Strengthening Family Planning Project

تعزيز تنظيم الأسرة

Effect of Postpartum Family Planning Counseling in Increasing Uptake of Modern Family Planning Methods after Delivery in Private Hospitals

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Acronyms

ANOVA	Analysis of variance
COC	Combined oral contraceptives
DOS	Department of Statistics
FP	Family planning
HSS-II	Health Systems Strengthening-II
IEC	Information, education and communication
IRB	Institutional Review Board
IUCD	Intrauterine contraceptive device
LAM	Locational amenorrhea method
MOH	Ministry of Health
OCP	Oral contraceptive pill
POP	Progestin only pill
SHOPS	USAID Strengthening Health Outcomes through the Private Sector
UNRWA	United Nations Relief and Works Agency
USAID	United States Agency for International Development

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Introduction

According to the Jordan Population and Family Health Surveys (JPFH) conducted in Jordan in 2002, 2007, 2009, and 2012, the Jordanian family planning (FP) program is facing stasis in key indicators such as the total fertility rate. Moreover, in 2012, a quarter of pregnancies among married women of reproductive age in Jordan were unwanted (15% had desired more spacing and 10% desired limiting). The rate of unwanted pregnancies has not decreased significantly over time, for it was 26% and 27% in 2007 and 2009, respectively (DOS Jordan, 2008, DOS Jordan, 2010).

Modern contraceptive use in Jordan

One possible approach to improving these indicators is to intervene to increase modern contraceptive use among married women of reproductive age. One place to target women with a need for contraception is in hospitals, since nearly 99 percent of Jordanian women deliver at health facilities (65 percent in the public sector and 34 percent in the private sector) (DOS Jordan, 2013).

In the public sector, the Health Systems Strengthening II (HSS-II) Project previously conducted a randomized controlled trial of a postpartum FP counseling intervention in one of the most congested Ministry of Health (MOH) hospitals in Jordan, and found that postpartum FP counseling resulted in an increase of modern method uptake in this setting. Based on these findings, HSS-II expanded the intervention to all 17 other MOH/Royal Medical Services hospitals in the country.

This great success in the public sector prompted calls to conduct a similar evaluation in the private sector (DOS Jordan, 2013). It is not possible to directly generalize the findings from HSS-II's experience in the public sector to the private sector because women who deliver in the private sector are typically wealthier and more educated than women who deliver in the public sector. For example, among women with no formal education, only 23 percent delivered in a private facility; this number rises to 43 percent among women with at least a college degree. Similarly, among women in the lowest wealth quintile, only 20 percent delivered in a private facility, as compared to 75 percent of women in the highest wealth quintile.

Assessing the impact of postpartum FP counseling in private hospitals

The USAID Strengthening Family Planning (Ta'ziz) project aims to expand the availability, quality, and use of FP services through partnership with the private, non-governmental sector in Jordan. The project, an associate award under the global USAID Strengthening Health Outcomes through the Private Sector (SHOPS) project managed by Abt Associates Inc., conducted a pilot of postpartum FP counseling in four private hospitals in the governorate of Amman.

Ta'ziz used HSS-II's postpartum FP services standards in implementing the pilot and adhered to the study design used by HSS-II in order to allow for a direct comparison of the results between the postpartum intervention carried out in the private and in the public sectors. In particular, in a selected group of private hospitals, we assigned postpartum women recovering in even-numbered recovery rooms (the treatment group) to receive FP counseling and educational materials; women in odd-numbered recovery rooms (the control group) received standard care with no FP counseling or

educational materials. Because room assignment is plausibly random, comparing outcomes between women assigned to odd- and even-numbered rooms allows us to directly estimate the impacts of the postpartum intervention.

Hypothesis and study objective

The key hypothesis tested in this evaluation is that postpartum women who receive FP counseling during recovery in private hospitals' maternity wards are more likely to adopt a modern FP method than those who do not. Using a randomized controlled trial design, this study measured the impact of postpartum FP counseling in increasing intention to use modern FP methods after delivery, and the adoption of modern FP methods 40-days and 3-months postpartum.

Pilot overview

Figure 1 depicts an overview of the process utilized by Ta'ziz in implementing this pilot and the associated evaluation. Text boxes surrounded by solid lines describe activities conducted by hospital staff during the pilot, while text boxes surrounded by dashed lines represent Ta'ziz activities. In addition, the shaded areas represent processes that were within the project's sphere of influence, while the unshaded areas represent processes that were outside the project's sphere of influence.

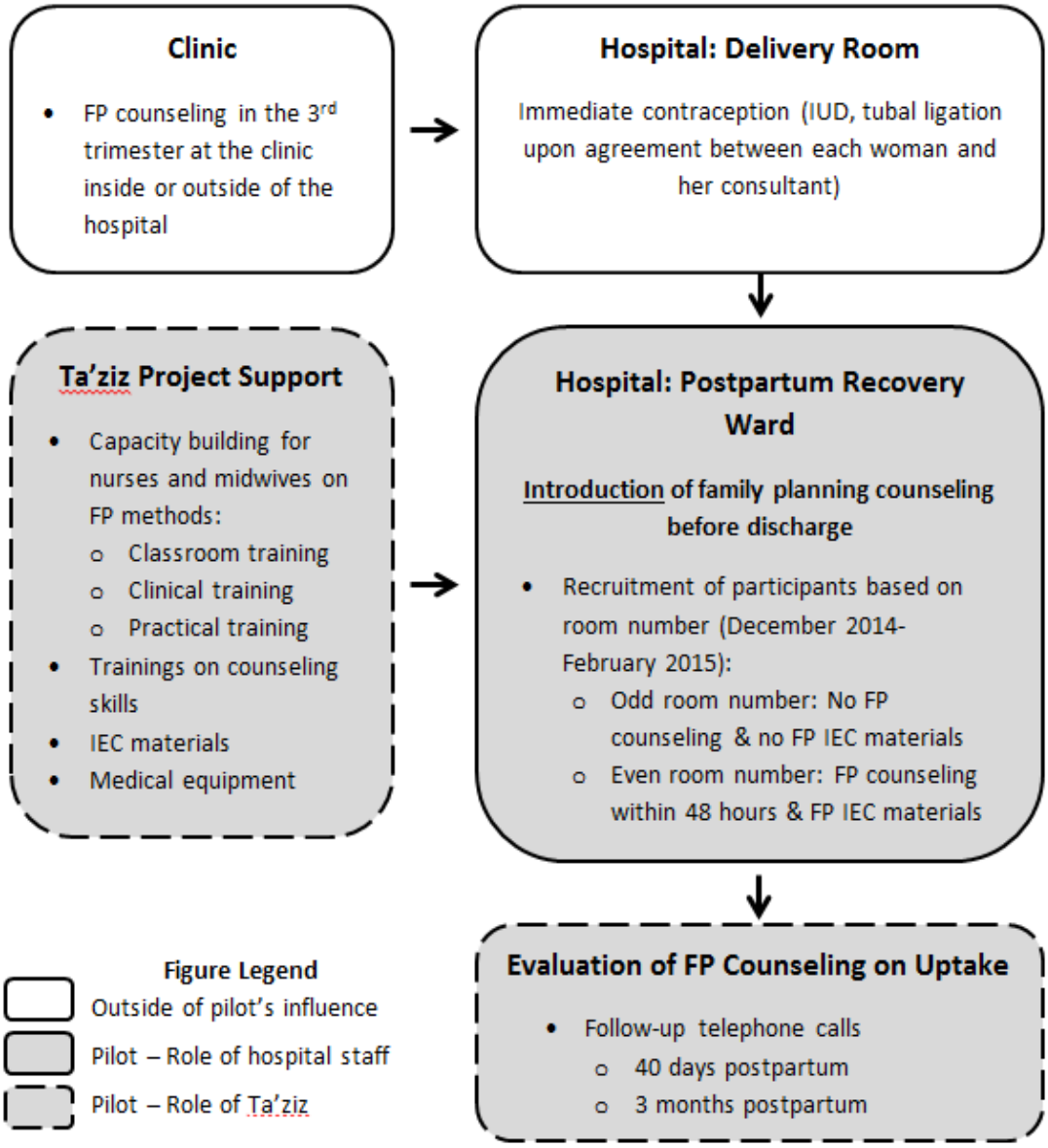
Ta'ziz conducted the following capacity-building activities as part of the pilot:

- Provided classroom, clinical, and practical trainings of staff working in postpartum recovery rooms. This included training for nurses and midwives on how to conduct FP counseling, and general training on FP methods offered to resident doctors.
- Provided information, education and communication (IEC) materials to staff working in postpartum recovery rooms. Nurses and midwives trained as FP counselors were provided with the IEC materials for reference purposes and for use during FP counseling sessions; resident doctors were also provided with the IEC materials as an added resource. The IEC materials are described in greater detail in the following section.
- Assisted hospital management in identifying the best candidates (department heads or head nurses/midwives) to manage the FP counseling pilot and nurses and midwives to be trained as FP counselors.
- Conducted a needs assessment for the maternity wards of each hospital in order to identify possible needs for medical equipment. This proved to be one of the project's key assets in encouraging hospitals to participate in the pilot.

Hospital staff then independently conducted the following activities as part of the pilot:

- Trained nurses and midwives ("FP counselors") initiated FP counseling activities with postpartum women after receipt of training and all IEC materials. As noted above and discussed in greater detail below, to facilitate the evaluation study, FP counseling was to be provided to all postpartum women recovering in rooms with even room numbers; postpartum women recovering in recovery rooms with odd numbers were to be provided with standard care without additional FP counseling.

Figure 1: Depiction of the Postpartum Counseling Pilot in Private Hospitals in Amman



- Folders containing IEC materials including information on modern FP methods were provided to all postpartum women recovering in even-numbered rooms; women recovering in odd-numbered rooms were provided with a folder of more limited IEC materials including more general information on mother and child health and on breastfeeding.
- The FP counselors also asked women in both even- and odd-numbered rooms from December 2014 through mid-February 2015 to provide consent to participate in the evaluation study.

Staff from Abt Associates, Inc. contacted consenting women via telephone for interviews at the 40-days and 3-months postpartum mark to collect data for the evaluation, including retrospective information

on intention to use modern contraception methods immediately after discharge, and information on actual uptake of modern contraception methods at the time of the interviews.

Outside of Ta'ziz's influence was whether a woman received FP counseling during her third trimester at her doctor's clinic and whether she received immediate contraception, such as the intrauterine contraceptive device (IUCD) or tubal ligation, in the delivery room. We therefore collected data on the prevalence of these two factors as part of the pilot, because a high prevalence would likely reduce the effect of postpartum counseling on modern FP uptake.

IEC materials

IEC materials for women were organized into specially designed folders titled "Congratulations on what you got." Folders for women assigned to the control group, who were recovering in odd-numbered rooms, were distinguished with a red sticker. Table 1 lists the items located in the folders depending on the room number.

Table 1: IEC materials distributed in the "Congratulations on what you got" folders

	Control group (Odd room number)	Treatment group (Even room number)
"Breast feeding and child health" booklet	✓	✓
"Child record" booklet	✓	✓
"Mother's health" booklet	✓	✓
"Modern FP methods guide"		✓
Brochures about modern FP methods		✓
"Congratulations on what you got" booklet		✓
Recipes and cartoons calendar "Hayati Ahla" FP theme		✓

Methods

The study used a randomized controlled trial design to estimate impacts of FP counseling on intention to use and later uptake of modern FP methods. Four private hospitals in the city of Amman, Jordan, participated in this pilot. All women who delivered babies during a set interval of time were to be approached by midwives or nurses, who were trained by Ta'ziz as described above to serve as FP counselors, for inclusion in the study. Women were not provided with any incentives for their participation in the study.

Consenting women were assigned into two groups depending on their room number. Women recovering in an even-numbered room served as the treatment group; FP counselors were instructed to provide them with FP counseling and IEC materials including information on modern FP methods. Women recovering in an odd-numbered room served as the control group; they were to receive standard care only, with no FP counseling, and a more limited set of IEC materials not including information on modern FP methods.

The reliance on the room number for the participants' assignment was an attempt to reduce contamination and delays in implementing the study since hospital FP counselors were responsible for recruitment and implementation based on assignment. Also, most women are discharged from the hospital one or two days postpartum, making quick assignment into one of the two groups essential. The assignment based on room number was deemed to be a plausible method for randomization because room numbers are assigned to women on registration when arriving at the hospital based on available vacancies, and there is no reason to expect systematic differences in women assigned to even- or odd-numbered rooms. Importantly, the FP counselors, who are trained nurses and midwives as described above, were not involved in assigning rooms to incoming patients. This separation of responsibility ensured that FP counselors could not either intentionally or inadvertently influence which women were assigned to receive FP counseling, thereby preserving the integrity of the random assignment design.

In order to reduce the burden on women who were approached for the study, no data were collected during their hospital stay. The FP counselors only sought consent from the women at that time. Consenting women from both groups were then contacted by a trained Ta'ziz interviewer 40 days after delivery to collect data on uptake of modern FP methods. A second phone call was made three-months postpartum to track longer-term use.

Sample design

Prospective power calculations based on the HSS-II design indicated that a minimum sample of 387 participants in each assignment group would be required in order to detect impacts of 10 percentage points on our primary outcome, uptake of modern contraception by 3-months postpartum, assuming a significance level of 95 percent and power of 80 percent. Since follow-up with participants was conducted solely through telephone interviews, the research team projected a high attrition rate (40 percent) between initial consent and the two follow-up interviews. Therefore, the project targeted an initial sample of consenting women of 1,300, with 650 women in each assignment group.

Recruitment process

Nine private hospitals in Jordan were approached about the postpartum FP counseling pilot. Ta'ziz aimed to recruit hospitals specialized in obstetrics and gynecology and training hospitals with residency programs for these specialties. One hospital was located in Irbid (King Abdullah University Hospital), one in Zarqa (Abd Al Hadi Hospital) and the remaining were all in Amman (Al Heba Hospital, Al Hayat Hospital, Al Essra Hospital, Al Amal Hospital, the Specialty Hospital, Al Shmeisani Hospital and the Islamic Hospital). Ta'ziz had an established relationship with the Islamic Center Charity Society, which operates the Islamic Hospital in Amman, through the project's performance-based sub-grants program for nongovernmental organizations with operational health centers.

Of the nine hospitals, Al Essra, Al Amal, Al Hayat and the Specialty Hospitals agreed to sign memorandums of understanding with Ta'ziz in order to participate in the pilot. The agreements detailed that Ta'ziz would provide trainings, supply IEC materials and provide hospitals with equipment based on a needs assessment. Staff members who were assigned to receive training as part of the pilot did not

receive any financial compensation for their participation. However, Ta'ziz provided FP counselors with small gifts such as chocolates as tokens of appreciation near the completion of the pilot.

Prior to initiating the FP counseling pilot at the hospitals, the project estimated the amount of time required for recruitment in order to attain the desired sample size. To support these estimates, the four hospitals provided information on the average number of births they encounter each month. Al Essra Hospital reported an average of 150 births per month, Al Amal reported 350 births per month, Al Hayat reported 120 births per month and the Specialty Hospital reported 240 births per month. This totaled an average of 860 births per month. Assuming a 20% refusal rate among women approached to participate, this average implies 688 consenting participants per month. Under these assumptions, the project determined that two months of recruitment would be sufficient to attain or exceed the minimum desired sample size for this evaluation: 1,720 women approached, 1,376 consenting and 826 completing required data collection.

Sampling and attrition

In practice, the research team encountered challenges in attaining the desired sample size for this study. Recruitment was conducted over two months and two weeks starting in December 2014 and ending in February 2015; the project extended the duration of recruitment by two weeks from its planned two-month duration when the sample size proved to be significantly smaller than projected.

In particular, only a total of 342 women were approached by FP counselors for this study in the four private hospitals during the recruitment period, well below the 1,720 projected. Two key factors contributed to these lower-than-anticipated recruitment totals:

- The additional FP counseling was added onto FP counselors' normal job responsibilities, so they did not necessarily have time or resources to approach all eligible women for consent to participate. In one extreme case, when one study hospital was undergoing a quality assurance audit from an internationally renowned accreditation institution, the nurse responsible for the counseling program halted all FP counseling provision in order to focus on the audit.
- Another factor was a severe winter storm during the month of January 2015, which entrapped people in their homes for days. Some FP counselors did not go to work during this week, and fewer women came to hospitals to delivery. In fact, one hospital did not have any births during the aftermath of the storm.

Among women approached by FP counselors to participate, however, the great majority gave consent to participate and be contacted for follow-up telephone interviews. In all, only five of the women approached (2 percent) refused to participate in the study, much lower than the anticipated 20 percent refusal rate. This may reflect more concentrated effort on the part of the FP counselors given the lower number of women approached; alternatively, it could be that FP counselors differentially approached women they deemed more likely to agree to participate (or avoided women they deemed likely to refuse). Of the 337 consenting women, 177 women were in odd-numbered rooms and assigned to the control group, and 160 were in even-numbered rooms and assigned to the treatment group.

At the 40-day postpartum mark, an interviewer reached by telephone 227 out of 337 initially-consenting women (67 percent). Response rates were approximately balanced across treatment and control groups; 122 of 177 initially-consenting women in the control group (69%), and 105 of 160 initially-consenting women in the treatment group (66%) completed telephone interviews. Of the 110 women who could not be reached to complete interviews, reasons for nonresponse were as follows. Twenty women had provided missing or incomplete telephone numbers at the time of consent, 11 women refused to participate when contacted, 3 of the women's relatives who answered the phone refused to allow the interviewer to speak to the targeted respondents, 56 had disconnected telephone numbers, 8 had wrong telephone numbers, 8 had moved or were traveling, and 51 did not answer after a minimum of three attempted calls.

Only the 227 women who completed the 40-day interview were eligible to be re-contacted for the second follow-up interview. At the 3-month mark, the project was able to interview 213 (94 percent) of these women, representing 63 percent of the 337 women initially consenting to participate and 62 percent of the 342 women initially approached for consent. The interviewer was unable to reach thirteen women at the 3-months interview after multiple attempts, and one woman's phone number was disconnected. Six of the fourteen respondents who did not participate in the 3-months postpartum call were assigned to the treatment group and 8 were assigned to the control group.

Since we did not collect data from consenting women in the hospital, we cannot evaluate the extent to which women completing the 40-day interview differed from women initially consenting to participate in the hospital but not completing the interview. However, we can assess the extent to which women completing the 3-month interview differed from those who completed the 40-day interview but not the 3-month follow-up. Sample characteristics of (age, parity, educational attainment, employment status, and prior FP use) for the 227 women completing the 40-day interview, stratified by treatment and control status and by 3-month response status, are provided in Appendix 1. After accounting for clustering of respondents within hospitals, there were no statistically significant differences between responders and non-responders at the 3-month mark for the treatment and control groups considered separately. For the pooled sample, we found that nonrespondents at 3-months were significantly more likely to have reported a history of prior FP use. However, since nonresponse was so low overall, and since there did not appear to be differences in nonresponse or sample characteristics across treatment and control groups, we judge that the effects of attrition on our findings are likely to be quite small.

Table 2 provides information on the number of responses and associated response rates by interview round, stratified by treatment and control status.

Table 2: Final response rates by interview round

	Control		**Treatment**		**Total**	
	N	**Response rate**	**N**	**Response rate**	**N**	**Response rate**
Consented to participate at hospital	177	--	160	--	337	--
Completed 40-day interview	122	69%	105	66%	227	67%
Completed 3-month interview	114	64%	99	62%	213	63%

Distribution of participants by hospitals

Table 3 shows the distributions of projected births, consenting participants, and completed 40-day and 3-month interviews by hospital. The distributions do not significantly differ by data collection phase, indicating that the distribution of participants across hospitals in our final analytic sample is approximately proportional to hospital size. This implies that consent rates and response rates were similar across the four hospital settings.

Table 3: Distribution of projected births and completed interviews by hospital

	Projected births per month		Consenting participants		Completed 40-day phone interview		Completed 3-month phone interview	
	n	%	n	%	n	%	n	%
Al Essra	150	17.4	64	19.0	43	18.9	39	18.3
Specialty Hospital	240	27.9	99	29.4	66	29.1	63	29.6
Al Amal	350	40.7	125	37.1	83	36.6	76	35.7
Al Hayat	120	14.0	49	14.5	35	15.4	35	16.4
Total	860	100	337	100	227	100	213	100

Adherence to assignment groups

In the randomized design, adherence to the assigned treatment group is of importance to the integrity of the findings in the study. In this study, if the assignment protocol was adhered to and if FP counseling was effective enough for a woman to clearly know that she had received the counseling, then all women who were assigned to the control group would have answered “no” when asked if counseling was received and those assigned to the treatment group would have answered “yes.”

However, in practice, we found that some women in the control group reported receipt of FP counseling, and some women in the treatment group did not report having received FP counseling. In particular, among women assigned to the treatment group (n=105), 70 percent (n=74) confirmed that they had been counseled on FP in the hospital while 30 percent (n=31) did not recall being counseled. Among women assigned to the control group (n=122), 62 percent (n=76) confirmed that they had not received FP counseling in the hospital, while 38 percent (n=46) answered that they had been counseled.

There are several alternative possible explanations for this finding. The first is the possibility of participant confusion. For example, in the control group, it is possible that the scripted reference to the “Strengthening Family Planning Project,” during the consent process resulted in women’s understanding that they had been counseled on the subject; in the treatment group, women may not have fully understood or been able to separate the FP counseling activities from other standard care or counseling received during recovery. This is possible since women are generally approached about many topics while recovering, such as postpartum recovery, breast feeding and nutrition, and may not fully absorb or understand all the information conveyed. After delivery, women may also be exhausted and overwhelmed, increasing the likelihood of confusion. If participant confusion fully explains the discrepancy between random assignment and self-reported receipt of FP counseling—that is, if it is the

case that FP counselors in fact delivered the intervention as intended to women in the treatment group only despite the discrepant participant reports to the contrary—this discrepancy does not represent a threat to the integrity of the random assignment design.

Alternatively, FP counselors may actually have failed to comply with treatment assignment, providing FP counseling to some members of the control group and/or failing to provide it to some members of the treatment group. This might have occurred by accident, especially since FP counseling was added to the counselor's scope of work without reducing the load of any of their other tasks, which may have overwhelmed counselors. It is also possible that FP counselors could have ignored treatment assignment intentionally in order to counsel women they believed needed FP counseling or would be more likely to take up a modern FP method if counseled. In contrast to the participant confusion hypothesis, intentional or inadvertent failure of FP counselors to comply with random assignment would pose a serious threat to the integrity of the random assignment design.

While we cannot directly prove or disprove either competing hypothesis, a further examination of the data provides some suggestive evidence. Appendix 2 provides a detailed comparison of respondent characteristics by adherence to assigned treatment status, and shows that, after accounting for clustering of women within hospitals, there were no statistically significant differences in characteristics between women who did and did not report receipt of FP counseling within each treatment assignment group. If FP counselors were targeting women for counseling based on perceived need or receptivity, we might have expected to see some differences by adherence to treatment assignment; for example, women in the control group with larger numbers of children might have been more likely to have reported counseling receipt. The fact that we found no such evidence offers some reassurance that such targeting did not occur, although we cannot definitively rule out the possibility.

Additionally, in the Findings section below (Table 5), we describe in greater detail participants' characterization of the FP counseling they indicated they received, and show that, for the most part, women in the control group did not report having been counseled on the specific FP topics that were to have been addressed by FP counselors as part of the intervention, while women in the treatment group did generally remember being counseled on those FP topics. This finding is consistent with the hypothesis that control group reports of FP counseling receipt may indeed have been erroneous.

Regardless of the actual causes for the discrepancy between treatment assignment and self-reported receipt of FP counseling, any real "crossover" of this type between the treatment and control groups would have the effect of diluting the observed impact of the intervention. As discussed in greater detail below, our impact estimates can be considered a conservative estimate of what the effect of FP counseling would have been in the case of complete adherence to treatment assignment.

Ethical issues

Institutional Review Board

The study protocol and its tools were submitted to the Abt Associates, Inc. Institutional Review Board (IRB). Approval for the study, assigned IRB identification number 0738, was attained on May 5, 2014.

Oral consent

Consent was attained from the participants by a hospital nurse or midwife while in the postpartum room. Women were informed about the purpose of the study; that their participation was voluntary; and that if they consented, their contact information would be shared with the Strengthening Family Planning Project in order to receive follow-up calls 40-days and 3-months postpartum. During the follow-up calls, the interviewer asked for the woman's consent to the survey each time in order to assure that women were fully informed that their decision to continue to participate in the study was voluntary. Participants were not offered any incentives or compensation for the participation.

Data collection, entry and analysis

Counselors at the hospitals recorded consenting study participants' contact information on specially designed data cards, which were collected in person by Abt Associates' monitoring and evaluation staff. One consultant was assigned the task of organizing data cards in chronological order and monitoring the interviewing process on a simple Microsoft Excel sheet in order to assure that each participant was contacted no more than 3 days after the 40-day and 3-month mark after birth. At 40-days postpartum, the interviewer asked for participants' demographics, previous history of modern FP use, their recall of intentions to use a modern FP method after delivery, and about FP counseling during antenatal care and postpartum care at the hospital. During both the 40-day and 3-month interviews, the interview asked participants whether they had taken up a modern FP method and reasons for not taking up a method, if applicable. The same consultant who conducted all interviews by telephone also entered the data into a specially designed CSPro 4.0 database.

The primary outcome for our evaluation is uptake of modern FP methods. This outcome was assessed from respondents' self-reported use of a modern FP method at the time of interview. Modern FP methods include the IUCD, oral contraceptive pills (OCPs), condoms, Implanon, injections, tubal ligation or vaginal methods such as the diaphragm, and locational amenorrhea method (LAM). Participants who said that they were breastfeeding as a FP method were asked whether they were exclusively breastfeeding and whether they were still experiencing amenorrhea in order to determine whether they could be classified as LAM users. In order to meet the criteria for LAM, women must be experiencing amenorrhea and exclusively breastfeeding an infant who is younger than 6 months.

Data were analyzed using Stata version 12 (StataCorp 2011). Chi-squared tests and t-tests were used in order to detect differences in descriptive characteristics between treatment and control groups; all standard errors and test statistics were adjusted to account for clustering of women within hospitals. Impacts were estimated using multivariate regression models. In a properly-conducted randomized controlled trial, a simple comparison of outcomes across treatment and control groups provides an unbiased estimate of impacts. However, to account for chance differences between treatment and control groups and to improve precision of our impact estimates, we employed multivariate regression models incorporating respondent characteristics (age, number of children, educational attainment, employment status, prior FP use, antenatal FP counseling receipt). In particular, for binary outcome

variables (uptake and intention to use), we used logistic regressions[1] to estimate our multivariate models; for duration variables (time between delivery and uptake), we used Cox proportional hazard models. As with our descriptive analyses, standard errors and test statistics in all multivariate analyses were adjusted to account for clustering of women within hospitals.

This report presents findings of the "intent-to-treat" effect, in which impacts are estimated by comparing outcomes among all women assigned to the treatment group with outcomes among all women assigned to the control group, regardless of self-reported receipt of FP counseling. That is, we estimate the effect of being assigned to receive the intervention. The intent-to-treat estimate is fully supported within the random assignment framework, and represents a conservative estimate of the effect of the intervention because it ignores any potential dilution due to nonadherence (i.e., non-receipt of the intervention within the treatment group population or receipt of the intervention within the control group).

Findings

Participant characteristics

During the first follow-up interview at 40-days postpartum, women were asked about their age, educational attainment and some reproductive health factors. As shown in Table 4, on average, respondents were 29 years old. Less than 5 percent were aged 20 years or younger and slightly more than 10 percent were aged 36 years or older. Nearly one-quarter were aged 21 to 25 years, one third were aged 26 to 30 years and one-quarter were aged 31 to 35 years. As for the number of living children they had at the time of interview, one third had one child, 27 percent had 2 children, 16 percent had 3 children, 12 percent had 4 children and 12 percent had five children or more. On average, participants had 2.5 children. No significant differences were found between those assigned to the control and treatment groups.

Very few respondents had not attained any formal education (1 percent) and only 5 percent had only completed primary education. Twenty-nine percent completed secondary education, 15 percent attained a two-year college degree and 44 percent had completed university. Six-percent attained higher education. Also, 27 percent reported that they were employed or worked outside of the house. Once again, no significant differences were found between those assigned to the control and treatment groups.

As for previous use of any modern contraceptive method, it appears that participants in the treatment group had a greater prevalence of previous modern method use (56 percent) compared to the control group (45 percent). This difference was not statistically significant; however, we include this and other participant characteristics as covariates in our multivariate regression models to ensure their omission does not bias our impact estimates, and to help explain some of the variation in outcomes in order to improve our impact estimates' precision.

[1] We additionally estimated linear probability models for binary outcomes as a robustness check. Since results did not substantively differ from the logistic regression results, we do not report them here.

Table 4: Participant demographics and reproductive health history

	Control n=122	Treatment n=105	Total n=227
Age (%)			
17-20 years	3.3	5.7	4.4
21-25 years	25.4	25.7	25.6
26-30 years	39.3	26.7	33.5
31-35 years	23.0	28.6	25.6
36-40 years	6.6	13.3	9.7
41-42 years	2.5	0.0	1.3
Mean age	**28.5**	**29.1**	**28.8**
Number of children (%)			
1 child	35.3	30.5	33.0
2 children	23.8	30.5	26.9
3 children	18.0	13.3	15.9
4 children	10.7	14.3	12.3
5-8 children	12.3	11.4	11.9
Mean number of children	**2.5**	**2.6**	**2.5**
Education (%)			
No education	0.0	2.9	1.3
Primary (6 years)	6.6	2.9	4.9
Secondary (12 years)	28.7	29.5	29.1
College (14 years)	13.1	18.1	15.4
University (16 years)	45.1	41.9	43.6
Masters/Doctorate	6.6	4.8	5.7
Employment (%)			
Work outside of the house	23.8	31.4	27.3
Previous use of modern FP methods (%)			
Used previously	45.1	56.2	50.2

Antenatal FP counseling

FP counseling ought to take place during an expecting woman's third trimester of pregnancy in order to reduce the incidence of missed opportunities. Typically, this would occur during the woman's visit to a health center or her private physician's clinic. Only 12 women (5 percent; 5 in the treatment group and 7 in the control group) at 40-days postpartum reported that they had received FP counseling during an antenatal care visit. The difference in the proportion between the treatment and control groups was not statistically significant. Half of these women said that their doctors provided the counseling and seven of the women said that this counseling convinced them to start using a modern FP method after the delivery of their babies. We therefore include reported receipt of antenatal FP counseling as an additional covariate in our multivariate models.

Delivery of the intervention

Postpartum FP counseling at the hospitals

As previously mentioned in the methods section, there was some evidence of potential crossover between the two assignment groups. A total of 46 women (38 percent) assigned to the control group reported that they had received FP counseling at the hospital, and 31 of those assigned to the treatment group (30 percent) did not recall that they had been counseled.

Table 5: Postpartum FP counseling at the hospitals

	Control n=46	Treatment n=74	Total n=120
Were they asked about previous FP methods?			
Yes	45.7	74.3	63.3
No	45.7	12.2	25.0
Does not recall	8.7	13.5	11.7
Were they shown different FP methods?			
Yes	19.6	60.8	45.0
No	71.7	27.0	44.2
Does not recall	8.7	12.2	10.8
Were informed about side effects that might occur while using modern FP methods			
Yes	17.4	56.8	41.7
No	73.9	23.0	42.5
Does not recall	8.7	20.3	15.8
Time the counseling was conducted			
Morning	60.9	48.7	53.3
Lunch time	37.0	39.2	38.3
Evening	2.2	8.1	5.8
Late night	0.0	4.1	2.5
Setting of the counseling			
In private	39.1	46.0	43.3
Others were around	60.9	54.1	56.7
Individuals who were present during the counseling[1]	n=28	n=40	n=68
Husband	42.9	32.5	36.8
Mother	42.9	62.5	54.4
Mother-in-law	14.3	5.0	8.8
Other relatives/friends	32.1	32.5	32.4
Other patients	0.0	7.5	4.4

Shaded cells represent statistically significant differences in proportions between the control and treatment groups through Chi-squared test ($p<0.05$); test statistics adjusted to account for clustering of women within hospitals.

[1] Totals sum to more than 100 percent since multiple individuals may have been present.

Table 5 compares self-reported details of FP counseling received between treatment and control group respondents who reported that they had been counseled. Counselors were trained on FP counseling

using internationally accepted guidelines. In order to attain an estimate of compliance with these standards, respondents were asked a series of questions reflecting what ought to have been discussed during the session.

- First, participants were asked whether the counselor asked them about previous use of FP methods. To this, 74 percent of women in the treatment group answered affirmatively, a significantly higher proportion than those in the control group (46 percent).
- Counselors should have also used the provided IEC materials in order to show women different FP methods. Sixty-one percent of women in the treatment group affirmed that they were shown different FP methods, a significantly higher proportion than was recalled the control group (20 percent).
- Another key to good counseling is the open discussion of side effects associated with modern FP use. Fifty-seven percent of women in the treatment group recalled the discussion of side effects and a significantly lower proportion of women in the control group (17 percent) recalled the discussion.

As noted above, these findings are encouraging in the sense that they indicate that, although substantial proportions of respondents in the control group reported receipt of FP counseling, they are less able than treatment group respondents to confirm that any counseling they received addressed key FP topics. This may offer some suggestive evidence that control group reports that they had received FP counseling stemmed from participant confusion rather than from actual receipt of counseling.

More than 90 percent of women reported that the counseling took place during the morning or lunch time and nearly half recalled that others were around. Most often, the mother was in attendance, followed by the husband and other relatives. No significant differences in timing, setting or the presence of other individuals were observed when comparing the control and treatment groups.

IEC materials about mother and child wellness

At 40-days postpartum, 90 percent of women recalled that they had received the folder with IEC materials while at 3-months postpartum, 93 percent reported the receipt of the folders. (As a reminder, only the folders for women in the treatment group included materials on modern FP methods.) No significant differences in recall of the folder were noted between the two test groups.

Looking at the 3-months follow-up findings presented in Table 6, the “Breast feeding and child health” booklet was recalled by the most women (80 percent), followed the “Child record” (78 percent), and “Mother’s health” booklet (76 percent). It is interesting to note that both recall and readership increased from the 40-days call to the 3-months call. As for readership, 65 percent of those who received the “Breast feeding and child health” booklet recalled reading it entirely or partially, 62 percent read the “Child record” and 59 percent read the “Mother’s health” booklet. The control group was significantly more likely to read the first two booklets entirely as compared to the treatment group, however, overall, there was no statistically significant difference in the mean number of materials read by participants in the control and treatment groups (1.4 and 1.2 materials, respectively, at 3-months postpartum).

Table 6: Woman's recall of the reception and reading of IEC materials about mother and child wellbeing

	40-days postpartum (%)			3-months postpartum (%)		
	Control n=122	Treatment n=105	Total n=227	Control n=114	Treatment n=99	Total n=213
Received the folder	87.7	93.3	90.3	90.4	97.0	93.4
"Breast feeding and child health" booklet	**77.1 (n=122)**	**71.4 (n=75)**	**74.5 (n=75)**	**79.8 (n=91)**	**79.8 (n=79)**	**79.8 (n=170)**
Read entirely	28.7	14.6	22.5	33.0	15.2*	24.7
Read partially	37.2	37.3	37.3	38.5	42.8*	40.0
Skimmed	19.2	30.7	24.3	18.7	30.4*	27.1
Did not open it	14.9	17.3	16.0	9.9	12.7*	11.2
"Child record" booklet	**75.4 (n=92)**	**68.6* (n=72)**	**72.3 (n=164)**	**79.0 (n=90)**	**77.8 (n=77)**	**78.4 (n=213)**
Read entirely	25.0	11.1	18.9	28.9	11.7*	21.0
Read partially	34.8	43.1	38.4	34.4	46.8*	40.1
Skimmed	23.9	27.8	25.6	22.2	28.6*	25.2
Did not open it	16.3	18.1	17.1	14.4	13.0*	13.8
"Mother's health" booklet	**73.8 (n=90)**	**66.7 (n=105)**	**70.5 (n=227)**	**76.3 (n=87)**	**75.8 (n=75)**	**76.1 (n=162)**
Read entirely	24.4	14.3	20.0	**27.6**	**16.0**	**22.2**
Read partially	32.2	35.7	33.8	**34.5**	**38.7**	**36.4**
Skimmed	24.4	32.9	28.1	**23.0**	**33.3**	**27.8**
Did not open it/ no recall	18.9	17.1	18.1	**14.9**	**12.0**	**13.6**
Mean number of general materials partially or entirely read	**1.4**	**1.1**	**1.2**	**1.4**	**1.2**	**1.4**

* Statistically significant differences in proportions between the control and treatment groups through Chi-squared test ($p<0.05$); test statistics adjusted for clustering of women within hospitals.

Whether women partially or completely read IEC materials about mother and child wellness after birth was not significantly associated with women's age, parity or educational attainment (data not shown).

Respondents who skimmed or read the materials were then asked to rate the usefulness of the content to them. More than 70 percent of all women at the 3-months follow-up interview reported that the materials were very useful and nearly all of the remaining respondents said that the materials were somewhat useful (Table 7).

Table 7: Usefulness of read or skimmed IEC materials about mother and child wellbeing

Among those who read or skimmed the booklets:	40-days postpartum (%)			3-months postpartum (%)		
	Control	Treatment	Total	Control	Treatment	Total
"Breast feeding and child health"	**n=80**	**n=62**	**n=142**	**n=82**	**n=69**	**n=151**
Very useful	72.5	67.7	70.4	75.6	72.5	74.2
Somewhat useful	26.3	32.3	28.9	23.2	27.5	25.2
Not useful	0.0	0.0	0.0	0.0	0.0	0.0
Don't know	1.3	0.0	0.7	1.2	0.0	0.7
"Child record"	**n=77**	**n=59**	**n=136**	**n=77**	**n=67**	**n=144**
Very useful	71.4	59.3	66.2	75.3	65.7	70.8
Somewhat useful	27.3	40.7	33.1	23.4	34.3	28.5
Not useful	0.0	0.0	0.0	0.0	0.0	0.0
Don't know	1.3	0.0	0.7	1.3	0.0	0.7
"Mother's health"	**n=74**	**n=58**	**n=131**	**n=74**	**n=66**	**n=140**
Very useful	76.7	62.1	70.2	81.2	68.2	75.0
Somewhat useful	21.9	37.9	29.0	17.6	31.8	24.3
Not useful	0.0	0.0	0.0	0.0	0.0	0.0
Don't know	1.4	0.0	0.8	1.4	0.0	0.7

IEC materials about FP

As shown in Table 8, approximately 5 percent of respondents in the control group who recalled the receipt of the folders reported that they had received materials on FP only intended for the treatment group in the study. By 3-months postpartum, 75 percent of respondents from the treatment group recalled the receipt of the "Modern FP methods guide," 72 percent recalled the brochures on modern FP methods, 71 percent recalled the congratulations what you got booklet, and 70 percent recalled the FP-themed calendar. The mean number of IEC materials about FP read completely or partially was 1.3 for the treatment group at 3-months postpartum, a significantly higher mean that that observed among the control group (0.2 materials). Whether women partially or completely read IEC materials about FP after birth was not significantly associated with women's age, parity or educational attainment (data not shown).

Table 8: Woman's recall of the reception and reading of IEC materials about FP

	40-days postpartum (%)			3-months postpartum (%)		
	Control n=122	Treatment n=105	Total n=227	Control n=114	Treatment n=99	Total n=213
"Modern FP methods guide"	**5.7 (n=7)**	**67.6* (n=71)**	**34.4 (n=78)**	**5.3 (n=6)**	**74.8* (n=74)**	**37.6 (n=80)**
Read entirely	57.1	21.1	24.4	83.3	20.3	25.0
Read partially	0.0	26.8	24.4	16.7	32.4	31.3
Skimmed	14.3	31.0	29.5	0.0	31.1	28.8
Did not open it	28.6	21.1	21.8	0.0	16.2	15.0
Brochures about modern FP methods	**4.9 (n=6)**	**62.9* (n=66)**	**31.7 (n=72)**	**5.3 (n=6)**	**72.7* (n=71)**	**36.6 (n=78)**
Read entirely	50.0	15.2	18.1	83.3	12.5	18.0
Read partially	16.7	28.8	27.8	0.0	36.1	33.3
Skimmed	16.7	28.8	27.8	16.7	36.1	34.6
Did not open it	16.7	19.7	19.4	0.0	15.3	14.1
"Congratulations what you got" booklet	**4.9 (n=6)**	**61.9* (n=105)**	**31.3 (n=71)**	**5.3 (n=6)**	**70.7* (n=99)**	**35.7 (n=76)**
Read entirely	33.3	10.8	12.7	50.0	8.6	11.8
Read partially	16.7	26.2	25.4	16.7	32.9	31.6
Skimmed	33.3	32.3	32.4	33.3	32.9	32.9
Did not open it	16.7	30.8	29.6	0.0	25.7	23.7
FP-themed recipes and cartoons calendar	**4.1 (n=5)**	**61.0 (n=64)**	**30.4 (n=69)**	**4.4 (n=5)**	**69.7* (n=69)**	**34.7 (n=74)**
Read entirely	40.0	12.5	14.5	60.0	11.6	14.9
Read partially	40.0	29.7	30.4	40.0	36.2	36.5
Skimmed	0.0	31.6	29.0	0.0	31.9	29.5
Did not open it	20.0	26.6	26.1	0.0	20.3	18.9
Mean number of FP materials partially or entirely read	**0.1**	**1.1***	**0.6**	**0.2**	**1.3***	**0.7**

* Statistically significant differences in proportions between the control and treatment groups through Chi-squared test ($p<0.05$)

Note: Significance testing was not conducted for the detection of differences between the control and treatment group due to the control group's small sample size.

Respondents who skimmed or read the materials were then asked to rate the usefulness of the content to them. More than 65 percent of respondents reported that they found all materials very useful and nearly all others noted that they were somewhat useful by the 3-months postpartum interview (Table 9).

Table 9: Usefulness of read or skimmed IEC materials about FP

Among those who read or skimmed the booklets:	40-days postpartum (%)			3-months postpartum (%)		
	Control	Treatment	Total	Control	Treatment	Total
"Modern FP methods guide"	**n=5**	**n=56**	**n=61**	**n=6**	**n=62**	**n=68**
Very useful	80.0	62.5	63.9	83.3	67.7	69.1
Somewhat useful	20.0	35.7	34.4	16.7	30.7	29.4
Not useful	0.0	1.8	1.6	0.0	1.6	1.5
Don't know	0.0	0.0	0.0	0.0	0.0	0.0
Brochures about modern FP methods	**n=5**	**n=53**	**n=58**	**n=6**	**n=61**	**n=67**
Very useful	60.0	64.2	63.8	83.3	67.2	68.7
Somewhat useful	40.0	32.1	32.8	16.7	29.5	28.4
Not useful	0.0	1.9	1.7	0.0	1.6	1.5
Don't know	0.0	1.9	1.7	0.0	1.6	1.5
"Congratulations what you got" booklet	**n=5**	**n=45**	**n=50**	**n=6**	**n=52**	**n=58**
Very useful	40.0	60.0	58.0	50.0	67.3	65.5
Somewhat useful	60.0	37.8	40.0	50.0	30.8	32.8
Not useful	0.0	0.0	0.0	0.0	0.0	0.0
Don't know	0.0	2.2	2.0	0.0	1.9	1.7
FP-themed recipes and cartoons calendar	**n=4**	**n=47**	**n=51**	**n=4**	**n=55**	**n=60**
Very useful	75.0	70.2	70.6	80.0	69.1	70.0
Somewhat useful	25.0	27.7	27.5	20.0	29.1	28.3
Not useful	0.0	0.0	0.0	0.0	0.0	1.8
Don't know	0.0	2.1	2.0	0.0	1.8	0.0

Postpartum follow-up

Nearly 60 percent of women at 40-days postpartum reported that they had visited a health facility since leaving the hospital after delivery. No statistically significant differences were noted when comparing the control and treatment groups. Of these women, 96 percent went to a private clinic while only three went to a Ministry of Health (MOH) health center and two went to a United Nations Relief and Works Agency (UNRWA) clinic.

Importantly, only 48 percent of women (65 women) who visited a health provider at the 40-day postpartum call recalled that the health provider discussed the women's FP plans. No statistically significant differences were found when stratifying by treatment group. One of the three women who went to the MOH and both of the two women who went to UNRWA, and 62 out of the 131 women who went to a private clinic recalled that FP was discussed.

Of the 64 women who recalled discussing FP with the providers, 85 percent received specific information about the method they were interested in and 48 percent received a method at that facility.

Intervention outcomes

Intention to use modern FP methods

Women's intention to use a modern FP method after leaving the hospital was moderately high, with 74 percent reporting a positive intention to use a method after discharge from the hospital (72 percent in the control group and 75 percent in the treatment group). No significant differences in positive intentions were observed when comparing the control and treatment groups using multiple logistic regression incorporating participant characteristics as covariates (odds ratio for impact=0.92; p=0.62).

Women who reported intentions to use modern FP were asked about the specific methods they had intended to use after discharge from the hospitals. As shown in Table 9, one quarter of the women, irrespective of the treatment group assignment, did not know which method they wanted to use. Those who did specify an intended method preferred the IUCD, 44 percent, followed by progestin only pills (POPs) (14 percent), which are appropriate for breastfeeding mothers, and combined oral contraceptives (COCs) (8 percent). No significant differences in preferred method were observed when comparing respondents by assignment group using a chi-squared test.

A woman's intention to use a modern method was associated with her previous self-reported use of a modern FP method. A significantly higher proportion of women who had previously used a modern FP method reported an intention to use a modern method after discharge as compared to women who had never used a modern FP method before (84 percent and 63 percent, respectively) (data not shown).

Table 9: Intentions towards modern FP method use

	Control n=122	Treatment n=105	Total n=228
Intended to use a method in the future when she was discharged	72.1	75.2	73.6
Method intended to use	n=88	n=79	n=167
POPs	14.8	13.9	14.4
COCs	6.8	10.1	8.4
Condoms	8.0	2.5	5.4
IUCD	43.2	44.3	43.7
Implanon	1.1	0.0	0.6
Injection	1.1	0.0	0.6
Tubal ligation	0.0	3.8	1.8
Did not know	25.0	25.3	25.2

Receipt of FP methods at the hospital

FP services are not provided in the private hospitals after delivery unless the woman and her doctor, frequently at a clinic outside of the hospital or in the hospitals' outpatient clinics, agree on immediate postpartum FP provision such as tubal ligation or IUCD insertion, which are permanent and long-term contraceptive methods, respectively. Given that only 5 percent of respondents recalled being counseled on FP during routine antenatal care visits, it is thus unsurprising that none of the women who reported an intention to use a modern FP method received that method at the hospital. As shown in Table 10,

respondents said that they did not receive the method at the hospital because they intended to use a method that they could not receive immediately after delivery (46 percent), they had not decided on a method (26 percent), they wanted to wait 40 days postpartum (21 percent), they were unaware that they could receive a method at the ward (2 percent), or they did not know the reason (4 percent). No significant differences in reasons were found across treatment and control groups.

Table 10: Reasons for not receiving FP methods at the hospitals

Reasons for not received a FP method at the hospital	Control n=88	Treatment n=79	Total n=167
Wanted a method that could not be provided immediately postpartum	47.7	44.3	46.1
Was undecided	27.3	25.3	26.4
Wanted to wait 40 days postpartum	20.5	20.3	20.4
Does not know	3.4	3.8	3.6

Uptake of Modern FP Methods

The key outcome of the intervention is the uptake of modern FP methods after delivery. As shown in Table 11, by 40-days postpartum, a larger proportion of respondents in the treatment group (18 percent) compared to participants in the control group (12 percent) reported that they had taken up a modern FP method. Estimating the impact of the intervention via multivariate logistic regression indicated a statistically significant difference between treatment and control groups after adjusting for included covariates (odds ratio for impact=1.6, p=0.02). This finding indicates that the intervention significantly increased uptake of modern contraceptive methods in the treatment group as compared to the control group as reported 40-days after delivery. In addition, results of the Cox proportional hazard model examining impacts on days between delivery and modern FP uptake found a 1.6 times greater rate of uptake per day in the treatment group than in the control group (hazard ratio for impact=1.6, p=0.01).

Table 11: Reported use of modern FP methods

	40-days postpartum		3-months postpartum	
	Control n=122	Treatment n=105	Control n=114	Treatment n=99
Reported to have started to use a modern FP method (%)	12.3	18.1	45.6	51.5
Among those who took up a method:	n=14	n=19	n=51	n=51
Mean number of days postpartum that they took up a method	35.8	36.4	49.0	46.6

By 3-months postpartum, once again, a larger proportion of respondents in the treatment group (52 percent) compared to participants in the control group (46 percent) reported that they had taken up a modern FP method. However, the multivariate logistic regression indicated that treatment-control group differences in uptake at 3-months were not statistically significant (odds ratio for impact=1.2, p=0.54), and the Cox proportional hazard model indicated no significantly greater rate of uptake per day in the treatment group as compared to the control group (hazard ratio for impact=1.2, p=0.51).

No statistically significant differences were noted in the distribution of used methods at 40-days and 3-months postpartum when comparing women by treatment group (data not shown). The most commonly used method at 40-days postpartum was POPs (50 percent), followed by condoms (18 percent), the IUCD (15 percent) and OCPs (15 percent) (Table 12). None met the criteria for LAM and 3 percent had undergone tubal ligation.

By 3-months postpartum, the most commonly used method was the IUCD (30 percent), followed by POPs (22 percent), condoms (21 percent) and COCs (20 percent). Six women at the 40-days postpartum call did not meet LAM criteria but did meet it at the 3-months follow-up.

Table 12: Distribution of modern FP methods taken up by type

Modern FP method used by respondent (%)	40-days postpartum n=33	3-months postpartum n=102
LAM	0.0	5.8
POPs	50.0	23.3
COCs	14.7	20.4
Condoms	17.7	19.4
IUCD	14.7	29.1
Implanon	0.0	1.0
Tubal ligation	2.9	1.0

Study Limitations

The first study limitation relates to the observed discrepancy between treatment assignment and self-reported receipt of FP counseling. Regardless of whether this discrepancy was due to participant confusion or to “true” nonadherence to treatment assignment on the part of FP counselors, this effect likely diluted the impacts of the intervention.

A second limitation is the relatively small sample size. Ta’ziz staff continuously encouraged counselors to approach all women giving birth in the hospital to participate in the study; however different factors resulted in the cessation of recruitment and counseling for short interims, as was mentioned in the methods section of this report. This reduced sample size restricted the ability of the study to detect smaller but meaningful impacts.

Third, our results can be directly generalized only to the sample of Amman hospitals in which they were conducted.

Fourth, all outcome data were self-reported, introducing the possibility that recall bias and/or Hawthorne effects could be influencing our findings.

Conclusions and Recommendations

We detected impacts of postpartum FP counseling in the private sector on uptake of modern contraceptives by 40-days postpartum, which is consistent with prior HSS-II findings in the public sector. However, this effect does not appear to be sustained at 3-months postpartum, though it is important to note that study limitations related to a smaller-than-anticipated sample size and potential crossover between treatment and control groups may have limited our power to detect impacts.

Antenatal and Postnatal FP Counseling and Services

- The proportion of women who reported that they had been counseled on FP during their pregnancy was surprisingly low (5 percent). None of the respondents received a modern FP method prior to being discharged from the hospital and none met the criteria for LAM during the 40-days postpartum telephone interview. Moreover, nearly three-quarters reported that they had intended to use a modern FP after discharge, yet at 3-months postpartum only one half were using a modern FP method. This is particularly striking when one considers that one of the key reasons for not taking up a method immediately postpartum, irrespective of treatment assignment, was the participant's indecisiveness about which method to use.

  Recommendation: Future interventions must address the lack of FP counseling during third-trimester antenatal care visits to women who seek services in the private sector. Also, given that most women intending to use a modern FP method prefer to wait 40 days postpartum before receiving that method, more emphasis must be placed on the criteria for effective and correct use of LAM since indecisiveness about which FP method to use was not significantly impacted by the counseling.

- Nearly all of the women who gave birth at the four private hospitals went to private clinics for their follow-ups; however only half of those who went to private clinics postpartum recalled that their health provider discussed FP.

  Recommendation: Additional interventions with private-sector doctors who operate independent clinics are required in order to incorporate FP counseling into standard postpartum follow-up and care.

- It appears that interviews at 40-days prompted some respondents to revert back to the folders they had received at the hospitals and read them. These interviews were not intended to

prompt women to read the folders; however the interviewer noted that many women would ask her to wait while they fetched the folder to look at it for the first time while they were being interviewed.

Recommendation: Systemized follow-up counseling calls by trained individuals could vastly influence uptake among postpartum women who gave birth in private hospitals. Such follow-up schemes may not be appealing to hospitals unless they are linked to postpartum women's satisfaction, marketing and retention.

Modern FP Method Uptake in Association with Postpartum Counseling

FP counseling, with the complement of IEC materials, is essential for the encouragement of women to take up modern FP methods and in aiding women in making well-informed decisions that better suit their physical and social circumstances.

- A larger proportion of respondents in the treatment group (18 percent) compared to participants in the control group (12 percent) reported that they had taken up a modern FP method by 40-days postpartum, and multivariate analyses indicated that this difference was statistically significant. By 3-months postpartum, we could no longer detect a statistically significant difference attributable to the intervention; while a larger proportion of respondents in the treatment group (52 percent) compared to participants in the control group (46 percent) still reported that they had taken up a modern FP method, this difference was not statistically significant. This lack of significance may potentially be attributed to the sample size and some of the contamination between the two treatment groups.

  Recommendation: Postpartum counseling in the private sector appears to be effective in increasing short-term uptake of modern FP. Future efforts should focus on identifying interventions to sustain uptake over the longer-term.

- The characteristics of women who give births in the private sector may make FP counseling less effective in increasing modern FP methods as compared to the public sector. As mentioned in the JPFHS of 2012, women who deliver in private hospitals are more educated and wealthier than their counterparts who deliver in the public sector. Since education and wealth are also positively associated with modern FP method use (DOS Jordan, 2013), this means that there's a more marginal opportunity to invoke positive change in the private sector. This is supported by the fact that 46 percent of respondents assigned to the control group were using a modern FP method at 3-months postpartum, which is already higher than the 42 percent national contraceptive prevalence rate of 2015.

  Recommendation: Future work should investigate targeting FP counseling to specific subpopulations served in the private sector (e.g. less educated, lower wealth) to maximize return on investment.

- One key factor that may have reduced the effectiveness of the intervention is the fact that none of the hospitals provide postpartum FP services as a stand-alone service. In rare cases, which were not observed in this study, the woman's private obstetrics and gynecology specialist would have had to plan for immediate postpartum FP provision. In contrast, public hospitals have a supply of free-of-charge modern contraceptives supplied by the Ministry of Health. Therefore, in a public hospital, FP counseling is followed by the provision of modern FP methods such as OCPs or condoms, to be used by the woman when appropriate. Women who deliver in private-sector hospitals must return to their private physicians' clinics for these services.

  Future follow-ons to this pilot should work on making modern FP methods available at the hospitals as a complement to the counseling program. The provision of FP methods in private hospitals would require trained staff and equipped pharmacies and maternity wards.

Programmatic Implications

- In order to initiate this pilot, Ta'ziz approached nine hospitals, four of which agreed to participate in the initiative. One of the hospitals was already aiming to establish and maintain a postpartum counseling service in its maternity ward in order to sustain an accreditation it was awarded. The other hospitals required a greater incentive for their participation since the provision of counseling does not increase profits; rather, it requires the addition of new procedures and the assignment of additional tasks to existing staff duties. For this reason, Ta'ziz offered hospitals clinical trainings for their service providers and it also suggested the provision of medical equipment on a needs basis.

  Recommendation: An assessment of the cost-effectiveness of this intervention is required to inform future considerations in the private sector, especially since more alluring incentives for both hospitals and their staff may be required since lack of staff-motivation may have been one of the key contributors to the limitations of this study.

- The increased burden of counseling women on FP may have negatively influenced counselors' motivation to approach all women for the study, resulting in the reduced sample size. This may have also contributed to lack of adherence to treatment assignment. Of course, it is possible that women, half of whom received counseling while others were around, were too distracted or too tired to concentrate during the counseling; however it is unlikely that women's confusion would have contributed entirely to the observed crossover.

  Recommendation: Future interventions must carefully examine the added burden of postpartum FP counseling on the duties of staff if nurses and midwives are to be counselors. It may not be feasible to expect a hospital to successfully counsel all postpartum women without increasing the amount of nurses or midwives working in the maternity ward.

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Appendix 1: Respondent characteristics before and after attrition

	Control		Treatment		All respondents	
	Only 40-days postpartum interview (n=8)	Complete interviews (n=114)	Only 40-days postpartum interview (n=6)	Complete interviews (n=99)	Only 40-days postpartum interview (n=14)	Complete interviews (n=213)
Age (%)						
17-20 years	0.0	3.5	0.0	6.1	0.0	4.7
21-25 years	12.5	26.3	0.0	27.3	7.1	26.8
26-30 years	25.0	40.4	33.3	26.3	28.6	33.8
31-35 years	37.5	21.9	33.3	28.3	35.7	24.9
36-40 years	25.0	5.3	33.3	12.1	28.6	8.5
41-42 years	0.0	2.6	0.0	0.0	0.0	1.4
Mean age	**31.5**	**28.5**	**31.8**	**28.9**	**31.6**	**28.6**
Number of children (%)						
1 child	12.5	36.8	16.7	31.3	14.3	34.3
2 children	25.0	23.7	33.3	30.3	28.6	26.8
3 children	12.5	18.4	0.0	14.1	7.1	16.4
4 children	25.0	9.7	33.3	13.1	28.6	11.3
5-8 children	25.0	11.4	16.7	11.1	21.4	11.3
Mean number of children	**3.4**	**2.5**	**3.0**	**2.5**	**3.2**	**2.5**
Education (%)						
No education	0.0	0.0	16.7	2.0	7.1	0.9
Primary (6 years)	0.0	7.0	0.0	3.0	0.0	5.2
Secondary (12 years)	37.5	28.1	16.7	30.3	28.6	29.1
College (14 years)	0.0	14.0	16.7	18.2	7.1	16.0
University (16 years)	37.5	45.6	33.3	42.4	35.7	44.1
Masters/Doctorate	25.0	5.3	16.7	4.0	21.4	4.7
Employment (%)						
Work outside of the house	37.5	22.8	33.3	31.3	35.7	26.8
Previous use of modern FP methods (%)						
Yes	75.0	43.0	83.3	54.6	78.6	48.4

Shaded cells depict statistically significant differences ($p<0.05$) in proportions between respondents who completely only the 40-days postpartum interview and those who completed both interviews through Chi-squared test or in means through t-tests; all tests adjusted for clustering of women within hospitals.

Appendix 2: Characteristics' Stratified by Adherence to or Divergence from Treatment Assignment

	Treatment		Control	
Based on self-report of reception of counseling	True positive (n=74)	False positive (n=31)	True negative (n=76)	False negative (n=46)
Age				
17-20 years	4.1	9.7	4.0	2.2
21-25 years	27.0	22.6	29.0	19.6
26-30 years	25.7	29.0	42.1	34.8
31-35 years	28.4	29.0	19.7	28.3
36-40 years	14.9	9.7	5.3	8.7
41-42 years	0.0	0.0	0.0	6.5
Mean age	**29.4**	**28.4**	**27.8**	**29.6**
Number of children				
1 child	29.7	32.3	40.8	26.1
2 children	35.1	19.4	26.3	19.6
3 children	10.8	19.4	14.5	23.9
4 children	10.8	22.6	5.4	19.6
5-8 children	13.5	6.5	13.2	10.9
Mean number of children	**2.6**	**2.5**	**2.3**	**2.9**
Education				
No education	1.4	6.5	0.0	0.0
Primary (6 years)	2.7	3.2	7.9	4.4
Secondary (12 years)	24.3	41.9	27.6	30.4
College (14 years)	20.3	12.9	14.5	10.9
University (16 years)	44.6	35.5	44.7	45.7
Masters/Doctorate	6.8	0.0	5.3	8.7
Employment				
Work outside of the house	31.1	32.3	23.7	23.9
Previous use of modern methods				
Yes	58.1	51.6	35.5	60.9

Shaded cells depict statistically significant differences ($p<0.05$) in proportions between the true negative and true positive groups through Chi-squared test or in means through t-tests; all tests adjusted for clustering of women within hospitals.