2010). Parity, or the number of children a woman has, also play a big role in ANC utilization. Studies have shown that women with higher parity are less likely to seek ANC services. This trend is either due to increased household responsibilities or a perception that they already possess adequate knowledge and experience from prior pregnancies (Navaneetham & Dharmalingam, 2002).

Another key factor of ANC utilization is the timing of the first ANC visit. Early initiation—in the first trimester—is positive sign for detecting and managing potential complications. However, delayed initiation remains common, practice particularly among less-educated and rural women (Afulani, 2015). Cultural beliefs, lack of awareness, and fear of medical procedures can delay care-seeking behavior, resulting in missed opportunities for intervention. Institutional birth also shape access to and quality of ANC services. Availability of female healthcare providers, especially in rural settings, can significantly influence whether women seek care. Women may be hesitant to attend male providers due to privacy and cultural considerations, resulting in underutilization even when facilities exist (Ahmed et al., 2010). Moreover, some rational concerns such as the cost and availability of transportation play a critical role in rural areas where healthcare facilities are far and often inaccessibleand takes long travel times (Patel et al., 2020). Health insurance coverage can solve some of the financial hinderence associated with ANC utilization. Government-sponsored schemes such as Janani Suraksha Yojana (JSY) and Pradhan Mantri Jan Arogya Yojana (PM-JAY) aim to reduce out-of-pocket expenditures and encourage institutional delivery and ANC utilisation. However, the impacts of these programs is often focussed on awareness, enrolment processes, and supply-side readiness (Kumar et al., 2019). Household decision-making yet another important but

often overlooked factor. Women's decision and involvement in household decisions, particularly regarding health, are related with better maternal health outcomes. When women take part in joint decision-making with their spouses over health-related decisions, they are more likely to access ANC services (Jejeebhoy, 2000). While, patriarchal norms often result in complete non-utilization of necessary care.

Given this background of prevalence of inequalities and many barriers, it becomes important to undertake a comprehensive analysis of ANC utilization in India. While prior studies have examined individual determinants of maternal healthcare, few have employed nationally representative datasets to conduct disaggregated analyses that simultaneously account for regional, demographic, and socio-economic factors. The present study seeks to fill this gap by utilizing NFHS-5 data to examine disparities in ANC utilization across rural and urban areas, while also identifying key determinants at the individual, household, and contextual levels. This study has two primary objectives to analyze the distribution of ANC service utilization across rural and urban India. It will be examining both frequency (less than four vs. four or more visits) and timing (early vs. late initiation) of ANC and identify the socio-demographic, economic, and institutional barriers that hinder access to ANC services, focussing in rural areas, using multilevel logistic regression modeling to account for hierarchical data structures and inter-district variations. By addressing these objectives, this study contributes to the broader understanding of health inequalities in India. It also provides evidence-based insights for policy makers aiming to design equitable and context-sensitive maternal health intervention.

Data and Methods:

Data and Samples

The study utilized data from the National Family Health Survey (NFHS-5) conducted in 2019–20, which is publicly available at (www.dhsprogram.com). The analysis focused on women aged 15–49 who had given birth in the five years preceding the survey. A total of 176,875 women were included in the study, providing a comprehensive dataset to examine maternal and child health indicators at the national and sub-national levels.

Variables

Outcome Variable: Utilization of ANC (categorized as <4 visits and ≥4 visits).

Predictors varibales: Age at childbirth, educational attainment, parity, wealth quintile, caste, religion, place of residence, timing of first ANC visit, place and mode of delivery, insurance coverage, concerns about transport and female provider availability.

Statistical Analysis

The utilization of ANC and PNC was examined at the national, state, and district levels. Firstly, descriptive statistics related to the utilization of antenatal care and postnatal care were generated by means of a frequency table, as shown in **Table 2,** and QANC and QPNC among all states were also generated by means of a frequency table, as shown in **Table 1.** Following, multivariate multilevel logistic regression analysis was used in consideration of the hierarchical nature of data to examine correlates associated with utilization of QANC while considering a

range of sociodemographic characteristics of the population **Table 3.** The analysis was conducted using Stata with the svy command to account for the complex sampling design of the NFHS data. Study used StataMP17 version for the statistical Analysis.

Result

The analysis of NFHS-5 data reveals stark disparities in the utilization of quality antenatal care (QANC)—defined as receiving four or more ANC visits—across different states, socio-economic strata, and demographic categories in India. A clear urban-rural divide is evident, with urban women consistently reporting higher levels of QANC utilization compared to their rural counterparts. For instance, in states like Assam, Bihar, and Uttar Pradesh, the urban-rural gap in QANC is substantial—68.19%, 58.12%, and 55.07%, respectively—indicating that rural women in these states are significantly underserved. Conversely, states such as Kerala and Tamil Nadu show near-equal QANC utilization across rural and urban areas, reflecting a more equitable distribution of maternal healthcare services (IIPS & ICF, 2021).

Descriptive data (Table 2) further underscore the influence of maternal characteristics on ANC usage. Women who initiated their first ANC visit within the first trimester were significantly more likely to complete at least four visits (69.15%) compared to those who started later (47.58%). Institutional delivery also correlated strongly with higher ANC utilization—62.6% of women delivering at a health facility received QANC, as opposed to only 33.56% of those who delivered at home. Similarly, women who underwent caesarean sections reported a higher prevalence of QANC (72.82%) than those with normal deliveries (55.66%), suggesting that more intensive healthcare interactions may facilitate better ANC adherence.

Socioeconomic status emerged as a strong determinant of QANC utilization. Only 43.01% of the poorest women received four or more ANC visits, compared to 73.32% among the richest quintile. Education had a similarly strong impact. Women with higher education levels showed markedly better QANC uptake—72.55% of them received the recommended number of visits, while only 40.71% of uneducated women did. These trends align with the hypothesis that financial resources and education enhance awareness, autonomy, and access to healthcare services (Bloom et al., 2001; Chakraborty et al., 2003).

Multilevel logistic regression results presented in Table 3 reinforce these descriptive findings, identifying several statistically significant predictors of QANC. Women initiating ANC visits after the first trimester had significantly lower odds of receiving QANC (OR = 0.45, $p < 0.001$), confirming the importance of early engagement with maternal health services. Similarly, home deliveries were associated with a 51% reduction in the odds of receiving QANC (OR = 0.49, $p < 0.001$), highlighting the interconnection between institutional care and comprehensive antenatal service delivery.

Educational attainment was a strong predictor: women with higher secondary or above education had 34% higher odds of receiving QANC compared to uneducated women (OR = 1.34, $p = 0.021$). Household wealth also showed a strong and graded effect; women in the richest quintile were nearly twice as likely to receive QANC compared to the poorest (OR = 1.98, $p < 0.001$). These findings emphasize the critical role of socioeconomic advantage in ensuring adequate maternal care. Other significant predictors included place of delivery, with

caesarean deliveries being positively associated with QANC (OR = 1.18, p = 0.042), and joint household decision-making, which increased the odds of QANC by 25% (OR = 1.25, p = 0.047).

Table 1: Rural-Urban Comparison of Quality Antenatal Care (QANC) Utilization by State in India (NFHS-5, 2019–21)

STATES	Quality ANC %		
	Rural	Urban	Urban Vs Rural
Andaman & Nicobar Islands	82.40	80.00	−2.91
Andhra Pradesh	53.04	51.72	−2.49
Arunachal Pradesh	25.20	30.80	22.22
Assam	26.24	44.13	68.19
Bihar	13.63	21.55	58.12
Chandigarh	20.00	63.61	218.05
Chhattisgarh	45.43	48.82	7.46
Dadar Nagar Haveli and D&D	89.66	73.51	−18.02
Goa	90.28	84.45	−6.46
Gujarat	66.75	78.07	16.96
Haryana	39.90	44.77	12.21
Himachal Pradesh	55.54	69.43	25.01
Jammu & Kashmir	76.49	82.72	8.14
Jharkhand	20.60	34.40	66.99
Karnataka	57.76	60.39	4.55
Kerala	87.95	88.43	0.55
Ladakh	78.47	79.54	1.36
Lakshadweep	94.99	94.11	−0.93
Madhya Pradesh	36.04	44.13	22.45
Maharashtra	61.86	63.86	3.23
Manipur	64.39	83.07	29.01
Meghalaya	30.38	49.04	61.42
Mizoram	42.27	67.86	60.54
Nagaland	8.35	25.32	203.23
NCT Delhi	78.21	70.71	−9.59
Odisha	65.80	72.90	10.79
Puducherry	81.97	87.76	7.06
Punjab	47.63	49.34	3.59
Rajasthan	31.79	40.78	28.28
Sikkim	54.07	49.02	−9.34
Tamil Nadu	89.91	88.69	−1.36
Telangana	54.28	53.37	−1.68
Tripura	44.74	57.74	29.06
Uttar Pradesh	19.83	30.75	55.07

Uttarakhand	33.82	44.16	30.57
West Bengal	60.02	70.67	17.74

Health insurance coverage was also positively linked to QANC utilization (OR = 1.18, p = 0.042), suggesting that financial protection mechanisms can reduce access barriers. Conversely, higher parity was associated with decreased QANC uptake. Women with two to three children had 17% lower odds (OR = 0.83, p = 0.004), and those with four to five children had 38% lower odds (OR = 0.62, p < 0.001) of receiving QANC compared to women with one child. These results indicate that women with more children are less likely to seek or receive adequate antenatal care, possibly due to competing responsibilities or reduced perceived need.

While caste and religion were included in the model, their associations with QANC were not statistically significant at conventional thresholds. Likewise, place of residence (urban vs. rural) was not a significant predictor in the adjusted model (OR = 0.95, p = 0.544), suggesting that when other variables are controlled for, socio-demographic and economic factors may exert a greater influence than location alone.

Random effects modeling revealed significant district- and PSU-level variances, indicating substantial clustering in ANC utilization. The intra-class correlation coefficients (ICC) showed that 27% and 54% of the variance in QANC utilization could be attributed to district and PSU-level differences, respectively. These findings point to strong contextual influences, such as local healthcare infrastructure and policy implementation, affecting ANC uptake beyond individual and household characteristics.

Table 2: Distribution of Antenatal Care Utilization and Maternal Characteristics Among Women Aged 15–49 in India (NFHS-5, 2019–21)

Variables	**Sample (Number)**	**Sample (%)**	**ANC Visit (%)**	
			<4	**≥4**
Timing of 1st ANC Visit				
≤ 3 months	122533	74.61	30.85	69.15
> 3 months	41700	25.39	52.42	47.58
Place of delivery				
Facility	157930	90.27	37.4	62.6
Home	17015	9.73	66.44	33.56
Mode of delivery				
Normal	132996	76.02	44.34	55.66
Caesarean	41949	23.98	27.18	72.82
ANC visits				
<4	70,367	40.22	Na	Na
≥4	104,598	59.78	Na	Na
Mother's age at child birth				
15–24	56620	32.36	40.75	59.25
25–34	102183	58.40	39.4	60.6

35–49	16163	9.24	43.55	56.45
Women's education level				
None	34153	19.52	59.29	40.71
Primary	20533	11.74	45.73	54.27
Secondary	90071	51.48	36.01	63.99
Higher	30207	17.26	27.45	72.55
Economic status				
Poorest	39846	22.77	56.99	43.01
Poorer	36815	21.04	45.3	54.7
Middle	34253	19.58	36.24	63.76
Richer	33652	19.23	31.08	68.92
Richest	30398	17.37	26.68	73.32

Table 3: Distribution of Antenatal Care Utilization and Maternal Characteristics Among Women Aged 15–49 in India (NFHS-5, 2019–21) (Continued…)

Husband education level				
None	3786	14.22	58.47	41.53
Primary	3377	12.69	43.96	56.04
Secondary	14653	55.05	36.96	63.04
Higher	4802	18.04	31.9	68.1
Mother's Occupation				
Not Working	20803	11.89	39.91	60.09
Working (Skilled)	154163	88.11	40.26	59.74
Household decision maker				
Woman alone	2078	7.91	38.63	61.37
Husband and wife	18685	71.08	39.46	60.54
Husband alone	4760	18.11	42.96	57.04
Others	761	2.90	36.26	63.74
Coverage of health Insurance				
No	133259	76.16	41.87	58.13
Yes	41706	23.84	34.94	65.06
Religion				
Hindu	139221	79.57	40.37	59.63
Muslim	27845	15.91	41.22	58.78
Others	7899	4.52	34.05	65.95
Cast				
SC	39632	23.81	43.59	56.41
ST	17295	23.81	41.02	58.98
OBC	75240	45.21	41.93	58.07

Others	34254	20.58	33.96	66.04
Place of residence				
Urban	49345	28.20	29.93	70.07
Rural	125620	71.80	44.26	55.74
Parity				
1	59964	34.27	29.58	70.42
2 to 3	92365	52.79	37.67	62.33
4 to 5	18198	10.40	52.49	47.51
6 and more	4437	2.54	67.29	32.71
Concern to female health provider				
No problem	65419	37.39	28.3	71.7
Big problem	56560	32.33	43.98	56.02
Not a big problem	52986	30.28	40.74	59.26
Concern to take transport				
No problem	75994	43.43	30.38	69.62
Big problem	39317	22.47	45.24	54.76
Not a big problem	59654	34.09	40.54	59.46

The multilevel logistic regression analysis (Table 3) reveals significant insights into the structural variance in ANC utilization across different geographical units. The random effects estimates show considerable variation at both the district and primary sampling unit (PSU) levels. Specifically, the intra-class correlation coefficient (ICC) indicates that 26.99% of the variance in QANC utilization is attributable to differences between districts, while 53.60% is attributable to PSU-level differences. This suggests that localized factors—such as health facility availability, district-level health governance, and community-level norms—play a substantial role in shaping ANC access and behavior.

Moreover, the higher PSU-level variance indicates that differences between smaller administrative units or clusters (e.g., villages or neighborhoods) contribute more to the variability in ANC use than broader district-level factors. This emphasizes the need for micro-targeted interventions that address local bottlenecks and context-specific barriers. The model fit statistics, including the highly significant Wald Chi-square ($p < 0.001$), confirm the robustness of the model. These findings underscore that beyond individual and household-level determinants, contextual and regional disparities are critically important in explaining ANC utilization, reinforcing the need for decentralized and equity-focused health planning.

Table 4: Multilevel Logistic Regression Estimates of Determinants of Quality Antenatal Care Utilization Among Women in India (NFHS-5, 2019–21)

Characteristics	**QUALITY OF ANTENATAL CARE**					
	Model 1			**Model 2**		
Fixed effects	**OR**	**P**	**CI**	**OR**	**P**	**CI**
Timing of 1st ANC Visit						

≤ 3 months						
> 3 months				0.45	0.000	[0.39, 0.52]
Place of delivery						
Facility						
Home				0.49	0.000	[0.40, 0.60]
Mode of delivery						
Normal						
Caesarean				1.18	0.042	[1.00, 1.38]
ANC visits						
<4						
≥4				0.45	0.000	[0.39, 0.52]
Mother's age at child birth						
15–24						
25–34				1.12	0.046	[1.00, 1.27]
35–49				1.20	0.120	[0.95, 1.53]
Women's education level						
None						
Primary				1.00	0.932	[0.83, 1.21]
Secondary				1.17	0.047	[1.00, 1.38]
Higher				1.34	0.021	[1.04, 1.72]
Economic status						
Poorest						
Poorer				1.13	0.127	[0.96, 1.33]
Middle				1.26	0.011	[1.05, 1.52]
Richer				1.46	0.000	[1.20, 1.78]
Richest				1.98	0.000	[1.54, 2.55]
Husband education level						
None						
Primary				1.23	0.096	[0.96, 1.57]
Secondary				1.18	0.103	[0.96, 1.45]
Higher				1.21	0.130	[0.94, 1.56]
Mother's Occupation						
Not Working						
Working Skilled				1.00	0.986	[0.87, 1.14]

Table 5: Multilevel Logistic Regression Estimates of Determinants of Quality Antenatal Care Utilization Among Women in India (NFHS-5, 2019–21) (Continued…)

Household decision maker						
Woman alone						
Husband and wife				1.25	0.047	[1.00, 1.56]
Husband alone				1.11	0.366	[0.87, 1.42]

Others				2.10	0.000	[1.42, 3.10]
Coverage of health Insurance						
No						
Yes				1.18	0.042	[1.00, 1.38]
Religion						
Hindu						
Muslim				1.09	0.348	[0.90, 1.33]
Others				1.07	0.627	[0.79, 1.46]
Cast						
SC						
ST				0.99	0.935	[0.80, 1.21]
OBC				0.99	0.907	[0.84, 1.15]
Others				1.16	0.085	[0.97, 1.38]
Place of residence						
Urban						
Rural				0.95	0.544	[0.81, 1.11]
Parity						
1						
2 to 3				0.83	0.004	[0.74, 0.94]
4 to 5				0.62	0.000	[0.49, 0.79]
6 and more				0.69	0.066	[0.47, 1.02]
Concern to female health provider						
No problem						
Big problem				0.89	0.254	[0.74, 1.07]
Not a big problem				0.81	0.016	[0.69, 0.96]
Concern to take transport						
No problem						
Big problem				0.84	0.070	[0.70, 1.01]
Not a big problem				0.92	0.313	[0.79, 1.07]
Random effects						
Random Effect Variance (SE)						
District level variance	2.26 (0.13)			1.91 (0.15)		
PSU level variance	1.58 (0.07)			1.88 (0.15)		
Intra-class correlation coefficient						
District level variance	0.31			0.26		
PSU level variance	0.53			0.53		
Variance decomposition (%)						
District level variance	31.72			26.99		
PSU level variance	53.89			53.60		
Model fit Statistics						
Wald test x^2	na			494.98		
Probability > Chi-square	na			0.0000		

Additionally, the significant variance across clusters points to the uneven implementation of maternal health programs at the grassroots level. Health service delivery, community outreach, and resource allocation likely differ between PSUs, influencing ANC access. These contextual disparities highlight the importance of strengthening local governance and tailoring interventions to specific community needs.

Discussion

This study highlights substantial disparities in the utilization of antenatal care (ANC) services across rural and urban areas in India, reflecting broader patterns of social inequality and health system fragmentation. Although overall ANC coverage has improved in recent years, a closer examination of the NFHS-5 data reveals that access to quality antenatal care (QANC)—measured by the receipt of four or more ANC visits—remains unequally distributed across different socio-economic and demographic strata. One of the most notable findings is the persistent rural-urban divide. Women residing in urban areas consistently demonstrated higher rates of QANC than those in rural areas, particularly in states like Bihar, Uttar Pradesh, and Assam. This disparity can be attributed to better healthcare infrastructure, greater concentration of skilled personnel, and enhanced awareness and autonomy among urban women (Singh et al., 2019). In contrast, rural women face logistical challenges such as lack of nearby health facilities, transportation issues, and cultural constraints that delay or deter ANC utilization (Barua & van Teijlingen, 2007). The timing of the first ANC visit emerged as a crucial determinant. Women who initiated ANC within the first trimester were significantly more likely to complete the recommended four visits. Early initiation allows for timely identification of risks and the planning of appropriate interventions, underscoring the importance of awareness campaigns that promote timely engagement with maternal health services (Afulani, 2015). Delayed initiation, often driven by limited knowledge, cultural taboos, or perceived low risk, reduces the opportunity for complete care.

Education, both of the mother and her partner, plays a central role in shaping ANC behavior. Women with secondary or higher education had significantly better odds of receiving QANC. Education empowers women with knowledge of health benefits, enhances their ability to navigate healthcare systems, and increases confidence in interacting with providers (Bloom et al., 2001). In addition, educated husbands may also support or facilitate their spouse's health-seeking behaviors. This reinforces the need for investments in female education as a long-term strategy to improve maternal health outcomes. Wealth status also strongly influenced ANC utilization. Women in the richest quintile were nearly twice as likely to receive QANC compared to those in the poorest quintile. Financial constraints, including the cost of transportation and diagnostic services, continue to deter women from completing ANC visits. Although health insurance coverage (e.g., JSY, PM-JAY) has been associated with improved maternal health utilization, the reach and efficacy of these schemes remain inconsistent, particularly in rural and marginalized communities (Kumar et al., 2019). Thus, expanding financial protection and streamlining benefit delivery may help bridge this gap.

Interestingly, place of residence (urban vs. rural) lost significance in the multivariate analysis, suggesting that once individual-level socio-demographic and economic characteristics are accounted for, the locational disadvantage may be mediated. This finding aligns with earlier research indicating that rural disadvantage in health service utilization often stems from deeper structural inequalities, rather than geography alone (Desai & Dubey, 2012). Higher parity was associated with lower ANC utilization. Women with four or more children were significantly less likely to receive QANC, possibly due to complacency from prior childbirth experiences or competing responsibilities. This trend is concerning, as higher-order births carry greater health risks and therefore necessitate more rigorous monitoring. The positive association between institutional deliveries—particularly caesarean sections—and QANC may reflect both the health system's role in guiding pregnant women through structured maternal care pathways and the influence of health complications that require increased medical attention. However, it also raises questions about the equity of care, as those who interact more frequently with the healthcare system seem to receive more complete services.

Finally, decision-making power within households was a significant predictor of ANC use. Women who made health decisions jointly with their husbands or were supported by other household members were more likely to access QANC. This emphasizes the need for maternal health programs to engage not only women but also their families and communities to foster supportive environments for care-seeking behavior (Jejeebhoy, 2000). In sum, the utilization of quality ANC services in India is influenced by a complex interplay of individual, socio-economic, and institutional factors. While national averages may reflect progress, disaggregated data reveal enduring inequities that must be addressed through context-specific interventions. Policies aimed at improving female education, expanding financial protection, enhancing early ANC initiation, and reducing geographic barriers will be critical in achieving universal access to maternal healthcare.

Conclusion

This study demonstrates that significant disparities persist in antenatal care utilization across rural and urban India, shaped largely by education, wealth, early engagement, and institutional factors. Improving maternal health outcomes requires not only addressing these socio-economic determinants but also strengthening health systems to ensure equitable access. A multi-pronged strategy that combines community awareness, financial support, and system-level reforms will be vital in achieving universal and quality maternal care across all regions of India.

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