Intrahousehold influence on contraceptive use among married Indian women: Evidence from the National Family Health Survey 2015–16

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ABSTRACT

Background: India, where more than one married woman of reproductive age often live in the same household, provides an ideal setting to promote family planning through intrahousehold influence.
Objectives: This study examined the association between use of modern contraceptives by young married women, and other married women live in the same household.
Methods: We included 31,361 currently married women of 15–24 years from women data of the National Family Health Survey 2015–16. Each of these women was living with another married woman within the same household, who was also interviewed. From each household, we labeled the woman with the shortest marital duration as the Index Woman. The second woman in each household was either labeled as Peer or Other or Elderly (had married within 5 years or 5–19 years after or 20 or more years after the marriage of Index women, respectively). The association between use of modern contraceptives by Index Women and the second woman in household was examined using logistic regressions—controlled for the background characteristics of Index Women.
Results: Index Women had 2.9 times adjusted odds (95%CI 2.5–3.3) of using modern contraceptives if living with Peers, who were also using modern contraceptives. Similarly, when the second women using modern contraceptives, an Index Woman had 1.7 times adjusted odds for using modern contraceptives (95%CI 1.5–1.9) if living with Elderly, and about 2.5 times adjusted odds if living with Other women (95%CI 2.1–2.8). The association between contraceptive use by an Index Woman and the second woman in the household remained significant even after controlling for background characteristics, showing the independent effect of intrahousehold influence on contraceptive use.
Conclusion: The conclusive evidence of positive intrahousehold influence on contraceptive use of Index Women will encourage program managers to promote intrahousehold communication to increase use of family planning.

Introduction

Family planning is a highly cost-effective means to achieve Sustainable Development Goals (SDGs), as it provides a number of benefits for the investment made. Voluntary family planning can bring a variety of transformational benefits to women, families, communities, and countries (Starbird, Norton, & Marcus, 2016, FP2020). Realizing this potential, Family Planning 2020 (FP2020, FP2020), a global partnership, was formed to work toward empowering women and girls, by investing in right-based family planning; and expanding access to

information, services, and supplies to those who want to have control on whether, when, and how many children they would have (FP2020, 2019).

As a commitment to FP2020, the Government of India is working toward expanding the range and reach of contraceptive options at all levels, enhancing its supply chain system, and increasing awareness and generating demand for family planning services (Government of India, 2017). However, in spite of all these efforts, Track20 (www.track20.org) estimates showed that the prevalence of contraceptive use in India did not increase much in the last five years—from 52% in 2014 to 54% in

2019 (Track20, 2020).

Earlier studies have identified a number of determining factors of voluntary family planning at different levels; ranging from individual-level factors, such as level of education (DeRose & Ezeh, 2010), fertility preferences (Forrest, Arunachalam, & Navaneetham, 2018), male child preference (Arokiasamy, 2002; Chacko, 2001), and exposure to media (Sengupta & Das, 2012); household or family-level factors, like spousal communications on family planning (Acharya & Sureender, 1996; Char, Saavala, & Kulmala, 2010), and autonomy (Reed et al., 2016; Singh et al., 2019); community-level factors, like caste (Bhargava, Chowdhury, & Singh, 2005), religion (Pinter et al., 2016; Sk, Jahangir, Mondal, & Biswas, 2018), and cultural norms related to family planning (Elfstrom & Stephenson, 2012; Ghosh & Siddiqui, 2017; McNay, Aro-kiasamy, & Cassen, 2003); and system-level factors, like access to the health facility (Ghule et al., 2015; Hall, Stephenson, & Juvekar, 2008), availability of method (Dixit, Dwivedi, & Gupta, 2017; Ross & Hardee, 2013), cost (Ensor & Cooper, 2004), etc.

Among all, household-level factors were least researched. Several important findings may be noted from available literature on household-level factors. For example, a multilevel analysis by McNay et al. (2003) found that among uneducated women in India, contraceptive use was also influenced by several factors besides their socio-economic conditions and were beyond their control—such as contraception use of others (McNay et al., 2003). In India, intrafamilial influences, mostly consisting of spousal communications, and interactions with mothers-in-law and other women in the family, play an important role in women's acceptance of family planning; especially, in rural areas where extended and joint families are more prevalent (IIPS and ICF, 2017). The importance of spousal communication has been indicated in many studies (Kumar, Kalia, Goel, & Sharma, 2016; Prata et al., 2017; Sar-watay & Divatia, 2016). These studies showed that typically key reproductive decisions are taken jointly by Indian couples; like the number and timing of pregnancy, gap between pregnancies, choice and use of contraceptives, abortion and unintended pregnencies, etc. Few studies, however, found that the husband was the key decision-maker for family planning (Kumar et al., 2016; Raj et al., 2016). Some re-searchers have also studied the influence of other members in the extended family on the use of family planning methods; for example, in a qualitative study, Char et al. (2010) explored the role of mothers-in-law (MIL) in the use of contraceptives among young couples, and found that although MIL did influence a couple's decisions on some reproductive choices such as the number of male children they would prefer, or the timing of sterilization; yet, they could not influence the couple's deci-sion on the use of reversible contraceptive methods to a large extent (Char et al., 2010).

The intrahousehold influences on family health behaviors are intui-tive. Women from the same household share a common home envi-ronment, generally have a similar cultural and socioeconomic background, get information from similar sources, and possibly utilize health services from the same facilities. A quantitative study from Uttar Pradesh on social networking demonstrated that young married women have very limited social interactions outside their homes, and the power dynamics within the household limit their ability to interact on more private matters like reproductive health, fertility, and family planning (Anukriti, Herrera-Almanza, Pathak, & Karra, 2019). However, India has a dearth of quantitative studies that are representative of the pop-ulation, and which examine the influence of contraceptive use of one woman on another woman in the same household. The current study attempts to fill this literature gap.

This study hypothesized that in a similar socio-ecological context, a young married woman would be more likely to use a modern contra-ceptive if there was another user in the household. In this paper, the hypothesis has been examined empirically using a nationally represen-tative dataset.

Data and methods

The study utilized household and individual women's data from the fourth round of the National Family Health Survey (NFHS), an Indian government survey equivalent to the Demographic and Health Survey (DHS). NFHS periodically collects data from population-based nation-ally representative samples of households and women of reproductive age. The NFHS 2015–16 interviewed 699,686 women aged 15–49 years, living in 601,509 households, across all states and union terri-tories of India. The details of survey procedures and sampling of the NFHS 2015-16 were published in the survey report (IIPS and ICF, 2017).

Out of a total number of 699,686 eligible women interviewed, 50,311 married women were living with another married woman, who was also interviewed for the survey (Fig. 1). For the purpose of this study, the duration of marriage and age of each woman was considered in order to identify Index Women for analyses. Of 50,311 married women who lived with another woman in the household, 31,361 were marked as Index Women. These Index Women were between the ages of 15–24 years, and their durations of marriage were shorter than the other woman in the household. The other women in the households were classified into three types: Peer—married within 5 years prior to the marriage of the Index Woman, Elderly—married beyond 20 years of marriage of the Index Woman, and Other—married between 5 to 19 years before the marriage of the Index Woman. The 5 and 20 year cut-offs were decided upon after plotting the odds-ratio of contraceptive use among Index Women for varying differences of marital duration between the Index Woman and the other women in the same house-hold—if the second woman was also a user (Appendix 1). The plot shows a considerable change in the odds-ratio if the difference in marital duration is beyond 5 years and 20 years; therefore, those two time-points were used as cut-offs. For all analyses, the study only used data of those households with Index Women aged 15–24 years. Therefore, the final sample of this analysis included 31,361 Index Women, of whom 7,879 were living with a Peer woman, 15,206 were living with an Elderly woman, and 8,276 were living with an Other woman in their household.

Dependent variable

The dependent variable for this analysis was the current use of modern contraception by Index women. The variable was created as a binary variable, and coded as '1' if an Index Woman or her husband were using any of the following contraceptive methods at the time of survey: female sterilization, male sterilization, intrauterine device, pill, condom, injectable, standard day method, lactational amenorrhea method, or any other modern method; and coded as '0' if the Index Woman was not using any modern contraception.

Independent variables

The use of modern contraception by the second woman in the family was the main predictor variable for this analysis. The effect of having another user of modern contraceptives in the household on the Index Woman's use of modern contraceptives was examined. The study assessed this relationship by controlling demographic characteristics of Index Women and socio-economic characteristics of the household. These variables were identified as education of Index Women (illiterate, primary, secondary, or higher), parity (0, 1, 2, 3 or more), number of living male children (0, 1, 2, 3 or more), total number of children relative to ideal family size (less than ideal, equal to ideal, or more than ideal), caste (scheduled caste, scheduled tribe, other backward classes[1],

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[1] Scheduled caste, scheduled tribes, and other backward classes are margin-alized groups in India designated by the government and recognized by the Constitution of India.
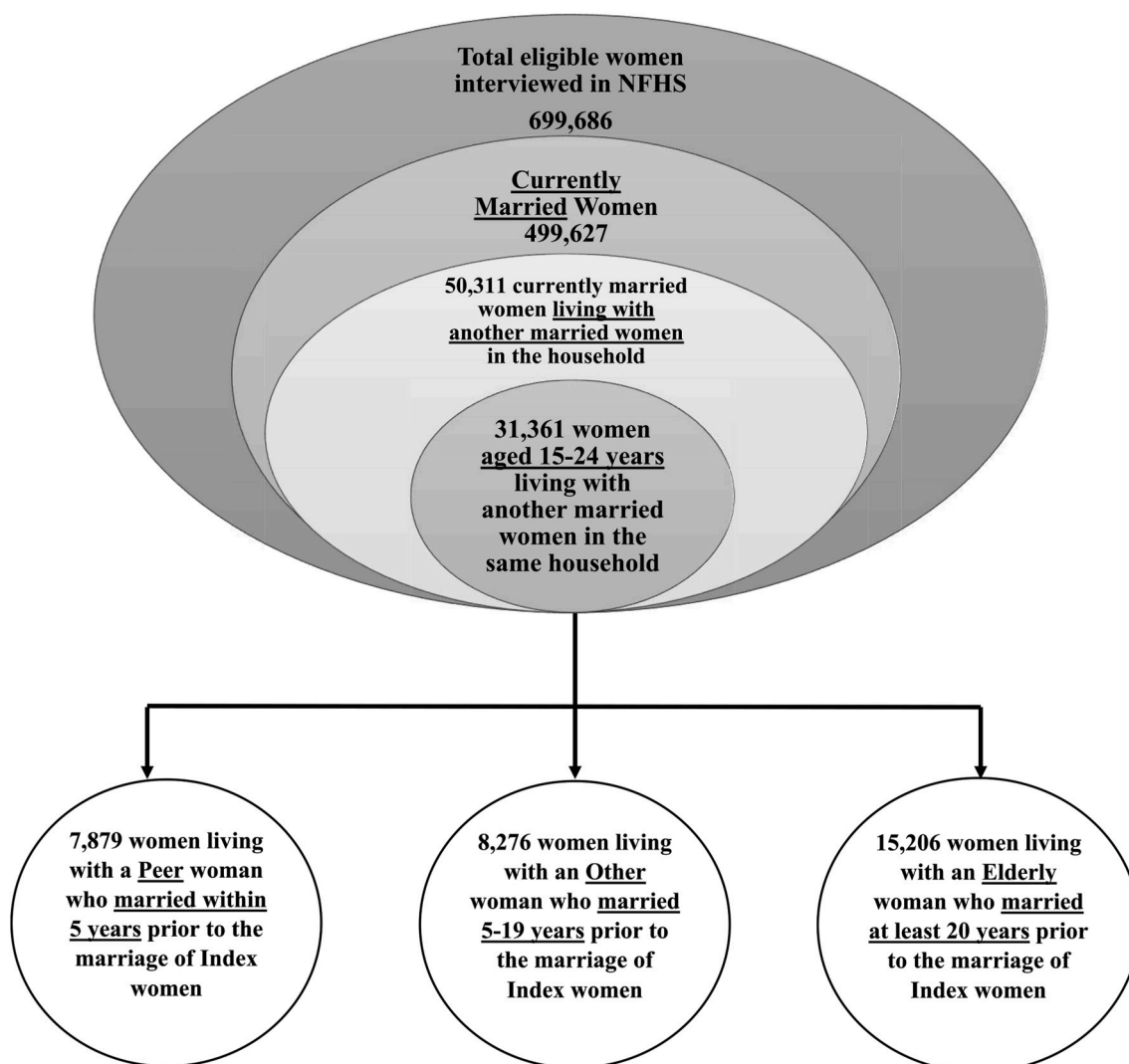
Fig. 1. Selection of sample from the total sample of eligible women of NFHS 2015–16, all number are unweighted.

or others), religion (Hindu, Muslim, or others), and wealth index of the household (poorest, poorer, middle, richer, or richest). The selection of covariates was based on previous literature, and the predictors showed bivariate association with dependent variables as well.

Statistical analysis

At first, the associations of the contraceptive use among Index Women and the second woman were examined by bivariate analyses. As a second step, the strength of the associations were assessed using multivariate logistic regressions. In total, six regression models were calculated—Model-1 and -2 for those women living with a Peer; Model-3 and -4 for those women living with an Other woman; and Model-5 and -6 for those women living with an Elderly woman. In all logistic regressions, the dependent variable was the use of modern contraceptives by Index Women. Model-1, -3, and -5 are unadjusted models, which examined the association of contraceptive use of Index Women, and of the second woman in the family (Model-1 for Index Women living with a Peer, Model-3 if living with an Other woman, and Model-5 if living with an Elderly woman). Model-2, -4 and -6 are adjusted models, which assessed the associations of modern contraceptive use by Index Women and the second woman in the family, controlled for the background characteristics of Index Women (Model-2 for Index Women if living with a Peer, Model-4 if living with an Other woman and Model-6 if living with

an Elderly woman). All analyses were conducted using the Stata statistical software (version 13).

Results

Background characteristics of Index Women

About three-fifths of the Index Women had secondary education, 13% had higher secondary education, and 13–15% had no education (Table 1). More than 70% of the Index Women who were living with a second woman were aged 20–24 years. About 45–48 percent of the Index Women had no children and about 3 percent had three or more children. Around two-third of the Index Women did not have any male children, 25–28% had one male child, and less than 0.5% had three or more male children. A slightly higher proportion of Index Women (19%) who were living with an Elderly woman or an Other woman (19%) were from 'poorest' households, than those women who were living with a Peer (13%). Furthermore, a higher proportion of Index Women (23%) who were living with an Elderly woman belonged to the scheduled caste community, than women who were living either with a Peer (18%) or with an Other woman (21%). Overall, all three groups of Index Women showed similar characteristics, making them comparable.

Characteristics of the Index Women living with another woman in the household, India, 2015–16.

Background characteristics of Index Women	Index Women in the Household		
	Living with a Peer	Living with an Other	Living with an Elderly
	N = 7,879	N = 8,276	N = 15,206
Age in Years			
15–19	26.2	28.7	28.2
20–24	73.8	71.3	71.8
Education			
Illiterate	15.3	15.2	12.9
Primary	11.0	11.2	10.9
Secondary	60.8	61.3	62.1
Higher	12.9	12.3	14.1
Parity			
0	47.0	45.7	45.5
1	36.3	36.4	38.0
2	14.0	14.8	14.0
3+	2.6	3.1	2.5
Number of Male Children			
0	67.7	67.9	68.5
1	27.6	27.0	27.5
2	4.4	5.0	3.9
3+	0.3	0.2	0.1
Number of children relative to ideal family size			
Less than ideal	82.1	81.3	82.8
Equal to ideal	15.4	15.8	14.7
More than ideal	2.4	3.0	2.5
Wealth index			
Poorest	13.1	18.5	19.4
Poorer	20.7	23.7	22.9
Middle	23.8	23.0	22.0
Richer	23.7	19.1	20.3
Richest	18.7	15.8	15.4
Social groups			
Scheduled caste	18.2	20.5	22.7
Scheduled tribe	9.2	8.2	10.5
Other backward classes	46.2	46.9	45.0
Others	26.4	24.4	21.8
Religion			
Hindu	79.1	81.3	82.8
Muslim	18.1	15.3	13.5
Others	2.8	3.4	3.7

Contraceptive use and intrahousehold influence

The relationship between the Index Woman and the second woman's use of modern contraceptives is presented in Fig. 2. Only 9–12% Index Women living with a second woman who did not use modern contraceptives, used modern contraceptives themselves. The use of modern contraceptives among Index Women increased to 20–28% percent if the second woman was also using them. The prevalence of modern
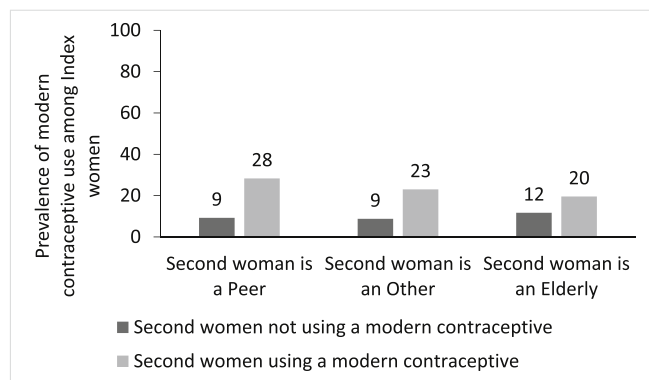

Fig. 2. Prevalence of modern contraceptive use among Index women by modern contraceptive use of the second women (Peer, Other, or Elderly).

contraceptive use among Index Women was the highest (28%) if the second woman in the household was a Peer user, followed by if she was Other (23%), and if she was Elderly (20%).

Regardless of their background characteristics, when the second woman in the household was using modern contraceptives, the prevalence of the same among Index Women was substantially higher, compared to when the second woman was not using a modern contraceptive (Table 2). Moreover, for all background characteristics, the contraceptive use among Index Women living with a Peer user was consistently higher than among those Index Women living with an Elderly, or an Other woman, who was also using a modern contraceptive.

Regression analyses of the intrahousehold influence

Results from multivariate logistic regression models are presented in Table 3. The unadjusted models show that odds of an Index Woman using a modern contraceptive method was almost 3.9 times higher if she was living with a Peer user, 3.0 times higher if living with an Other user, and 1.7 times higher if she was living with an Elderly user. When the regression models were adjusted with the background characteristics of the Index women, the odds for an Index women to use a modern contraceptive method remained sighnificantly high if she was living with another user in the same household. Model-2 shows that the odds of an Index Woman using a modern contraceptive method was 2.9 times higher if she was living with a Peer user. Similarly, the odds were 1.7 and 2.5 if she was living with an Elderly, or an Other modern contraceptive user, respectively.

The regression models, which are adjusted for background characeristics of Index women, consistently show higher pseudo-R^2 value than the unadjusted models for contraceptive use among Index Women. The - 2*log-likelihood value for Model-2, -4, and -6 are significantly lower than for Model-1, -3, and -5, respectively. These findings consistently show better prediction power of those regression models which included the contraceptive use of the second women, along with the background characteristics.

Discussion

This study found that the presence of a modern contraceptive user in the household positively influences the use of modern contraceptives among young married women. The odds of contraceptive use among Index Women were higher if the second user of modern contraceptives was a Peer, as compared to when the second user was an Elderly, or an Other woman. The influence of modern contraceptive use by the second woman in the household was not affected by the other determinants of modern contraceptive use by Index Women, showing an independent effect of intrahousehold influence on contraceptive use.

As mentioned earlier, women from the same household share a common social ecology, have similar sources of information, and utilize similar health services. Having all these in common, it is expected that the contraceptive use of married women influence the use of modern contraceptives by younger Index Women, who are newer members of the household.

The intrahousehold influence of a Peer contraceptive user on a young married woman has been studied for the first time; therefore, researchers of this study could not compare these result with earlier studies. Influence of Elderly contraceptive users on contraceptive use of Index Women, however, was comparable among mothers-in-law and daughters-in-law. In this context, results of this study corroborated the results of earlier studies (Char et al., 2010). Contrary to common belief, this study revealed that Peer contraceptive use influenced contraceptive use among Index Women more than contraceptive behaviors of Elderly women, like mothers-in-law. A young married woman was found more likely open to discussions on issues of modern contraceptive use with a married woman of similar age than with an older woman in the

Table 2
Proportion of Index Women using a modern contraceptive method in comparison to their background characteristics, according to use of any modern contraceptive method by the other women living in the same household (Peer, Other, or Elderly).

Characteristics of Index Women	Use of modern contraceptive method by Index Women					
	Living with Peer		Living with Other Women		Living with Elderly	
	Peer woman <u>not using</u> a modern contra-captive method	Peer woman <u>using</u> a modern contra-captive method	Other woman <u>not using</u> a modern contra-captive method	Other woman <u>using</u> a modern contra-captive method	Elderly woman <u>not using</u> a modern contra-captive method	Elderly woman <u>using</u> a modern contra-captive method
	N = 5,942	N = 1,937	N = 4,402	N = 3,874	N = 6,156	N = 9,050
Education						
Illiterate	8.2	23.3	6.3	22.7	6.7	14.7
Primary	7.1	29.9	6.4	26.5	10.5	20.8
Secondary	10.1	29.0	9.5	21.5	14.2	19.6
Higher	8.6	27.6	11.1	24.2	12.1	19.5
Parity						
0	3.7	9.7	4.6	6.7	5.1	6.9
1	11.6	31.8	11.0	22.1	15.3	22.4
2	26.1	45.4	16.3	53.4	23.9	47.5
3+	20.0	46.8	27.6	48.5	24.8	41.6
Number of male children						
0	5.5	20.0	6.3	13.1	8.3	11.7
1	17.6	35.8	12.9	35.6	16.5	32.2
2	27.2	63.9	28.4	71.4	34.4	57.5
3+	16.2	9.3	42.7	47.0	25.9	87.3
Number of children relative to ideal family size						
Less than ideal	6.4	20.5	7.0	13.6	9.4	13.4
Equal to ideal	26.8	48.2	20.0	52.6	27.3	47.2
More than ideal	25.1	50.0	15.5	48.5	22.1	45.5
Wealth index						
Poorest	7.0	25.7	5.2	20.8	7.0	13.7
Poorer	7.7	24.2	6.9	20.3	10.2	19.4
Middle	9.6	28.1	9.5	22.9	16.6	17.9
Richer	10.9	29.8	14.4	23.0	15.6	20.8
Richest	10.7	30.7	9.5	25.6	16.0	23.6
Caste						
Scheduled caste	10.2	27.0	9.3	25.3	12.0	19.8
Scheduled tribe	7.3	28.9	7.6	24.3	9.6	16.2
Other backward classes	7.5	26.0	7.5	18.0	9.9	16.5
Others	12.7	31.9	11.4	26.9	18.3	25.7
Religion						
Hindu	9.2	27.6	8.9	22.1	12.1	18.7
Muslim	8.8	30.4	8.5	22.5	12.3	21.0
Others	12.3	34.3	7.7	30.0	13.4	25.0
Total	**9.2**	**28.3**	**8.8**	**23.0**	**11.7**	**19.6**

household. However, the current analysis did not examine the influence of Peers in the presence of Elderly or an Other woman in the same household.

In large joint families of India, more than two married women of reproductive age often live together in the same household, making the dynamics of intrahousehold influences more complex. This study, however, did not examine the influence those complex relationships had on contraceptive use. Examination of such associations requires more nested data and advanced statistical computation, which was outside the purview of this paper. Since this is a cross-sectional study, it could not estimate any temporal effect of contraceptive use of the second woman on the contraceptive use of Index Women. Also, NFHS did not collect data on family planning related communication among married women within a household, or communication with their husbands. Hence, this study could not control for such intrahousehold influences in its model. As well, the study could not provide insight on how these intrahousehold influences of the second woman on the Index Woman worked, as this required primary data which was not available in the NFHS datasets.

The findings of this paper have implications for the existing government programs, particularly in the 146 focus districts under the Mission Parivar Vikas, across seven high focus states (Ministry of Health and Family Welfare (MoHFW), 2016), where the Government of India introduced a five-pronged strategy to increase the use of contraceptives, including different promotional schemes. One of the promotional

schemes *Saas-Bahu Sammelan*—a platform for mothers-in-law and their daughters-in-law—aims to bring about changes in attitudes and beliefs of reproductive and sexual health through interactive games, and by building on their experiences. The findings of this study confirm that such focus will be beneficial for programs like *Mission Parivar Vikas*. The findings further call for a focus on promoting intrahousehold communication between different generations of contraceptive users.

Over the last decade, many public health projects have been working through self-help groups (SHGs), to promote healthy behaviors by introducing them to Behavior Change Communication (BCC) (Mozumdar, Khan, Mondal, & Mohanan, 2018). Typically, one can utilize the convening of 10–12 women at an SHG meeting to promote discussion of different family health issues, including family planning. The public health projects anticipate that learnings imbibed at SHG meetings would eventually be disseminated among household members by way of intrahousehold communication. The findings of this study provide evidence regarding feasibility of using intrahousehold influence for contraceptive use, and will encourage program managers to promote family planning BCC through SHGs.

Conclusion

The study showcases the influence older modern contraceptive users have on young married women within the same household, and their

Table 3

Unadjusted and adjusted models of logistic regressions showing determinants of modern contraceptive use among Index Women living with another woman in the household.

	Living with a Peer		Living with an Other Woman		Living with an Elderly Woman	
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Modern contraceptive use of:						
— Peer Woman						
No	Ref.	Ref.	na	na	na	na
Yes	**3.88 (3.42–4.40)**	**2.86 (2.49–3.27)**	na	na	na	na
— Other Woman						
No	na	na	Ref.	Ref.	na	na
Yes	na	na	**3.02 (2.66–3.42)**	**2.45 (2.14–2.81)**	na	na
— Elderly Woman						
No	na	na	na	na	Ref.	Ref.
Yes	na	na	na	na	**1.72 (1.56–1.88)**	**1.68 (1.51–1.85)**
Background characteristics of Index Women						
Education						
Illiterate	na	Ref.	na	Ref.	na	Ref.
Primary	na	0.92 (0.69–1.22)	na	1.11 (0.85–1.45)	na	**1.38 (1.13–1.69)**
Secondary	na	**1.28 (1.02–1.59)**	na	1.21 (0.98–1.49)	na	**1.53 (1.29–1.81)**
Higher	na	**1.36 (1.01–1.82)**	na	**1.68 (1.27–2.22)**	na	**1.62 (1.32–2.00)**
Parity						
0	na	Ref.	na	Ref.	na	Ref.
1	na	**3.06 (2.51–3.74)**	na	**2.25 (1.86–2.74)**	na	**3.28 (2.87–3.74)**
2	na	**3.28 (2.44–4.41)**	na	**3.49 (2.63–4.63)**	na	**5.09 (4.20–6.18)**
3+	na	**2.90 (1.80–4.66)**	na	**4.65 (3.04–7.12)**	na	**3.96 (2.86–5.49)**
Number of male children						
0	na	Ref.	na	Ref.	na	Ref.
1	na	**1.25 (1.06–1.48)**	na	**1.71 (1.45–2.02)**	na	**1.25 (1.12–1.39)**
2	na	**2.00 (1.49–2.67)**	na	**3.14 (2.41–4.11)**	na	**2.16 (1.76–2.65)**
3+	na	**0.22 (0.06–0.85)**	na	**3.48 (1.19–10.15)**	na	**4.45 (1.81–10.95)**
Number of children relative to ideal family size						
Less than ideal	na	**0.42 (0.34–0.52)**	na	**0.49 (0.40–0.60)**	na	**0.49 (0.43–0.57)**
Equal to ideal	na	Ref.	na	Ref.	na	Ref.
More than ideal	na	1.04 (0.71–1.54)	na	**0.67 (0.47–0.96)**	na	0.93 (0.70–1.22)
Wealth index						
Poorest	na	Ref.	na	Ref.	na	Ref.
Poorer	na	0.97 (0.74–1.27)	na	1.18 (0.94–1.48)	na	**1.39 (1.18–1.63)**
Middle	na	1.13 (0.86–1.47)	na	**1.50 (1.20–1.87)**	na	**1.50 (1.27–1.76)**
Richer	na	**1.15 (0.88–1.51)**	na	**1.86 (1.47–2.34)**	na	**1.61 (1.37–1.91)**
Richest	na	1.34 (1.00–1.78)	na	**1.69 (1.31–2.17)**	na	**2.19 (1.83–2.62)**
Caste						
Scheduled caste	na	Ref.	na	Ref.	na	Ref.
Scheduled tribe	na	0.83 (0.63–1.09)	na	0.93 (0.72–1.21)	na	0.84 (0.71–1.01)
Other backward classes	na	**0.75 (0.62–0.91)**	na	**0.67 (0.56–0.80)**	na	**0.71 (0.63–0.80)**
Others		1.14 (0.93–1.40)		1.15 (0.95–1.39)		**1.48 (1.29–1.70)**
Religion						
Hindu	na	Ref.	na	Ref.	na	Ref.
Muslim	na	1.02 (0.85–1.23)	na	0.94 (0.78–1.14)	na	0.98 (0.85–1.12)
Others	na	1.26 (0.88–1.80)	na	1.10 (0.81–1.51)	na	1.09 (0.88–1.37)
Pseudo R^2	0.064	0.171	0.043	0.185	0.010	0.152
−2 * log likelihood	6536.38	5781.87	7315.94	6220.29	14393.22	12319.96

Notes: OR = Odds-ratio, AOR = adjusted odds-ratio, OR and AORs in **bold** font are significant at p < 0.05, na = not applicable.

choices to use modern contraception. A Peer's influence has been found to be stronger that that of an Elderly woman. The findings of the study are supportive of the current strategies employed under programs of the Indian government that promote family planning among young married women. Educating recently married, low parity women through other married women in the household has been found to be an effective strategy to achieve India's FP2020 commitment.

Ethical approval

The NFHS 2015−16 received ethical clearance from Ethical Review Board of the International Institute of Population Sciences, Mumbai, India. The survey interviewers obtained informed consent from each respondent before the interview and made their best effort to ensure privacy.

Declaration of competing interest

None of the authors have any conflict of interest on the content of this manuscript.

CRediT authorship contribution statement

Mukesh Ranjan: Conceptualization, Methodology, Formal analysis, Writing - original draft. **Arupendra Mozumdar:** Conceptualization, Methodology, Formal analysis, Writing - original draft, Writing - review & editing. **Rajib Acharya:** Conceptualization, Methodology, Writing - review & editing, Supervision, Project administration. **Subrato Kumar Mondal:** Resources, Writing - review & editing. **Niranjan Saggurti:** Conceptualization, Methodology, Project administration, Funding acquisition.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssmph.2020.100603.

Appendix 1. Odds ratios and 95% CI of modern contraceptive use of Index woman if the second women in the household also an user of modern contraceptive by different cut-offs for difference between duration of marriage of two women of same household
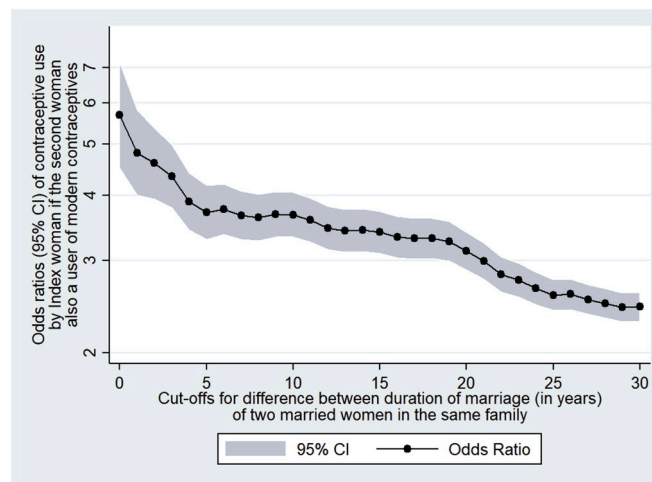
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