Expandend Abstract:

Integrating FP and STI prevention messages into antenatal and postnatal care: Did it make a difference?

Correspondence address:

Leila.caleb@gmail.com

Background

The Men in Maternity (MiM) study in India investigated the impact of men's participation in a new model of maternity care on the use of family planning methods in the postpartum period and STI preventive practices in men and women. The study was conducted by the Population Council's Frontiers in Reproductive Health Program in collaboration with the Employees State Insurance Corporation of India(ESIC), at their primary health clinics in New Delhi, India.

Study design and Intervention

The MiM study used a non-equivalent control group study design to examine the effects of the intervention. Six of the 34 ESIC dispensaries in Delhi with the highest antenatal clinic attendance, that also had on-site laboratory facilities, were purposively selected as sites for the study. Three were assigned the intervention and three acted as controls. The intervention and control dispensaries were assigned to distribute geographic location across Delhi. Existing doctors and nurses and laboratory technicians at the intervention clinics were trained to provide the intervention. All antenatal clients visiting an intervention site were offered the MiM services whether or not they were eligible for or agreed to participate in the survey and independent of their husband's involvement.
The intervention consisted of the following components added on to routine antenatal and postnatal care:

- an individual or same-sex group counseling session for all women (and their husbands if they attended) during the antenatal consultation. This session covered topics related to STIs. Their signs and symptoms, primary prevention and the importance of early treatment if infected. The correct and consistent use of condoms as a dual protection method was emphasized and its use demonstrated

on a penis model during this session. A brochure containing all this information was given to men when they were counseled.

- The maternity card was used during the first antenatal couple counseling session and the topics covered as part of the preliminary antenatal visit covered care and nutrition during pregnancy, danger signs, birth preparedness, breastfeeding and postpartum family planning methods. A brochure with these messages with her brief antenatal history record was given to the woman as a to bring at each visit.
- All pregnant women were screened for syphilis using the RPR kits and if found positive both partners were treated
- Doctors were trained to use the syndromic management approach for men reporting urethral discharge and men and women reporting genital ulcers during or after an individual/same-sex group counseling session
- At a postnatal visit at six months postpartum, the mother and child received a check-up and breastfeeding advice and family planning methods were provided if requested.
- Besides these five posters were prepared and displayed at all the dispensaries. These depicted messages on male involvement in maternity care, LAM for postpartum family planning, dual protection to prevent transmission to the unborn child and male responsibility for couple protection.

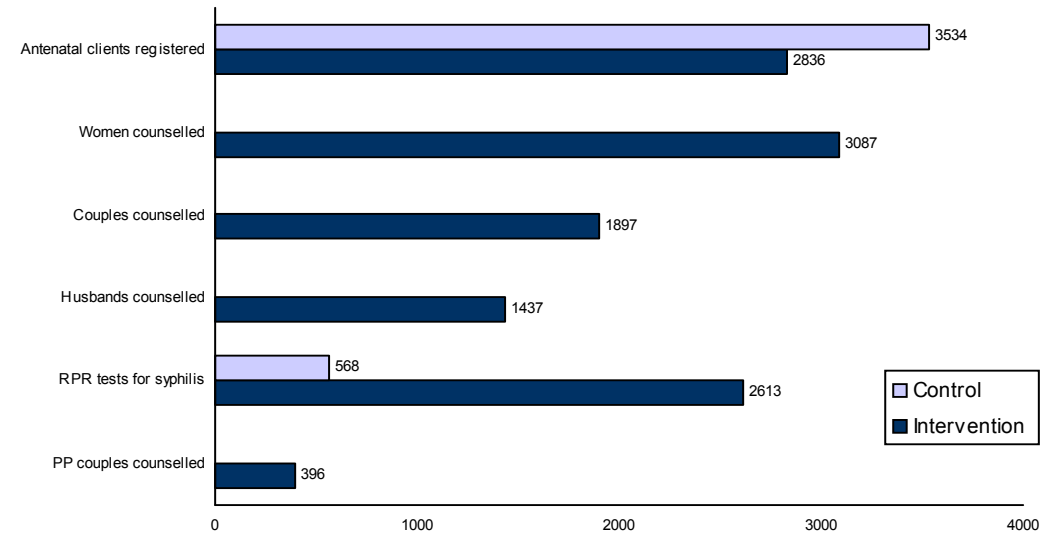
The existing service records were modified to monitor the intervention. Special supervision forms were used to mentor providers and ensure that counseling messages were given. In the two-year intervention period all pregnant women attending the three intervention clinics were provided these services and asked to invite their husbands to accompany them if they wished.

Intervention Results

At the end of two years a total of 2836 women and 1897 couples had registered at the intervention clinics. Of the 2613 tested for syphilis only four women tested positive for syphilis. Of these three were treated along with their husbands and one was lost to follow-up. Five men reported symptoms of STIs and were treated along with their wives.

Only 396 women's records showed a postnatal counseling session was conducted. Figure 1 shows a comparison with records from the control clinics.

Figure 1: Service statistics from intervention dispensaries (2001 and 2002)



* The total number of women counselled exceeds the number of clients registered because of group counselling sessions and repeated sessions for some women

PRE-Intervention and POST-intervention Survey

Six months after the intervention began, a subset of pregnant women who met the basic eligibility criteria enrolled for the pre-intervention (PRE) survey. The PRE and POST surveys used similar structured questionnaires for women and men. An independent agency, TNS MODE, conducted the interviews. The interviews began in the control clinics and then six months after the intervention began interviews were conducted in the intervention clinics.

With an objective to include every eligible women visiting the antenatal clinic until 450 couples were interviewed in the intervention and 450 in the control, a total of 1067 women were interviewed. The eligibility criteria was that they should be between 10 to 26 weeks pregnant; contactable at their home address in Delhi at 6 months

postpartum; and consented to the interview and to their husbands being contacted. Most were interviewed (PRE) when they came for a first antenatal visit. Only 36 percent of the women attending antenatal clinics met the selection criteria and were interviewed. The large number making revisits or who had their first antenatal visit after 26 weeks of pregnancy was the main reasons for non-eligibility. Refusal rates were below 2 percent. The postpartum follow-up survey attempted to contact all women interviewed during pregnancy and, after obtaining their consent, their husbands were tracked for an interview at home between 6 to 9 months postpartum. The data presented in this paper is from the 327 couples and from the 302 women where interviewers were able to locate and interview both husband and wife at 6 to 8 months postpartum. Informed consent assuring confidentiality of information, auditory privacy and same sex interviewers were strictly adhered to throughout the survey. In such a long and complex study a 25 percent loss to follow-up had been anticipated, however the actual loss to follow-up averaged 41 percent, 62 percent in the control group and 56 percent in the intervention group.

Table 1: Reasons for Loss to Follow-up in MiM POST Survey

POST Interview Status	Control Group (%) (N=486)	Intervention Group (%) (N=581)
Wife's and Husband's Interviews Completed	62.2	56.2
Wife consented but husband not available	0.0	0.3
Couple consented but later not available for interview	0.0	0.6
Wife away for extended period (*Husband present*)	11.1	15.0
Couple absent for extended period	3.1	3.3
Permanently shifted out of town	5.6	7.9
Address incomplete so could not be located	11.5	10.7
Address located but no such person lives there	3.1	2.9
Address located but refused, baby living	1.0	1.2
Refused because baby died	0.9	0.0
Woman is dead	0.6	0.0
Other (was not pregnant, ...)	1.0	1.9

This led the authors to conduct a series of tests to check for comparability between the intervention and control groups. Starting with the PRE survey comparisons of socio-demographic characteristics, followed by POST survey comparisons. A detailed assessment of comparability between intervention and control groups at PRE survey on

all key variables was carried out. The final analysis presented in this paper compared the control and intervention group as a whole and adjusted for any clustering effects.

Three key assumptions in the research design to be tested were:

- That the control and intervention group women are comparable.
- That control men, not interviewed at PRE, are comparable to the intervention men who were interviewed.
- That clients and husbands lost to follow-up are similar to those who were interviewed in the POST.

These results led to statistical controls being added to ensure validity of the analysis. Besides this **t**he variance estimates used in the statistical tests of differences in outcomes by study group were adjusted to account for the clustering of study participants within dispensaries. This adjustment consisted of multiplying the variance calculated without clustering by a design effect specific to outcomes of interest. The design effect of 2.87 was used to compare the clients across sites, and the design effect of 1.42 has been used to adjust the statistical tests of differences to test the hypotheses. Table 2A presents basic socio-demographic comparisons and Table 2B comparisons on the specific outcomes of interest in this paper.

Table 2A: Comparisons of Study Group Characteristics to Test Validity of Sampling Design

General Characteristic as reported in PRE-survey by self or spouse	PRE SURVEY					PRE-SURVEY			
	Comparing respondents' reports about themselves			Comparing women's reports about husbands		Comparing followed-up and lost to follow-up women			
	Cont. 1	Intev. 2	Intev. 3	Intev. 4	Cont. 5	Intev. 6	Intev. 7	Cont. 8	Cont. 9
	Women (N=486)	**Women** (N=581)	**Men** (N=488)	**Reported about husband** (N=581)	Reported about husband (N=488)	Women interview-ed at post (N=327)	**Women lost to follow-up** (N=253)	Women interview-ed at post (N=302)	**Women lost to follow-up** (N=184)
Age Distribution									
Mean Age	24.0	24.2	28.70	28.5	28.5	24.5	*23.9* (z=1.4)	***24.4***	**23.2* (z=2.22)**
Education									
Median years of schooling	7.0	5.0	10.0	10.0	10.0	7.0	***5.0**** (z=2.29)	***8.0***	*5.0* (z=1.47)

General Characteristic as reported in PRE-survey by self or spouse	PRE SURVEY					PRE-SURVEY			
	Comparing respondents' reports about themselves			Comparing women's reports about husbands		Comparing followed-up and lost to follow-up women			
	Cont. 1	Intev. 2	Intev. 3	Intev. 4	Cont. 5	Intev. 6	Intev. 7	Cont. 8	Cont. 9
	Women (N=486)	**Women** (N=581)	**Men** (N=488)	**Reported about husband** (N=581)	Reported about husband (N=488)	Women interview-ed at post (N=327)	**Women lost to follow-up** (N=253)	Women interview-ed at post (N=302)	**Women lost to follow-up** (N=184)
Proportion pregnant for the first time	29.0	23.2 (z=1.27)	Not asked			27.0	20.0 (z=1.8)	27.0	32.2 (z=1.2)
Own the house currently living in	39.9	41.7	Not asked			50.0	**30.8* (z=2.83)**	44.5	32.6 (z=1.56)
Currently working for money	11.5	7.7	99.4			9.5	5.5 (z=1.09)	14.0	7.6 (z=1.35)
Husband provides financial support	98.1	96.9	98.2			96.6	97.1	98.0	97.1

* p<0.05

A comparison of some key outcome measures at the PRE survey was assessed based upon whether the women could be interviewed in POST survey or not (Table 2B) in intervention and control groups. The women who could be followed-up had also reported higher ever-use of family planning and had shown greater intention to use family planning after the birth of the index child than those lost to follow-up, but these differences were not significant.

Table 2B: Comparisons of Study Group Characteristics on Key Outcome Indicators at PRE Survey by Follow-up Status in POST Survey

Key outcome indicators as reported by women at PRE-survey	Women in PRE Survey			
	Control		Intervention	
	% Followed-up (N=302)	**% Not followed-up at POST** (N=184)	**% Followed-up at POST** (N=327)	**% Not followed-up at POST** (N=254)
Inter-spousal communication on FP	55.5	51.5	54.9	49.0
Know any danger sign in pregnancy	19.6	20.7	8.1	12.4
Heard of STIs	33.2	25.0	34.1	24.1
Heard of HIV/AIDS	60.8	51.6	56.4	**38.3* (z=2.60)**
Know condom as FP method that protects against STIs/HIV	47.3	37.4	58.1	50.5
Ever used condoms with husband	30.8	**17.8* (z= -1.98)**	27.9	19.8
Ever used FP method	28.2	22.3	25.9	23.7
Intend to use FP after child birth	64.8	55.4	37.2	36.8

Note: only significant variables are reported with z-statistics. *** p<0.05**

Testing Statistical Significance

Considering that the study follows a non-equivalent case control design, non-parametric tests have been used to test for significant differences. To test whether a difference in proportions within the control and intervention group was statistically significant, such as when controlling for parity, the Chi-square test for comparison of proportions was used. When differences between the control and intervention group on outcome measures were assessed in the POST survey the statistical test of significance used was the Mann-Whitney U Test (often termed as a *distribution free* test and appropriate for both large and small samples).

In all cases, the statistical tests were specifically used to accept or reject the alternative hypotheses that there was a positive association of outcome with the intervention *(Campbell and Machin, 1999).* The results were reported significant only if the alpha was less than or equal to 0.05 using a one-sided test. The significance levels given in tables have only been reported with the Chi-square or z-scores, when the two groups differed significantly at 0.05 or lower levels on the respective indicator.

Finally a logistic regression model will be developed to understand the determinants of reported condom use in the postpartum survey to see if the intervention continues to be significant.

RESULTS

This section presents analyses to two study hypotheses. It describes the impact of the intervention on intentions and behavior changes by comparing POST responses on the same questions between intervention and control groups. When assessing changes in knowledge only women's data are used to examine PRE - POST differences; knowledge variables are compared between intervention and control groups.

Process of Intervention

Women were enrolled in the sample if they were between 10-26 weeks pregnant, with a mean of 18 weeks. This was designed so that if couples were enrolled in the study in the second trimester, they would have been likely to be exposed to the intervention in at least three or more antenatal visits if they followed the attendance advised by providers. Review of randomly selected 300 maternity cards of the women attending intervention clinics shows that women on an average make 3 antenatal care visits to the dispensary.

Results on the question asking women and men if they think husbands should be involved in their wives' maternity care, displayed universal agreement. More than 95 percent of all men and women thought this was important.

Results in the POST survey from the question "how many times did the provider have discussions with you during pregnancy?" ranged from 1 to 5 times in the intervention group. A few of the control group men and women also reported discussions but this was a much smaller number. Women reported having discussions with providers once (58%), two times (29%) and more than two times (9%). Of the men who reported that they participated by accompanying their wife for a consultation and providers held discussions with them in the POST survey 81% said discussions were held once , 16% two times, and 3% more than two times. Forty-three percent of women and 46% of husbands specifically mentioned that their spouse visited the dispensary for a postpartum check-up. In each case this was significantly higher than reported by controls.
Family planning discussions with providers and information materials provided were significantly more frequently reported by the intervention group than the control group – however the proportion mentioning such discussions was still well below the desired 100 percent. More men than women recalled that providers had discussed family planning.

Comparison of General Characteristics: Intervention and Control

With minor differences, control and intervention women were quite similar in their socio-demographic characteristics. The control and intervention group were similar at PRE, except for the variable parity, hence all further analysis on family planning and related variables controlled for parity. Comparisons between the intervention and control groups

on the number of living children showed that the two differed significantly on the mean number of living children, 0.92 in the intervention and 1.10 among the control group ($p < .05$) however there was a similar trend in the samples across parities as illustrated in Table 3.

Table 3: Number of Living Children- Women's responses from PRE survey

Living Children	Control (N=486)	Intervention (N=581)
No. of Living Children*		
None	37.8	32.7
1	39.3	36
2	16.9	22.9
3	4.9	5.9
4+	1.0	2.6

* $z = -2.79$, $p = 0.005$

The proportion that was pregnant for the first time was 29 percent, 7 percent reported having had an induced abortion and 26 percent reported a miscarriage in the past. Controlling for parity, of the women who had at least one living child, the age of youngest living child showed that a large number of women (49% control and 55% intervention) had a child age 2 or less. A significantly ($p<.05$) larger number of women in the intervention group (6%) vs. control group (1%) reported that their youngest child was less than one year old.

Table 4: Outcome of Current Pregnancy – POST Survey

6 months Postpartum Findings	Control Women (N=302)	Intervention Women (N=327)
Outcome of last pregnancy		
Baby currently living	91.4	93.9
Baby died within 7 days	0.0	0.6
Baby died after 7 days	2.0	1.8
Still Birth	2.0	1.5
Miscarriage	2.6	2.1
Induced abortion	2.0	0.3
Sex of the baby		
Male	55.0	59.1
Female	45.0	40.9
Live births	**296**	**320**

No significant differences were found between control and intervention groups on the outcome of pregnancy. In both groups approximately a third of the women delivered

at home while the rest reported a hospital birth. In both the intervention and control group approximately 6 percent of women interviewed at 6-9 months postpartum were pregnant or suspected that they might be pregnant at the time of postpartum interview. This proportion was significantly higher among women who had just lost the pregnancy they were carrying when interviewed earlier in the year. The very skewed sex-ratio is of concern and suggests a sex-ratio at birth which is similar to other recent studies conducted in Delhi.

In both the intervention and control groups, approximately six percent of women interviewed at 6-9 months postpartum were pregnant or suspected that they might be pregnant at the time of postpartum interview. Table 5 reveals that this proportion was significantly higher among both control and intervention women who had lost the index pregnancy's baby.

Table 5: Proportion of Women who are or may be Pregnant at POST Survey by the Survival Status of Index Pregnancy

Pregnancy status	Women (%) Outcome of index pregnancy *			
	Control		Intervention	
	Currently living child (N=276)	Spon. Abor./ did not survive (N=20)	Currently living child (N=306)	Spon. Abor./ did not survive (N=20)
Whether Pregnant at the time of POST survey?				
Yes or think so	3.3	35.0***	5.9	25.0**
No	96.7	65.0	94.1	75.0
	(χ^2=36.7, df=1, p<0.001)		(χ^2=10.5, df=1, p<0.01)	

* excludes 7 women who reported an induced abortion for index pregnancy

Family planning knowledge and use

The POST survey documented client responses to whether the provider had any discussion with them about family planning. Significantly more women in the intervention group reported that providers had discussed family planning with them. This held true even after controlling for parity.

Table 6:Discussion with providers on FP during ANC and PP visits –Men and women from Control and Intervention POST surveys

Client-provider discussions	Women			
	With one living child		With 2 or more living children	
	Control	Intervention	Control	Intervention
Providers discussed FP in AN period	11.1	62.4***	23.9	60.4***
N=	***108***	***93***	***188***	***222***
Providers discussed FP in PP period	10.2	35.9**	25.9	29.0
N=	***59***	***39***	***112***	***93***
	MEN			
Providers discussed FP in AN period	1.9	48.9***	9.0	42.5***
N=	***107***	***90***	***188***	***226***
Providers discussed FP in AN period	11.5	20.5	19.6	11.8
N=	***61***	***39***	***102***	***85***

*** p < 0.05, *** p < 0.001**

The intervention was designed to increase exposure to Family Planning information among couples that would have a positive effect on men and women's knowledge of family planning and contraceptive practices at 6 months postpartum. Since knowledge about Family planning methods in general is fairly high among couples in Delhi (NFHS 1998) family planning knowledge was operationalized to specifically include the following variables:

1. Knowledge that breastfeeding can prevent pregnancy and three conditions of LAM
2. Knowledge that condoms provide dual protection

Comparing men and women's knowledge at POST, men's knowledge continued to be higher than women's knowledge. Results presented in Tables 7A and 7 B show that women's knowledge that condoms provide dual protection and that breastfeeding can be used as contraception was significantly higher among the intervention group None were able to correctly recall all the three conditions of LAM.

Table 7(A): Family planning knowledge –Control and Intervention women in PRE and POST surveys

Family planning knowledge	PRE (%)		POST	
	Control Women (N=302)	Intervention Women (N=327)	Control Women (N=302)	Intervention Women (N=327)
Know condoms as dual protection	**22**	**31**	38	**48***
Know breastfeeding as contraception	**12**	**8**	13	20*
Know three conditions of LAM	0	0	0	0
Intention to use FP in future	64	64	62↟	84*↟

↟ *Of those who are not currently using any FP at the time of POST survey*
** p < 0.05*

Comparing family planning knowledge and intentions to use a method among men and women in the two groups revealed that there was no significant increase in men's knowledge about condoms but knowledge that breastfeeding can provide contraception increased. Like the women almost none could correctly report the three conditions of LAM. Both men and women's intention to use contraception was higher among men and women who had been exposed to the intervention.

Table 7(B): Family planning knowledge and intentions– Men and women's responses from POST survey

Family planning knowledge	Women (%)		Men (%)	
	Control (N=302)	Intervention (N=327)	Control (N=302)	Intervention (N=327)
Knowledge				
Condoms as dual protection	38	48*	80	89
Breastfeeding as contraception	13	20*	15	22*
Three conditions of LAM	0	0	0	1
Intention to use FP in future	62↟	84*↟	60	70

↟ *Of those who are not currently using any FP at the time of POST survey*
* p < 0.05

Summary

- The family planning knowledge of condoms as dual protection increased significantly in intervention women compared to control women. **(X^2=8.7, df=2, p=0.013)**
- Knowledge of breastfeeding as contraception increased significantly in intervention women compared to control women. **(X^2=5.4, df=1, p=0.020)**

- Among current non-users, women from the intervention group reported significantly higher intention to use a family planning method, compared to control group women **(z_w=3.12, p<0.05).** There was no significant difference in family planning intention between men's groups.

Postpartum Contraceptive Use

Antenatal and postnatal couple counseling and materials supporting decisions to use a family planning method to space births as well as to prevent unwanted pregnancy were assessed for their impact on contraceptive use in the postpartum period. Significantly more men and women reported current (postpartum) contraceptive use in the intervention group than in the control group. A more detailed study of contraceptive use is presented in table 8A below.

Table 8A: Current Use of Family Planning, Pattern of Use and Intention to Use– POST Survey.

Family Planning	Women (%)†		Men (%)†	
	Control (N=269)	**Intev.** (N=289)	**Control** (N=270)	**Intev.** (N=293)
Currently using any FP method				
Yes	45.0	58.5*	47.8	64.5*
No	55.0	41.5	52.2	35.5
	z = 2.70, p<0.05		z = 3.39, p<0.05	
Current FP Method				
Female sterilization	14.9	11.2	13.2	9.5
Oral contraceptives	6.6	9.4	6.2	7.9
CU-T / IUD	8.3	8.2	7.8	6.9
Condom	66.1	65.9	71.4	71.3
Other (Injection, jelly)	2.5	1.2	0.7	0.5
Natural/traditional methods	1.6	4.1	0.7	3.7
Baby's Age when started using method				
Less than 3 months	30.6	39.4	33.6	32.6
3-4 months	44.6	35.9	46.3	41.7
5-6 months	21.5	18.2	15.7	17.0
More than 6 months	3.3	6.5	4.5	6.5
Don't remember/don't know	0.0	0.0	0.0	2.0
Mean age of child (months)	3.2	3.3	3.2	3.6
Men/women reported using FP	**121**	**169**	**129**	**189**
Number not using FP and not pregnant	**160**	**131**	**154**	**113**
Intention to use FP in future among current non-users	65.6	84* (z=3.12)	61	71.9 (z=1.58)

† Excludes those pregnant or those who lost their last pregnancy * p<0.05

The analysis of postpartum family planning use required that those pregnant or suspecting a pregnancy, and those who reported that they had had a spontaneous abortion or lost the index pregnancy be removed from the denominator since they would confound the analysis. Analysis was done separately for those with a living child.

The proportion of respondents ever having used contraceptives was not significantly different between groups at the PRE (25 percent of intervention and 28 percent control women reported ever use). The analysis of postpartum use of family planning (Table 8A) revealed that a significantly higher proportion of men and women in the intervention group reported using a family planning method postpartum than in the control group. This holds even after controlling for parity (Table 8B) among all men and among women with two or more children. There was no difference between intervention and control groups in contraceptive mix, or in the time of starting use of the method. More than half of the postpartum family planning users were using condoms and most began use shortly after the child was three months old.

Table 8B: Current Family Planning Use by Parity– POST Survey

FP Use	Women (%)			
	With one living child		With ≥ 2 living children	
	Control	Intev.	Control	Intev.
Currently using any FP method				
Yes	45.6	60.8	45.2	54.5*
No	54.4	39.2	54.8	45.5
	90	***74***	***177***	***205***
	z= 1.64		z= 2.01	
FP method currently used				
Female sterilization	0.0	0.0	22.5	16.1
Oral contraceptives	7.3	6.7	6.3	11.0
CU-T / IUD	12.2	8.9	6.3	7.6
Condom	75.7	82.2	61.1	60.2
Other (Injection, jelly)	2.4	0.0	2.5	1.7
Natural/traditional methods	2.4	2.2	1.3	3.4
N=	**41**	**45**	**80**	**112**
	Men (%)			
Currently using any FP method				
Yes	41.3	61.3*	51.1	65.6*
No	58.7	38.7	48.9	34.4
	92	***75***	***178***	***209***
	z= 2.19		z= 2.44	
FP method currently used				
Female sterilization	0.0	0.0	18.7	13.2
Oral contraceptives	5.3	4.3	6.6	8.0
CU-T / IUD	15.8	4.3	4.4	8.0

FP Use	Women (%)			
	With one living child		With ≥ 2 living children	
	Control	Intev.	Control	Intev.
Condom	78.9	84.9	68.1	67.2
Other (Injection, jelly)	0.0	0.0	1.1	0.7
Natural/traditional methods	0.0	6.5	1.1	2.9
N=	**38**	**46**	**91**	**137**

* p<0.05

Use of condoms: Condoms were the most frequently mentioned current postpartum family planning method, being mentioned by more than half of all couples in the both group.

Among men and women who have heard of STIs or HIV/AIDS, significantly more men from the intervention group reported that condoms protect from STIs and HIV/AIDS than among the controls but there was no significant difference in women's knowledge (Table 9). When men and women were asked what condoms are used for, a significantly higher proportion of men and women from the intervention group reported that condoms are used for dual protection. Although the women from the intervention group differed significantly on dual protection knowledge in the POST survey, the net difference from PRE to POST survey was small and not statistically significant (see Table 7A & B). Interestingly however, when the question "What did you use condoms for?" was asked to those who reported having ever used condoms, more women (13 percent) than men (4 percent) reported to have used condoms for dual protection. The analysis suggests that both men and women primarily see condoms as a family planning method, although women currently using condoms value its protection against STIs more than men.

Table 9. Knowledge of Dual Protection from Condoms - POST Survey

	Women (%)		Men (%)	
	Control	Interv.	Control	Interv.
Is there any FP method that protects against STIs and HIV				
Yes, condoms	59.9	67.8	80.3	91.3*
No or Don't know	40.1	32.2	19.8	8.7
Men/women heard of STIs/HIV/AIDS	***202***	***230***	***295***	***323***
	N.S.		z=3.32, p<0.05	
Know that condoms offer dual protection	38.4	48.0*	79.5	88.6**
All men and women	**302**	**327**	**302**	**327**

	Z=2.13, p<0.05		z=2.62, p<0.05	
Why she/he used condoms?				
To protect from pregnancy	87.4	85.7	97.9	96.5
To protect from STIs and HIV/AIDS	0.0	1.1	0.5	0.0
To protect from both preg. and STIs/HIV	12.6	13.2	1.6	3.5
Men and women reported condom use	***135***	***174***	***184***	***226***

When comparing ever use of condoms, both men and women from the intervention group reported a higher proportion of ever using condoms in the POST survey (69 percent men and 54 percent women) compared to 61 percent of men and 45 percent of women from control group but this difference was not statistically significant (z_w= 1.86 p>0.05) and (z_m= 1.88 p>0.05). Consistency of condom use was significantly higher among the intervention group men and women who reported using condoms more frequently than the control group (z_w= 3.01 p<0.05) and (z_m= 3.41, p<0.05). More men and women from the intervention group reported that they jointly decided to use condoms (78 percent of intervention women, vs. 59 percent of controls, z_w= 3.04 p<0.05) and (87 percent of intervention men vs. 77 percent of controls, z_m= 2.32, p<0.05). Comparisons on ever use of condoms between PRE and POST women's survey suggests that the intervention led to a significantly larger number of couples in the intervention group having used condom (32 percent) in the postpartum period than control group (23 percent). This information is corroborated by results from the intervention group men's survey: there was an increase of 33 percent in condom use among men in the postpartum period.

There were few reported problems with condom use, eight percent of men and three percent of women reported problems. The problems mentioned were: diminished pleasure, condoms burst, and allergic reactions to latex.

STI Related Knowledge and Behaviour

Knowledge of STIs was low at baseline and continued to be low among men (66 percent) and women (32 percent) at POST. Although more men and women in the intervention group had heard of STIs than in the control group in the POST survey these differences were not statistically significant.

A series of statements were used to assess clients' knowledge of HIV/AIDS protective behaviors. The same questions were asked in the PRE and POST survey. The analysis showed that increase in knowledge between the control and intervention groups on STIs was small and did not reach statistical significance. The higher levels of awareness of HIV/AIDS than of STIs suggests that mass media campaigns by the national and state AIDS control programs on HIV/AIDS prevention have succeeded in raising awareness.

Table 10: STIs and HIV Related Knowledge – POST Survey

Reported STI/HIV Knowledge	Women (%)		Men (%)	
	Control Post (N=302)	**Intev. Post** (N=327)	**Control Post** (N=302)	**Intev. Post** (N=321)
Ever heard of STIs	27.5	31.8	55.0	65.7
Ever heard of HIV / AIDS	66.9	69.7	96.0	98.5
STI symptoms				
Knows any STI symptoms in women	5.7	3.5	13.6	18.7
Knows any STI symptoms in men	3.4	3.5	11.7	19.2
Persons heard of STIs	**83**	**104**	**166**	**215**
HIV modes of transmission				
Knows that a person can get HIV/AIDS by sharing a needle of infected persons	90.6	90.8	89.7	92.9
Knows that a woman with HIV/AIDS can transmit the virus to her baby through breast-feeding	79.7	82.5	66.9	65.8
Knows that there is a test for HIV/AIDS	24.8	36.8	55.5	75.2
Persons heard of HIV/AIDS	**202**	**228**	**290**	**322**

STI risk perception and preventive behavior: STI preventive behaviors are closely linked with self-perception of risk of contracting STIs and HIV/AIDS. Since self-reports of risky behavior were very low this hypothesis could not be tested using the survey results.

POST survey reports showed that 15 percent of women and 11 percent of men felt that, husbands may have extramarital sexual partners during their wife's pregnancy; only 2 men (one in the control group and one in the intervention group) and no women reported any extramarital sexual relations in the postpartum period and only one felt he had some chance of getting STI/HIV and reported consistent condom use with the extramarital partner. With such low acknowledgement of extramarital relationships, risk

perceptions were correspondingly low. Most felt that they had little or no chance of contracting an STI. Condom use to prevent STI/HIV was mentioned by 14 percent of women and 4 percent of men in the intervention group and did not differ significantly from the control group.

Although most men had heard of HIV/AIDS, most women had not, and both genders possessed low specific knowledge of this disease. General STI knowledge was even lower. There was no significant difference in men and women's knowledge of STIs/HIV from baseline to postpartum follow-up survey. However the intervention improved women's knowledge of danger sings.

Presence of STI related symptoms

Very low reporting of risky behaviors was reported by both men and women . However, 5 percent of men of both control and intervention group reported having had burning during urination or urethral discharge in the last six to nine months in the postpartum period. Only 41 percent of control and one-third of intervention men reporting the above symptoms sought any treatment. No wives received treatment as a result of husband's symptoms. Less than 1 percent of men (3) and women (5) reported symptoms of genital ulcers in the postpartum period.

* N.B.

The Authors plan a final logistic regression analysis to model determinants of postpartum condom use will in which having seen a condom demonstration and couple counseling will be added to the model along with basic socio-demographic indicators known to influence condom use from the literature.

This has not been completed and will be completed in the coming months.

The Discussion and Conclusions will be based on these results.