Family structures and Fertility preferences in West Bengal, India: A mixed method study

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Introduction:

Women's health and wellbeing are global priorities, prominently featured in Sustainable Development Goals (SDGs) 3 and 5. While a range of socio-economic and demographic factors shape women's fertility preferences, along with family as family is the fundamental unit of society. Fertility preferences encompass age at first birth, total number of children, birth intervals, and gender preferences. Substantial evidence suggests that early pregnancies following marriage, and fertility decisions controlled by husbands and in-laws significantly constrain women's autonomy in family planning and fertility practices (Char et al., 2010). These practices are deeply rooted in gender-based power dynamics, where male family members, particularly husbands, often dominate family planning and fertility decisions, which are made collectively by the family rather than by the couple alone (Blanc, 2001; Gupta, 1995). Moreover, evidence of the adverse effects of in-laws' control over women's fertility extends to severe behaviours, such as intimate partner violence and coercion by husbands and in-laws, which directly affect women's fertility choices (Raj et al., 2006; Silverman et al., 2019). The restrictive behaviour of mothers-in-law (MIL), in particular, is often driven by a misalignment of fertility preferences between the mother-in-law and the daughter-in-law (DIL). MIL frequently strongly prefer sons and may pressure DIL to conform to their desired family size and gender composition (Anukriti et al., 2020). Additionally, MIL and other in-laws often pressure women to have children immediately after marriage (Dixit et al., 2021). While fertility decision-making has increasingly become a matter between husbands and wives compared to earlier times, the influence of the extended family—especially older female members, such as

MIL, sisters-in-law (SIL), and grandmothers—remains significant. However, there is a noticeable gap in research exploring the dynamics of family structures and their impact on fertility preferences in the country. Against this backdrop, using a sequential explanatory mixed-method design, this study examines the relationship between family structures and fertility preferences over the past three decades in West Bengal, India.

Data and Methods:

The study primarily utilized data from the National Family Health Survey (NFHS) for West Bengal, covering all five rounds: NFHS-1 (1992-93), NFHS-2 (1998-99), NFHS-3 (2005-06), NFHS-4 (2015-16), and NFHS-5 (2019-21). The NFHS is a nationally representative survey that provides comprehensive data on various health and empowerment indicators, including fertility. The survey employs a two-stage stratified sampling method to select women of reproductive age as respondents. Only participants who voluntarily agreed to be interviewed were included. For this study, all currently married women aged 15-49 were included in the analysis, with sample sizes from each round as follows: NFHS-1 (n = 3,421), NFHS-2 (n = 3,654), NFHS-3 (n = 4,450), NFHS-4 (n = 12,685), and NFHS-5 (n = 15,018). Additionally, to understand the reasons behind having single child, son preference, and other fertility preference components, qualitative data through Focus Group Discussion (FGDs) (n=5), Key Informant Interviews (KIIs) (n=28), and In-depth Interviews (IDIs) (n=20) were conducted and analyzed. The respondents for the FGD, KII and IDI were purposively chosen, and an informed consent procedure was followed.

Outcome variables:

(1) Age at first birth (whose age at first birth was less than or equal to 19 years was categorized as '1' and whose Age at first birth was greater than 19 years was categorized as '0'), (2) Desire for more children (those who wanted another child in future were categorized as '1' and those who did not want to take more child were categorized as '0'), and (3) Marriage to the first birth

interval (the interval between marriage to first birth of 1 year or less has been coded as "1" and the interval between marriage to first birth of more than one year has been coded as "0").

Predictor variable:

Primary variable used in the analysis was family structure categorized as a nuclear family, Non-nuclear with only MIL/SIL, Non-nuclear with both MIL & SIL, and Non-nuclear without MIL & SIL. Additionally, other socio-economic and demographic characteristics of the women, such as age at marriage (<15 years, 15-17 years, >17 years), years of schooling (No schooling, <10 years of schooling, 10 or more years of schooling), parity (0, 1, 2, 3 or more), mass-media exposure (yes, no), wealth quintile (poorest, poorer, middle, richer, richest), religion (Hindu, non-Hindu), caste (Scheduled Caste (SC), Scheduled Tribe (ST), Other Backward Classes (OBC), Don't know, Non-SC/ST/OBC), place of residence (rural, urban), and current use of contraceptives (No method, Traditional method, Modern method), were also included in the analysis.

Analysis:

For the quantitative analysis, bivariate analysis was used to assess the socioeconomic and demographic differentials in the Age at first birth, Marriage to first birth interval (from NFHS-2 to NFHS-5), and Desire for more children. Binary logistic regression was carried out to assess the determinants of Age at first birth, Marriage to first birth interval, and Desire for more children. Appropriate weights were used for proper representation. The analysis was done on the currently married women aged 15-49.

Thematic analysis was performed for qualitative data to understand the reasons behind changes of fertility preferences of West Bengal.

Results:

From the last five rounds of NFHS, for most women, the number of children born declined from 4/5 children in 1992/93 to 1/2 in 2019/21 (IIPS/India & ICF, 2022). The qualitative

findings were also in conformity. In the words of one FGD participant, "Earlier, *mostly 4-5 children were born and, in some cases, even 8-10 children. Now, most do not want to have more than one child or two at most*." **Figure 1** reveals the reasons behind this declining fertility through the qualitative data, and the findings have been categorized into five major themes: 1) Financial drivers, with categories of child-rearing cost, mother's employment, and working parents; 2) Child's well-being, with categories of better upbringing of child, child's career establishment, disbalance of attention, and sibling's rivalry, 3) Parental challenges, with categories of hardship involved to raise a child and no familial support, 4) Health challenges, with categories of disease surge and health issues and 5) Specific gender composition of the child. **Figure 2** revealed that of these reasons, child-rearing cost and better upbringing of children came from all types of interviews, i.e., KII, IDI, and FGD, which indicates that these are common reasons for the parents.

Determinants of age at first birth:

Table 1 revealed that after controlling for other socioeconomic and demographic variables, women reside in Non-nuclear family with MIL/SIL had 22% (OR = 1.22, CI = 1.07-1.38), Non-nuclear family with both MIL & SIL had 47% (OR = 1.47, CI = 1.24-1.74), and Non-

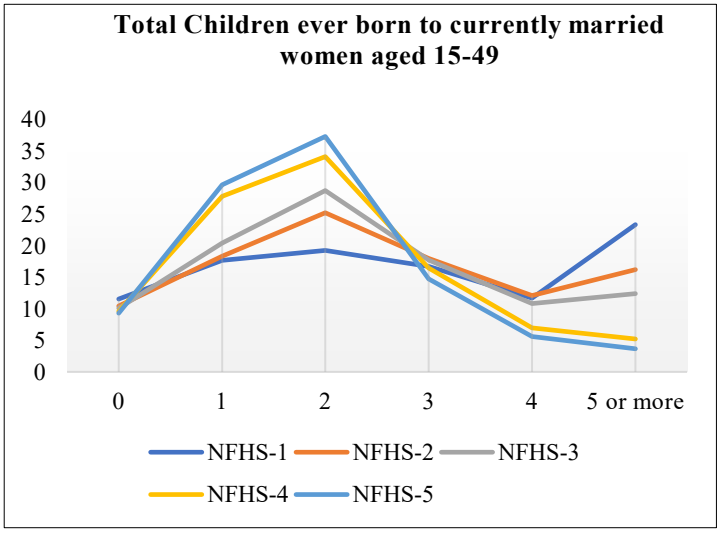

Figure 1: Total Children ever born to currently married women aged 15-49, West Bengal, India, 1992/93-2019/21

nuclear family without MIL & SIL had 25% (OR = 1.25, CI = 1.04-1.52) higher likelihood of having first childbirth within 19 years of age compared to the women resides in nuclear family in 2015/16. Whereas, in 2019/21, compared to women of nuclear families, the women of Non-nuclear families with MIL/SIL had 45% (OR = 1.45, CI = 1.30-1.63), and Non-nuclear families with both MIL & SIL had 57% (OR = 1.57, CI = 1.33-1.85) higher likelihood of having first childbirth within 19 years of age.

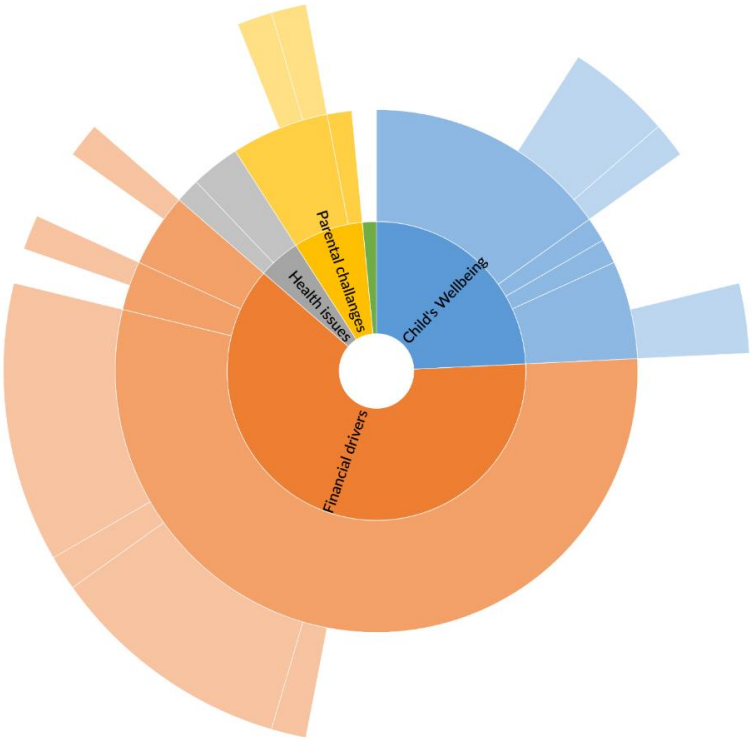

Figure 2: Key themes emerged as reason behind having single child

The likelihood of early childbirth varied significantly across sociodemographic factors. Higher age at marriage and wealth quintile had a lower likelihood of first childbirth within 19 years. On the other hand, higher parity had a higher likelihood of first childbirth within 19 years. Compared to first parity women, the women with three or more parity had respectively 1.5 times (OR = 1.47, CI = 1.10-1.96), 1.9 times (OR = 1.89, CI = 1.47-2.43), 2.4 times (OR = 2.41, CI = 1.87-3.10), 1.8 times (OR = 1.82, CI = 1.57-2.11) and 2.2 times (OR = 2.19, CI = 1.89-2.52) higher likelihood of having first childbirth within 19 years in 1992/93, 1998/99, 2005/06, 2015/16, and 2019/21.

***Determinants of* first childbirth within the first year of marriage:**

Table 2 revealed that after controlling for socio-demographic and economic variables, the women residing in Non-nuclear families with only MIL/SIL had a 14% higher likelihood of

having their first childbirth within the first year of marriage in both 2015/16 (OR = 1.14, CI = 1.02-1.27) and 2019/21 (OR = 1.14, CI = 1.03-1.25) compared to women of nuclear family. Whereas, those women who reside in a Non-nuclear family without MIL & SIL had a 17% (OR = 1.17, CI = 1.01-1.35) higher chance of having their first childbirth within the first year of marriage in 2019/21 than women of the nuclear family.

Higher parity and age at marriage had higher chances of first childbirth within the first year of marriage. For, in 1998/99, the women of second and third parity had respectively 1.7 times (OR = 1.70, CI = 1.37-2.11) and 2.4 times (OR = 2.39, CI = 1.87-3.06) higher likelihood of having first childbirth within the first year of marriage compared to first parity women. The corresponding figures were respectively 1.6 times (OR = 1.60, CI = 1.43-1.79) and 1.9 times (OR = 1.90, CI = 1.65-2.18) in 2019/21.

Determinants of the desire for more children:

Table 3 revealed that after controlling for other socio-demographic and economic variables, women residing in Non-nuclear families with both MIL & SIL had 46% (OR = 1.46, CI = 1.11-1.94), 73% (OR = 1.73, CI = 1.28-2.34), 51% (OR = 1.51, CI = 1.12-2.03), and 22% (OR = 1.22, CI = 1.02-1.47) higher likelihood of desired for more child compared to women of nuclear family in 1992/93, 1998/99, 2005-06, and 2015-16 respectively. The women who resided in a Non-nuclear family with MIL/SIL had a 37% (OR = 1.37, CI = 1.18-1.59) higher likelihood of desiring more children in 2015-16. In comparison, the women of Non-nuclear families without MIL & SIL had a 75% (OR = 1.75, CI = 1.21-2.53) higher likelihood of desire for more children in 1992/93.

Women of higher parity, urban residence, and the Hindu religion had lower chances of desiring more children. The women of three or more parity had 95% (OR = 0.05, CI = 0.02-0.09) lesser likelihood of desire for more children than women of zero parity in 1992/93, whereas in 2019/21, the same was 94% (OR = 0.06, CI = 0.04-0.09) lesser likelihood for those women.

The desire for more children was often influenced by the sex of the daughter-in-law's (DIL) living children, as families, particularly mothers-in-law (MIL) and older women, tend to prefer sons. However, this preference had declined over time. **Figure 3** revealed that the reasons for wanting a son can be grouped into four main themes: 1) ***Patriarchal factors*** (carrying on the family lineage, staying within the home, preventing property transfer, managing elopement marriages for daughters, and following traditional practices), 2) ***Economic factors*** (sons contribute to family income, while daughters require dowries), 3) ***Caregiving activities*** (sons are expected to care for parents in old age), and 4) ***Religious factors*** (performing funerals and family rituals).

Patriarchal factors:

Most participants stated that the main reason for preferring a son was that he would carry the family lineage forward, unlike a daughter. Sons were expected to stay home and uphold the family name, while daughters were married off and left for their husbands' homes. One KII mentioned – "*One of the main reasons for preferring a son is to protect the family lineage. Parents, especially fathers, believe that without a son, their surname or family name will not be carried forward*". Some extreme cases of son preferences have also come out in the words of a KII – "*Despite having 13 daughters, some already married with children, a 47-year-old Hindu woman of the general caste returned to the hospital for her 14th delivery, still hoping for a son, and even after having another daughter, she refused sterilization, believing a son is essential for the family lineage (Chele holo bongser prodip)*". The family had a role to play in this. MIL had the primary influence on this son's preference, along with his Father-in-law, other older female family members, and neighbors. Meanwhile, an IDI mentioned, " *Parents–in–law prefer a son over a daughter as they think that the son will take the family forward and the daughter will get married off*." Another KII mentioned – "*The mother-in-law still tends to want*

a son. Many times, if there are two daughters, the mother-in-law does not agree to do the sterilization operation and asks to look for a third child as a boy".

In addition to carrying the family lineage, families believe a son would stay home and protect the family. Like the words of an IDI participant – "*The MIL said that it would be better if it were a boy because girls have to get married off; they (the girl) will not stay at home anymore*." Keeping the property within the family was also a reason for preferring a son. The property would stay in his hands if there were a son, but it would pass to the son-in-law if there were a daughter. As one participant of an FGD said, "*If it is a boy, he will keep the property in his own house, but if it is a girl, it (the property) will go to the other (sons-in-law) house*."

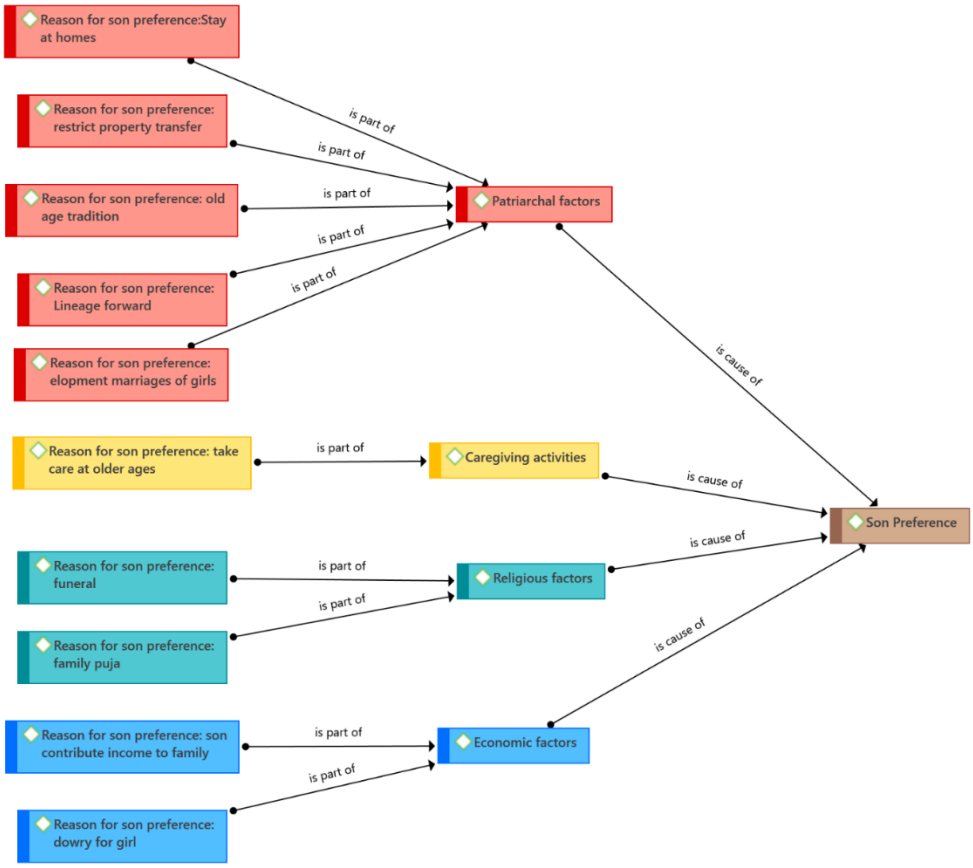

Figure 3: Mind map of key themes of reason of son preference

Some participants mentioned the growing number of elopement marriages among girls, who were often married at a young age and from lower castes. This could harm the family's reputation, which is why some parents prefer a son over a daughter. As one FGD participant mentioned, "*Now girls run away and marry in low caste houses, and such run-away marriages are increasing now, so parents want boys over girls to avoid disrespect*."

Economic factors

Economic factors also influenced the preference for sons, as they were often seen as economically beneficial. Sons could contribute to the family income by earning money and were likelier to stay with the family, whereas daughters typically married and left the household. As one KII has mentioned, "*When sons reach the age of 15–16, they often start earning their income and contribute financially to the family. This improves the family's financial condition, making the desire for sons a natural consideration*". On the other hand, at the time of marriage, dowry had to be given to daughters, which was an economic burden to families, and for this, sons were preferred over daughters to avoid spending dowry. As one KII mentioned, "*If it is a boy, there is no worry about marriage. However, if it is a girl, marriage becomes a source of stress due to the financial burden of dowry*".

Caregiving activities

One of the main reasons for son preference was the belief that sons would care for their parents in their old age. Parents feel they would not have to suffer later if they had sons. An FGD participant mentioned, "*If it is a girl, she will marry and move away, leaving the family. However, if it is a boy, he will stay close and care for his parents in their old age.*" MIL often says that having a son is mandatory for old-age security. In the words of an IDI participant, "*MIL always prefers sons, believing that a son will take care of them in old age*." However, a few participants also mentioned that nowadays, the vice versa is happening, i.e., daughters care for their parents and not their sons. In the words of an IDI participant, "*Many people believe that sons will take care of their parents in old age, but in reality, nowadays, it is often daughters who provide care, not sons*."

Religious factors

Religious factors also played a role in the preference for sons. For example, some respondents mentioned cremation rituals as a reason, as in Indian societies, it was believed that sons were

needed to perform the cremation rites. As one FGD participant mentioned, "*If it is a boy, he will perform the last rites and put fire in his mouth (mukhe agun debe), but if it is a girl, she cannot do it*." Some respondents mentioned worship of the goddess as the reason. A son can only perform worship rituals, not a daughter, so a son was needed to continue worshiping the next generation. As one IDI mentioned, "*If there is no son in the family to carry on the family puja, then the puja will stop, so a son is a must to have*."

Discussion:

The total number of children had declined from 3-5 children to one or a maximum of two children in the last thirty years. This finding is in line with a previous study where the author found the mean ideal number of children as stated by the women in West Bengal was two (Chatterjee, 2020). According to the latest round of NFHS, the Total Fertility Rate (TFR) of West Bengal is 1.64 (IIPS/India & ICF, 2022). A previous study had also found that in West Bengal, the fertility rate started to decline rapidly since the 1990s, and currently the TFR is 1.6, which is well below the national average and lower than the replacement level of TFR (Das & Husain, 2020). Meanwhile, rural West Bengal had the largest change in average TFR between 2003–2005 and 2018–2020 (−32.0 per cent) among all Indian states (Das et al., 2023). The role of family in deciding the total number of children has declined, and now couples themselves decide mainly.

This study found that nowadays, most couples prefer a single child because of several factors, such as financial drivers, including child-rearing costs, the mother's future employment, and working parents. The child-rearing cost is very high from previous times, and if both parents are working or the mother of a child wants to join the labour force, then it is convenient to have only one child. Previous studies have also found increasing child-rearing costs as one of the main reasons for having a single child (Parr, 2007; Pradhan & Sekher, 2014; Sahoo, 2014; Visaria, 2022). Another study have also found three major reasons for having only single child

i.e., it is conducive to women's employment, particularly employment in the formal sector; the expenses related to childbearing and childrearing call for trade-offs between a better lifestyle and larger families; and the demands of childrearing put a break on individuals' (especially women's) ability to achieve personal growth and enjoy leisure time (Basu & Desai, 2016). Whereas, another study found that health care for their children is much expensive compared to what they themselves received as children (Visaria, 2022).

Though the total number of children per couple had declined, this study found that the age of the women at first childbirth remained mostly the same, within 19 years of age, and the timing of first childbirth remained mostly the same, that is, within the first year of marriage. The desire for more children had declined from previous times, but the women residing with MIL/SIL had a desire for more children than their counterparts who lived in nuclear families. This desire for more children in case of residing with MIL/SIL was mainly due to son preference. Though the intensity of son preference has reduced a lot, it is still there as a significant concern (Shekhar et al., 2018). Though the husband and wife were happy with only one child, irrespective of whether it was a son or a daughter, the MIL had desires for a son, and this influenced the DIL to have more children.

The reasons of son preferences are first of all, Patriarchal factors that includes that son will take the lineage forward, will stay at homes, will restrain property transfer to other family, whereas if it is daughter then in case of her elopement marriage, the family will face dishonour., and son preference is an old age tradition are found to be very common reason of son preference as found in this study. The other reasons found were that sons were economically beneficial than daughters, sons would provide care at older ages to parents, and sons would perform religious rituals like cremation and other worship. These reasons are all in line with previous studies that have also found these desires for sons arise out of the patrilineal nature of Indian society, in which the type and number of roles expected of daughters are more limited in scope

than those expected of a son. Whereas, previous studies have also found that in India's patrilineal and patriarchal family system, having one son is imperative for the continuation of the family line, and many sons provide additional status to the family (Caldwell et al., 1988; Kapadia, 1966; Mutharayappa et al., 1997).

Conclusion

A woman's total number of children has declined to one or two. The reasons behind this fertility decline were identified across five themes - financial drivers, Child's wellbeing, parental challenges, health challenges, and specific gender composition. Though fertility had declined, the age of the women at first childbirth mainly remained unchanged, i.e., within 19 years of age, and the timing of first childbirth also mainly remained the same, that is, within the first year of marriage. Several reasons have been identified for the unchanged timing of first childbirth and delayed first childbirth. The desire for more children has declined previously, but son preference remains. The reasons behind son preference had been identified as patriarchal factors, economic factors, caregiving activities, and religious factors.

Table 1: Adjusted Odds Ratio (AOR) of determinants of Age at first birth, West Bengal, 1992/93-2019/21

Age at first birth (reference category: >19 years)					
Predictor variables	Adjusted Odds Ratio (AOR) [95% CI]				
	NFHS-1	NFHS-2	NFHS-3	NFHS-4	NFHS-5
Family Structure					
Nuclear ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Non-nuclear with only MIL/SIL	1.11 [0.85-1.46]	0.94 [0.74-1.20]	1.23 [0.97-1.55]	1.22** [1.07-1.38]	1.45*** [1.30-1.63]
Non-nuclear with both MIL & SIL	1.11 [0.83-1.49]	1.14 [0.87-1.50]	1.25 [0.94-1.66]	1.47*** [1.24-1.74]	1.57*** [1.33-1.85]
Non-nuclear without MIL & SIL	1.18 [0.80-1.73]	1.03 [0.74-1.43]	0.81 [0.59-1.11]	1.25* [1.04-1.52]	1.11 [0.94-1.32]
Years of schooling					
No schooling ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
<10 years of schooling	1.58*** [1.21-2.07]	1.42** [1.13-1.79]	0.96 [0.76-1.22]	1.58*** [1.38-1.80]	1.48*** [1.30-1.69]
10 or more years of schooling	0.9 [0.56-1.45]	0.48*** [0.34-0.68]	0.43*** [0.30-0.62]	1.09 [0.90-1.33]	1.06 [0.89-1.25]
Age at marriage					
<15 years ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
15-17 years	0.48*** [0.36-0.65]	0.49*** [0.36-0.68]	0.51*** [0.37-0.71]	0.48*** [0.40-0.58]	0.45*** [0.38-0.53]
>=18 years	0.02*** [0.02-0.03]	0.03*** [0.03-0.05]	0.03*** [0.02-0.04]	0.02*** [0.02-0.02]	0.02*** [0.01-0.02]
Caste					
SC ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
ST	1.13 [0.61-2.07]	1.1 [0.69-1.75]	0.47** [0.28-0.78]	0.76* [0.62-0.94]	0.76** [0.62-0.93]
OBC		1.01 [0.63-1.63]	0.76 [0.45-1.27]	0.86 [0.71-1.03]	0.97 [0.82-1.16]
Don't know			0.76 [0.35-1.66]	0.89 [0.59-1.35]	1.44 [0.99-2.09]
Non-SC/ST/OBC	0.8 [0.53-1.21]	0.8 [0.62-1.02]	0.65*** [0.51-0.84]	0.76*** [0.66-0.87]	0.94 [0.83-1.06]
Mass media exposure					
No ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Yes	1.23 [0.96-1.58]	1.17 [0.93-1.48]	1.07 [0.82-1.40]	1.07 [0.93-1.24]	1.11 [0.99-1.25]
Parity					

1 ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
2	1.39* [1.02-1.90]	1.44** [1.12-1.86]	1.84*** [1.45-2.32]	1.34*** [1.18-1.53]	1.70*** [1.51-1.90]
3 or more	1.47** [1.10-1.96]	1.89*** [1.47-2.43]	2.41*** [1.87-3.10]	1.82*** [1.57-2.11]	2.19*** [1.89-2.52]
Religion					
Hindu ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Hon-Hindu	1.24 [0.96-1.61]	1.47** [1.13-1.91]	1.44** [1.14-1.82]	1.22** [1.07-1.40]	1.06 [0.94-1.20]
Current use of contraceptive methods					
No method ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Traditional method	1.04 [0.78-1.39]	0.87 [0.66-1.13]	1.19 [0.92-1.56]	0.93 [0.78-1.11]	1 [0.85-1.18]
Modern method	1.34* [1.03-1.73]	1.23 [0.98-1.54]	1.64*** [1.30-2.07]	1.53*** [1.35-1.73]	1.14* [1.01-1.28]
Wealth quintile					
Poorest ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Poorer	0.98 [0.73-1.32]	0.66* [0.45-0.96]	1.08 [0.78-1.49]	1.1 [0.95-1.28]	0.91 [0.80-1.03]
Middle	0.77 [0.54-1.10]	0.79 [0.55-1.13]	1.23 [0.87-1.75]	1.13 [0.95-1.35]	0.82* [0.71-0.96]
Richer	0.9 [0.60-1.34]	0.76 [0.55-1.07]	1.07 [0.73-1.57]	0.84 [0.69-1.03]	0.63*** [0.52-0.76]
Richest	0.38*** [0.23-0.62]	0.64** [0.48-0.87]	0.68 [0.43-1.08]	0.59*** [0.45-0.79]	0.44*** [0.34-0.57]
Place of residence					
Urban ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Rural	0.77 [0.55-1.08]	0.99 [0.80-1.22]	1 [0.77-1.30]	1.02 [0.89-1.16]	1.06 [0.93-1.21]

® "Reference category", * "$p < 0.05$", ** "$p < 0.01$", *** "$p < 0.001$

Table 2: Adjusted Odds Ratio (AOR) of determinants of Marriage to first birth interval, West Bengal, 1998/99-2019/21

Marriage to first birth interval (results of 1 year or less)				
Predictor variables	NFHS-2	NFHS-3	NFHS-4	NFHS-5
Family structure				
Nuclear ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Non-nuclear with only MIL/SIL	0.94 [0.78-1.13]	0.99 [0.83-1.17]	1.14* [1.02-1.27]	1.14** [1.03-1.25]
Non-nuclear with both MIL & SIL	0.91 [0.73-1.12]	0.84 [0.68-1.04]	0.95 [0.82-1.10]	1.14 [0.99-1.31]
Non-nuclear without MIL & SIL	0.9 [0.70-1.17]	1 [0.80-1.26]	1.13 [0.96-1.32]	1.17* [1.01-1.35]
Age				
15-19 ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
20-24	0.59** [0.40-0.86]	0.63* [0.43-0.92]	0.50*** [0.39-0.64]	0.67** [0.53-0.86]
25-29	0.34*** [0.23-0.51]	0.73 [0.49-1.07]	0.38*** [0.30-0.50]	0.44*** [0.35-0.57]
30-34	0.25*** [0.17-0.39]	0.55** [0.37-0.82]	0.31*** [0.24-0.41]	0.38*** [0.29-0.49]
35-39	0.21*** [0.14-0.32]	0.52** [0.34-0.78]	0.33*** [0.25-0.43]	0.36*** [0.28-0.47]
40-44	0.19*** [0.12-0.30]	0.51** [0.33-0.77]	0.22*** [0.16-0.29]	0.32*** [0.24-0.42]
45-49	0.17*** [0.11-0.27]	0.30*** [0.20-0.47]	0.26*** [0.19-0.35]	0.28*** [0.21-0.37]
Years of schooling				
No schooling ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
<10 years of schooling	0.95 [0.80-1.12]	0.73*** [0.62-0.86]	0.99 [0.88-1.11]	1.05 [0.93-1.17]
10 or more years of schooling	0.76 [0.58-1.00]	0.46*** [0.35-0.60]	0.97 [0.82-1.15]	1.07 [0.92-1.25]
Religion				
Hindu ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Non-Hindu	0.97 [0.80-1.19]	1.12 [0.94-1.33]	0.99 [0.89-1.12]	1 [0.90-1.11]
Mass media exposure				
No ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Yes	1.29** [1.08-1.55]	0.98 [0.81-1.18]	1.01 [0.89-1.15]	1.07 [0.97-1.19]
Wealth quintile				
Poorest ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Poorer	0.87 [0.66-1.15]	1.09 [0.87-1.36]	1.19** [1.05-1.35]	1.1 [0.98-1.22]
Middle	0.94 [0.72-1.23]	1.47** [1.15-1.88]	1.16 [1.00-1.35]	0.95 [0.83-1.09]

Richer	0.81 [0.63-1.04]	1.62*** [1.22-2.15]	1.14 [0.95-1.37]	0.88 [0.74-1.05]
Richest	0.82 [0.66-1.03]	1.3 [0.92-1.84]	1.17 [0.92-1.50]	0.87 [0.69-1.10]
Caste				
SC ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
ST	0.78 [0.54-1.12]	0.7 [0.47-1.04]	0.84 [0.70-1.02]	0.9 [0.75-1.07]
OBC	1.14 [0.79-1.66]	0.59* [0.39-0.88]	0.96 [0.82-1.13]	0.88 [0.76-1.02]
Don't know		0.91 [0.53-1.56]	1.03 [0.74-1.45]	0.93 [0.69-1.25]
Non-SC/ST/OBC	1.1 [0.91-1.34]	0.86 [0.72-1.02]	0.94 [0.83-1.05]	1.02 [0.91-1.13]
Place of residence				
Urban ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Rural	0.87 [0.74-1.03]	0.86 [0.71-1.04]	0.86* [0.77-0.97]	0.97 [0.86-1.08]
Parity				
1 ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
2	1.70*** [1.37-2.11]	1.81*** [1.48-2.20]	1.45*** [1.28-1.65]	1.60*** [1.43-1.79]
3 or more	2.39*** [1.87-3.06]	2.45*** [1.95-3.08]	1.73*** [1.48-2.01]	1.90*** [1.65-2.18]
Age at marriage				
<15 ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
15-17	1.99*** [1.62-2.44]	1.62*** [1.35-1.95]	1.40*** [1.22-1.61]	1.42*** [1.26-1.60]
>=18	3.00*** [2.39-3.76]	2.44*** [1.99-2.99]	1.97*** [1.71-2.27]	2.12*** [1.87-2.41]
Current use of contraception				
No Method ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Traditional Method	1.05 [0.85-1.29]	0.97 [0.79-1.19]	0.94 [0.80-1.09]	0.99 [0.86-1.14]
Modern Method	1.21* [1.01-1.44]	1.37*** [1.15-1.64]	1.06 [0.95-1.18]	1.03 [0.93-1.14]

® “Reference category”, * “p < 0.05”, ** “p < 0.01”, *** “p < 0.001

Table 3: Adjusted Odds Ratio (AOR) of determinants of Desire for more children, West Bengal, 1992/93-2019/21

	Desire for more children (reference: want no more children)				
Predictor variables	NFHS-1	NFHS-2	NFHS-3	NFHS-4	NFHS-5
Family structure					
Nuclear ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Non-nuclear with only MIL/SIL	1.19 [0.91-1.54]	1.29 [0.97-1.72]	1.22 [0.94-1.58]	1.37*** [1.18-1.59]	1.06 [0.92-1.21]
Non-nuclear with both MIL & SIL	1.46** [1.11-1.94]	1.73*** [1.28-2.34]	1.51** [1.12-2.03]	1.22* [1.02-1.47]	1.11 [0.93-1.32]
Non-nuclear without MIL & SIL	1.75** [1.21-2.53]	1.05 [0.68-1.64]	1.1 [0.75-1.64]	1.01 [0.80-1.28]	0.93 [0.76-1.15]
Age					
15-19 ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
20-24	0.77 [0.53-1.12]	0.62* [0.41-0.94]		0.92 [0.73-1.16]	0.83 [0.66-1.03]
25-29	0.37*** [0.25-0.55]	0.36*** [0.23-0.56]	0.41*** [0.33-0.52]	0.52*** [0.41-0.67]	0.50*** [0.40-0.63]
30-34	0.16*** [0.10-0.26]	0.11*** [0.06-0.19]		0.20*** [0.15-0.26]	0.20*** [0.16-0.26]
35-39	0.06*** [0.03-0.11]	0.04*** [0.02-0.08]	0.04*** [0.02-0.06]	0.06*** [0.04-0.08]	0.08*** [0.06-0.11]
40-44	0.04*** [0.02-0.09]	0.01*** [0.00-0.04]		0.02*** [0.01-0.03]	0.02*** [0.01-0.03]
45-49	0.01*** [0.00-0.04]	0.01*** [0.00-0.05]		0.01*** [0.00-0.02]	0.00*** [0.00-0.01]
Years of schooling					
No schooling ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
<10 years of schooling	0.84 [0.66-1.08]	0.91 [0.69-1.21]	0.79 [0.60-1.04]	0.80* [0.65-0.97]	0.92 [0.74-1.15]
10 or more years of schooling	0.73 [0.45-1.19]	0.47*** [0.31-0.73]	0.78 [0.51-1.19]	0.94 [0.74-1.20]	0.9 [0.71-1.15]
Caste					
SC ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
ST	1.37 [0.78-2.39]	2.51*** [1.50-4.19]	2.42** [1.38-4.23]	1.29 [0.99-1.67]	1.12 [0.87-1.44]
OBC		0.92 [0.49-1.71]	1.37 [0.75-2.48]	0.96 [0.76-1.21]	0.84 [0.68-1.03]
Don't know			2.30* [1.01-5.23]	0.8 [0.52-1.24]	0.55** [0.35-0.86]
Non-SC/ST/OBC	0.9 [0.61-1.31]	0.95 [0.69-1.29]	1.05 [0.78-1.42]	0.94 [0.80-1.11]	0.80** [0.69-0.92]
Mass media exposure					

No ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Yes	0.84 [0.67-1.06]	0.76 [0.57-1.02]	0.76 [0.57-1.03]	0.84 [0.70-1.01]	1.02 [0.88-1.18]
Parity					
0 ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
1	0.62 [0.32-1.19]	0.65 [0.38-1.11]	0.69 [0.43-1.10]	0.64** [0.48-0.84]	1.22 [0.96-1.55]
2	0.11*** [0.05-0.21]	0.09*** [0.05-0.16]	0.08*** [0.05-0.12]	0.05*** [0.04-0.07]	0.08*** [0.06-0.11]
3 or more	0.05*** [0.02-0.09]	0.05*** [0.03-0.09]	0.03*** [0.02-0.06]	0.03*** [0.02-0.04]	0.06*** [0.04-0.09]
Religion					
Hindu ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Non-Hindu	1.93*** [1.53-2.44]	1.81*** [1.32-2.48]	2.33*** [1.76-3.07]	2.05*** [1.74-2.40]	2.20*** [1.90-2.54]
Place of residence					
Urban ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Rural	1.01 [0.71-1.42]	1.35* [1.01-1.79]	1.28 [0.93-1.75]	1.20* [1.02-1.41]	1.03 [0.89-1.21]
Wealth quintile					
Poorest ®	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]	1 [1.00-1.00]
Poorer	1.04 [0.79-1.36]	1.19 [0.75-1.87]	0.82 [0.58-1.15]	0.76** [0.63-0.92]	1 [0.85-1.17]
Middle	0.73 [0.51-1.03]	1.05 [0.66-1.66]	0.79 [0.53-1.16]	0.68*** [0.55-0.84]	1.01 [0.84-1.21]
Richer	0.81 [0.54-1.22]	1.17 [0.77-1.78]	0.59* [0.37-0.93]	0.64*** [0.50-0.83]	0.89 [0.70-1.12]
Richest	0.47** [0.27-0.81]	1.18 [0.81-1.72]	0.44** [0.25-0.78]	0.71* [0.51-0.99]	1.02 [0.75-1.38]

® “Reference category”, * “$p < 0.05$”, ** “$p < 0.01$”, *** “$p < 0.001$

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