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# Determinants of Modern Contraceptive Use among Tribal Women in Manipur, India: Evidence from NFHS-5

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## Abstract

Using data from the National Family Health Survey-5 (2019–21), this study examines determinants of modern contraceptive use among Scheduled Tribe women in Manipur, Northeast India. Modern contraceptive use was analysed as the outcome variable using survey-weighted logistic regression accounting for complex sampling design. Findings show that women making contraceptive decisions jointly with husbands had significantly lower odds of modern method use than women deciding independently. Contrary to expectations, women with secondary or higher education and those exposed to mass media showed lower likelihood of use. Household wealth emerged as a strong predictor, with women from middle-wealth households having higher odds of use than poorest households. Women with fewer children were less likely to use contraception, indicating predominance of stopping rather than spacing behaviour. Overall, modern contraceptive use among tribal women in Manipur is shaped by economic conditions, parity, and intra-household decision-making dynamics than education exposure, underscoring culturally sensitive family-planning interventions.

**Keywords:** Modern contraception; Tribal women; Manipur; NFHS-5; Logistic regression

## Introduction

Modern contraception plays a central role in reducing unintended pregnancies, maternal mortality, and adverse child health outcomes (Black et al., 2013; Victora et

al., 2008). Although India has witnessed a steady increase in contraceptive prevalence over the past two decades, large inequalities persist across social groups and regions (IIPS & ICF, 2021). Scheduled Tribe populations remain among the most disadvantaged, facing persistent barriers related to geographic isolation, weak health infrastructure, poverty, and sociocultural norms (Ministry of Tribal Affairs, 2020; Bhatia & Dwivedi, 2018).

Manipur, a hill state in Northeast India, is home to a large tribal population residing in remote and often poorly connected areas. Access to reproductive health services in these regions is constrained by difficult terrain, shortages of health personnel, and limited outreach services. While NFHS reports provide state-level estimates of contraceptive use, much less is known about the factors shaping contraceptive behaviour specifically among tribal women in Manipur.

Previous studies from India and other low- and middle-income countries identify women's autonomy, education, household wealth, parity, and exposure to mass media as important determinants of contraceptive use (Stephenson et al., 2007; Jat et al., 2011; Gupta et al., 2003; Cleland et al., 2006). However, the relevance and direction of these relationships among tribal populations, where fertility preferences, cultural practices, and household power structures may differ substantially, remain poorly understood. This study addresses this gap by examining the determinants of modern contraceptive use among tribal women in Manipur using NFHS-5 data.

## Methods

Data Source and Study Population

This study used unit-level data from the National Family Health Survey-5 (NFHS-5), conducted during 2019–21 under the Demographic and Health Survey framework (IIPS & ICF, 2021). The analysis was restricted to Scheduled Tribe women of reproductive age residing in Manipur. A total of 3,915 samples were obtained after the restriction.

### Outcome Variable

Modern contraceptive use was the primary outcome variable in this study. It was coded as a binary measure indicating whether a woman was using any modern contraceptive method at the time of the survey. Modern methods included female sterilization, male sterilization, the pill, IUD, injectables, implants, condoms, and other DHS-classified modern methods.

### Covariates

A set of explanatory variables was included based on prior evidence on determinants of contraceptive use (Stephenson et al., 2007; Wang et al., 2011; Gupta et al., 2003).

Covariates captured demographic, socioeconomic, and reproductive characteristics likely to influence modern contraceptive behaviour. Decision-making regarding contraception was categorized as woman alone (reference), husband alone, or joint decision. Age was grouped into 15–24, 25–34, and 35–49 years. Women's education was classified as no education, primary, secondary, or higher, while husband's education was categorized as no education, primary, or secondary and above. Household wealth was measured using the DHS wealth index and grouped into poorest (reference), poorer, middle, and richer wealth quintiles. Parity was represented by the number of living children and categorized as one child, two children, or three or more children (reference). Place of residence was classified as urban (reference) or rural. Media exposure was defined as regular exposure to print media, radio, or television at least once a week.

### Statistical Analysis

Survey-weighted logistic regression was estimated. Sampling weights, clustering at the primary sampling unit level, and stratification were accounted for using the appropriate command in STATA. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported. Statistical significance was assessed at the 5% level.

## Results

### Back ground characteristics

Table 1 presents the weighted background characteristics of the study population. The age distribution indicates a relatively older reproductive-age structure, with 37.6% of women aged 35–49 years, followed by 33.4% in the 25–34 age group, and 29.1% in the 15–24 age group**. This suggests that a substantial proportion of women in the sample are in the later stages of their reproductive life.

With regard to women's education, the majority had secondary education (59.9%), while 15.4% had higher education. However, a notable 10.4% had no formal schooling, and 14.3% had only primary education, indicating persistent educational disadvantage among a segment of tribal women. Husband's education showed a broadly similar pattern, with 61.5% having secondary education and 17.8% having higher education, while a smaller proportion had no education (8.4%) or only primary schooling (12.3%).

The wealth distribution highlights substantial economic deprivation. Nearly 62% of households belonged to the poorest (27.5%) and poorer (34.6%) wealth quintiles, while only 13.1% were in the richer and 5.5% in the richest quintile. This confirms that

the study population is predominantly drawn from economically disadvantaged households.

In terms of fertility, 36.4% of women had one living child, while 12.9% had two children, 16.2% had three children, and 34.5% had four or more children. This indicates that a substantial proportion of women had already achieved relatively high parity.

The study population was overwhelmingly rural, with 78.8% residing in rural areas and only 21.2% in urban areas, reflecting the predominantly rural nature of the tribal population in Manipur.

Media exposure remained limited. More than half of the women (53.7%) reported no regular exposure to any mass media, while 46.3% reported regular exposure to at least one medium. This suggests restricted access to or engagement with mass communication channels among tribal women.

Overall, the background profile depicts a population that is largely rural, economically disadvantaged, and characterized by high parity and limited media exposure, despite relatively moderate levels of secondary education. These structural characteristics provide important context for understanding the patterns of modern contraceptive use observed in the multivariable analysis.

**Table 1: Background Characteristics**

| **Variables** | Labels | Total (%) |
|---|---|---|
| **Age group** | 15-24 | 1083 (29.05%) |
| | 25-34 | 1359 (33.4%) |
| | 35-49 | 1473 (37.55%) |
| **Women's Education** | No education | 446 (10.44%) |
| | Primary | 625 (14.28%) |
| | Secondary | 2,333 (59.88%) |
| | Higher | 511 (15.41%) |
| **Husband's Education** | No education | 32 (8.41%) |

| | | |
|---|---|---|
| | Primary | 59 (12.32%) |
| | Secondary | 254 (61.49%) |
| | Higher | 72 (17.78%) |
| **Wealth quintile** | Poorest | 1,327 (27.46%) |
| | Poorer | 1,400 (34.58%) |
| | Middle | 702 (19.36%) |
| | Richer | 372 (13.09%) |
| | Richest | 114 (5.50%) |
| **Number of Children Living** | | 1,370 (36.37%) |
| | | 505 12.94 (12.94%) |
| | | 631 16.21 (16.21%) |
| | | 1,409 34.49 (34.49%) |
| **Place of residence** | Urban | 554 (21.21%) |
| | Rural | 3361 (78.79%) |
| **Media Exposure** | No regular media exposure | 2,221 (53.66%) |
| | Regular media exposure | 1,694 (46.34%) |
| | | 72 (4.06%) |
| | | 128 (8.24%) |
| | | 1338 (87.69%) |
| **Source: Computed from NFHS-5** | | |

**Multivariable Determinants of Modern Contraceptive Use**

After adjusting for all covariates, several clear patterns emerged. Women who reported making contraceptive decisions jointly with their husbands had significantly lower odds of using modern contraceptives compared with women who decided on

their own (AOR = 0.18; 95% CI: 0.05–0.60; p = 0.007). Decision-making by the husband alone was also associated with lower odds, although this was not statistically significant.

Women's education showed an unexpected inverse pattern. Secondary education (AOR = 0.24; p = 0.050) and higher education (AOR = 0.16; p = 0.039) were associated with significantly lower odds of modern contraceptive use compared with no education. Husband's education exhibited a positive but statistically non-significant association.

Household wealth displayed a strong positive gradient. Women from middle-wealth households had over five times higher odds of using modern contraceptives compared to those from the poorest households (AOR = 5.13; p = 0.021). Parity showed a strong stopping behaviour pattern: women with one or two children were significantly less likely to use modern contraception than women with three or more children.

Media exposure was unexpectedly associated with lower odds of modern contraceptive use (AOR = 0.47; p = 0.031). Rural residence was not statistically significant after adjustment.

**Table2: Determinants of Modern Contraceptive Use among Tribal Women in Manipur (NFHS-5)**
(Adjusted Odds Ratios (AOR) with 95% Confidence Intervals)

| Variable | AOR | 95% CI | p-value |
|---|---|---|---|
| **Husband alone (vs Woman alone)** | 0.50 | 0.11 – 2.32 | 0.364 |
| **Joint decision (vs Woman alone)** | 0.18 | 0.05 – 0.60 | 0.007 |
| **Age 25–34 (vs 15–24)** | 0.43 | 0.09 – 1.98 | 0.271 |
| **Age 35–49 (vs 15–24)** | 0.33 | 0.09 – 1.22 | 0.093 |
| **Primary education (vs None)** | 0.63 | 0.15 – 2.58 | 0.508 |
| **Secondary education (vs None)** | 0.24 | 0.06 – 1.00 | 0.050 |
| **Higher education (vs None)** | 0.16 | 0.03 – 0.90 | 0.039 |
| **Husband Primary education** | 2.64 | 0.24 – 28.61 | 0.414 |
| **Husband Secondary+ education** | 4.16 | 0.44 – 39.26 | 0.207 |
| **Poorer (vs Poorest)** | 2.44 | 0.79 – 7.52 | 0.118 |
| **Middle (vs Poorest)** | 5.13 | 1.30 – 20.23 | 0.021 |

| | | | |
|---|---|---|---|
| **Richer (vs Poorest)** | 4.31 | 0.77 – 24.13 | 0.095 |
| **1 child (vs 3+)** | 0.28 | 0.08 – 0.95 | 0.042 |
| **2 children (vs 3+)** | 0.32 | 0.12 – 0.87 | 0.026 |
| **Rural (vs Urban)** | 1.68 | 0.62 – 4.52 | 0.300 |
| **Media exposure (Yes vs No)** | 0.47 | 0.24 – 0.93 | 0.031 |

**Discussion**

The present study highlights the multifaceted nature of modern contraceptive use among tribal women in Manipur. It reveals how individual characteristics intersect with broader social and cultural environments. One of the most important findings relates to decision-making dynamics within households. Women who shared contraceptive decisions with their husbands were significantly less likely to adopt modern methods compared to those who independently made such choices. While research from patriarchal regions in India often associates joint decision-making with better reproductive outcomes (Singh SK, et al., 2019; Patrikar SR, 2014; Jena SK, et al., 2024), this pattern appears different in tribal contexts where family size norms, kinship obligations, and customary practices shape fertility decisions. Joint decision-making may reflect collective preferences for larger families or cautious attitudes toward modern methods rather than genuine equality in reproductive negotiations. This underscores the importance of interpreting "autonomy" within specific cultural frameworks rather than assuming universal meanings.

Another important result concerns the role of women's education. Although education is typically associated with greater contraceptive uptake, this study found that women with secondary or higher education had lower odds of using modern contraception compared to those with no schooling. This counterintuitive pattern may reflect the distinct socio-cultural positioning of educated tribal women, who may intentionally delay childbearing, prefer natural methods, or hold concerns about hormonal contraceptives due to perceived side effects. Additionally, traditional beliefs around fertility may still be influential among some educated groups. Husband's education showed a generally positive, though not consistently significant, association with contraceptive use, suggesting that men's awareness and attitudes continue to shape reproductive choices. Given the shared decision-making norms within many tribal households, engaging men in family planning interventions remains essential.

Wealth status also emerged as a significant predictor. Women belonging to the middle wealth group were substantially more likely to use modern contraception compared to those in the poorest households. This supports long-standing evidence that economic well-being enhances access to health information and increases the

ability to afford or reach health services. The positive association in the richer group, although not statistically robust, indicates that financial resources alone do not guarantee contraceptive adoption unless they are supported by enabling social and informational environments.

Parity-related differences were particularly striking. Women with one or two children were far less likely to use modern contraception than those with three or more children, suggesting a preference for adopting modern methods primarily as a limiting strategy rather than for spacing births. This pattern reflects broader fertility norms in many tribal communities where early childbearing and larger family sizes remain common, and where limiting rather than spacing often serves as the entry point into family planning. This highlights the need for stronger promotion of spacing methods and continued counseling for younger couples.

Media exposure showed a strong and consistent influence. Women with no regular exposure to any form of mass media were significantly less likely to use modern contraception, demonstrating the enduring relevance of information dissemination in geographically isolated areas. Tribal households in remote hill districts often have limited access to television, radio, and digital platforms, resulting in reduced awareness of available methods, eligibility, and safety. Closing these communication gaps is essential for equitable access to reproductive health information.

Taken together, these findings suggest that modern contraceptive behaviour among tribal women is shaped by a combination of informational barriers, household dynamics, cultural norms, and socioeconomic constraints. Importantly, the results demonstrate that improving women's autonomy or increasing household wealth alone may not translate into higher contraceptive use unless accompanied by culturally sensitive counselling, greater male involvement, and consistent outreach by health workers. Tribal communities are diverse, and their reproductive decisions are embedded in social structures that differ from mainstream populations; as such, interventions must be grounded in local realities rather than assuming a uniform behavioural model.

The unexpected negative associations for education and joint decision-making raise important questions for future research. Qualitative studies could help uncover the underlying reasoning behind method choice, perceived risks, and the influence of customary practices. Understanding these social dimensions is crucial for designing family planning programs that resonate with tribal values while still promoting informed choice and reproductive autonomy.

Overall, the study underscores the need for **context-specific, culturally informed, and gender-inclusive strategies** to improve contraceptive uptake among tribal

women in Manipur. Strengthening service delivery in remote areas, improving method counselling, addressing misconceptions, and expanding communication channels are vital steps toward ensuring equitable access to modern contraception.

## Policy Implications

The findings highlight the need for culturally grounded and locally tailored family-planning strategies for tribal communities in Manipur. Economic barriers must be addressed through strengthened outreach-based distribution of free contraceptives in remote hill areas. Programs must actively engage men and address household power relations rather than focusing exclusively on women. Media-based IEC strategies should be redesigned using local languages and culturally familiar platforms.

## Limitations

The cross-sectional design limits causal inference. The restricted tribal subsample limits generalizability. Several potentially important factors such as distance to health facilities, quality of family-planning services, and deeper traditional and cultural norms could not be directly measured.

## Conclusions

Modern contraceptive use among tribal women in Manipur is shaped primarily by economic status, parity, and household decision-making dynamics rather than by education or media exposure. Without gender-transformative and culturally responsive interventions, tribal contraceptive inequalities are likely to persist.

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