The Mother-in-Law Effect: Heterogeneous Impacts of Counseling on Family Planning Take-up in Jordan[*]

Rebecca Thornton[†]
Priyasmita Ghosh[‡]
Apr. 24, 24

Abstract

How does the presence of a woman's mother-in-law impact the effectiveness of a family planning program? Using data from an experiment that randomly assigned married women to receive either individual or couple's family planning (FP) counseling in Jordan, we document heterogeneity of treatment effects on modern contraception take-up by mother-in-law (MIL) co-residence status. For women residing with their MIL, woman-only counseling significantly increases FP take-up by 28 percentage-points (over 11% in the control). The effect of couples counseling among women living with their MIL is small and not statistically different from zero. Women not living with their MIL respond both to woman-only and couples FP counseling, with an increase of 7 and 16 percentage points in FP take-up, respectively. Results controlling for covariates and inverse propensity weighted matching suggest that the difference in treatment effects is not driven by selection on observables into differential MIL co-residence status. Non-spousal family members can have important roles in determining the effectiveness of FP interventions.

Keywords: Family planning, Jordan, mother-in-law, reproductive health, social networks

JEL: J12, J13, J16, O15

---

[*] The data were collected for the study "Counseling Women and Couples on Family Planning: A Randomized Study in Jordan" (El-Khoury et al. 2016), conducted under the Strengthening Health Outcomes through the Private Sector (SHOPS) Project, funded by the United States Agency for International Development (USAID) Associate Cooperative Agreement No. 278-A-00-10-00434-00 and Cooperative Agreement No. GPO-A-00-09-00007-00. The authors' views do not necessarily reflect the views of USAID or the United States government. We are grateful for Catalina Herrera Almanza, Russell Weinstein, Ben Marx and Nolan Miller who provided early feedback.
[†] Corresponding author; Professor, Department of Economics, Baylor University, One Bear Place #98001 Waco TX, 76798, Email: rebecca_thornton@baylor.edu, Website: https://www.rebeccathornton.net/, ORCID: 0000-0002-1362-220X
[‡] 500 Wall Street, Seattle, Washington, USA 98121, Email: priyasmitaghosh1@gmail.com, ORCID: 0000-0002-8043-7215

1. Introduction

Since the early 1960's, academic and programmatic attention has considered how the dynamics between spouses and sexual partners affect reproductive health and family planning (FP) decisions (Becker, 1996; Lozare, 1976; Yaukey et al., 1965; Poffenberger and Poffenberger, 1969). Research on intra-household decision-making related to health and FP, however, has been almost exclusively limited to understanding a husband's involvement, rather than the role of other members in the household.[1] In this paper, we extend the literature by examining the role of a woman's mother-in-law (MIL) on the effectiveness of a FP program. We utilize a FP counseling intervention in Jordan in which married women were randomly assigned to one of three treatment groups: woman-only FP counseling, couples FP counseling, or no counseling (see El-Khoury et al., 2016). In this study, women (and their husbands) were followed approximately six months after the intervention. We estimate the heterogeneity of the effects of the two versions of the program on FP take-up, across MIL co-residence status.[2]

A MIL may either support or discourage a daughter-in-law's (DIL) adoption of modern contraceptive methods by providing encouragement to her DIL and facilitating communication about FP with her son, or, by opposing family planning if she prefers having more grandchildren or is concerned about family planning side effects. In more patriarchal settings, living with a MIL could result in less autonomy in economic decision-making, access to resources, or freedom of

[1] Exceptions are Anukriti et al. (2020), Anukriti, Herrera-Almanza, and Karra (2022) and Anukriti et al. (2022). Anukriti, Herrera-Almanza, and Karra (2022) and Anukriti et al. (2022) provide evidence that MIL is a significant barrier to FP use in India. Anukriti et al. (2020) shows that co-residence with MIL is negatively correlated with her daughter-in-law's mobility and ability to form social connections related to health, fertility, and family planning. Banerji et al. (2023) studies the impact of co-residence with father-in-law and mother-in-law on female labor force participation and autonomy. Other descriptive studies (such as Speizer et al., 2015) explore the importance of the presence of an elder sister-in-law on contraceptive use behaviors and decisions.

[2] We extend the analysis of El-Khoury et al. (2016), which evaluated the main effects of a family planning community outreach intervention. In that study, woman-only counseling increased take-up of modern family planning by 8.5 percentage points and couples counseling increased take-up by 10 percentage points (over an average rate of family planning take-up of 18.6 percent in the control).

mobility (Balk, 1997; Bloom et al., 2001). The relationship between a MIL and DIL may also be shaped by the dynamics of the relationship between each of the actors within the household (e.g., husband, wife, and MIL), and the presence of a MIL could support and enhance, or crowd out, communication between a woman and her husband.[3] In Jordan, where this study takes place, previous descriptive research suggests that MILs may be important in their DIL's reproductive decision-making.[4]

How would the presence of a woman's MIL affect the effectiveness of a FP counseling program? Most studies – none of which distinguish effects across MIL co-residence – have found that male involvement in FP programs increases women's use of contraceptive methods (Ali et al., 2005; Becker, 1996; Mbizvo and Bassett, 1996; Shattuck et al., 2011).[5] In this paper, both counseling interventions – couples and woman only – aimed to improve FP knowledge and awareness; the couples counseling intervention attempted to also improve spousal communication. Depending on the dynamics within the household, MIL presence could either increase or decrease

[3] A woman's MIL can have an impact on her DIL's mobility and financial autonomy, influence her reproductive preferences, or influence decision-making related to family planning (see Gram et al., 2018 for a review). A MIL can influence the number of children that couples want to have (Moore, 1994) and communication between couples (Nag and Duza, 1988; Varghese and Roy, 2019). Allendorf (2006) uses structured interviews to find that MIL/DIL relationships can be positive among women in India. In Bangladesh, Caldwell et al. (1982) find a negative correlation between contraceptive use and MIL co-residence. In India, MIL co-residence has been found to be associated with less mobility and fewer social connections outside the household, especially those related to health, fertility, and family planning (Anukriti et al., 2020). Vidler et al. (2016) find that women in India with better relationships with their mother-in-law are more likely to use contraception. Pradhan and Mondal (2022) show that family type, especially the presence of MIL, was associated with daughter-in-law's DIL's contraceptive behavior in India. Pandey and Khanna (2023) show that residence with MIL may restrict women's labor force participation but may also help by taking on housework responsibilities. Gopalkrishnan et al. (2023) conduct a longitudinal study to find evidence that good quality relationships with MIL is associates lower depressive symptoms among women in Nepal.

[4] Clark et al. (2010) shows that MIL co-residence increases a women's risk of domestic violence. Mohammed et al. (2011) shows that difficult relationship with a woman's mother-in-law were significantly associated with a woman's development of antenatal and postnatal depression symptoms. Doan and Bisharat (1990) argue that MIL residence in the household leads to lower autonomy of the DIL and have a negative impact on her child's nutrition. Bhan et al. (2022) find evidence of the influence of women's MIL's (or male partner's mother) on women's FP choices and contraceptive use based on a systematic review.

[5] In contrast, using an experiment in Zambia, Ashraf et al. (2014) find that women given access to concealable contraceptives alone were more likely to seek family planning services than those counseled together with their husbands.

the impact of a couples counseling program. Similarly, depending on the binding constraints to family planning adoption and underlying fertility preferences, MIL presence may be associated with larger or smaller effects of woman only family planning counseling. Because households with and without a MIL differ along underlying characteristics as well as fertility and FP preferences, comparing the causal effects of a family planning intervention across MIL co-residency, does not identify whether the differences in effects are due to the MIL herself. Still, differences in the effects suggest important avenues for further research and consideration for policy makers.

We first find that the effects of couples counseling is more than twice that of woman-only counseling for women who do not live with their MIL. In the original study, across the entire sample of women, couples counseling increased FP take-up by 10 percentage points; this effect was a mere 1.5 percentage points higher than woman only counseling and not statistically different from zero. When we disaggregate results, we find that among women who do not live with their MIL, couples counseling increases family planning take-up by 16.6 percentage points (SE=0.043) and woman-only counseling increases family planning take-up by 7.2 percentage points (SE=0.040); the difference between these two effects is statistically significant at the 5 percent level.

Second, we find that for women living with their MIL, couples counseling has little impact on family planning adoption – the point estimate is small (-0.007) and statistically insignificant from zero (SE=0.104). At the same time, woman-only counseling increases FP take-up by a full 32.5 percentage points (SE=0.092) for those living with their MIL, over 11 percent take-up among these women in the control.

We present the effects of the two counseling programs by MIL co-residence status, on the type of contraception adopted such as pills, IUDs and implants. We find the largest effects is on

adoption of pills for women living with their MIL after woman-only counseling. Women not living with their MIL are similarly likely to adopt IUDs, pills, and to some extent, implants, after both types of counseling. Among all women, we observe a positive impact on the use of IUDs due to woman-only counseling.

There could be several reasons behind the different effects of counseling across MIL co-residence status. One possibility is that the results are driven by the fact that women with different MIL co-residence status have different underlying characteristics and preferences. In our data, women who live with their MIL are on average younger than those who do not, are more recently married, and have fewer children. Women living with their MIL also report lower overall FP use and prefer more children. We present estimates of the effects of the two types of counseling interventions with inverse propensity weights (IPW) using Kernel and nearest neighbor matching methods, to account for differences in MIL co-residence status across observable characteristics. Our results are robust to these specifications adjusting for baseline covariate differences.

Another explanation behind our results is that the presence of a MIL invoked different outcomes of the two counseling programs due to the dynamics within the household. Using survey responses collected after the intervention on FP knowledge, willingness to use FP, and concerns about side effects, we find that for women not living with their MIL – where we see about twice the effect of couple's counseling than woman-only counseling – we also find larger effects of couples counseling on the reduction in concerns about FP use and increase in spousal communication about FP. For women living with their MIL – where we observe no impact of couples counseling on FP take-up – we find very little impact of couples counseling on these attitudes, but observe moderate to larger effects of woman-only counseling on knowledge, willingness to use FP, reductions in concerns about FP. We also see that women living with their

MIL experience increased encouragement from their MIL to use FP. Results for men's knowledge, attitudes, and willingness follows similar patterns. These results are suggestive although somewhat imprecise after adjusting for multiple hypothesis corrections.

To further understand how interpersonal dynamics and MIL interactions impact the take-up of FP, we look exclusively at women with differing levels of communication with their MIL as well as differing MIL views in favor or opposed to FP. Among women who communicate with their MILs about FP, whose MIL advises in favor of FP or approves FP use, both woman-only and couples counseling exert significant impact on the take-up of FP. Additionally, for women who do not report engaging in conversations with their MIL regarding FP, only couples counseling impacts take-up. Conversely, neither form of counseling demonstrates a statistically significant impact on FP adoption for women whose MILs do not endorse FP use for either limiting or spacing pregnancies. Among women living with their MILs woman-only counseling doubles the rate of FP take-up compared to women whose MILs do not support FP use. Among women whose MILs approve FP, there are small increases in FP adoption after participating in couples counseling. These results involve analyses with smaller sample sizes but suggest that FP planning counseling can have a stronger effects when there is support and encouragement from a woman's MIL.

This paper contributes to the literature on family dynamics and reproductive health and reveals a more nuanced picture of intergenerational family relations by unpacking the effects of a MIL's presence on a DIL's FP take-up. This study adds further evidence on the influence of the MIL on a DIL's access to health services, care-seeking behavior, and health outcomes, and extends our knowledge to a setting outside of India as in Anukriti et al. (2020). Our findings that the presence of a woman's MIL leads to different outcomes after providing counseling suggest that a woman's household structure may importantly affect the ultimate success of reproductive health programs.

Our paper further provides evidence that reproductive health decision-making is a collaborative process and emphasizes the need for policymakers to recognize that a MIL's involvement can impact FP adoption, with or without the husband's direct participation in counseling outreach.

The rest of the paper is organized as follows. Section 2 describes research design including the experiment, data, and sample. Section 3 presents the main results of the effect of the two counseling interventions on FP use, disaggregated by MIL co-residential status. Section 4 discusses mechanisms related to attitudes, knowledge, spousal communication about FP as reported by wives and husbands and MIL's support as reported by wives. Section 5 concludes.

2. Research Design

2.1 Background and Setting

This study took place between September 2013 and August 2014 in the Al-Hashemi neighborhood of Amman, a low-income urban area in Jordan. As of 2011, 42 percent of married women reported using a modern family planning method in the past decade (Department of Statistics and ICF International, 2013).[6] An estimated 12 percent had an unmet need for family planning (Jordan Population and Family Health Survey, 2012). Studies from Jordan indicate that major barriers to the use of modern contraception include social and family norms such as pressure to prove their fertility immediately after marriage (Buchholz, 2005) and fear of side effects (El-Khoury, 2011). Shattnawi et al. (2021) finds that that family planning decisions in Jordan are often made jointly by a wife and her husband, with other family members such as a MIL or friends.

[6] Using the JPFHS-2017/18 we note that women in Jordan marry at a median age of 22.7 years (5 years earlier than a man). According to the same survey women in reproductive age (15-49 years) have their first birth at a median age of 24.6 years,

2.2 Data Collection, Randomization and Family Planning Outreach

Eligible women for the study included those who reported being married, living with their husbands, of reproductive age, fecund, non-pregnant, not planning to move in the next year, and not using a modern family planning method. The sample was created by conducting door-to-door household censuses. Out of 1,503 eligible women, 1,247 consented and participated in baseline survey. Women were enrolled in the study in two phases: September 2013 and March 2014. The sample is representative of the population of Amman.[7]

The baseline survey collected detailed information on individual demographics, fertility and family planning use, knowledge, and preferences. The baseline questionnaire allows us to identify women residing with their MIL and not residing with her MIL or whose MIL is deceased. Our data do not allow us to know whether a woman lived with her MIL or not prior to the death of her MIL. We therefore drop women with a deceased MIL from our analysis.[8]

After the baseline survey, each woman was randomly assigned to one of three treatment groups: woman-only counseling, couples counseling, and no counseling. Randomization was stratified on the woman ever having used a modern contraceptive method and the household's location (among seven geographical sub-areas).

Approximately two weeks after the baseline survey, trained and paid FP counselors visited women (and their husbands) in the two treatment groups to conduct the assigned sessions. The intervention provided home-based FP counseling to women in the treatment groups either with or

[7] To assess the external validity of this study, we compare the distribution of several baseline variables in our sample with that of the Population and Family Health Survey (PFHS) in 2017-18 in Jordan. In Appendix Figure 1, we present distribution by age group of our sample and that of PFHS in Jordan, for some variables—percent of married women, employed and married by women, reported usage of family planning, and the current number of children. The distributions of the two samples are similar, except for that of employment in which women in our sample are comparatively less employed at older ages.

[8] Women with a deceased MIL in the household are on average nine years older and married for eight more years compared to the women with a living MIL. In general, women living with a deceased MIL have more children, display a lower preference for an additional child and report a higher usage of modern FP.

without her husband. The counselors made repeated home visits, typically every four to six weeks, following pre-defined counseling protocols discussing the benefits of FP and birth spacing, informing women of modern methods, addressing concerns about specific methods, and making referrals to FP providers in the area. Women of low socio-economic status (as assessed by the counselor) were given vouchers for free family planning in selected private-sector clinics. The study design does not allow us to separate the effects of providing the free services voucher from the effects of counseling. In the couples-counseling treatment group, women and their husbands were counseled jointing, with the aim to encourage spousal communication and support.

Six months after the completion of the outreach counseling, endline surveys were conducted among women and their husbands, separately. Among the 1247 women surveyed in the baseline, 78 percent of women and 54 percent of husbands completed the endline survey.[9] Both women and men's response rates are higher when their mothers/MILs are present in the household (Table 1).[10] Women's response rates are higher in control groups (84 percent) compared to woman-only (76 percent) and couples counseling (74 percent), that may reflect interview fatigue among women assigned to receive counseling, as counselors collected routine program monitoring data at each visit. To address this, robustness checks are presented for differential attrition (Appendix Table A4).

Of women with an endline survey, we restrict the sample to those with a non-deceased MIL. This includes 14 percent women co-residing with MIL and 86 percent women without a MIL in the household. Among them 33 percent of women received no counseling, 35 percent of women

[9] Husbands residing with their mothers are 12 percentage points more likely to be interviewed at the endline than those who do not live with their mother, However, there is no differential survey completion of women's husbands by treatment assignment in either of the two sub-samples, women with a MIL and women without a MIL.
[10] 77.5 percent of women respond to endline surveys when MIL is not present in the household compared to 75.3 percent of women with their MIL in the household.

received woman-only counseling and the rest 32 percent received couples counseling. Our final analytical sample includes 662 women and 457 husbands at endline.

2.3 Outcome Variables

Our main outcome variable for our analysis is a woman's reported use of modern FP at the endline survey. Modern FP methods include birth control pills, IUDs, injectables, implants, male condoms, female or male sterilization, and emergency contraception.[11]

To observe how a woman substitutes between different FP methods we estimate the effects of different counseling on the use of any traditional FP which includes withdrawal, periodic abstinence, breastfeeding, and lactational amenorrhea, and having no modern family planning use at endline.

To understand the channels through which counseling affects FP use, we measure effects on a constructed score of FP knowledge[12], willingness to use contraception (0/1), if there are any concerns about FP use (0/1), and if there is spousal communication about FP (0/1). Both women and their husbands were asked these questions.

[11] The survey question asked: "Are you currently using any method on regular basis to space between pregnancies?" If yes, "What is the main method of family planning you are using?"

[12] FP knowledge is the total number of correct answers out of fifteen about the use of modern methods, effectiveness, risk of infertility, and side effects that include: a) Out of the following, which modern FP methods have heard about? b) Can you name two benefits of birth spacing? c) Are modern FP methods (IUD, pills, implants and injectables) less effective, equally effective, or more effective than traditional methods (withdrawal, counting)? d) How often should a woman take the family planning pill- daily, monthly, every 3 months, every 6 months? e) How often should a woman receive injectables- daily, monthly, every 3 months, every 6 months? f) When does a woman's ability to become pregnant return after removing the IUD? g) Can you name one benefit of using the IUD for spacing between pregnancy and another benefit for using the pills for spacing between pregnancies? h) For each of the following family planning methods, please indicate to me if any of these methods cause infertility- pills, IUD, injectables, implants, condoms, withdrawal. i) If a woman experiences side effects from using a modern family planning method, how long does she have to wait before she considers stopping or switching to another method? j) Please tell me if the following statement is true or false: The Muslim religious leaders allowed temporary prevention or delay of pregnancy by using a family planning method that is safe. k) Can you tell me what type of health providers in your neighborhood provide FP services?

Women were also asked if they received encouragement from their MIL about FP (0/1) and if they communicated with their MIL about FP (0/1).

2.4 Descriptive Statistics and differences across MIL co-residence

Table 1 shows the baseline characteristics among the 662 women who report a non-deceased MIL, with an endline survey. The average woman in our sample is 30 years old, married for 10 years, and has 3 children. Women and their husbands have completed just over ten years of education. Only 5 percent of the women are employed with almost full employment among husbands (92 percent).[13]

On average, women report wanting a total of four children or one additional child. Just over half, 54 percent, of women at report having ever used a modern FP. Almost all women (92 percent) approve of FP use to space pregnancies but only 55 percent approve FP to limit pregnancies. The majority of women, 74 percent, report discussing FP with their husband in the past year with 31 percent of women reporting their husbands support FP use.[14] Only 19 percent of women report encouragement for FP from her MIL, and 16 percent reporting active discouragement.[15]

Table 1 also presents a comparison of characteristics across women with different MIL co-residential statuses. Women who live with their MIL are 3 years younger, have been married 3 fewer years and have 1 less child, than women who do not. The two groups have similar levels of education and likelihoods of being employed. Women who live with their MIL report wanting

[13] Employment is defined as having a paid job during the past seven days.
[14] A supportive husband is defined if the respondent agrees or partially agree to either: "my husband supports use of modern family planning methods to space" or "my husband supports the use of modern family planning to limit pregnancies". Encouraged is defined if a woman answers yes to: "In the past 12 months, has your MIL/husband ever encouraged you to use modern FP methods (e.g., pills, IUD, condoms, implants, injectables)?" or discouraged if a woman says yes to: "In the past 12 months, has your MIL/husband ever advised you against using modern family planning methods?"
[15] There is a 26 percent correlation between MIL and husband's support.

more additional children, are 9 percentage points less likely to say they are willing to use modern contraception in future and are 14 percentage points less likely to have experience with modern contraception at least once in their lifetime. Women living with their MIL also report more discouragement for FP from their MIL and are 8 percentage points less likely to receive support from their husband for FP.

3. The Effect of Counseling on FP Use by MIL Residential Status

3.1 Statistical Approach

We estimate the intention to treat effects of woman-only and couples family planning counseling with the following regression:

$$Y_i = \alpha + \beta_1 WomanOnly_i + \beta_2 Couples_i + \delta V_i + \gamma X_i + \epsilon_i \quad (1)$$

where $WomanOnly_i$ is equal to 1 if individual i is assigned to woman-only counseling, $Couples_i$ is equal to 1 if individual i is assigned to couples counseling. We estimate Equation (1) separately for women living with their MIL and not living with their MIL.[16] Our main outcome variable, Y_i , is take-up of FP. We also examine type of contraceptives used as well as attitudes, knowledge, and reported communication at the endline survey, all measured six months after the intervention. We control for stratification cells (V_i) and use a vector of individual-level controls (X_i) discussed below.

We estimate β_1 and β_2, the effect of being assigned to woman-only and couples counseling compared to no counseling. Our random assignment of women to different types of counseling

[16] Results are robust to a fully interacted model presented in Appendix Table A3. To adjust for possible non-response bias due to endline survey attrition, we estimated this model using probability weights accounting for non-response to the endline survey, along observable characteristics measured at baseline in Appendix Table A4. We applied non-response weights for the sample of women with completed endline surveys. Results do not differ significantly without weights.

allows us to estimate causal effects of each of the programs. Covariates are generally balanced across treatment assignment both across the entire sample, and within each sub-group of MIL co-residence status (Appendix Table A1).[17]

In the majority of our specifications, we include individual baseline controls, although none of the results are sensitive to their inclusion. The set of controls include: woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1).

We test whether woman-only and couples counseling have different effects and present the p-values of the T-tests for $\beta_1 = \beta_2$. We present robust standard errors and cluster by the level of treatment stratification of ever used family planning at baseline (0/1), geographical sub-area indicator, and indicator for being sampled into the study in either September 2013 or March 2014.

In some specifications where we look at attitudes, knowledge, and communication as outcomes, we also report p-values adjusted for multiple hypothesis correction using the methodology described in Westfall and Young (1993).

3.2 Main Results

[17] Out of 120 tests of pairwise equality of treatment assignment means, 2 out of 60 are significant for women with MIL in a different household and 3 out of 60 are significant for women with MIL in the same household (Appendix Table A1).

At endline, among women in the control group who were not offered any counseling, 15.5 percent report using FP – 16 percent among those not living with their MIL, and 11 percent among those living with their MIL. Table 2 presents the main effects of counseling separately for women not living with their MIL (Columns 1-2), and women living with their MIL (Columns 3-4).

For women not living with their MIL, both woman-only and couples counseling have positive effects, increasing family planning take-up by 7.4 percentage point and 16.6 percentage point, respectively, over the control take-up of 16 percent (Column 2). The effect of couples counseling is more than twice that of woman-only counseling and the difference is statistically significant. The results do not vary when we include or do not include baseline controls (Columns 2 and 4).

For women living with their MIL, we find no impact of couples counseling – the point estimate is small and statistically insignificant (Column 4). On the other hand, woman-only counseling increases FP take-up by 32.5 percentage points.

We examine what women substitute from (either traditional FP or not using any method) and what they substitute into (pills, IUDs, injectables, implants, and male condoms) in Appendix Table A2. For women living with their MIL, the largest substitution is away from traditional methods, while for those living with their MIL, women generally substitute away from both traditional and using no method. Among those who do not live with their MIL, woman-only counseling increases the usage of pills and IUDs; notably we see a decrease in the use of male condoms from couples counseling. For all women, we observe a positive impact on the use of IUDs due to woman-only counseling.

3.3 Adjusting for Sample Selection

Our primary findings indicate that among women who do not reside with their MIL, both woman-only counseling joint couples counseling yield increases in FP take-up. In cases where women live with their MIL, we find that couples counseling does not affect FP take-up, whereas woman-only counseling results in large increases in FP take-up.

The difference in the effects of FP counseling across women with different MIL co-residency status may be due to the MIL presence but may also be due to underlying differences in characteristics across each sample. The direction of the potential bias is unclear, a priori. On the one hand, younger women who are more likely to co-reside with their MIL, may be less likely to use contraceptives and be less receptive to the FP counseling. On the other hand, more educated women – who are less likely to co-reside with their MIL – may be more likely to use FP and more responsive to the intervention.

To address the underlying differences in characteristics across those different MIL co-residential status, we re-estimate the effects of the intervention using matching across observables (Rosenbaum and Rubin, 1983). We use our baseline variables to generate an inverse propensity weighted (IPW) sample of woman living with their MIL that more closely matches the women in our sample who do not live with their MIL.[18]

The variables used for matching include all the controls in X from Equation 1. The identifying assumption of the approach is that after weighting, the women with no MIL and women with a MIL are similar on observables characteristics. We estimate propensity scores using both a nearest

[18] IPW uses the inverse of the propensity score as weights in calculating the average value of the outcome variable. This two-step estimation procedure first calculates propensity scores using a logistic nearest neighbor matching or Kernel algorithm; second, uses the inverse estimated propensity scores as weights in the main linear outcome model (Imbens and Wooldridge, 2009).

neighbor and a Kernel matching algorithm.[19] The estimates that adjust for matching are presented in Table 3 and are similar to those in Table 2.

4. Mechanisms – Attitudes, Knowledge, and Communication

4.1 Treatment Effects on Knowledge, Attitudes and MIL Engagement

To understand the mechanisms through which counseling affects FP take-up differentially by MIL residential status, we examine how counseling affects shifts in FP knowledge, attitudes, and communication with a MIL as reported by either the woman or her husband.

Table 4 presents the effect of counseling on women's attitudes, knowledge, and support received from MIL. In the sample who do not reside with their MIL, both woman-only and couples' family planning counseling increases a woman's reported knowledge about FP by 15-29 percentage points respectively (Column 1). Among this sample, couples counseling results in significant increase in spousal communication by 13.5 percentage points (Column 4). Appendix Table 5, Columns 1-4, show similar impacts for men not co-residing with their mother.

Among women residing with her MIL, we find that woman-only counseling increases women's willingness to use FP by 23 percentage points (Table 4, Column 8) and decreases concerns about FP by 28 percentage points (Table 4, Column 9). Couples counseling significantly improves spousal communication and decreases concerns about using FP among women not living with their MIL. Consistently couples counseling significantly improves men's knowledge about FP and willingness to use FP in the absence of the woman's MIL in the household (Appendix Table A5). This could be indicative of underlying fertility preference of men which are more freely

[19] In the Kernel matching algorithm, all women not living with their MILs are matched with a weighted average of all women staying with their MILs with weights that are inversely proportional to the distance between the propensity scores of these two groups.

expressed through increased spousal communication and knowledge about the benefits of FP when the MIL is not in the household.

Given that we measure the impacts of the treatment arms on multiple outcomes of man and woman regarding FP, we update these results using multiple hypothesis correction, specifically by calculating adjusted p-values (Westfall and Young, 1993). Many of the results are suggestive in nature, the estimates become imprecise after adjusting for multiple hypothesis corrections.

4.2 Heterogeneity of Results

To further understand the role of MIL in impacting the take-up of modern FP, we present heterogeneity in effects by reported variation in MIL support. Specifically, we present results across women with and without communication about FP, across MILs in favor or who oppose FP, and across MILs who approval or disapprove of use of FP for spacing or limiting pregnancies for women living with her MIL in Table 5.[20]

Among women who report communication with their MIL about FP, receive advice or approval for FP use, both woman-only and couples counseling have significant positive impacts on FP take-up. Among women who do not report communication with their MIL on FP, only couples counseling exhibits an effect on FP take-up, nearly double the effect observed with woman-only counseling. Conversely, neither form of counseling demonstrates an impact on FP adoption for women whose MILs do not endorse FP use for either limiting or spacing pregnancies. Among women living with their MIL who report communication with MIL about FP, or approval for FP use, woman-only counseling has a remarkable impact, more than doubling the rate of FP

[20] The correlation between receiving approval for FP use and receiving advice against FP is not very high i.e., if women don't receive advice against FP does not mean they are receiving support in favor of using FP. Among women not reporting advice against FP from MIL, 20 percent and 56 percent receive no MIL support for using FP for spacing and limiting pregnancies respectively.

take-up compared to women whose MILs do not support FP use (Appendix Table A6). Although some of these estimates are noisy due to the smaller sample sizes, the results suggest that the effects of FP counseling can be amplified by the support and encouragement from a woman's MIL.

5. Conclusion

In a patrilocal and patriarchal society, restrictive social norms might prevent women from making autonomous family planning decisions. In such scenarios, women may benefit from additional support and communication with her family specially the husband and/or mother-in-law. Using experimental data from a randomized counseling intervention in Jordan that assigns women to woman-only counseling, couples counseling or no counseling, we find that women who stay with their mother-in-law, woman-only counseling increases FP take-up by 32.5 percentage points. We find negligible or no impact for couples counseling on these women. Our results show that there is no significant difference in the effectiveness of woman-only counseling and couples counseling for women who do not live together with their MIL. This means that both types of counseling yield similar positive outcomes when it comes to these women's FP take-up.

To further understand our results, we investigate the impact of woman-only and couples counseling on other outcome variables measured at endline. Though there is evidence of differential take up of modern family methods between woman-only-and couples counseling group, there is no significant differences in knowledge and attitude at endline between counseling groups by mother-in-law's presence or lack of presence in the household. However, for all women, we observe a positive impact on the use of IUDs due to woman-only counseling, suggesting preference for covert action in fertility since IUD's are unobservable to anyone beside the woman herself (Ashraf et al., 2014).

In summary, our findings highlight that a woman's MIL can influence the outcomes of counseling differently among various subpopulations. Specifically, our study shows significantly positive effects when counseling is exclusively offered to women when a MIL is present in the household. Thus, our research emphasizes the significance of considering household structure while delivering family planning or reproductive health programs, illustrating that MIL involvement can play a crucial role in FP adoption, regardless of the husband's direct participation in counseling outreach.

References

Ali, M., Rizwan, H., & Ushijima, H. (2005). Men and Reproductive health in rural Pakistan: The case for increased male participation. *The European journal of contraception & reproductive health care: the official journal of the European Society of Contraception*. *9*. 260-6. https://doi.org/10.1080/13625180400017511.PMID: 15799183.

Allendorf K. (2006). Like Her Own: Ideals and Experiences of the Mother-in-law/Daughter-in-law Relationship. *Journal of family issues*, *55(5)*, 588–600. https://doi.org/10.1111/j.1741-3729.2006.00428.x.

Anderson, M.L. (2008). Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects, *Journal of the American Statistical Association, 103:484*, 1481-1495. https://doi.org/10.1198/016214508000000841

Anukriti, S., Herrera-Almanza, C., & Karra, M. (2022). Bring a Friend: Strengthening Women's Social Networks and Reproductive Autonomy in India (No. 15381). IZA Discussion Papers.

Anukriti, S., Herrera-Almanza, C., Karra, M., and Valdebenito, R. (2022). Convincing the Mummy-ji: Improving Mother-in-Law Approval of Family Planning in India. *AEA Papers and Proceedings*, *112*, 568-72. https://doi.org/10.1257/pandp.20221122

Anukriti, S., Herrera-Almanza, C., Pathak, P.K. & Karra, M. (2020). Curse of the Mummyji: The Influence of Mothers-in-Law on Women in India. *Amer. J. Agr. Econ*. https://doi.org/10.1111/ajae.12114

Ashraf, N., Field, E., & Lee, J. (2014). Household bargaining and excess fertility: an experimental study in Zambia. *American Economic Review, 104(7)*, 2210-37. https://doi.org/10.1257/aer.104.7.2210

Balk, D. (1997). Defying Gender Norms in Rural Bangladesh: A Social Demographic Analysis. *Population Studies*, *51(2)*, 153-172. https://doi.org/10.1080/0032472031000149886

Banerji, A., Batheja, D., & Deolalikar, A. B. (2023). Co-Residence with Parents-in-Law, Female Labor Force Participation, and Autonomy. *Female Labor Force Participation, and Autonomy*. http://dx.doi.org/10.2139/ssrn.4380450

Becker, S. (1996). Couples and reproductive health: a review of couple studies. *Studies in Family Planning, 27(6)*, 291-306. PMID: 8986028.

Bhan, N., Sodhi, C., Achyut, P., Thomas, E. E., Gautam, A., & Raj, A. (2022). Mother-in-Law's Influence on Family Planning Decision-Making and Contraceptive Use: A Review of Evidence. *Center on Gender Equity and Health, UC San Diego*.

Biddlecom, A.E., & Fapohunda, B.M. (1998). Covert contraceptive use: prevalence, motivations, and consequences. Studies in family planning, *29(4)*, 360-72

Bloom, S.S., Wypij, D., & Das Gupta, M. (2001). Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city. *Demography*, *38*. 67-78. https://doi.org/10.1353/dem.2001.0001

Bryant, C. M., Conger, R. D., & Meehan, J. M. (2001). The influence of in-laws on change in marital success. *Journal of Marriage and Family, 63(3)*, 614-626.

Buchholz, B. (2005). Family planning promotion in the Arab world: Practices perceptions and the effectiveness of birth spacing campaigns in Amman. *Drake University Social*

Caldwell, J. C., Immerwahr, G. and Ruzicka, L. T. (1982). *Family Structure and Fertility: Illustrative Analysis (Scientific Reports)*. London: World Fertility Survey.

Castle, S.E., Konaté, M.K., Ulin, P.R., & Martin, S. (1999). A qualitative study of clandestine contraceptive use in urban Mali. *Studies in family planning*, *30(3),* 231-48. https://doi.org/10.1111/j.1728-4465.1999.00231.x

Char, A., Saavala, M., & Kulmala, T. (2010). Influence of mothers-in-law on young couples' family planning decisions in rural India. *Reproductive health matters, 18(35),* 154–162. https://doi.org/10.1016/S0968-8080(10)35497-8

Clark, C. J., Silverman, J. G., Shahrouri, M., Everson-Rose, S., & Groce, N. (2010). The role of the extended family in women's risk of intimate partner violence in Jordan. *Social science & medicine, 70(1)*, 144-151. https://doi.org/10.1016/j.socscimed.2009.09.024

Department of Statistics [Jordan] and ICF International. 2013. *Jordan Population and Family Health Survey 2012*. Calverton, Maryland, USA: Department of Statistics and ICF International.

Department of Statistics [Jordan], and ICF. 2019. *Jordan Population and Family Health Survey 2017-18:Key Findings. Amman, Jordan*, Rockville, Maryland, USA: DOS and ICF.

Determinants of Life Satisfaction: Role of Living Arrangements, Social Status, and Perceived Satisfaction in Women

Doan, R. M., & Bisharat, L. (1990). Female autonomy and child nutritional status: the extended-family residential unit in Amman, Jordan. *Social Science & Medicine, 31(7)*, 783-789. https://doi.org/10.1016/0277-9536(90)90173-P

El- Khoury, M. (2011). Jordan family planning users' profiles and market segmentation analysis: A review of the literature and available data, Abt Associates Inc., Bethesda, MD. http://pdf.usaid.gov/pdf_docs/PA00J3KP.pdf.

El-Khoury, M., Thornton, R., Chatterji, M., Kamhawi, S., Sloane, P. and Halassa, M. (2016). Counseling Women and Couples on Family Planning: A Randomized Study in Jordan. *Studies in Family Planning, 47*, 222-238. https://doi.org/10.1111/sifp.69

Gopalakrishnan, L., Acharya, B., Puri, M., & Diamond-Smith, N. (2023). A longitudinal study of the role of spousal relationship quality and mother-in-law relationship quality on women's depression in rural Nepal. *SSM-Mental Health*, *3*, 100193.

Gram, L., Skordis-Worrall, J., Mannell, J., Manandhar, D. S., Saville, N., & Morrison, J. (2018). Revisiting the patriarchal bargain: The intergenerational power dynamics of household money management in rural Nepal. *World development, 112*, 193–204. https://doi.org/10.1016/j.worlddev.2018.08.002

Hopkins, N. S., & Ibrahim, S. E. (Eds.). (1997). *Arab society: Class, gender, power, and development*. American Univ in Cairo Press.

Imbens, G. W., & Wooldridge, J. M. (2009). Recent developments in the econometrics of program evaluation. *Journal of economic literature*, *47(1)*, 5-86. https://doi.org/10.1257/jel.47.1.5

Lozare, B. V. (1976). Communication between couples and decision-making in relation to family planning. *Philippine Population Research, Makati, Philippines: Population Center Foundation*, 307-322.

Mbizvo, M. T., & Bassett, M. T. (1996). Reproductive health and AIDS prevention in sub-Saharan Africa: the case for increased male participation. *Health policy and planning, 11(1)*, 84–92. https://doi.org/10.1093/heapol/11.1.84

Mohammad, K. I., Gamble, J., & Creedy, D. K. (2011). Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women. *Midwifery, 27(6)*, e238-e245. https://doi.org/10.1016/j.midw.2010.10.008

Moore, M. (1994). Indian plan thwarted by quest for sons. Population grows as farmers insist upon two male heirs. Washington Post, Sept. 7,

Nag, M. & Duza, M. B. (1988). Opposition from husband as constraint on wife's contraception use in Matlab, Bangladesh: a qualitative analysis. Presented at the Annual Meeting of the *Population Association of America*, New Orleans, Louisiana, April 21–23.

Pandey, D., & Khanna, M. (2023). The Role of Mothers-in-Law in Determining Women's Work: Evidence from India.

Poffenberger, T. & Poffenberger, S.B. (1969). *Husband-wife communication and motivational aspects of population control in an Indian village*. New Delhi: Central Family Planning Institute

Poffenberger, T. & Poffenberger, S.B. (1969). *Husband-wife communication and motivational aspects of population control in an Indian village*. New Delhi: Central Family Planning Institute

Pradhan, M. R., & Mondal, S. (2022). Contraceptive method use among women in India: Does the family type matter?. *Biodemography and Social Biology*, *67*(2), 122-132.

Rosenbaum, P.R. & Rubin, D B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70(1),* 41–55. https://doi.org/10.1093/biomet/70.1.41

Shattnawi, K., S Khader, Y., Al-Sheyab, N., Alyahya, M., Ready, K., A Halasa-Rappel, Y., & Prince, H. (2021). Perceived Barriers of Using Modern Family Planning Methods among Women in Jordan: A Qualitative Study. *International journal of community-based nursing and midwifery, 9(4)*, 278–288. https://doi.org/10.30476/ijcbnm.2021.88675.1531

Shattuck, D., Kerner, B., Gilles, K., Hartmann, M., Ng'ombe, T., & Guest, G. (2011). Encouraging contraceptive uptake by motivating men to communicate about family planning: the Malawi Male Motivator project. *Am J Public Health*, *101(6*), 1089-109. https://doi.org/10.2105/AJPH.2010.300091

Speizer, I. S., Lance, P., Verma, R., & Benson, A. (2015). Descriptive study of the role of household type and household composition on women's reproductive health outcomes in urban Uttar Pradesh, India. *Reproductive Health*, *12*(1), 1-10

Varghese, R., & Roy, M. (2019). Coresidence with mother-in-law and maternal anemia in rural India. *Social science & medicine, 226*, 37–46. https://doi.org/10.1016/j.socscimed.2019.02.027

Vidler, M., Ramadurg, U., Charantimath, U. et al. Utilization of maternal health care services and their determinants in Karnataka State, India (2016). *Reprod Health 13 (Suppl 1), 37*. https://doi.org/10.1186/s12978-016-0138-8

Westfall, P. H., Young, S. S., & Wright, S. P. (1993). On adjusting P-values for multiplicity. Biometrics, 49(3), 941-945. https://doi.org/10.2307/2532216

Yaukey, D., Roberts, B. J., & Griffiths, W. (1965). Husbands' vs. wives' responses to a fertility survey. *Population Studies, 19(1),* 29-43.

Table 1: Summary Statistics - Women's Baseline Characteristics

	All	Does not live with MIL	Lives with MIL	Difference (2) - (3)
	(1)	(2)	(3)	(4)
Age	30.33	30.78	27.60	3.178***
Years of marriage	10.42	10.79	8.13	2.66***
Number of children	2.68	2.76	2.20	0.559***
Number of boys	1.35	1.37	1.17	0.202
Wife's years of education	10.69	10.79	10.11	0.678
Husband's years of education	10.58	10.65	10.17	0.476**
Wife's employment	0.05	0.05	0.05	0
Husband's employment	0.92	0.92	0.93	-0.004
Ever use contraception modern	0.54	0.56	0.42	0.14**
Wife's willingness to use modern contraception	0.51	0.52	0.43	0.09
Wife's preference for addl children	1.06	1.00	1.45	-0.448***
Wife's preference for total children	3.86	3.88	3.72	0.163
Approves FP to space pregnancies	0.92	0.93	0.88	0.044
Approves FP to limit pregnancies	0.55	0.55	0.56	-0.014
Discussed w/ husband in past yr	0.74	0.74	0.73	0.009
MIL encourages modern FP	0.19	0.19	0.19	-0.009
MIL discourages modern FP	0.16	0.15	0.25	-0.106**
Husband supports FP	0.31	0.33	0.25	0.078
Husband surveyed at endline	0.69	0.67	0.80	-0.123**
Observations	662	569	93	

Note: Columns 1-3 show descriptive statistics for the main sample of 662 married women who participated in the endline survey. Column 4 presents the difference between Column 2 and 3. ***, **, * show significance at 1, 5 and 10 % levels testing the null hypothesis of zero difference between Column 2 and 3.

Table 2: Effects of Counseling on Family Planning Uptake

Dependent Variable:	Use of Modern FP			
Sample:	Does Not Live with MIL		Lives with MIL	
	(1)	(2)	(3)	(4)
Woman-only counseling	0.081**	0.072*	0.269**	0.325***
	[0.040]	[0.040]	[0.103]	[0.092]
Couples counseling	0.173***	0.166***	0.052	-0.007
	[0.043]	[0.043]	[0.090]	[0.104]
Observations	569	556	93	90
R-squared	0.083	0.176	0.251	0.539
T-test p-value: Equal impact of counseling	0.046	0.0387	0.05	0.0073
Mean in control group	0.161	0.161	0.111	0.111
Additional controls	No	Yes	No	Yes

Note: Each column shows the output of a separate regression. The outcome variable is an indicator equal to 1 if a woman reports using modern family planning at endline and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Table 3: Effects of Counseling on Family Planning Uptake Using Inverse Probability Weighting

Dependent Variable:	Use of Modern FP			
Sample:	Does Not Live with MIL		Lives with MIL	
Matching method:	Nearest neigbor matching	Kernel matching	Nearest neigbor matching	Kernel matching
	(1)	(2)	(3)	(4)
Woman-only counseling	0.075*	0.075*	0.302***	0.301***
	[0.039]	[0.040]	[0.109]	[0.110]
Couples counseling	0.168***	0.167***	-0.006	-0.003
	[0.042]	[0.043]	[0.105]	[0.106]
Observations	556	556	90	90
R-squared	0.178	0.173	0.641	0.649
T-test p-value: Equal impact of counseling	0.0101	0.0108	0.0101	0.0108
Mean in control group	0.161	0.161	0.111	0.111

Note: Each column shows the output of a separate regression. The estimates are generated using an inverse propensity score weighted regression model, with the weights based of off a logit model where women with women with a MIL in the same household are matched seperately with women with no MIL in the same household. Columns (1) and (3) generate weights using a nearest neighbor 1-1 matching and Columns (2) and (4) generate the weights using a Kernel matching (normal). The outcome variable is an indicator equal to 1 if a woman reports using modern family planning and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Table 4: Effects of Counseling on Knowledge, Attitudes, Fertility Preferences and MIL Support of Women

Dependent Variable:	K-Score	Willing-ness to use FP	Concern about FP	Spousal Comm. about FP	MIL encorages FP	Comm. with MIL about FP	K-Score	Willing-ness to use FP	Concern about FP	Spousal Comm. about FP	MIL encorag-es FP	Comm. with MIL about FP
Sample:	Does Not Live with MIL						Living with MIL					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Woman-only counseling	0.150	0.025	-0.071	0.035	0.013	-0.026	0.909	0.230*	-0.276**	-0.059	0.093	0.008
	[0.284]	[0.042]	[0.050]	[0.050]	[0.014]	[0.039]	[1.019]	[0.128]	[0.132]	[0.147]	[0.066]	[0.130]
(Westfall-Young adjusted p-values)	0.953	0.999	0.661	0.925	0.999	0.999	0.998	0.492	0.626	0.999	0.998	0.998
Couples counseling	0.288	0.061	-0.127**	0.135***	0.008	0.063	0.352	0.201	0.090	-0.100	0.067	-0.053
	[0.285]	[0.044]	[0.051]	[0.051]	[0.012]	[0.041]	[1.108]	[0.154]	[0.159]	[0.154]	[0.054]	[0.157]
(Westfall-Young adjusted p-values)	0.891	0.981	0.235	0.045	0.997	0.999	1.000	0.985	1.000	0.998	1.000	0.998
Observations	556	556	554	556	556	556	90	90	90	90	90	90
R-squared	0.107	0.134	0.139	0.101	0.037	0.087	0.413	0.344	0.407	0.286	0.291	0.333
T-test p-value: Woman-only=Couples	0.636	0.399	0.266	0.0517	0.725	0.0312	0.609	0.786	0.0285	0.767	0.704	0.697
Mean in control group	10.67	0.75	0.576	0.333	0.0104	0.182	9.296	0.63	0.63	0.481	0.037	0.259
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Each column shows the output of a separate regression. Each column shows the effect of family planning counseling on women's reported attitudes and knowledge about FP as measured by standardized K-score (is measured using the total number of correct answers out of fifteen about the use of modern methods, effectiveness, risk of infertility, and side effects—all topics discussed in both the woman-only and couples counseling sessions), whether a woman is willing to use modern family planning (1 if yes, 0 if no), whether a woman reports concern about using modern family planning (1 if yes, 0 if no), whether a woman reports communication with husband about family planning (1 if yes, 0 if no), whether a woman gets encouraged by MIL to use FP (0/1) and wehether a woman discussed FP with MIL in the last 6 months at endline. To adjust for multiple hypothesis correction, we also add the Westfall-Young adjusted p-values. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Table 5: Effects of Counseling on Family Planning Take-up of Women with Varying Support from MIL

Sample:	DIL does not communicate with MIL about FP	DIL communicates with MIL about FP	MIL advices DIL against FP use	MIL advices DIL in favor of FP use	MIL does not approve use of FP for limiting or spacing pregnancies	MIL approves use of FP for limiting or spacing pregnancies
Dependent Variable:	Use of Modern FP					
	(1)	(2)	(3)	(4)	(5)	(6)
Woman-only counseling	0.079	0.130**	0.186**	0.090**	0.052	0.121***
	[0.056]	[0.051]	[0.081]	[0.043]	[0.069]	[0.046]
Couples counseling	0.133**	0.170***	0.178**	0.148***	0.027	0.216***
	[0.056]	[0.056]	[0.089]	[0.045]	[0.062]	[0.050]
Observations	310	352	105	545	230	432
R-squared	0.126	0.083	0.150	0.095	0.117	0.124
T-test p-value: Equal impact of counseling	0.365	0.499	0.939	0.225	0.708	0.0730
Mean in control group	0.171	0.140	0.0333	0.177	0.171	0.147
Additional controls	No	No	No	No	No	No

Note: Each column shows the output of a separate regression. The outcome variable is an indicator equal to 1 if a woman reports using modern family planning at endline and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Coefficients of baseline controls not shown. "Comm. with MIL" is a flag for a woman's communication with her MIL, equals 1 if a woman reports yes to talking to her MIL in the baseline about any of the following: a) Whether to have another child, b) When to have next child, c) Whether to use a FP method, and d) Which FP method to use. "MIL advices use of FP" is an indicator for a woman reporting yes to "In the past 12 months, has your MIL ever advised you against using modern FP methods?" We consider a woman has MIL approval if she agrees to "Your mother-in-law approves of couples using modern FP methods to space the births of their children."

Appendix Table A1: Balancing Statistics by Mother-in-Law Residency

Sample:	Does Not Live with MIL (N=569)			Lives with MIL (N=93)		
Comparison:	Control vs Woman-only	Control vs Couples	Woman-only vs Couples	Control vs Woman-only	Control vs Couples	Woman-only vs Couples
	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.462	0.366	0.076*	0.47	0.928	0.553
Years of marriage	0.098	0.869	0.051	0.455	0.415	0.970
Number of children	0.158	0.959	0.133	0.681	0.54	0.28
Number of boys	0.452	0.607	0.193	0.37	0.856	0.253
Wife's years of education	0.853	0.809	0.95	0.463	0.041	0.137
Husband's years of education	0.62	0.748	0.428	0.541	0.941	0.603
Wife's employment	0.605	0.876	0.506	0.72	0.644	0.902
Husband's employment	0.287	0.578	0.109	0.416	0.502	0.128
Ever use contraception modern	0.903	0.973	0.878	0.075	0.365	0.005
Wife's preference for addl children	0.344	0.577	0.141	0.42	0.89	0.362
Wife's preference for total children	0.029**	0.507	0.153	0.705	0.97	0.724
Approves FP to space pregnancies	0.904	0.979	0.885	0.089*	0.655	0.030**
Approves FP to limit pregnancies	0.741	0.872	0.627	0.65	0.273	0.485
Preferred wait (months) for next child	0.060*	0.069*	0.962	0.489	0.753	0.363
Discussed w/ husband in past yr	0.401	0.578	0.79	0.367	0.538	0.784
MIL encourages modern FP^	0.799	0.482	0.646	0.931	0.663	0.580
MIL discourages modern FP^	0.465	0.618	0.224	0.217	0.013**	0.161
Husband surveyed at endline	0.251	0.839	0.355	0.488	0.709	0.197
% women surveyed at endline	0.81	0.741	0.711	0.818	0.778	0.738
% men surveyed at endline	0.651	0.706	0.661	0.778	0.743	0.871

Note: This table shows treatment and control balance for women not living with their MIL and women living with their MIL. Each cell presents the p-value from testing pairwise equality of means.Columns 1-3 represents sample of 569 married women who do not live with MIL in the household and Columns 4 - 6 shows the sample of 93 women who live with MIL. ***, **, * show significance at 1, 5 and 10 % levels testing the null hypothesis of zero difference between columns in comparison.

Appendix Table A2: Effects of Counseling on UpTake of Disaggregated Types of Modern Family Planning Methods

Sample:	Does Not Live with MIL		Living with MIL		Does Not Live with MIL				Living with MIL			
	Substitue away from				Substitute towards							
Dependent Variable:	Traditional method	No method	Traditional method	No method	Pills	IUD	Implants	Male condoms	Pills	IUD	Implants	Male condoms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Woman-only counseling	-0.060	-0.015	-0.171	-0.112	0.042*	0.052**	0.020*	-0.034	0.210***	0.114*	-0.007	-0.034
	[0.041]	[0.046]	[0.112]	[0.118]	[0.024]	[0.021]	[0.011]	[0.028]	[0.075]	[0.068]	[0.027]	[0.061]
Couples counseling	-0.112***	-0.051	-0.030	0.052	0.031	0.089***	0.032**	0.011	0.037	0.024	0.041	-0.123*
	[0.041]	[0.048]	[0.110]	[0.124]	[0.022]	[0.025]	[0.013]	[0.032]	[0.054]	[0.046]	[0.035]	[0.067]
Observations	569	569	93	93	569	569	569	569	93	93	93	93
R-squared	0.126	0.230	0.257	0.434	0.077	0.110	0.044	0.062	0.256	0.257	0.435	0.426
T-test p-value: Equal impact of counseli	0.173	0.452	0.171	0.181	0.683	0.208	0.466	0.129	0.0409	0.309	0.214	0.143
Mean in control group	0.260	0.578	0.222	0.667	0.037	0.021	0.000	0.094	0.000	0.000	0.000	0.111
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Each column shows the output of a separate regression. For each column the dependent variable is a dummy variable equal to 1 if a woman reports using the specified family planning method and 0 otherwise.Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table A3: Effects of Counseling on Family Planning Uptake Using Fully Interacted Model

Dependent Variable:	Use of Modern FP Method		Use of Traditional FP Method		Use of No FP Method	
	(1)	(2)	(3)	(4)	(5)	(6)
Woman-only counseling	0.081**	0.080**	-0.072*	-0.064	-0.008	-0.016
	[0.040]	[0.040]	[0.040]	[0.040]	[0.047]	[0.045]
Couples counseling	0.172***	0.166***	-0.110***	-0.113***	-0.062	-0.052
	[0.043]	[0.043]	[0.041]	[0.041]	[0.050]	[0.048]
Woman-only counseling * MIL present	0.172*	0.181*	-0.027	-0.039	-0.145	-0.142
	[0.106]	[0.103]	[0.109]	[0.111]	[0.128]	[0.125]
Couples counseling * MIL present	-0.137	-0.110	0.069	0.086	0.068	0.024
	[0.092]	[0.091]	[0.115]	[0.114]	[0.133]	[0.133]
MIL present	-0.016	-0.012	-0.059	-0.035	0.075	0.047
	[0.064]	[0.064]	[0.091]	[0.090]	[0.101]	[0.101]
Observations	662	662	662	662	662	662
R-squared	0.100	0.166	0.070	0.105	0.127	0.225
T-test p-value: Equal impact of counseling with no MIL	0.045	0.045	0.318	0.401	0.137	0.274
T-test p-value: Equal impact of counseling with MIL	0.028	0.036	0.512	0.318	0.274	0.229
Mean in control group	0.155	0.155	0.155	0.155	0.155	0.155
Additional controls	No	Yes	No	Yes	No	Yes

Note: Each column shows the output of a separate regression. The outcome variables for columns (1) & (2), (3) & (4), and (5) & (6) are respectively indicators for a woman using modern family planning, traditional family planning and no family planning at endline. MIL present is an indicator for MIL's presence in the household. The sample excludes 371 women who report to having a deceased MIL in the baseline. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table A4: Effects of Counseling on Family Planning Uptake Using Non-response Weights

Dependent Variable:	Use of Modern FP			
Sample:	Does Not Live with MIL		Lives with MIL	
	(1)	(2)	(3)	(4)
Woman-only counseling	0.083**	0.075*	0.267**	0.292***
	[0.040]	[0.040]	[0.104]	[0.091]
Couples counseling	0.169***	0.163***	0.041	-0.018
	[0.043]	[0.042]	[0.095]	[0.083]
Observations	569	569	93	93
R-squared	0.081	0.154	0.261	0.499
T-test p-value: Equal impact of counseling	0.0628	0.0508	0.0415	0.00486
Mean in control group	0.161	0.161	0.111	0.111
Additional controls	No	Yes	No	Yes

Note: Each column shows the output of a separate regression. The outcome variable is an indicator equal to 1 if a woman reports using modern family planning at endline and 0 otherwise. To adjust for possible non-response bias due to endline survey attrition, we estimated this model using probability weights accounting for non-response to the endline survey, along observable characteristics measured at baseline. We applied non-response weights for the sample of women with completed endline surveys. Results do not differ significantly without weights. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls in Columns 2 and 4 include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table A5: Effects of Counseling on Knowledge, Attitude, and Fertility Preferences of Men

Sample:	Does Not Live with Mother				Living with Mother			
Dependent Variable:	K-Score	Willingness to use	Concerns about FP	Spousal Comm. about FP	K-Score	Willingness to use	Concerns about FP	Spousal Comm. about FP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Woman-only counseling	0.538	0.089	-0.054	0.114*	0.478	0.138	0.039	0.498***
	[0.402]	[0.055]	[0.066]	[0.060]	[1.016]	[0.144]	[0.209]	[0.144]
(Westfall-Young adjusted p-values)	0.61	0.61	0.661	0.148	0.87	0.907	0.907	0.105
Couples counseling	1.060***	0.167***	-0.096	0.153**	0.609	-0.020	-0.078	0.052
	[0.403]	[0.053]	[0.068]	[0.063]	[1.080]	[0.156]	[0.203]	[0.141]
(Westfall-Young adjusted p-values)	0.053	0.115	0.661	0.09	0.848	0.907	0.907	0.532
Observations	376	376	372	376	71	71	70	71
R-squared	0.153	0.124	0.066	0.139	0.400	0.434	0.300	0.474
T-test p-value: Equal impact of counseling	0.178	0.134	0.518	0.536	0.893	0.226	0.597	0.0115
Mean in control group	6.128	0.704	0.585	0.296	5.571	0.762	0.619	0.143
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Each column shows the output of a separate regression. The table shows the effect of family planning counseling on a man's attitudes knowledge measured by standardized K-score (is measured using the total number of correct answers out of fifteen about the use of modern methods, effectiveness, risk of infertility, and side effects—all topics discussed in both the woman-only and couples counseling sessions), whether a man is willing to use modern family planning (1 if yes, 0 if no), whether a man reports concern about using modern family planning (1 if yes, 0 if no), whether a man report communication with wife about family planning (1 if yes, 0 if no) at endline. To adjust for multiple hypothesis correction, we also add the Westfall-Young adjusted p-values. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table A6: Effects of Counseling on Family Planning Take-up for Women Living with MIL

Dependent Variable:	Use of Modern FP					
Sample:	DIL does not communicate with MIL about FP	DIL communicates with MIL about FP	MIL advices DIL against FP use	MIL advices DIL in favor of FP use	MIL does not approve use of FP for limiting or spacing pregnancies	MIL approves use of FP for limiting or spacing pregnancies
	(1)	(2)	(3)	(4)	(5)	(6)
Woman-only counseling	0.181	0.351***	-0.075	0.318**	0.181	0.368***
	[0.197]	[0.120]	[0.164]	[0.119]	[0.357]	[0.111]
Couples counseling	0.087	0.036	-0.217	0.140	-0.072	0.190*
	[0.228]	[0.097]	[0.208]	[0.124]	[0.195]	[0.112]
Observations	36	57	23	68	30	63
R-squared	0.306	0.324	0.298	0.314	0.290	0.322
T-test p-value: Equal impact of counseling	0.718	0.0304	0.585	0.108	0.379	0.179
Mean in control group	0.182	0.0625	0	0.125	0.100	0.118
Additional controls	No	No	No	No	No	No

Note: Each column shows the output of a separate regression. The outcome variable is an indicator equal to 1 if a woman reports using modern family planning at endline and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Coefficients of baseline controls not shown. "Comm. with MIL" is a flag for a woman's communication with her MIL, equals 1 if a woman reports yes to talking to her MIL in the baseline about any of the following: a) Whether to have another child, b) When to have next child, c) Whether to use a FP method, and d) Which FP method to use. "MIL advices use of FP" is an indicator for a woman reporting yes to "In the past 12 months, has your MIL ever advised you against using modern FP methods?" We consider a woman has MIL approval if she agrees to "Your mother-in-law approves of couples using modern FP methods to space the births of their children."

Appendix Table B1: Effects of Counseling on Family Planning Uptake

Dependent variable:	Use of Modern FP	
Sample:	Deceased MIL	
	(1)	(2)
Woman-only counseling	0.07	0.06
	[0.061]	[0.060]
Couples counseling	0.003	-0.01
	[0.057]	[0.057]
Observations	311	311
R-squared	0.113	0.196
T-test p-value: Equal impact of counseling	0.299	0.263
Mean in control group	0.238	0.238
Additional controls	No	Yes

Note: Each column shows the output of a separate regression. The outcome variable is an indicator equal to 1 if a woman reports using modern family planning at endline and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table B2: Effects of Counseling on Family Planning Uptake Using Matching

Dependent variable:	Use of Modern FP	
Sample:	Deceased MIL	
	Nearest neigbor matching	Kernel matching
	(1)	(2)
Woman only counseling	0.063	0.064
	[0.065]	[0.065]
Couples counseling	-0.033	-0.031
	[0.065]	[0.066]
Observations	311	311
R-squared	0.178	0.178
T-test p-value: Equal impact of counseling	0.157	0.162
Mean in control group	0.238	0.238

Note: Each column shows the output of a separate regression. The estimates are generated using an inverse propensity score weighted regression model, with the weights based of off a logit model where women with dcceased MIL are matched with women with no MIL in the same household. Column (1) generates weights using a nearest neigbor 1-1 matching and Column (2) generates the weights using a Kernel matching (normal). The outcome variable is an indicator equal to 1 if a woman reports using modern family planning and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table B3: Effects of Counseling on Traditional and No FP method Uptake

Sample:	Deceased MIL	
Dependent variable:	Traditional method	No method
	(1)	(2)
Woman-only counseling	-0.091	0.031
	[0.057]	[0.068]
Couples counseling	-0.016	0.026
	[0.059]	[0.067]
Observations	311	311
R-squared	0.149	0.180
T-test p-value: Equal impact of counseling	0.210	0.944
Mean in control group	0.277	0.485
Additional controls	Yes	Yes

Notes: Each column shows the output of a separate regression. The outcome variables are indicators for use of a traditional method: a binary variable equal to 1 if the women reported use of traditional family planning method (withdrawal, periodic abstinence, breastfeeding, and lactational amenorrhea) at endline and 0 otherwise, and an indicator for no FP method-a binary variable equal to 1 if the women reported use of no family planning method at endline and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table B4: Effects of Counseling on Up Take of Disaggregated Types of Modern FP

Sample:	Deceased MIL				
Dependent Variable:	Pills	IUD	Injectable	Implants	Male condoms
	(1)	(2)	(3)	(4)	(5)
Woman-only counseling	-0.035	0.159***	-0.022	0.011	-0.053
	[0.027]	[0.047]	[0.014]	[0.013]	[0.038]
Couples counseling	-0.027	0.030	-0.014	0.006	-0.005
	[0.031]	[0.029]	[0.018]	[0.007]	[0.043]
Observations	311	311	311	311	311
R-squared	0.140	0.124	0.064	0.074	0.181
T-test p-value: Equal impact of counseling	0.774	0.00814	0.503	0.773	0.285
Mean in control group	0.062	0.046	0.023	0.000	0.108
Additional controls	Yes	Yes	Yes	Yes	Yes

Note: Each column shows the output of a separate regression. For each column the dependent variable is a dummy variable equal to 1 if a woman reports using the specified family planning method and 0 otherwise. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table B5: Effects of Counseling on Knowledge, Attitudes, Preferences and MIL Support of Women

Sample:	Deceased MIL			
Dependent Variable:	K-Score	Willingness to use FP	Concern about FP	Spousal Comm. about FP
	(1)	(2)	(3)	(4)
Woman-only counseling	-0.610	-0.004	-0.122*	-0.094
	[0.397]	[0.065]	[0.070]	[0.064]
Couples counseling	-0.313	0.069	-0.064	0.008
	[0.367]	[0.059]	[0.068]	[0.066]
Observations	311	311	311	311
R-squared	0.184	0.213	0.109	0.138
T-test p-value: Equal impact of cou	0.494	0.285	0.446	0.145
Mean in control group	11.03	0.608	0.569	0.338
Additional controls	Yes	Yes	Yes	Yes

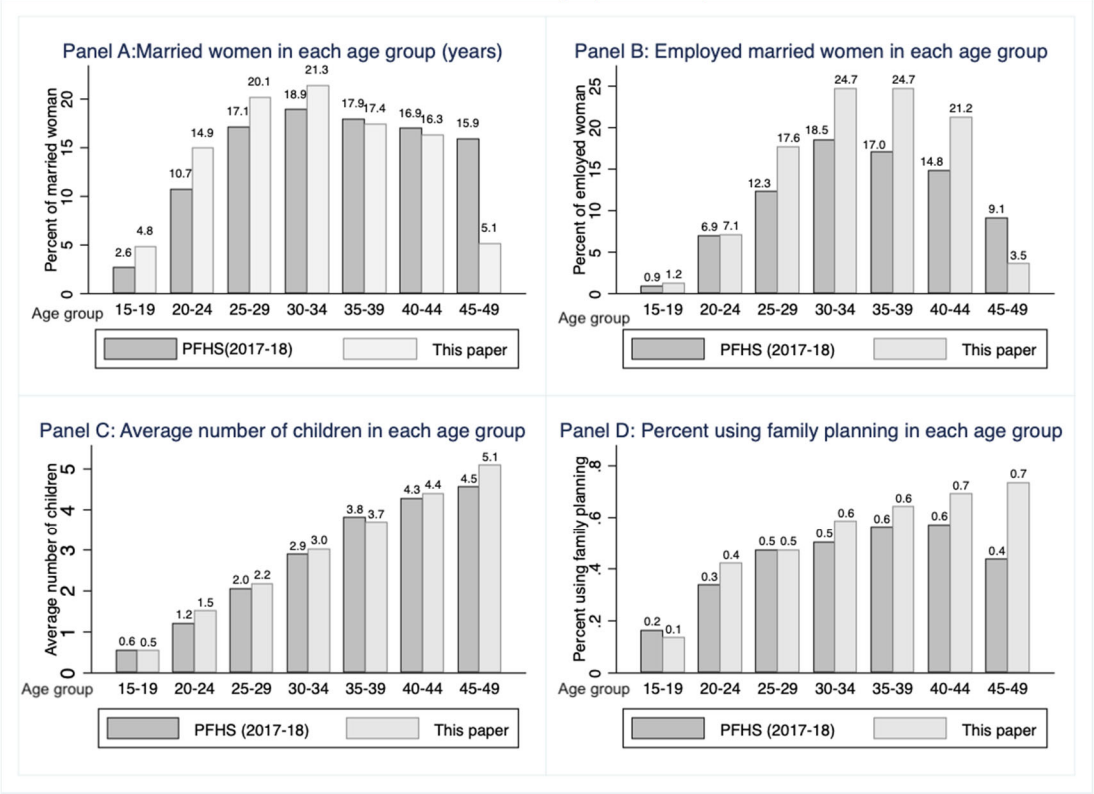
Note: Each column shows the output of a separate regression. Each column shows the effect of family planning counseling on women's reported attitudes and knowledge about FP as measured by standardized K-score (is measured using the total number of correct answers out of fifteen about the use of modern methods, effectiveness, risk of infertility, and side effects—all topics discussed in both the woman-only and couples counseling sessions), whether a woman is willing to use modern family planning (1 if yes, 0 if no), whether a woman reports concern about using modern family planning (1 if yes, 0 if no), whether a woman report communication with husband about family planning (1 if yes, 0 if no). Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not shown.

Appendix Table B6: Effects of Counseling on Knowledge, Attitudes, Preferences of Men

Sample:	Deceased Mother			
Dependent Variable:	K-Score	Willingness to use FP	Concerns about FP	Spousal Comm. about FP
	(1)	(2)	(3)	(4)
Woman-only counseling	-0.003	-0.072	-0.119	0.098
	[0.594]	[0.083]	[0.090]	[0.085]
Couples counseling	0.575	0.085	-0.038	0.050
	[0.494]	[0.071]	[0.084]	[0.080]
Observations	212	212	210	212
R-squared	0.149	0.123	0.107	0.126
T-test p-value: Equal impact of cour	0.307	0.0502	0.379	0.606
Mean in control group	6.733	0.744	0.544	0.322
Additional controls	Yes	Yes	Yes	Yes

Note: Each column shows the output of a separate regression. Each column shows the effect of family planning counseling on women's reported attitudes and knowledge about FP as measured by standardized K-score (is measured using the total number of correct answers out of fifteen about the use of modern methods, effectiveness, risk of infertility, and side effects—all topics discussed in both the woman-only and couples counseling sessions), whether a woman is willing to use modern family planning (1 if yes, 0 if no), whether a woman reports concern about using modern family planning (1 if yes, 0 if no), whether a woman reports communication with husband about family planning (1 if yes, 0 if no) at endline. Robust standard errors in brackets. ***p<0.01; **p<0.05; *p<0.10. Standard errors are clustered by ever use of family planning, geographic location, and phase of survey in all regressions. Additional controls include woman's age, years of marriage, number of children, number of male children, husband's and wife's years of education, husband's and wife's employment status (0/1), number of additional children desired by the wife, wife's willingness to use modern contraception (0/1), whether a woman approves of FP to space or limit pregnancies (0/1)), whether the wife's reports discussing FP with her husband in past year (0/1)), whether a woman's MIL encourages FP (0/1), whether a husband supports FP for spacing or limiting pregnancies (0/1). Coefficients of baseline controls not show

Appendix Figure 1: Comparison of Study Sample with Jordan Population and Family Health Survey (2017-18)



Note: This figure shows comparison of our study sample with the Population and Family Health Survey in Jordan (2017-2018). It shows the distribution of percent distribution of key variables of married women aged between 18-49 years. The variables include percentage of married women in each age group, percentage of employed and married in each age group, average number of children born in each age group and percentage reporting use of family planning in each age group.