



Inter-generational impact: Exploring the influence of older sister-in-law's contraceptive choices on her peer contraception adoption in India

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ABSTRACT

Objective: Social network-based reproductive decisions are critical. This study compares the effect of an older peer contraception use on her younger peer's use, as they share the closest social network within the household, and tend to influence one another for reproductive decisions. In this study we considered peers as two sister-in-law living in the same household.

Methods: We used data from the fifth round of National Family Health Survey which was conducted between the year 2019 and 2021. We deployed multinomial multivariable logistic regression to find the association between older women contraception use on her younger peer. Also, an attempt has been made to determine contraceptive clustering within households in India and select states.

Results: The multinomial analysis found that all the women in the household used the similar method, but still relied only on the female sterilization as the sole method for their family planning. The multinomial multivariable method found that younger peers were 3.42 time odds more likely to use permanent method if her older peer had used it previously. Also, it was found 11% increase in any modern contraception use of younger peer if all her older peer will use any modern contraceptives in India. For all the states, the contraception clustering within household ranged from 5% to 14%, with highest in Himachal (14%).

Conclusion: Empowering older women as peer educators in contraception workshops can foster informed discussions, dispel myths, and promote the use of modern contraceptive methods among younger peers. Integrating such initiatives into government existing policies like Mission Parivar Vikas is crucial for improving contraceptive uptake, with ASHA workers and community health volunteers playing a pivotal role in delivering targeted education within households.

Introduction

Family planning is the process of making informed decisions about when to have children and how many children to have, taking into account factors such as financial stability, personal goals, and health. Many studies in the context of reproductive health have identified that social networking plays a crucial role in family planning, particularly by enabling women, especially the younger ones within a household, to access information, support, and advice. Among these social networks, the influence of a peer is significant. As a close family member, a peer often provides guidance and support regarding contraceptive use, helping younger women navigate their reproductive choices within the

cultural and familial context.

Family planning is an important tool to enable a nation to meet its sustainable development goals (SDGs) as it has a direct association with all the 17 SDGs [31,35]. Access to family planning is not only important to promote women's reproductive rights and reduce unintended pregnancies, but it also has a direct association with improvements in maternal and child health [1,22,23,33].

In India, according to the latest round of the National Family Health Survey (NFHS), 2019–21, modern contraceptive use increased to 56.5 % from 47.8 % in NFHS-4 among currently married women, while the unmet need stands at nine per cent for all currently married women [38], equivalent to the world's estimate [34]. Though contraception use

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has increased over the past few years worldwide, but the skewness towards adoption of permanent method is crucial.

In India, contraceptive use varies according to socio-demographic factors such as educational status, age, economic status, child-level factors, husband's decision on fertility, and number of living sons [4,6,9,10,12,25,29]. Some research papers also have highlighted the role of the mother-in-law [3,26] and spouse [18,20] in decision-making about the type of method to be adopted, but little has been explored in the context of the close social network, like peers within the household, in explaining family planning use in India.

Women in the same household share a common home environment, have a similar cultural and socioeconomic background, get information from similar sources, and possibly utilize health services from the same facilities [32]. Further, they also might discuss their stories, offer advice and encouragement, and provide a safe space for discussing sensitive topics related to fertility, pregnancy, and parenting.

In India, according to NFHS-5, around 48 % of the eligible women co-reside in a non-nuclear family structure, where more than one eligible women live together within a household. Previous studies have identified that the peers have the most significant impact on younger women's contraception adoption, as they share their experiences, which influence the reproductive choices & decision [5,16,17,24,27].

In India, some evidence also exists that younger respondents heavily depend on their network to adopt a particular reproductive behaviour [2]. Analyses conducted in Thailand and Kenya have also found that women discuss their family size and contraceptive methods within their friendship network [11,28], which later influence adoption. So understanding social networking based reproductive decision remains crucial, especially in Indian context.

Different studies have adopted different definitions of social networking. In this study, we defined social networking as two sisters-in-law living together. We selected women of almost similar ages because they tend to be more comfortable in talking about their sexual behaviours with each other than with women who are twice their age (like mother-in-law). The mean difference in the age of two sisters-in-law was five years in the latest round of NFHS (NFHS-5, Mean-4.8, 95 % CI -4.7–4.9).

In the present study, an attempt has been made to elucidate the influence of older sister-in-law's contraceptive behaviour on that of the younger peer within household in India, filling a notable gap in existing research. Given the sequencing of women in the household, we specified an analogous model in which contraceptive use of the younger women within the family can be described as a function of the older women residing in the same household, which acts as the closest network. Younger women are perceived to have little knowledge about family planning methods and have minimal social interaction outside their homes [3]. So, older women in the household are one of the important sources of information for their family planning method choices.

Data and methods

Data

We used data from the fifth round of National Family Health Survey (NFHS) conducted in the year 2019–21. NFHS is a nationally representative cross-sectional survey that includes representative samples of households throughout India. The survey provides state, national, and district-level estimates of demographic and health parameters and data on various socioeconomic and program dimensions, which are critical for implementing the desired demographic and health parameter changes. A stratified, two-stage sampling method is primarily used in all DHS surveys to obtain a representative sample of households. Probability proportional to size (PPS) sampling was used to select villages from rural areas and Census Enumeration Blocks (CEB) from urban areas (the detailed sampling method is available here [38]).

Inclusion and exclusion criteria

According to the information available in the literature, peers directly affect each other's reproductive decision. So, based on this hypothesis, we included at least one currently married Sister-in-Law (SIL) in our analysis, which is considered to form the closest social network among all married women in India. In our study 138,455 women were selected, of which 118,699 were living alone and 19,746 were living with peers in the household.

Outcome variable

We intended to examine the association between the contraceptive use of the older SIL on the contraceptive use of the younger SIL residing in the same household. The outcome variable of interest was the contraceptive use of the younger SIL. We divided contraceptive use into four categories: not using any method, modern spacing method, modern permanent method, and traditional method.

Independent variables

The independent variable of interest was the contraceptive use of the older SIL within the household, categorized as not using any method, modern spacing method, modern permanent method, and traditional method. We included the following socio-demographic variables as control variables: age of women in years (less than 25, 25–34, 35 +), educational status of women (no education, primary, secondary, higher), sex composition of living children (no son, at least one son), parity of women (less than two, more than equal to two), ever experienced child loss (0, 1, 2 +). We also included household-level characteristics, including region of residence (North, Central, East, Northeast, West, South), place of residence (urban, rural), caste (Scheduled Caste/Tribe, Other Backward Classes, Others), religion (Hindu, Muslim, Others), and wealth quintile (Poorest, Poorer, Middle, Richer, Richest).

Statistical analysis

Bivariate analysis was conducted to understand the associations between the explanatory and the outcome variable. A multivariable multinomial logistic regression was used to examine the adjusted association of contraceptive use of the older SIL with that of the younger SIL. The regression model used "not using any method" as the reference category. In the multinomial model, all the socioeconomic characteristics of the younger SIL were adjusted.

We obtained raw clustering explained by the older SIL's contraceptive use using the multivariable logistic model (described below) for 22 populous states of India, except for the seven states of the northeast as the sample size was very small for these states and failed to provide the results of the marginal effect.

Data analysis was performed using Stata software version 15.0. A p-value of less than 5 % was considered significant. Since confidence intervals are affected by the complex sampling design, we considered the complex survey design of NFHS within the svyset and svy procedures in Stata [39].

Results

It was observed that in high fertility states, a greater number of households have two sister-in-laws residing together (see Figure 1 in the Appendix), Figure 2Appendix. Therefore, this study is deemed highly relevant for increasing contraceptive prevalence via social networks in high fertility states.

Table S1 (Appendix) presents the sample distribution of the respondents. Table 1 presents the distribution of contraception use of the younger SILs by sociodemographic characteristics. The selected socio-demographic characteristics impacted the contraception use of the index women in both the rounds of NFHS. It was found that about 46 % of the younger SILs in NFHS-5 were using any modern method and 52 % of them were using a modern method when their older peer was also using any modern method.

According to Table 2, the younger women used nearly the same method as their older counterparts in the household. In NFHS-5, 80 % of the younger SILs chose a permanent method of contraception when their older peers chose permanent method.

The results of the multinomial logistic regression of factors influencing the contraception use of the younger SILs in NFHS-5 are presented in Table 3. After controlling for the younger SILs' socio-demographic and economic characteristics, we found that the odds of the younger SILs using female sterilization were extremely high if the older SILs reported using female sterilization (Adjusted Odds ratio

Table 1

Percentage of use of any modern contraception among younger peer by its socio-demographic characteristics and any modern contraception use of her older peer within household, NFHS-5, India.

	Percentage of Use of any modern contraception by younger peer
Older women any modern Contraception use	
Not using	45.9
Using	51.6
Regions of India	
North	51.3
Central	44.6
East	42.2
North East	39.7
West	49.0
South	47.4
Place of Residence	
Urban	49.3
Rural	45.0
Caste	
SC/ST	44.2
OBC	45.7
Others	49.3
Religion	
Hindu	47.4
Muslim	38.9
Others	46.7
Wealth Quintile of Household	
Poorest	39.6
Poorer	43.8
Middle	45.7
Richer	47.2
Richest	51.1
Age of women	
<25	36.9
25-34	61.3
35+	65.4
Educational status of women	
No Education	50.1
Primary	51.6
Secondary	45.2
Higher	44.2
Sex Composition	
No Son	26.8
At Least One Son	58.4
Parity Of Women	
Less Than 2	27.7
2+	63.3
Child Loss	
0	46.2
1	48.3
2+	47.7
Total	46.3

Table 2

Percentage of use of type of contraception use among younger peer by contraception use of her older peer within the household, NFHS-5, India.

Older Women contraception use	Percentage of use of type of contraception use among younger peer		
	Spacing	Permanent	Traditional
Spacing Method	57.7	26.6	15.6
Permanent Method	11.8	80.3	7.9
Traditional Method	25.7	26.9	47.5

(AOR) 3.42, 95 % Confidence Interval (CI) (2.30–2.98)). Similar results were obtained for the other methods, with the odds of the younger SIL adopting a spacing method being two times higher if the older SIL was using a spacing method too in NFHS-5 compared to if the older SIL was not using a spacing method. In NFHS-5, the younger SIL had three and five times higher odds of using a traditional method if the older peer is also using traditional methods.

Tables 4 presents the effect of older peer's contraception use on contraception clustering within households for 22 states of India in NFHS-5. The remaining six states of India were not considered due to convergence issues. Columns 1, 2, and 3 present the probabilities of contraception use by the younger women in the household when an older peer was using and not using contraceptives. Column 4 demonstrates the contraception clustering, which is column 3-column 4.

The relative odds ratios presented in column 5 were calculated as column 3/(1-column3)/(column2/(1-column2)). Column 6 shows the relative odds ratios, which were the adjusted odds ratios of contraception use by the younger women if the older peers were using contraceptives, excluding women living alone. The marginal effect in column 7 was the first partial derivative of the conditional probability of contraception use by the younger peers for the covariate yij-1. The marginal effect was computed as the difference between the sample averages of the probability of contraception use by the estimated model when yij-1 = 0 & yij-1 = 1 (excluding women living alone).

Column 8 presents the increase in contraception use when all the older women in the household would use contraceptives. It was found that contraception use would increase by 11 % among the younger peers when all their older peers use contraceptives. In NFHS-5, Jammu & Kashmir, Uttarakhand, Chhattisgarh, Kerala, and Telangana, showed insignificant contraceptive clustering at the household level. The highest increase in contraception use was observed in Gujarat (14.3 %), Himachal Pradesh (14.1 %), and Delhi (11.8 %) by younger women if all their older peers used contraceptives. Among the highly focused states, Bihar (7.6 %) and Uttar Pradesh (11.3 %), which are very important for India's economy, also showed an increase of eight per cent and 11 %, respectively, when all the older SILs used contraceptives.

Discussion

Social networking has emerged as a potent tool for communication, information sharing, and community engagement in the contemporary era. This phenomenon holds particular significance in India, where traditional cultural norms intermingle with modern practices, giving rise to a unique context that demands an in-depth exploration of the role of social networking in shaping reproductive health behaviours, particularly in the domain of contraception use. This study embarks on a comprehensive exploration of the intricate interplay between social networking and contraception adoption in India, offering valuable insights into this multifaceted relationship. Our study reveals a compelling correlation between the contraception behaviours of women within households across various states of India. Specifically, we unearthed evidence highlighting the influential role of peers on each other's contraception choices. In the context of Indian joint families, where coexisting sisters-in-law form household networks, older peers often serve as influential figures for their younger peers. This dynamic sets the

Table 3

Adjusted multinomial logistic regression (95% Confidence Interval (CI)) for type of contraception use of younger peer by contraception use of her older peer within the household, NFHS-5, India.

	Adjusted Odds Ratio (AOR) (95 % CI)		
	Permanent Vs Not using any method	Spacing Method Vs Not using any method	Traditional Vs Not using any method
Older Peer contraception use			
Not Using any method®	1.00	1.00	1.00
Spacing Method	1.34*(1.17 1.54)	2.51*(2.24 2.8)	1.41*(1.22 1.63)
Permanent Method	3.42*(2.91 4.03)	0.83*(0.68 1.01)	1.06 (0.84 1.35)
Traditional Method	1.18(0.98 1.43)	1.02 (0.86 1.21)	3.64*(3.09 4.28)
Regions of India			
North®	1.00	1.00	1.00
Central	0.70*(0.65 0.75)	0.93*(0.88 0.98)	1.06*(0.99 1.14)
East	1.26*(1.16 1.38)	1.02 (0.95 1.09)	1.55*(1.43 1.69)
North East	0.33*(0.28 0.39)	1.52*(1.4 1.66)	1.69*(1.53 1.86)
West	1.55*(1.41 1.7)	0.57*(0.53 0.62)	0.45*(0.41 0.51)
South	3.09*(2.84 3.36)	0.28*(0.26 0.31)	0.24*(0.21 0.28)
Place of Residence			
Urban®	1.00	1.00	1.00
Rural	1.00 (0.93 1.07)	0.76*(0.72 0.81)	0.81*(0.75 0.87)
Caste of Women			
SC/ST®	1.00	1.00	1.00
OBC	0.95 (0.9 1.02)	0.92*(0.87 0.97)	1.01 (0.95 1.08)
Others	1.02 (0.94 1.1)	1.14*(1.08 1.22)	1.06 (0.98 1.14)
Religion of Women			
Hindu®	1.00	1.00	1.00
Muslim	0.29*(0.26 0.33)	0.9*(0.84 0.97)	0.79*(0.71 0.87)
Others	0.68*(0.6 0.77)	0.88*(0.8 0.97)	0.97 (0.87 1.08)
Wealth Quintile of Household			
Poorest®	1.00	1.00	1.00
Poorer	1.17*(1.08 1.28)	1.22*(1.13 1.32)	1.22*(1.13 1.33)
Middle	1.29*(1.18 1.41)	1.29*(1.19 1.4)	1.3*(1.19 1.42)
Richer	1.24*(1.13 1.37)	1.48*(1.36 1.6)	1.42*(1.29 1.56)
Richest	1.18*(1.05 1.31)	1.93*(1.76 2.11)	1.58*(1.42 1.76)
Age of Women			
<25®	1.00	1.00	1.00
25-34	2.58*(2.44 2.73)	1.23*(1.17 1.3)	1.47*(1.38 1.56)
35+	3.38*(3.07 3.72)	0.7*(0.64 0.78)	1.25*(1.12 1.39)
Educational Status of Women			
No Education®	1.00	1.00	1.00
Primary	1.19*(1.09 1.29)	1.27*(1.17 1.39)	1.06 (0.96 1.16)
Secondary	0.92*(0.86 0.99)	1.44*(1.35 1.54)	1.18*(1.09 1.27)
Higher	0.58*(0.52 0.64)	1.82*(1.68 1.97)	1.27*(1.15 1.4)
Sex Composition			
No Son®	1.00	1.00	1.00
At Least One Son	5.11*(4.73 5.51)	1.92*(1.84 2.01)	1.95*(1.84 2.06)
Parity Of Women			
Less Than 2®	1.00	1.00	1.00
2+	26.31*(23.66 29.25)	1.58*(1.51 1.66)	1.54*(1.45 1.63)
Child Loss			
0®	1.00	1.00	1.00
1	1.00 (0.90 1.10)	0.77*(0.70 0.84)	0.96 (0.87 1.06)
2+	0.89 (0.71 1.13)	0.74*(0.58 0.94)	0.97 (0.76 1.22)

*p < 0.05.

stage for our investigation, where we made an attempt to delve into the phenomenon of contraceptive clustering within these household-based social networks.

Our findings resonate with existing studies on social networking's impact on contraceptive adoption within household, unveiling a significant contraception clustering phenomenon at the household level across India's diverse states[7,8,14,36,37]. Eleven percent increase in

any modern contraception use among younger peer was observed if all her older peer use any modern contraceptives in India. This pattern extends to various states, underscoring the dependence of younger women on older peers for contraception knowledge, subsequently translating into adoption.

To capture the effect of older women's specific method use(traditional, spacing, permanent methods) on their younger peer's contraception use, we also deployed the multinomial logistic analysis as it is generally assumed that the women who use the same specific method flock together. We found that the younger peer's use of all methods of contraception – permanent, spacing, and traditional – were significantly influenced by her older peer's use. The odds of the younger peer using a permanent method increased 3.4 times in NFHS-5, when the older peers were found using a permanent method of contraception. For a spacing method, the odds increased 2.5 times, whereas for a traditional, the odds increased to three times. So, it is evident that the older peers encouraged their younger peers to use same methods. Similar results were found in a study in Thailand, where women in kinship tended to use similar methods[14]. Global evidence from several low- and middle-income countries suggests that women learn about the side effects and effectiveness of contraceptives from their peers and turn to them when they face issues with contraception[7,19,27,36]. The understanding that women learn about side effects and effectiveness of contraceptives through their social networks and it significantly impact their choice of contraception. This, in turn, influences the modern contraceptive prevalence rates (mCPR) in India, which are essential for achieving SDGs 3 and 5. Additionally, NFHS-5 data indicate that older women in the household are mostly exposed to the outside world through interactions with community workers and mobilization efforts. This exposure helps them acquire contraceptive knowledge, which they can share within their social networks, particularly with those who have limited access to reproductive information.

The findings of the study are of particular interest for the rural areas, where due to social norms, the younger women in the household interact only with the older women in the household because they restricted from interacting with the others in the community[3,7,30]. These closest social networks (older peers) can be regarded as a transmission medium to educate women on sexual behaviour through interpersonal communication[5,7,13,14,16,17,37]. Leveraging these closest social networks can effectively amplify family planning efforts, contributing to achieving national health and development goals.

So, older women, acting as peer educators in peer led contraception education workshops, can facilitate discussions about modern contraception methods, effectiveness, side effects, and debunk myths. These workshops would provide a safe and supportive environment for open conversations, ensuring that accurate information is disseminated to younger peers. The findings of this research have important implications for the existing government policies like Mission Parivar Vikas, which is focused on 146 districts across seven states with high fertility rates, and whose main aim is to increase the use of contraceptives in these districts [21]. It is essential for government to integrate contraception education components with their existing policies. ASHA workers and community health volunteers can be trained to conduct sessions on contraception within households, tapping into the inherent trust and familiarity they share with community members.

This study also suffers from certain limitations. First, we focused mainly on the current contraception adoption and did not attempt to capture the switching behaviour, which is very difficult to ascertain in cross-sectional data. Second, due to the convergence issue, we did not use the Heckman [15] redprob estimator, which is primarily used to estimate the unobserved heterogeneity in a certain outcome variable by family-level factors. Also, since the study used cross-sectional data, it is very difficult to establish causal associations, so longitudinal studies are typically needed to establish these type of causal associations.

Table 4

Clustering in contraception use within households among sister-in-laws in India, and its selected states, NFHS-5, 2019–21.

State	Probability of contraception use (1)	Probability of contraception use given older peer women not using contraception (2)	Probability of contraception use given older peer women using contraception (3)	Contraception clustering (4)	Relative odds ratio (5)	Adjusted-Relative odds ratio [p value] (6)	Estimated marginal effect (7)	Increase in contraception use of younger peer if all other older peer using contraception (8)
India	0.46	0.46	0.52	0.06	1.26	1.82 [0.00]	0.15 [0.00]	11.14
North								
Haryana	0.53	0.53	0.54	0.01	1.05	1.36[0.02]	0.15[0.02]	5.30
Himachal Pradesh	0.55	0.55	0.61	0.06	1.29	2.30[0.00]	0.20[0.00]	14.13
Jammu And Kashmir	0.44	0.44	0.36	-0.08	0.72	1.12[0.70]	0.03[0.70]	2.16
Delhi	0.56	0.56	0.65	0.09	1.45	1.78[0.01]	0.14[0.00]	11.76
Punjab	0.45	0.44	0.52	0.07	1.34	1.90[0.00]	0.16[0.00]	12.11
Rajasthan	0.53	0.52	0.58	0.06	1.27	1.82[0.00]	0.13[0.00]	9.27
Uttarakhand	0.51	0.51	0.47	-0.05	0.83	0.91[0.73]	0.15[0.73]	-1.61
Central								
Chhattisgarh	0.50	0.49	0.52	0.03	1.13	1.12[0.60]	0.15[0.60]	1.74
Madhya Pradesh	0.53	0.53	0.54	0.01	1.03	1.69[0.00]	0.13[0.00]	8.35
Uttar Pradesh	0.41	0.41	0.48	0.08	1.37	1.74[0.00]	0.14[0.00]	11.25
East								
Bihar	0.34	0.34	0.39	0.05	1.24	1.60[0.00]	0.10[0.00]	7.55
Jharkhand	0.38	0.38	0.43	0.05	1.21	1.41[0.09]	0.08[0.01]	6.07
Odisha	0.40	0.40	0.42	0.02	1.09	1.54[0.04]	0.10[0.00]	8.34
West Bengal	0.53	0.52	0.61	0.08	1.41	1.83[0.01]	0.15[0.00]	11.61
West								
Gujarat	0.45	0.44	0.53	0.08	1.40	2.12[0.00]	0.18[0.00]	14.34
Maharashtra	0.51	0.51	0.53	0.02	1.09	1.83[0.00]	0.15[0.00]	-0.99
South								
Andhra Pradesh	0.49	0.49	0.49	0.00	1.00	2.53[0.03]	0.22[0.03]	8.88
Karnataka	0.55	0.55	0.58	0.03	1.14	1.84[0.00]	0.15[0.00]	9.30
Kerala	0.36	0.36	0.34	-0.02	0.90	1.90[0.16]	0.10[0.21]	10.59
Tamil Nadu	0.45	0.44	0.53	0.08	1.39	1.92[0.04]	0.16[0.04]	7.85
Telangana	0.46	0.46	0.43	-0.03	0.89	1.53[0.17]	0.10[0.17]	5.35
North East								
Assam	0.42	0.41	0.44	0.03	1.13	1.37[0.03]	0.08[0.03]	6.73

Columns 1, 2, and 3 present the probabilities of contraception use by the younger women in the household when an older peer was using and not using contraceptives. Column 4 demonstrates the contraception clustering, which is column 3-column 2.

Column 5- The relative odds ratios which is $(1 - \text{column } 3) / (\text{column } 2 / (1 - \text{column } 2))$. This is the exponential of the estimated clustering coefficient in a simple logit model that includes an intercept and the contraceptive use of older sister-in-law.

Column 6 – reports the adjusted relative odds ratio of the younger sister-in-law contraceptive use after controlling the effect of selected socio-economic and demographic covariates, excluding women living alone.

Column 7 – reports the marginal which is the first partial derivative of the conditional probability of contraception use by the younger peers for the covariate y_{ij-1} . The marginal effect was computed as the difference between the sample averages of the probability of contraception use by the estimated model when $y_{ij-1} = 0$ & $y_{ij-1} = 1$ (excluding women living alone).

Column 8 – This is calculated as the difference between predicted probability of older SIL contraception use from the estimated logit model and predicted probability of contraception use when older SIL not using contraceptives (excluding women living alone).

Conclusion

Harnessing the power of social networks within Indian households holds significant promise for bolstering contraception education, fostering awareness, and facilitating better access to reproductive health resources.

Findings from the NFHS-5 data shows that while 63 % of older women were engaged with community health workers on family planning matters, their younger counterparts remained unexposed to such interactions within the three months preceding the survey. Consequently, it becomes imperative for ASHA workers to implement programs that incorporate at least one woman, particularly an elder, from each household. This approach would facilitate the transfer of knowledge among women, ensuring the dissemination of essential information. Furthermore, India's family planning initiatives have traditionally centred on female sterilization, often adopted by women after achieving their desired family size. This narrow focus underscores the need to prioritize the promotion of spacing methods of contraception, which

face limited utilization. Overcoming this challenge necessitates a comprehensive approach. Health workers should seize opportunities during Maternal and Child Health (MCH) services, a pivotal touchpoint for women during pregnancy, to educate them about a diverse range of contraception options.

The study demonstrates notable strengths to assess the influence of contraceptive use among peer sister-in-laws within a household context. This analysis revealed a substantial potential impact, indicating that 11 % of younger peers are more likely to adopt modern contraception if their older peer does so. Notably, certain states such as Gujarat, Himachal Pradesh, and Rajasthan surpass the national average in this regard. Such findings offer actionable insights for government family planning programs, suggesting a shift towards targeting older peers since younger ones often have limited mobility, particularly in remote areas of the country. By leveraging the inherent strength of social networks within households, India can proactively address gaps in contraception education, awareness, and access. Empowering older peers as conduits of information and embracing diverse methods of family planning will

pave the way for a more comprehensive and effective approach to reproductive health. Through such initiatives, India can steer its family planning efforts toward a trajectory of success, ultimately enhancing the health and well-being of its population.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.srhc.2024.101004>.

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