International Journal of Education, Modern Management, Applied Science & Social Science (IJEMMASSS)
An International Quarterly bi-lingual Multidisciplinary Double Blind Open Access Peer Reviewed Refereed Journal
ISSN:2581-9925, Impact Factor (Cosmos: 7.555 & I2OR: 5.105), Volume 08, No. 03(IV)(Special Issue), July-September, 2026, pp. 267-275

Transitions in Fertility, Reproductive Health, and Empowerment among Scheduled Tribe Women in Jharkhand: Evidence from NFHS-4 and NFHS-5

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DOI Citation: Pandey, S. & Pal, D. (2026). Transitions in Fertility, Reproductive Health, and Empowerment among Scheduled Tribe Women in Jharkhand: Evidence from NFHS-4 and NFHS-5. International Journal of Education, Modern Management, Applied Science &Amp; Social Science, 08(03(IV)), 267–275.

ABSTRACT

Scheduled Tribes (STs) in Jharkhand continue to face socio-economic disadvantages, making the assessment of women's reproductive health and empowerment essential. This study compares NFHS-4 (2015–16) and NFHS-5 (2019–21) data to examine changes in fertility, reproductive health, and women's empowerment among ST women. A comparative descriptive approach was adopted, and absolute and relative changes were calculated across selected indicators. Findings show substantial improvements in reproductive health, particularly in knowledge of contraception, which increased from 27.3 % to 55.9 %, alongside notable gains in antenatal care and delivery with postnatal care. In the empowerment domain, bank account ownership recorded the highest improvement, rising from 39.9 % to 74.0 %, while awareness of microcredit programmes and mobile phone ownership also increased considerably. However, teenage pregnancy and access to money and credit showed limited progress. The study concludes that ST women in Jharkhand are experiencing improvements in reproductive health and empowerment, although persistent gaps in adolescent health and financial autonomy require continued policy attention.

***Keywords**: NFHS, Scheduled Tribes, Jharkhand, Fertility and Reproductive Health, Women Empowerment.*

Introduction

Reproductive health is an essential component of women's overall well-being and socio-economic development. It includes fertility behaviour, maternal healthcare, family planning, reproductive autonomy, and women's ability to make informed reproductive choices. The World Health Organization defines reproductive health as complete physical, mental, and social well-being in matters related to the reproductive system (WHO, 1997). Reproductive transitions are generally reflected through changes in fertility levels, contraceptive use, maternal healthcare utilization, age at marriage, and women's empowerment indicators. Globally, maternal and reproductive health outcomes have improved considerably over the last few decades; however, inequalities continue to persist among marginalized populations (Fathalla, 1992; Langer et al., 2015). In India, Scheduled Tribes (STs) remain one of the most socio-economically disadvantaged communities with relatively poor reproductive and maternal health indicators (Rekha et al., 2023). Tribal women often face barriers related to poverty, geographical isolation, low educational attainment, cultural exclusion, and inadequate healthcare infrastructure, which significantly affect their reproductive health outcomes.

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[*]***A Special Issue for the papers accepted for publication in the Two-Days Multidisciplinary National Seminar on Role of Entrepreneurship in Socio-Economic Upliftment of Women in India(22-23 May 2026) Organized by Faculty of Commerce, The Graduate School College for Women, Jamshedpur, Jharkhand(A Constituent Unit of Kolhan University, Chaibasa, Jharkhand)in Collaboration with Jharkhand State Higher Education Council, Department of Higher and Technical Education, Govt. of Jharkhand & Punjab and Sind Bank, Sakchi, Jamshedpur.***

Jharkhand, a tribal-dominated state of eastern India, exhibits substantial socio-economic and health disparities despite improvements in health indicators over time. Tribal women in the state continue to experience lower utilization of antenatal care, institutional delivery, contraceptive services, and reproductive healthcare compared to non-tribal populations (Pandey et al., 2024). Studies have also shown that early marriage, early childbearing, and low educational attainment remain prevalent among tribal communities, thereby affecting fertility transitions and women's empowerment (Raj et al., 2009; Santhya et al., 2010).

The demographic transition in India has been accompanied by declining fertility rates, delayed marriage, and increasing use of family planning methods (Caldwell, 1980). Research suggests that women's education, autonomy, and socio-economic status significantly influence reproductive behaviour and healthcare utilization (Jejeebhoy, 1995; Bloom et al., 2001). Delayed reproductive transitions are associated with improved maternal and child health outcomes, enhanced educational attainment, and greater participation of women in household decision-making (Field & Ambrus, 2008).

Studies using NFHS data have highlighted substantial changes in reproductive behaviour over time. Singh et al. (2023) observed an increase in the age at first cohabitation, first sex, and first birth across India, with education emerging as the most significant determinant of delayed reproductive transitions. Similarly, Pavithran and Sultana (2025) found improvements in contraceptive prevalence and family planning awareness among women in Kerala between NFHS-4 and NFHS-5. However, such improvements remain uneven across socially marginalized populations, particularly among Scheduled Tribes.

Women's empowerment is increasingly recognized as a key determinant of reproductive health outcomes. Empowered women are more likely to seek maternal healthcare services, adopt contraception, delay childbirth, and exercise reproductive autonomy (Malhotra et al., 2002). However, gender inequality, poor educational attainment, and economic dependency continue to limit reproductive decision-making among tribal women in India.

The National Family Health Survey (NFHS) provides comprehensive evidence on fertility, maternal health, family planning, and women's empowerment across India. Comparative analysis of NFHS-4 (2015–16) and NFHS-5 (2019–21) offers an opportunity to examine recent transitions in fertility, reproductive health, and empowerment among Scheduled Tribe women in Jharkhand. Therefore, the present study aims to analyse the changing patterns of fertility behaviour, reproductive healthcare utilization, and women's empowerment among Scheduled Tribe women in Jharkhand using evidence from NFHS-4 and NFHS-5.

Literature Review

Reproductive health and fertility transitions have been extensively studied in demographic and public health research. Reproductive health includes fertility behaviour, family planning, maternal healthcare, reproductive rights, and women's autonomy in making reproductive decisions (WHO, 1997). Langer et al. (2015) emphasized that women's reproductive health is central to sustainable development and overall social progress.

Several studies have examined the determinants of reproductive transitions in India. Caldwell (1980) argued that fertility decline in developing countries is strongly associated with female education and social development. Similarly, Singh et al. (2023), using NFHS data from 1992–93 to 2019–21, found a gradual increase in the age at first cohabitation, first sex, and first birth among Indian women. Their study identified education as the strongest determinant of delayed reproductive transitions and fertility decline.

Research has consistently shown that early marriage and early childbearing adversely affect women's health, education, and autonomy. Raj et al. (2009) found that child marriage in India is associated with higher fertility, lower contraceptive use, and poor maternal healthcare utilization. Santhya et al. (2010) also reported that early marriage negatively influences young women's reproductive and maternal health outcomes. Field and Ambrus (2008) observed that delayed marriage contributes positively to female educational attainment and empowerment.

Studies focusing on tribal populations reveal persistent inequalities in reproductive and maternal healthcare utilization. Rekha et al. (2023), in their analysis of Scheduled Tribes in Odisha and Jharkhand, found that wealthier and better-educated tribal women had significantly higher access to antenatal care, institutional delivery, and child healthcare services compared to poorer households. The study further

highlighted the existence of wealth- and education-based inequalities in RMNCH service utilization within tribal communities.

The role of socio-economic status and education in shaping reproductive behaviour has been highlighted in several studies. Jejeebhoy (1995) emphasized that women's education improves reproductive autonomy and healthcare utilization. Bloom et al. (2001) similarly found that women with greater decision-making power are more likely to access maternal healthcare services. Malhotra et al. (2002) conceptualized women's empowerment as the ability to make strategic life choices, including decisions related to fertility and healthcare.

Regional and spatial disparities in reproductive and child health outcomes have also been documented in India. Pandey et al. (2024) conducted a district-level analysis of reproductive and child health indicators in Empowered Action Group (EAG) states and identified substantial inter-district inequalities in fertility, maternal health, and child health outcomes. The study emphasized that poor healthcare infrastructure and socio-economic backwardness significantly affect reproductive health outcomes in disadvantaged regions.

Research further indicates that access to reproductive healthcare services remains unequal among marginalized populations. Stephenson and Tsui (2002) observed that women's autonomy and socio-economic status strongly influence contraceptive use and healthcare-seeking behaviour. García-Moreno and Stöckl (2009) argued that reproductive health policies in developing countries often fail to adequately address women's autonomy and reproductive rights.

Studies have also highlighted the importance of family planning and contraceptive awareness in fertility transition. Pavithran and Sultana (2025) found increasing contraceptive prevalence and improved family planning awareness among women in Kerala between NFHS-4 and NFHS-5, although gaps in informed contraceptive decision-making persisted. Malarcher and Organization (2010) observed that poorer populations generally experience lower access to modern contraceptive methods, resulting in wider reproductive health inequalities.

Maternal and reproductive health inequalities among tribal populations are further intensified by geographical isolation and inadequate healthcare infrastructure. Vander Borght and Wyns (2018) highlighted that poor reproductive healthcare access remains a major challenge in developing countries. Ouahid et al. (2023) emphasized the need to address broader socio-economic and healthcare determinants associated with reproductive morbidity and mortality.

Although substantial literature exists on reproductive health transitions and maternal healthcare utilization in India, studies specifically examining fertility, reproductive health, and empowerment transitions among Scheduled Tribe women in Jharkhand remain limited. Most existing studies focus either on fertility patterns or maternal healthcare utilization separately. Therefore, the present study attempts to bridge this gap by analysing transitions in fertility behaviour, reproductive healthcare utilization, and women's empowerment among Scheduled Tribe women in Jharkhand using comparative evidence from NFHS-4 and NFHS-5.

Objectives of the Study

- To assess the changes in fertility and reproductive health indicators among Scheduled Tribe women in Jharkhand between NFHS-4 (2015–16) and NFHS-5 (2019–21).
- To assess the changes in women's empowerment indicators among Scheduled Tribe women in Jharkhand between NFHS-4 (2015–16) and NFHS-5 (2019–21).

Methodology

The study is based on secondary data obtained from the National Family Health Survey (NFHS)-4 (2015–16) and NFHS-5 (2019–21). Focusing on Scheduled Tribe women in Jharkhand, the study adopts a comparative descriptive research design to analyse transitions in fertility, reproductive health, and women's empowerment indicators across the two survey rounds. The indicators were grouped into two domains:

- Fertility and reproductive health indicators, including fertility rate, wanted fertility rate, teenage pregnancy, contraceptive knowledge, antenatal care, pregnancy registration, delivery and postnatal care, menstrual hygiene, and female school attendance; and

- Women's empowerment indicators, including decision-making, access to money and credit, bank account ownership, knowledge of microcredit programmes, ownership of house and land, and mobile phone usage.

The analysis was conducted using trend analysis and descriptive statistical techniques. Absolute change and relative change (%) were computed to measure the extent of change between NFHS-4 and NFHS-5 for each indicator. The findings were presented using tables, trend lines, and graphical representations to facilitate comparative interpretation of changes over time.

Findings

Table 1: Changes in Fertility and Reproductive Health Indicators among Scheduled Tribe Women in Jharkhand: NFHS-4 and NFHS-5

Fertility and Reproductive Health Indicators	NFHS-4 (2015-16)	NFHS-5 (2019-21)	Absolute Change	Relative Change (%)
Fertility rate	2.56	2.26	0.3	11.72
wanted fertility rate	2	1.79	0.21	10.50
Teenage pregnancy and motherhood	11	9.8	1.2	10.91
Contraception knowledge	27.3	55.9	28.6	104.76
Antenatal care	58.6	73.8	15.2	25.94
Pregnancy registration	84.6	92.1	7.5	8.87
Delivery and postnatal care	49.2	66.4	17.2	34.96
Hygienic method for menstruation	41.8	68	26.2	62.68
6-17 years Female attending school	78	79	1	1.28

Source: Author's Compilation from NFHS-4 and NFHS-5

The findings indicate a significant transition in fertility and reproductive health indicators among Scheduled Tribe women in Jharkhand between NFHS-4 (2015–16) and NFHS-5 (2019–21). The fertility rate declined from 2.56 to 2.26, while the wanted fertility rate reduced from 2.00 to 1.79, reflecting a gradual shift towards lower fertility preferences. Teenage pregnancy and motherhood also declined from 11 % to 9.8 %, indicating moderate improvement in reproductive behaviour among young tribal women. One of the most notable improvements was observed in contraceptive knowledge, which increased from 27.3 % to 55.9 %, registering a relative increase of 104.76 %. Maternal healthcare utilization improved substantially, with antenatal care increasing from 58.6 % to 73.8 % and pregnancy registration rising from 84.6 % to 92.1 %. Similarly, delivery and postnatal care services improved from 49.2 % to 66.4 %, showing enhanced access to institutional healthcare services. Hygienic methods of menstruation recorded a considerable rise from 41.8 % to 68 %, reflecting improved menstrual awareness and sanitation practices among tribal women. However, female school attendance among girls aged 6–17 years showed only marginal improvement, increasing from 78 % to 79 %, suggesting that educational progress remains relatively stagnant despite improvements in health and awareness indicators.

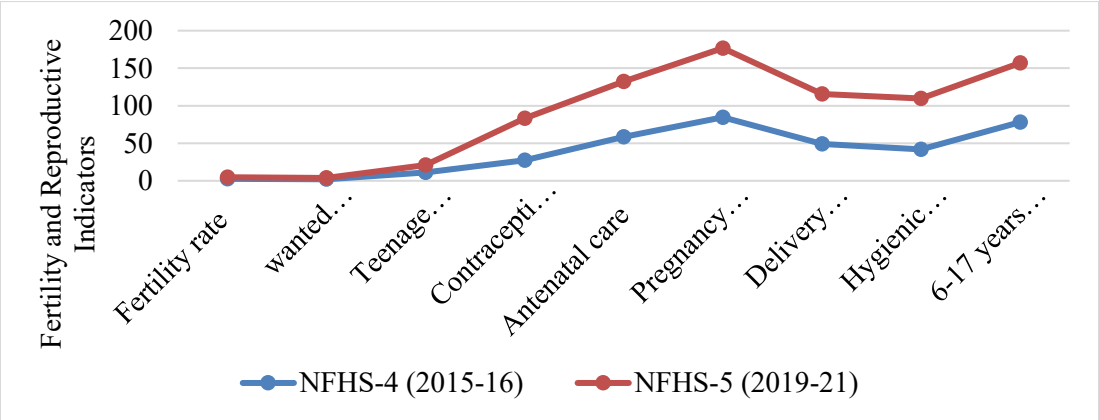

Figure 1: Trend in Fertility and Reproductive Health Indicators among Scheduled Tribe Women in Jharkhand.

Source: Author's Compilation from NFHS-4 and NFHS-5

The trend line graph shows a clear improvement in fertility and reproductive health indicators among Scheduled Tribe women in Jharkhand between NFHS-4 (2015–16) and NFHS-5 (2019–21). Indicators such as contraceptive knowledge, antenatal care, pregnancy registration, delivery and postnatal care, and hygienic methods of menstruation recorded substantial increases in NFHS-5. Pregnancy registration and female school attendance remained the highest-performing indicators across both survey rounds. In contrast, fertility rate, wanted fertility rate, and teenage pregnancy declined over time, indicating a gradual shift towards lower fertility and improved reproductive behaviour. Overall, the graph reflects positive progress in reproductive health awareness and healthcare utilization among tribal women.

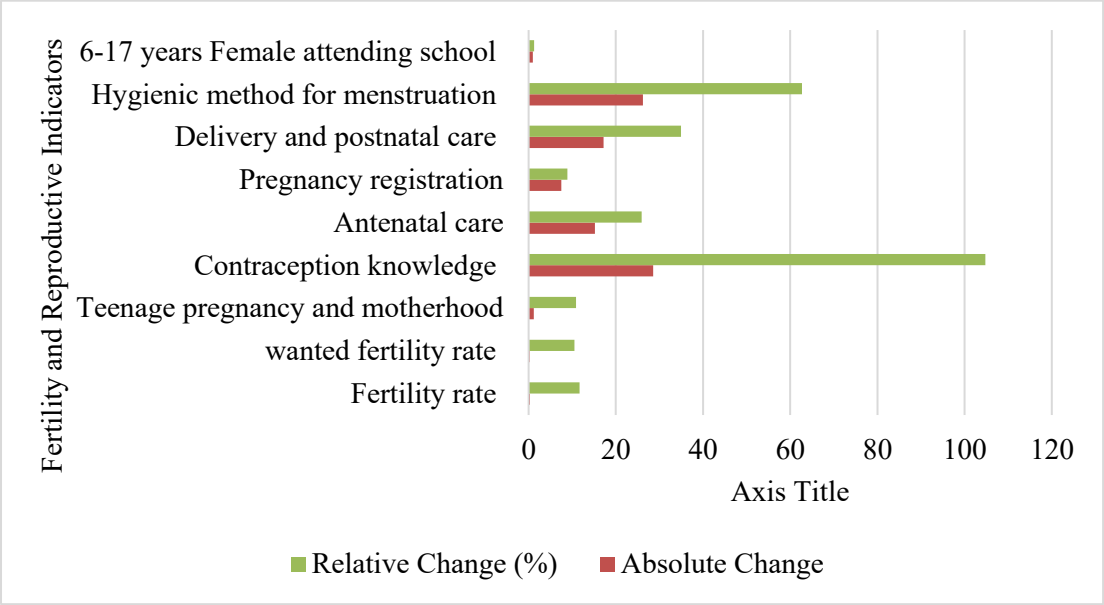

Figure 2: Absolute and Relative Changes in Fertility and Reproductive Health Indicators between NFHS-4 and NFHS-5

Source: Author's Compilation from NFHS-4 and NFHS-5

The graph depicting absolute and relative changes highlights substantial improvement in reproductive health indicators among Scheduled Tribe women in Jharkhand between NFHS-4 and NFHS-5. Contraceptive knowledge recorded the highest relative increase, followed by hygienic methods for menstruation and delivery, and postnatal care. Antenatal care and pregnancy registration also showed notable progress. In contrast, fertility rate, wanted fertility rate, and teenage pregnancy exhibited relatively smaller changes, reflecting a gradual decline in fertility behaviour. Female school attendance showed only marginal improvement over the period. Overall, the graph indicates stronger progress in healthcare awareness and service utilization than in educational advancement.

Table 2: Changes in Women's Empowerment Indicators among Scheduled Tribe Women in Jharkhand: NFHS-4 and NFHS-5

Women Empowerment Indicator	NFHS-4 (2015-16)	NFHS-5 (2019-21)	Absolute Change	Relative Change (%)
Decision making	75.8	88.7	12.9	17.02
Access to money and credit	42.7	46.5	3.8	8.90
Have a bank/savings account	39.9	74	34.1	85.46
knowledge about the microcredit programme	39.5	55.2	15.7	39.75
Owns a house	51.8	65.7	13.9	26.83
Owns a land	46.3	57.8	11.5	24.84
Have a mobile phone	25.8	40.8	15	58.14

Source: Author's Compilation from NFHS-4 and NFHS-5

The findings indicate considerable improvement in women's empowerment indicators among Scheduled Tribe women in Jharkhand between NFHS-4 (2015–16) and NFHS-5 (2019–21). Participation in household decision-making increased from 75.8 % to 88.7 %, reflecting improved autonomy among women. Financial inclusion showed substantial progress, as the proportion of women having a bank or savings account rose significantly from 39.9 % to 74 %, recording the highest relative increase of 85.46 %. Knowledge about microcredit programmes also improved from 39.5 % to 55.2 %, while access to money and credit increased moderately from 42.7 % to 46.5 %. Ownership of house and land showed positive growth, increasing to 65.7 % and 57.8 % respectively in NFHS-5. Mobile phone ownership increased notably from 25.8 % to 40.8 %, indicating better access to communication and digital connectivity among tribal women. Overall, the results suggest a positive transition in women's economic participation, financial inclusion, and decision-making capacity over the study period.

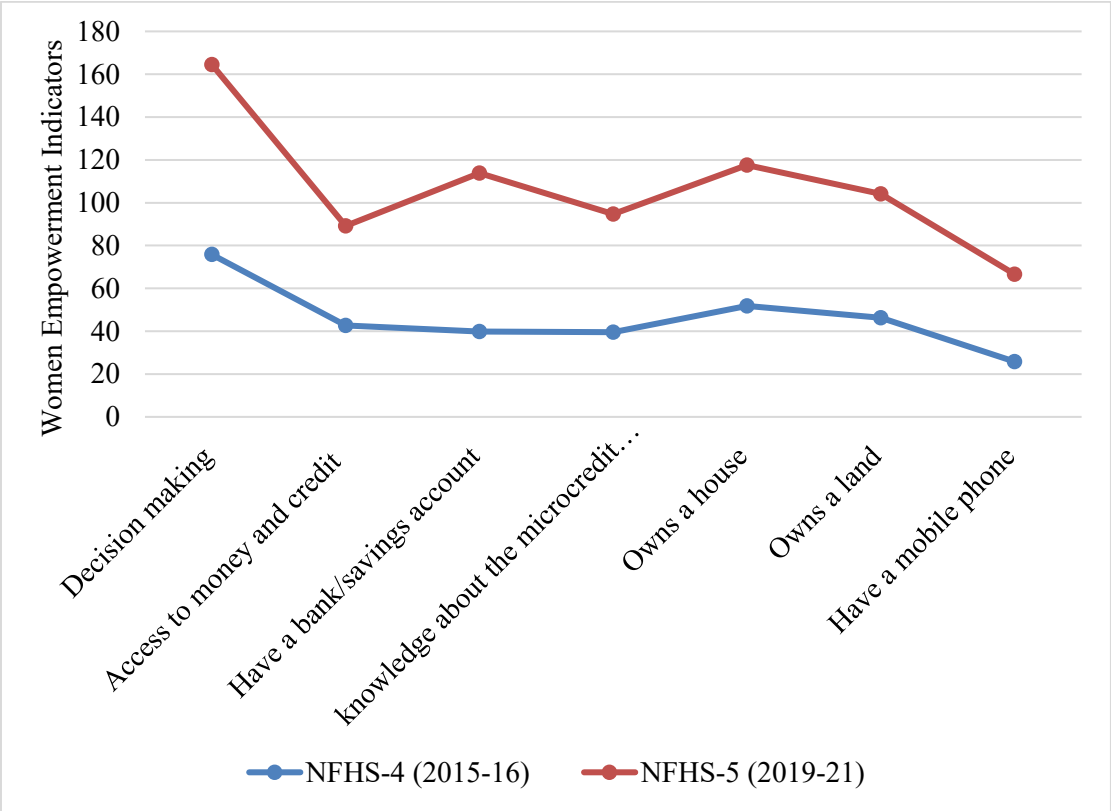

Figure 3: Trend in Women's Empowerment Indicators among Scheduled Tribe Women in Jharkhand

Source: Author's Compilation from NFHS-4 and NFHS-5

The trend line graph indicates a positive transition in women's empowerment indicators among Scheduled Tribe women in Jharkhand between NFHS-4 and NFHS-5. The NFHS-5 trend line remains consistently above NFHS-4 across all indicators, reflecting overall improvement in women's socio-economic status and autonomy. Significant progress is visible in bank/savings account ownership, decision-making participation, and knowledge about microcredit programmes. Ownership of house and land also improved during the period, while mobile phone ownership showed notable growth, indicating increasing digital access among tribal women. However, access to money and credit recorded comparatively slower improvement than other empowerment indicators. Overall, the graph highlights increasing financial inclusion, asset ownership, and decision-making capacity among Scheduled Tribe women over time.

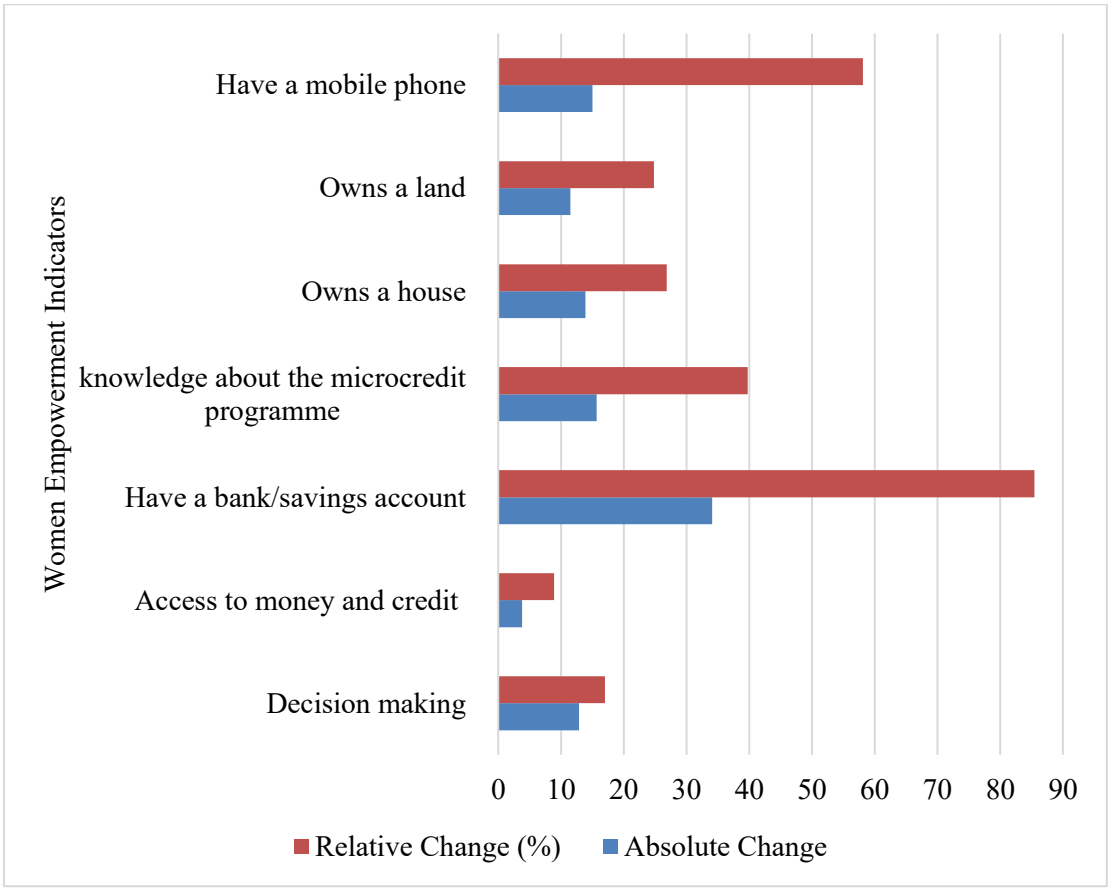

Figure 4: Absolute and Relative Changes in Women's Empowerment Indicators between NFHS-4 and NFHS-5

Source: Author's Compilation from NFHS-4 and NFHS-5

The graph showing absolute and relative changes highlights substantial improvement in women's empowerment indicators among Scheduled Tribe women in Jharkhand between NFHS-4 and NFHS-5. Bank/savings account ownership recorded the highest relative increase, followed by mobile phone ownership and knowledge about microcredit programmes, indicating growing financial inclusion and digital connectivity among tribal women. Ownership of house and land also showed moderate improvement over the period. Decision-making participation increased considerably, reflecting enhanced autonomy among women. In contrast, access to money and credit registered the lowest relative and absolute change, suggesting that financial accessibility remains comparatively limited despite improvements in other empowerment dimensions.

Conclusion

The study highlights a significant transition in fertility, reproductive health, and women's empowerment among Scheduled Tribe women in Jharkhand between NFHS-4 (2015–16) and NFHS-5 (2019–21). The findings indicate a gradual decline in fertility rate, wanted fertility rate, and teenage pregnancy, reflecting changing reproductive behaviour among tribal women. At the same time, considerable improvement was observed in contraceptive knowledge, antenatal care, pregnancy registration, delivery and postnatal care, and menstrual hygiene practices, suggesting enhanced awareness of healthcare services and their utilisation.

The analysis also reveals positive changes in women's empowerment indicators. Greater participation in household decision-making, increasing financial inclusion through bank account ownership, improved awareness of microcredit programmes, and rising ownership of assets and mobile

phones indicate strengthening socio-economic empowerment among tribal women. However, certain indicators such as access to money and credit and female school attendance showed relatively slower progress, highlighting the persistence of structural and socio-economic barriers.

Overall, the study demonstrates that although Scheduled Tribe women in Jharkhand have experienced notable improvements in reproductive health and empowerment, inequalities and developmental gaps continue to exist. Sustained policy interventions focusing on healthcare accessibility, education, financial inclusion, and women's autonomy are essential for achieving inclusive and equitable development among tribal communities.

Policy Suggestions

- **Improve Access to Adolescent Reproductive Health Services:** Although teenage pregnancy has declined, its continued prevalence among Scheduled Tribe women indicates the need for targeted adolescent health programmes, reproductive counselling, and awareness campaigns in tribal areas.
- **Strengthen Contraceptive Awareness and Family Planning Services:** The substantial increase in contraceptive knowledge suggests growing awareness; however, efforts should focus on ensuring regular access to family planning services, counselling, and informed reproductive choices in remote tribal regions.
- **Enhance Maternal Healthcare Outreach:** Despite improvements in antenatal care, pregnancy registration, and postnatal care, gaps still persist. Strengthening doorstep healthcare delivery through ASHA workers, mobile health units, and tribal health centres can improve maternal healthcare utilization further.
- **Promote Menstrual Hygiene Awareness and Accessibility:** The rise in the use of hygienic menstrual methods indicates positive behavioural change, but continued awareness programmes and affordable sanitary product distribution are necessary in rural and tribal settlements.
- **Focus on Female Educational Retention:** Female school attendance showed only marginal improvement between the two survey rounds. Policies should therefore prioritize reducing school dropouts among tribal girls through scholarships, hostel facilities, transport support, and awareness regarding girls' education.
- **Expand Financial Inclusion and Credit Accessibility:** While bank account ownership increased significantly, access to money and credit improved only moderately. Tribal women should be provided easier access to formal credit, self-help groups, and livelihood financing opportunities.
- **Strengthen Women's Economic and Digital Empowerment:** Improvements in mobile phone ownership and knowledge about microcredit programmes indicate growing socio-economic participation among women. Expanding digital literacy, financial literacy, and skill development programmes can further enhance women's autonomy and economic independence.
- **Promote Asset Ownership among Tribal Women:** The increase in ownership of house and land reflects improving economic security. Government welfare schemes should continue promoting joint land titles, housing support, and women-centred asset ownership programmes to strengthen long-term empowerment.

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