

Examining Reproductive Health Services of Women, Female Youth, and Female Refugees in Northern Jordan with a Behavioral Economics Lens

Heath Prince, PhD*; Yousef Khader, PhD**; Yara Halasa, PhD***; Nihaya al-Sheyab, PhD**; and Kelley Ready, PhD*

*University of Texas, Austin

**Jordan University for Science and Technology

***Brandeis University

Executive Summary

Our study begins from the premise that favorable attitudes toward modern family planning methods (MFPM) among Jordanian and Syrian women do not always translate into behavioral changes, and that the availability and cost of MFPM are not factors in the apparent stall in Jordan's total fertility rate. Accordingly, our intervention focuses on changing behavior through Behavioral Economics (BE)-based interventions, with the expectation that these interventions contribute to bringing attitudes and behavior into closer alignment.

Our results are positive and statistically, and perhaps socially, significant. Our BE-influenced revisions to the counseling guide used by mid-wives to counsel women on family planning appears to have contributed to a 6.3 percentage point reduction in pregnancy rates over the control group, while text messaging appears to have the potential to add to this decline—marginal improvements from text messaging are positive, but statistically insignificant. While considerably lower than pregnancy rates in the control group, the percentages of women in the two intervention groups who became pregnant did not differ significantly at 3, 6, and 9 months.

We were also interested in whether, and to what extent, our interventions could contribute to increases in the persistence in the use of family planning methods. The rate of family planning use among women in the two intervention groups was significantly higher than that among women in the control group at all follow up times. However, use of family planning at all follow up points did not differ between intervention groups.

The results of our study suggest that simple BE-inspired interventions can be effective methods for reducing Jordan's fertility rate. Randomly assigning clinics to control and intervention arms ensured that the outcomes are attributable to the interventions. The differences in terms of persistence in the use of MFPM and the reduction in pregnancies are substantial and statistically significant. Additional research is required to understand more fully why the marginal impact of the text messaging was, at best, small and statistically insignificant, despite high rates of satisfaction reported.

Our study has significant policy relevance given its findings of the potential efficacy of cost-effective counseling and text-based interventions to improve maternal health promotion and reduce maternal health risks. We believe that these findings merit consideration for replication of the project on a larger scale and over a somewhat longer time-period to assess the long-term impacts of BE interventions on the persistence in use of MFPM, as well as on fertility rates.

Background and Rationale

Jordan's consistently high educational achievement rates for both women and men, as well as tendencies for Jordanian women to marry relatively later in life than women from other countries in the region, contributed to significant drops in the country's total fertility rate (TFR) in recent decades. Despite dropping from a 7.1 children per woman in mid-1970s to a low of 3.3 in 2012, the rate of decline slowed significantly beginning in 2002. At current fertility rates, Jordan's population will double by 2040 (Heisler 2012).

Reasons given for this plateau vary, from the influx of Syrian and Iraqi refugees, as a hedge against divorce, to simply approaching a limit in the ability of the state to persuade families to have fewer children. Culture and religion appear to be significant determinants of family size, with preference for male children and religious beliefs that large families are required having an inordinate effect on family planning decisions (Heisler 2012). Moreover, familial pressure from husbands and in-laws strongly discourages use of modern contraception methods. These factors suggest that the Government of Jordan's (GOJ) efforts to achieve reductions in TFR to replacement rates by 2030, per the Sustainable Development Goals (SDGs), will face significant headwinds.

Our intervention provides evidence that could support policies that would assist Jordan in reaching its SDGs. This study employed a culturally sensitive, anthropologically-based approach that incorporated recent advances in the Behavioral Economics (BE) field in order to assess the feasibility of increasing the use of Modern Family Planning Methods (MFPM) among women who, both, desire to exert more control over the spacing between births or who wish to have no more children, and who are currently not using MFPM.

Intervention Design

Our prior field research confirmed previous reports in the literature that the counseling women receive regarding MFPM is either inadequate or inconsistently provided, or both. Midwives and doctors reported that not all women who visit health clinics for neonatal or postpartum treatment receive counseling on MFPM for reasons ranging from heavy workloads that prevent counseling of all women, to a reluctance to counsel MFPM for cultural reasons (noted above). Currently, midwives provide some form of standardized counseling for new mothers, however, the counseling session is passive, short, lacks privacy, and might not address the mother's needs.

In response, our intervention was comprised of two main components. First, and in order to address the shortcomings in counseling, we designed a counseling protocol for midwives, and provided training in its use, that augmented existing counseling methods by including the most current information on modern family planning methods, as well as current information on the proper use of traditional family planning methods. In addition, and most importantly, the protocol included language reflecting two approaches from the BE field: "framing" and "identity priming." (Ashton et al., 2015)

"Framing" is understood to be a set of choices that can shape decision-making, and that assists in countering misperception of risks by making some outcomes more appealing than others. We assumed that this approach would be particularly appropriate for the purposes of this project given the reported prevalence of misinformation provided in counseling sessions.

“Identity priming” is understood to be an approach that appeals to gender, race, or role in order to make certain outcomes more appealing. In the context of increasing women’s use of MFPM, our augmented counseling protocol included appeals to women as responsible mothers, rather than simply wives, and to men as fathers, rather than simply husbands, who naturally want to provide the best possible quality of life for their children.

The second component of the intervention also employs a BE approach—“reminders.” Text message reminders have been shown to be effective in various healthcare contexts, including the use of contraceptives (Innovations for Poverty Action, 2014). Our intervention included text messages to women in the intervention group, sent monthly, reminding them of the benefits of MFPM, and encouraging them to follow up with the midwife who provided counseling at the clinic to address any questions.

“Intervention group 1” received augmented counseling only, while the “Intervention group 2” received both counseling and monthly text messages, with the aim of isolating the marginal effects of the text messaging intervention. Women in treatment and control groups received follow-up phone calls from project staff at 3, 6, and 9 months. Each of the two intervention groups was compared to each other and to a control group of women who received services at clinics per the status quo.

Results

BASELINE CHARACTERISTICS

In total, 1032 participated in the study (295 women in the control group, 326 women in the counseling group, and 411 women in the counseling and messages group). Women in the control group were slightly older than women in the other two groups; the mean age was 28.5 years for women in the control group, 27.1 years for women in the counseling group, and 27.7 years for women in the counseling and messages group. As presented in Table 1, the vast majority of women in the three groups were Jordanians, and approximately 21% were Syrian. While they differed in some respects, the women in the three groups were similar in other important characteristics such as occupation, income, number of male and female children in the family, and other clinical characteristics.

Table 1. The Socio-demographic and Clinical Characteristics of Women at the Baseline

Variable	Group						Total N= 1032	P-value
	Control (n = 295)		Counseling only (n = 326)		Counseling and messages (n = 411)			
	n	%	N	%	n	%		
Age (year)								
<25	80	27.1	109	33.4	146	35.5	335	0.014
25-30	113	38.3	140	42.9	150	36.5	403	
>30	102	34.6	77	23.6	115	28.0	294	
Nationality								<0.001
Jordanian	261	88.5	318	97.5	383	93.2	962	
Syrian	34	11.5	8	2.5	28	6.8	70	
Mother's education								0.003
High school or less	146	49.5	200	61.3	207	50.4	553	
More than high School	149	50.5	126	38.7	204	49.6	479	
Husband's education								0.934
High school or less	204	69.2	221	67.8	282	68.6	707	
More than high School	91	30.8	105	32.2	129	31.4	325	
Occupation								0.236
Housewife	235	79.7	272	83.4	347	84.4	854	
Employed	60	20.3	54	16.6	64	15.6	178	
Income (JD)								0.487
<400	120	41.0	137	43.5	157	39.1	414	
400+	173	59.0	178	56.5	245	60.9	596	
Number of boys								0.954
None	68	23.1	77	23.6	101	24.6	246	
1	123	41.7	130	39.9	158	38.4	411	
2	68	23.1	71	21.8	96	23.4	235	
>2	36	12.2	48	14.7	56	13.6	140	
Number of girls								0.333
None	75	25.4	105	32.2	100	24.3	280	
1	108	36.6	110	33.7	160	38.9	378	
2	58	19.7	61	18.7	80	19.5	199	
>2	54	18.3	50	15.3	71	17.3	175	

Smoking	19	6.4	11	3.4	63	15.3	93	<0.001
Anemia	70	23.7	58	17.8	85	20.7	213	0.189
Hypertension	13	4.4	23	7.1	12	2.9	48	0.029
Prediabetes	2	0.7	4	1.2	2	0.5	8	0.510
Gestational diabetes	6	2.0	7	2.1	2	0.5	15	0.107
Preeclampsia	5	1.7	7	2.1	6	1.5	18	0.776

PREGNANCY-RELATED AND OBSTETRIC CHARACTERISTICS

Table 2 presents the pregnancy-related and obstetric characteristics of women at the baseline. Women in the three groups differed significantly in the number of antenatal visits, time at first antenatal visit, and the perception of the timing of the last pregnancy. However, across the three groups, the women were similar in many important characteristics that might be related to contraceptive use such as whether the birth was a single birth or the birth of multiples, gender of the baby, place of delivery, type of delivery, prematurity, and low birthweight delivery.

Table 2. Pregnancy-related and Obstetric Characteristics of Women at the Baseline

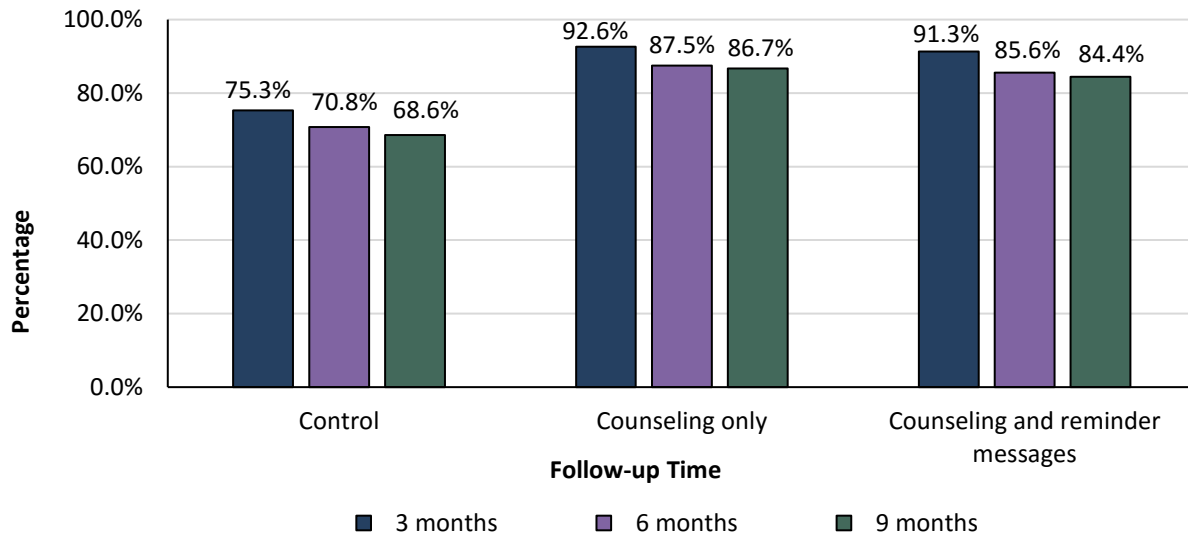
	Group						Total N= 1032	P-value
	Control (n = 295)		Counseling only (n = 326)		Counseling and messages (n = 411)			
	n	%	n	%	n	%	N	
Number of antenatal visits								<0.001
0	40	13.6	90	27.6	19	4.6	149	
1-8	111	37.6	121	37.1	143	34.8	375	
>8	144	48.8	115	35.3	249	60.6	508	
Time at first visit								<0.001
First trimester	212	71.9	215	66.0	345	83.9	772	
Second	23	7.8	16	4.9	22	5.4	61	
Third	20	6.8	5	1.5	25	6.1	50	
No visit	40	13.6	90	27.6	19	4.6	149	
Multiplicity								0.899
Single	283	95.9	314	96.3	397	96.6	994	
Twin	12	4.1	12	3.7	14	3.4	38	
History of stillbirth/ neonatal mortality	102	34.6	102	31.3	117	28.5	321	0.223

Perception of the timing of the last pregnancy								<0.001
Appropriate time	216	73.2	249	76.4	303	73.7	768	
Good but not the best time	59	20.0	20	6.1	71	17.3	150	
Wrong time	20	6.8	57	17.5	37	9.0	114	
Place of delivery								0.125
Hospital	292	99.0	316	96.9	405	98.5	1013	
Home	3	1.0	10	3.1	6	1.5	19	
Type of delivery								0.798
Vaginal	198	67.1	213	65.3	266	64.7	677	
CS	97	32.9	113	34.7	145	35.3	355	
Gender								0.476
Male	158	53.6	177	54.3	206	50.1	541	
Female	137	46.4	149	45.7	205	49.9	491	
Birthweight								0.102
Normal	261	88.5	303	92.9	365	88.8	929	
Low Birthweight	34	11.5	23	7.1	46	11.2	103	
Gestational age								0.081
Full Term	272	92.2	308	94.5	395	96.1	975	
Premature	23	7.8	18	5.5	16	3.9	57	
Intend to use family planning methods following latest delivery	250	86.6	291	89.7	360	89.8	901	0.15

CURRENT USE OF ANY FP METHODS

At 3 months of follow up, the vast majority of women in the counseling group (92.6%) and in the counseling and messages group (91.3%) and three quarters of women in the control group (75.3%) reported that they are using at least one method of family planning, as presented in Figure 2. The percentage of women who reported using any method at 6 and 9 months was less than that at 3 months; while approximately 85% of women in the two intervention groups were using family planning at 6 and 9 months, 70.8% and 68.6% of women in the control group were using FP at 6 and 9 months, respectively. The rate of family planning use among women in the two intervention groups was significantly higher than that among women in the control group at all follow up times. However, women in both intervention groups did not differ significantly in use of family planning at all follow up points.

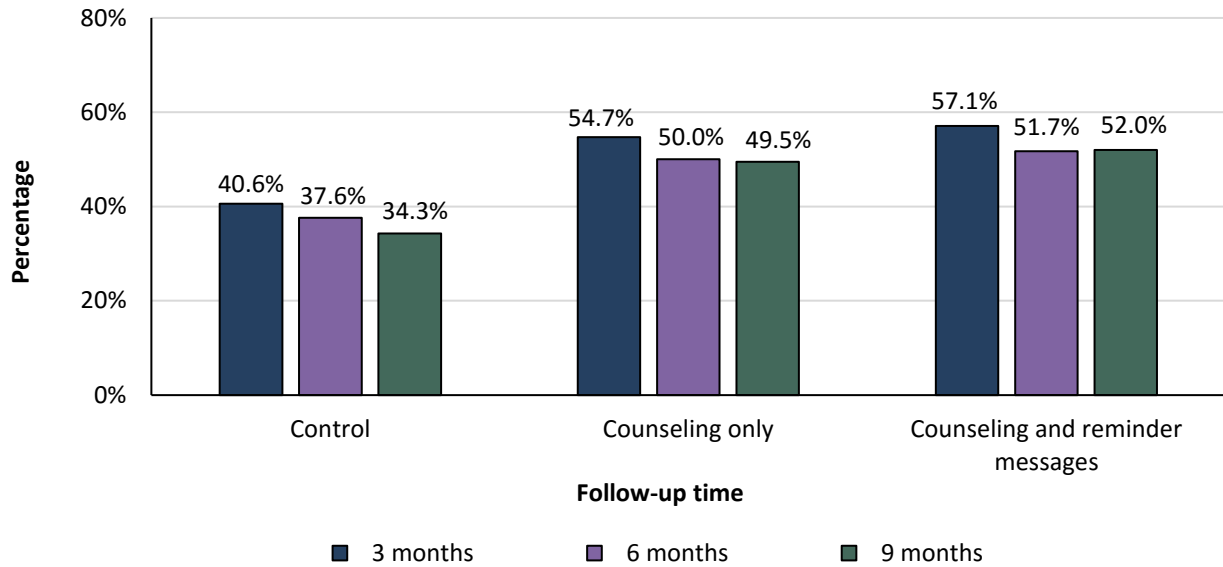
Figure 1. Current Use of Any Method of Family Planning at 3, 6, and 9 Months of Follow up in the Two Intervention Groups and Control Group



CURRENT USE OF MODERN FAMILY PLANNING METHODS

The rates of using modern methods in the counseling group and the counseling and message group 3 months (54.7% and 57.1%, respectively), 6 months (50.0% and 51.7%, respectively), and 9 months (49.5% and 52.0%, respectively) were significantly higher than the rates among women in the control group (40.6% at 3 months, 37.6% at 6 months, and 34.3% at 9 months) (Figure 3). Even after controlling for important determinates of Family Planning, women in the counseling group and women the counseling and messages group *were significantly more likely* than women in the control group to use modern methods at 3 months, 6 months, and 9 months.

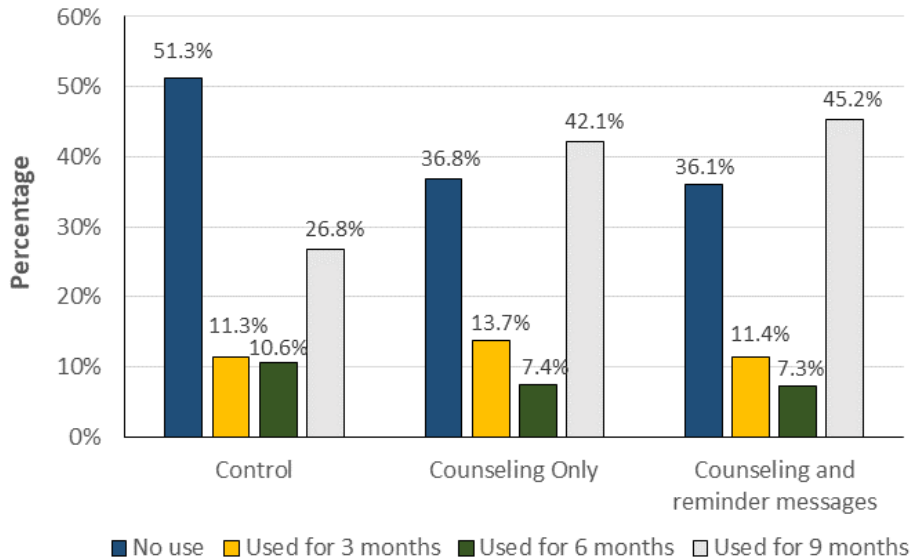
Figure 2. The Rate of Using Any Modern Family Planning Methods at 3, 6, and 9 Months of Follow up in the Two Intervention Groups and the Control Group



CONTINUATION OF USING MODERN FP METHODS

In both intervention groups, a smaller percentage of women opted *not* to use MFPM than in the control group (36.8% in the Counseling Only group and 36.1% in the Counseling and Reminder group, vs. 51.3% in the Control Group). Overall, 26.8% of women in the control group, 42.1% of women in the Counseling Only group, and 45.2% of women in the Counseling and Reminder group used MFPM continuously *for all 9 months* (Figure 4).

Figure 4. Continuation of Use of Modern FP Methods



FACTORS ASSOCIATED WITH MODERN FP USE

After controlling for important variables (Table 3), women in the counseling group and women in the counseling and messages group *were significantly more likely* than women in the control group to use modern methods at 3 months, 6 months, and 9 months.

Intention to use FP methods at the baseline was significantly associated with increased odds of using modern methods at all period of follow-ups. *Being aware of family planning methods available at the clinic, having ever used any modern contraception, having delivered at home, and having single birth* (vs. bearing twins or more) were associated with higher odds of using modern methods at 6 and 9 months only. *Reason for current visit* (Postpartum care vs. Immunization), *husband's education of high school or less, income of <400JD vs. ≥400JD, feeling that the timing is wrong for the last pregnancy, having heard about family planning and breastfeeding* were significantly associated with increased odds of using modern methods at 3 months of follow up.

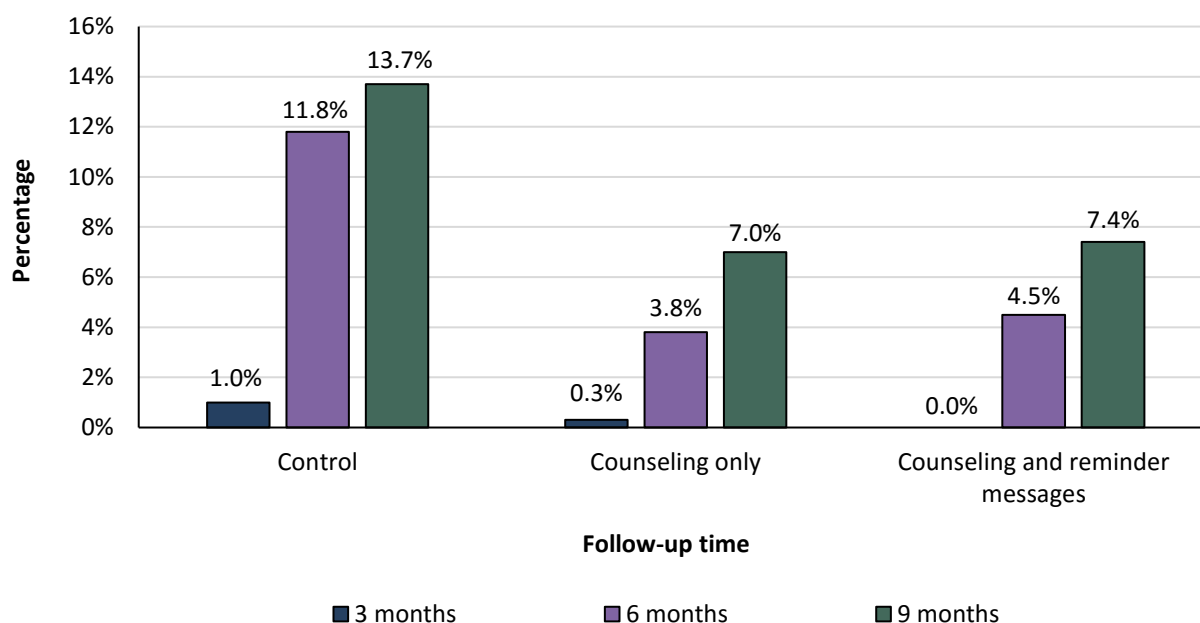
Table 3. Multivariate Analysis of Differences in Modern FP Use Between the Study Groups

	3 months				6 months				9 months			
	OR	95% CI		p-value	OR	95% CI		p-value	OR	95% CI		p-value
Group												
Control	1											
Counseling only	1.6	1.1	2.3	0.013	1.9	1.3	2.8	0.001	2.0	1.4	3.0	<0.001
Counseling and reminder messages	1.7	1.2	2.4	0.003	1.9	1.4	2.7	<0.001	2.3	1.6	3.2	<0.001
Intention to use family planning (yes vs. no)	2.0	1.3	3.3	0.004	4.8	2.6	8.8	<0.001	4.4	2.4	8.1	<0.001
Aware of family planning methods available at the clinic (yes vs. no)					2.0	1.4	2.8	<0.001	1.7	1.2	2.4	0.002
Ever used any modern contraception (yes vs. no)					1.9	1.4	2.5	<0.001	2.1	1.6	2.8	<0.001
Place of delivery (home vs. hospital)					6.5	1.8	24.0	0.005	4.7	1.5	15.3	0.009
Multiplicity (single vs. twins)					2.5	1.1	5.8	0.031	2.3	1.0	5.3	0.050
Reason for current visit (Postpartum care vs. Immunization)	1.6	1.0	2.5	0.035								
Husband's education												
High school or less	1.6	1.1	2.1	0.006								
More than high School	1.0											
Income (<400 vs. 400+JD)	1.4	1.0	1.8	0.041								
Feeling about the timing of the last pregnancy												
Appropriate time	1.0											
Good but not the best time	0.8	0.6	1.3	0.410								
Wrong time	2.0	1.3	3.2	0.004								
Heard about family planning (yes vs. no)	1.4	1.0	2.0	0.026								
Breastfeeding (yes vs. no)	1.4	1.0	1.9	0.045								

PREGNANCY

Figure 5 presents the pregnancy rate among women in the three study groups at different follow up times. At 3 months after the initial visit to the health center, 1% and 0.3% of women in the control group and in the counseling group were pregnant, respectively. None of women in the counseling and message group were pregnant at 3 months. At 6 months, 11.8% of women in the control group, 3.8% of women in the counseling group, and 4.5% of women in the counseling and message group were pregnant. At 9 months, the pregnancy rate was significantly much higher in the control group (13.7%) compared to women in the counseling group (7.0%) and women in the counseling and message group (7.4%).

Figure 5. Pregnancy Rates Among Women in the Three Study Groups at the 3, 6, and 9 Months of Follow up



Policy Recommendations

This study suggests multiple recommendations for policymakers and practitioners who are interested in further reducing Jordan's TFR. The impact analysis suggests that the inclusion of "framing" and "identity priming" language effectively motivates the persistence in the use of MFPM, and a preliminary examination of pregnancy outcomes suggests that these effects apply to pregnancy reduction, as well. The benefit of the monthly text message reminders is inconclusive pending further analysis.

Policy recommendations that stem from these findings include:

1. Consider scaling up this study. Our study was limited to 12 clinics, serving just over 1000 women in total. It was also limited to a relatively small portion of the country. Taking this study

to a larger scale would very likely lead to additional insights, particularly as to cost and the efficacy of the texting intervention.

2. Consider using the ubiquity of smart phones to promote health-related behavioral change. While our results regarding text messaging are inconclusive, the experiment, as designed, would not have been possible without the general availability of smart phones. Moreover, the texts were received, read, and reported to be helpful when the women were asked during the 3- and 6-month follow up calls.
3. Require publicly-funded clinics to update and revise, at a minimum, the counseling provided by midwives to post-partum. We found that the counseling guides typically used are somewhat outdated and provide insufficient information as to the proper use and safety of some methods of birth control.
4. Require midwives or nurses to provide counseling to post-partum women in privacy and for an amount of time sufficient to ensure that the women fully understand the information delivered. We found that it was often the case that post-partum counseling sessions were rushed, and were conducted in the presence of family members or friends. It can be assumed that women being counseled would be reluctant to be forthcoming with questions or concerns unless in a private setting.

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