

Article Information

Received date: Aug 20, 2019

Accepted date: Aug 30, 2019

Published date: Sep 06, 2019

*Corresponding author(s)

Syed Khurram Azmat, Department of
Uro-gynecology, University of Ghent,
Belgium, Tel: 1-519-903-6181

Email: syedkhurram.azmat@gmail.com

Distributed under Creative Commons
CC-BY 4.0

Keywords Contraception; Birth spacing;
Baseline survey; Rural Pakistan

Research Article

Modern Family Planning Method Practices, Awareness and Future Use in the Evidence for Innovating to Save Lives Project Sites – Research Design and Baseline Population Metrics

Syed Khurram Azmat^{1,2*}, Ghulam Mustafa², Muhammad Ishaque², Waqas
Hameed², Ghazunfer Abbas², Omar Farooq Khan², Sajid Ali², and Aftab Ahmed²

¹Department of Uro-gynecology, University of Ghent, Belgium

²Marie Stopes Society, Research, Monitoring and Evaluation Department, Technical Services, Karachi, Sindh,
Pakistan

Abstract

Background

High fertility, ill-timed and unwanted pregnancies, closely spaced births and slow as well as limited utilization of Family Planning (FP) services, despite the huge demand for such services, are well documented contributors to maternal and child mortality and morbidity. Moreover, there are wide disparities between urban and rural areas with worst maternal and child health indicators being in poor and rural areas. This paper describes the overall rationale, design and baseline population metrics of the research project "Evidence for Innovating to Save Lives".

Methods

A multi-year operational research quasi-experimental (pre and post intervention with control) mixed method study with sequential implementation at design level was employed in eight districts of Sindh, Punjab and Khyber Pukhtoonkhwa (KPK) provinces using two separate interventions. The cross-sectional baseline (or pre-evaluation) survey was conducted both in proposed intervention and control areas with a total of 5566 married women of reproductive age (15-49 years) to capture contraceptive practice, behaviour and future intentions

Results

More than 11% of the respondents reported as currently pregnant and out of those around 40% in the intervention arms and more than 30% in control reported that they did not want to get pregnant. Around 45% of respondents in both interventions arms and more than 35% in control did not wanted any more children. Only 30% of the respondents from Suraj intervention, 14% of the women in CMW intervention areas and 24% in the control arm were using any modern contraception and majority cited affordability, quality and short term effectiveness as reasons for using these methods. Across all study sites, condoms followed by injections and pills were the common method while only around 3% reported IUD use. About two thirds of the women currently not using contraception in intervention and more than half in control areas expressed their intention to use contraception in future.

Conclusion

The baseline findings demonstrate a huge need for contraception, desire to space births and willingness of the majority of women to avail FP and birth spacing services.

Introduction

Though Pakistan has enjoyed some success on a select number of health issues since its independence in 1947, yet it does not fare well on many key measures of Maternal and Newborn Health (MNH). With estimated population exceeding 180 million, Pakistan is the sixth most populous country in the world, and with the current natural population growth rate of about 2% is projected to become the fifth most populous country in the world by 2050 [1]. Moreover, Pakistan is among the three developing countries with highest Maternal Mortality Rate (MMR) with substantial rural-urban differential in maternal mortality (319 versus 175 per 100,000, respectively) [2].

The available evidence highlights that majority of maternal deaths occur at the time of delivery taking place in absence of skilled care and more than half of the deliveries are home based [3]. In addition, 24% pregnant women in Pakistan still receive no antenatal care at all and 38% do not have postnatal check-up after delivery. There are also wide disparities between urban and rural areas in addition to the fact that poor and illiterate women are less likely to avail antenatal and postnatal care

[1]. Pakistan also reports a very high Infant Mortality Rate (IMR) of 74 per 1,000 live births and under-five mortality rate of 89 per 1,000 live births [1].

Despite of the evidence that modern family planning can efficiently and cost-effectively reduce maternal deaths [4], improve maternal and child health [5] and lengthen inter-pregnancy intervals [6,7], yet millions of women do not have access to family planning services despite their desire to avail such services. According to the latest nationally representative estimates, 5.6 million women of reproductive age in Pakistan have an unmet need for family planning [1]. Deficits in contraceptive coverage lead to unwanted pregnancies, which consequently result in around a million abortions often in unsafe and life-threatening conditions [8].

In spite of almost universal prevalence of knowledge about family planning methods, overall contraceptive use is very low. Though the latest Demographic Health Survey (DHS) reported overall Contraceptive Prevalence Rate (CPR) at 35%, but the major contributor among the method mix is the use of traditional methods

levels of modern FP use in rural areas continue to remain very low (23%) compared to 32% in urban areas. Women from the poorest households have the lowest CPR (18% in lowest to 32% in highest wealth quintile [1]. Similarly, women with no education are less likely to use contraception.

There are a number of structural and socio-cultural issues that pose a challenge to improving maternal and newborn (MNH) related status in Pakistan. For example, the average distance to a reproductive health facility in rural areas is almost four times the distance in urban areas [2], making access to services for rural women without transportation or funds extremely difficult. It is also noteworthy that despite a large Government network of primary, secondary, and tertiary care facilities in many areas throughout the country, as well as the existence of a large national Lady Health Worker (LHW) program, more than 70% of the population seeks healthcare in the private sector and pay out of pocket [2].

In addition to structural issues that might impede physical access to services, the dynamics of decision-making between a husband and

Table 1: Details of intervention and control areas/districts

Indicators	Provinces							
	Sindh		Lower Punjab				Khyber-Pakhtunkhwa	
	Intervention	Control	Intervention			Control	Intervention	Control
	Naushero Feroze (Suraj or Intervention A)	Nawabshah	Khanewal (Suraj or Intervention A)	Pakpattan (CMW or Intervention B)	Rajanpur (CMW or Intervention B)	Bahawalpur	Haripur (Suraj or Intervention A)	Abbottabad
Estimated population size	1,087,571	1,071,533	1,286,680	2,068,490	1,103,618	2,433,091	692,228	880,666
% of female Pop. Age 15-49	22.2%	22.6%	21.9%	22%	20.2%	21.4%	23.8%	23.7%
CPR (modern method)	20.8%	15.4%	17%	19%	11%	24%	29.7%	29.1%
% literate	39.1%	34.1%	49%	42%	34%	37%	53.7%	56.6%
% of households with electricity	69.3%	75.5%	68%	76%	59%	50%	76.3%	75%
% of households with access to potable water	23.6%	23.6%	12%	15%	8.5%	16%	49.6%	29.9%
No. of UCs	51	50	101	64	47	108	45	46

[1]. Modern contraceptive methods, which have been documented to be highly effective means of preventing pregnancies in order to ensure healthy timing and spacing of births, only account for 26% of use in Pakistan. In addition, Pakistan shows very little uptake of long acting reversible contraceptive methods while short term and permanent methods have greater utilization [9]. Moreover, the overall

wife also create barriers to access [10]. Family planning (FP) is one of the most difficult topics to discuss, particularly among males, and men in conservative and patriarchal societies have the final decision-making power regarding most issues, including reproductive health [11-15]. However, there have been very few efforts to target men

Box 1: Primary and secondary outcomes

Intervention	Primary outcome	Secondary outcome
Suraj model	Uptake of modern contraceptive methods	Knowledge of contraceptive methods
Community MidWives model	Uptake of modern contraceptive methods	Knowledge of contraceptive methods

Box 2

Study Design

To promote modern family planning in among underserved population groups, Marie Stopes Society (MSS), implemented a 41-month (including 24 months of intervention) operational research study project titled 'Evidence for Innovating to Save Lives' in eight districts of Sindh, Punjab and KPK provinces in Pakistan (refer to Table 1).

This is a prospective quasi-experimental mixed-method triangulation 'before and after with control' study with sequential implementation at design level in 5 intervention and 3 control districts of Sindh, Punjab and KPK provinces. As part of the main study, a smaller nested 24-month prospective cohort of family planning users in 5 intervention districts were followed [31,32].

Utilizing promising Demand-side Financing – (DSF) and Social Franchising approaches, two birth spacing models will be implemented to achieve key outcomes related to HTSP including Intervention A which is a mid-level private health provider model (branded as Suraj means Sun in English) – partial social franchising model with demand-side financing through free vouchers and Intervention B is Family Planning integration in existing public-sector led MNCH services provided by Community Midwives (CMWs).

Additionally, the study will assess and compare the effectiveness and efficiency of the two birth spacing intervention models with a control group in achieving key outcomes related to Healthy Timing and Spacing of Pregnancies (HTSP).

In Intervention A (Suraj), local mid-level providers will be identified and trained in giving both short and long term family planning services, with Infection Prevention (IP) and strong counseling being key features. In addition, these Suraj providers will be given intra-uterine devices (IUD) insertion and removal kit, and a Female Community Mobilizer (FCM) for highlighting their services in the community via door to door visits along with Suraj franchise brand from MSS. Furthermore, they will be provided demand generation tools in the form of vouchers for IUD. These vouchers will be used to provide free of cost IUD services to poor clients following poverty ranking criteria.

The Intervention B model (CMWs), will have a similar layout minus the voucher and the branding facilities. The purpose here is to compare these models' service provision results with their control districts where no such organized interventions were established.

Intervention Components:

A) Suraj model - intervention arm

MSS established a private health providers' network branded as 'Suraj' (meaning 'Sun' in English) in the intervention districts [10]. The model is a partnership between MSS and private local health service providers (mainly mid-level) for the provision of quality contraceptive services. Ten Suraj providers per district were selected. Each Suraj provider operated a health care facility, covering a population ranging from 12-16,000 that resided within a 3-4 km radius around the health facility. The Suraj providers were located at an average distance of 40- 50 km from District Head Quarter (DHQ) hospitals. In order to minimize any spill-over effect between areas of Suraj providers, it was ensured that the minimum distance between two providers was large enough.

The selection and training of Suraj providers was a three step process. First, mapping of districts was conducted to ascertain the existing number of health care facilities and providers in a given district. Second, providers were selected for training by arranging individual meetings with MSS field teams and collection of information on provider eligibility criteria (see Box 2) [10]. For the details of Suraj intervention components, refer to Box 4.

Third, Suraj SF providers were imparted training to improve their skills for provision of quality FP services, and enable them to look after the business side of their ventures.

The focus of this intervention was promotion of Long acting reversible contraceptive – given the negligible and stagnated use of IUD. The vouchers were only kept for IUCD. However, the services were provided to all MWRA willing to use any form of contraception. Keeping in view of history data, women in Pakistan prefer to undergo Tubal ligation after completion of desired family size. On the other hand, solely targeting nulliparous women is a gigantic challenge in the country. Hence, the younger women were selected by setting these criteria who presumed to have preference for long term method.

either through advocacy or targeted behavioral interventions [16-18].

Study Rationale

Recognizing the limitations of the public sector, preferences of clients and need for effective FP service provisions, the World Health Organization (WHO) has emphasized on using private sector to promote modern methods of family planning [19].

Hence worldwide, the reproductive health clients are expressing high desire for the franchised health establishments [20]. Especially in Asian, African and the South American continents, social franchising with complemented with demand side financing (commonly known as vouchers) have worked very well [21-25]. Voucher programs have also proven to be a practical option in providing and improving utilization of quality FP services to the underserved [25-36].

Marie Stopes Society (MSS), a local non-governmental organization originally tested its own form of social franchise intervention known as Suraj (i.e., in English, Sun, a brand name provided to the clinics of the trained franchise providers of MSS) in 2008 to improve the

reproductive health of women living in underserved communities and also examined the feasibility [25]. The initial results were supportive and showed documented increased modern contraceptive uptake especially of long-term reversible IUD in the few underserved communities in Punjab and Sindh provinces [25,26].

With some alterations to the originally piloted model [25,26], Marie Stopes Society (MSS) - Pakistan, implemented a multi-year operational research project titled 'Evidence for Innovating to Save Lives'. The project aimed to explore effective and viable intervention models to promote healthy timing and spacing of pregnancies in predominantly rural and under-served communities of Sindh, Punjab and Khyber Pakhtunkhwa (KP) provinces in Pakistan, refer to Table 1 [31,32].

This present paper therefore describes the overall research design and the baseline survey findings. The outcomes of the proposed intervention will be presented in a separate paper which is presently under review in the same journal. The baseline findings were expected to guide the operations research project implementation and programmatic decision making to ensure that the project was on-track.

BOX 3: Provider eligibility criteria - Suraj intervention model

- Provider should be female (preferably married) aged 18-35
- Preference was for non-MNCH midwives, however if none were available LHVs, nurses or Lady Health Workers (LHWs) were considered for inclusion
- Provider had at least ten years of education, preferably with science subjects
- Experience of working in the community
- Preference if provider was a native and practicing in the same area
- Had more than two years of work experience in FP/RH
- Provider was willing for partnership, expansion of quality services and business
- Provider was willing to be checked for her work, report, audit etc.
- Provider was willing to provide the physical infrastructure to meet the basic needs of a standard FP service Centre such as privacy for clients, proper place for examination, waiting area, enough ventilation and light arrangement and a sterilization area

b) CMW model - intervention arm

In contrast to the Suraj model, the CMW intervention model was an arrangement between MSS and CMWs for the provision of quality contraceptive services in the community. We obtained a list of CMWs from the MNCH program and ten CMW providers for each district were selected. Each CMW provider covered a population ranging from 7000-12,000 that resided within a 3-4 km radius around the facility which is operated by a provider. The CMW providers were located at an average distance of 40-70 km from the main government hospital. The selection of CMW ensured a minimum distance between any two CMW providers in order to minimize any spill-over effects. The selection and training of CMW providers was also a three step process similar to that adopted for Suraj providers CMW provider eligibility criteria are listed here (Box 3). For the details of CMW intervention components, refer to Box 4.

BOX 4: Provider eligibility criteria - Suraj intervention model

- Permanent resident of rural areas
- Female, preferably married between 18-35 years of age
- Had at least ten years of education, preferably with science subjects
- Experience of working in the community
- Certification with Pakistan Nursing Council (PNC) and registered with MNCH
- Willing for partnership, expansion of quality services and business
- Willing to be checked for her work, report, audit etc.
- Willing to provide services on standardized rates

c) Control arm

The recruitment for providers in control districts was a three step process. First, mapping was initiated to get information on the existing number of health care and FP facilities and providers in terms of distance and accessibility to women. Second, an MSS team comprising district and regional personnel identified the UCs based on locally available records. Within each Union Council an MSS team member met with different key stakeholders such as pharmacists, drug stores, UC Mayors, farmer-councillor, community based organizations, influential personalities and others to capture key information on population, location of private providers, Union Council boundaries, number of schools, male and female literacy, number of healthcare centers' such as basic health units, rural health centers and tertiary care hospitals. Second, a series of meetings with each provider/facility was conducted to invite the providers for participation in the study. Providers were considered eligible for participation provided the following criteria were met:

a) Health facility owned or staffed by a female; b) provider lived in the same community; c) provider was interested in providing family planning services; d) provider must have formal medical qualifications; e) there must be adequate facility infrastructure (e.g. space to perform family planning services, availability of required instruments/equipment and essential amenities such as running water and electricity, and sanitation and waste disposal facilities); and f) provider must be willing to adhere to the study protocol for control sites (i.e. record keeping and reporting)

The providers in the control arm were not given any exposure to study interventions. A total of 3 Rural, 10 Basic centers and 14 CMWs were recruited for this study. Each facility/provider was located approximately 30 kilometers away (in any direction) from the city Centre in the predominantly rural area and covered a population ranging between 16-20,000 for CMWs and 35-40,000 for basic and rural health centers.

The minimum distance between any two facilities/providers was large enough to avoid a spill-over effect. For the details of intervention components, refer to Box 4.

Study Objectives

The study was conducted to 1) to assess and compare the effectiveness of an intervention model, a private provider partnership i.e. Suraj social franchise model, with a control group, and 2) to assess and compare the effectiveness of an intervention model, FP integration

in the existing MNCH services provided by Community midwives intervention model, with a control group, in promoting the use of modern contraceptive methods (Box 1).

Methods

This article presents the rationale and design of the overall research

study and the findings of the baseline survey to support program managers engaged in health interventions aimed at promoting quality family planning and birth spacing services among underserved population groups. Outcomes of the intervention, including the end-line evaluation and prospective client follow-up are already reported in separate papers [31, 32]

Hence, we will first describe the details of the research study design and then elaborate the methodology of the baseline survey.

Below are the details of the overall study design in (Box 2):

The MSS Suraj model focuses on providing high quality, client-centered and infection free family planning services and on providing more choices, greater access and increasing demands for such services in the far flung underserved and rural areas of the country. Over the years the Suraj model has significantly addressed unmet need and increased the use of modern contraception [29], especially long term method uptake [28]. With reference to government initiatives, the CMW Program, which falls under MNCH programme of Ministry of Health, is mandated to deal specifically with an array of MNCH issues at the community level. Both the Suraj Social Franchising and CMW models were taken as intervention models for the 'Evidence for Innovating to Save Lives' project, which is an operative case/control comparison research, highlighting the possible effects of FP services providing the benefits of HTSP.

Methodology of the baseline survey

Baseline survey for this study was conducted both in intervention and control areas with a total of 5566 Married Women of Reproductive Age (MWRA) of 15-49 years having at least one child less than two years of age.

Sampling Strategy for baseline survey

The baseline survey was conducted in eight (8) study districts across three (3) provinces of Pakistan by employing a cross-sectional approach. Within each districts, MSS had identified 10 localities (healthcare facilities) based on their set criteria. Prior to data collection, household numbering was carried out around each selected healthcare facility. The number of households around each healthcare facility ranged from 1,500 to 2,000 and population in these areas varied from 10,000 to 15,000. Within each cluster, the first household was selected with a random number generator and then every kth household was recruited. If there was no eligible MWRA or in case of refusal, the next household was approached and the team followed this sampling scheme (i.e. did not "reset" the sampling scheme if a house was missed). Around each healthcare facility 60 to 70 interviews were conducted using a structured questionnaire. A total of 5,566 Married Women of Reproductive Age (15-49 years) (MWRA) who had at least one under 2 year child were interviewed.

Study Tool for baseline survey

For the baseline survey, a structured questionnaire was developed which covered a wide range of demographic, socioeconomic, reproductive health and family planning indicators. The questionnaire was translated into Urdu and pre-tested to examine the suitability and effectiveness of questions for eliciting adequate responses, to determine linguistic and cultural appropriateness and to determine

the approximate time required to complete a questionnaire. Survey questionnaire covered range of factors that may be possible confounders. These will be accounted in the final analysis. Some of the variables are: Age, number of children, education, poverty level, distance to nearby health facility, future intention to contraceptive use, spousal communication etc.

Data collection and Management for the baseline survey

To avoid potential biases, the contract for data entry and data cleaning was outsourced to an independent consultancy firm. Data from the survey questionnaires were entered into Visual FoxPro version 6.0 designed by the consultant. Moreover each form was assigned a specific (auto generated) number for its identity. The data entry was also crosschecked by MSS Research, Monitoring and Evaluation (RME) team. After cleaning, coding and entering, the data file was utilized for data analysis and report writing.

Data Analysis for the baseline survey

We used SPSS software version 17.0™ to analyze the data and generate tables from a list of survey variables for descriptive analysis.

Study Ethical Considerations

Verbal and written (participants' signature or thumb impression) informed consent were obtained from the study respondents. Personal identifiers were not recorded to ensure confidentiality. Designated authorized personnel had completed hard copies of the questionnaires under safe keeping. Electronic version of the data was stored on password protected computers. The ethical approval for the project was provided by Program Oversight Committee (POC) of Research and Advocacy Fund (RAF) and National Bioethics Committee (NBC) of Pakistan (Ref no: 4-87/10/NBC-43/RDC/).

Results

For the purpose of this paper we are presenting the findings of baseline survey analysis as Intervention A – Suraj; Intervention B – CMW and Control arms.

Socio-economic and demographic characteristics of respondents

Most of the women were aged 28 years on average in all of the intervention and control groups. However, as shown in the table 2, average age of husbands was greater and they were on average five years older than their wives. Moreover, more than half of the women in intervention B and control group were illiterate. Similarly, close to half of the women in intervention A had no formal education. In contrast to women, more than half of the husbands were reported to have had some education. Majority of the respondents were poor and reported household monthly income up to Rs. 10,000 (refer to table 2).

Reproductive history

Reproductive history shows that most of the women in each group had had more than three pregnancies in their reproductive lives and almost a similar number of living children as well. In addition,

Table 2: Socio-demographic characteristics of the respondents

Indicators	Suraj (n=1995)	Control (n=2136)	CMW (n=1435)
Average age of women (SD)	28.3 (5.4)	28.4 (5.3)	28.8 (5.8)
P - value	0.223		0.002**
Average age of women at marriage	19.8 (3.4)	20.0 (3.2)	20.0 (3.6)
P - value	0.905		0.828
Average age of husband	33.1 (6.4)	33.0 (6.3)	33.5 (6.6)
P - value	0.121		0.449
Women education			
No formal education	47.8	54.3	69.5
Can read, write and perform simple sums	2.2	1.3	1.1
Primary	17.5	15.1	13.2
Middle	9.0	8.8	4.5
Secondary	14.0	11.8	6.3
Intermediate	4.9	4.6	2.0
Graduate/postgraduate	4.6	4.2	3.3
P - value	0.001***		<0.0001***
Husband education			
No formal education	23.0	33.6	44.3
Can read, write and perform simple sums	1.6	1.2	1.5
Primary	13.3	13.1	15.7
Middle	13.4	13.4	10.7
Secondary	29.1	22.4	16.6
Intermediate	10.2	8.4	6.2
Graduate/postgraduate	9.4	7.9	4.9
P - value	<0.0001***		<0.0001***
Working women	5.6%	7.1%	8.5%
P - value	0.050		0.141
Husband occupation			
Unskilled manual	21.3	20.8	41.0
Skilled manual	26.6	24.9	11.2
Agriculture/farming	3.6	8.2	9.8
Sales and services	17.1	19.1	21.8
Professional/technical manager	23.2	21.2	13.1
Clerical/office work	2.1	1.7	0.3
Jobless	6.1	4.2	2.9
P - value	<0.0001***		<0.0001***
Monthly household income (PKR)			
<=5,000	28.5	30.5	34.7
5,001 to 10,000	46.0	47.6	52.2
10,001 to 15,000	13.1	11.4	5.7
>15,000	12.4	10.5	7.5
P - value	0.072		<0.0001***

Table 3: Reproductive history of the responding women

Indicators	Suraj	Control	CMW
Number of living children			
0 to 2	45.9	46.3	46.5
3 to 4	31.4	31.9	31.6
5 or more	22.7	21.8	21.9
P - value	0.782		0.983
Number of pregnancies			
1 to 2	39.4	41.2	39.6
3 to 4	30.8	32	32
5 or more	29.7	26.8	28.4
P - value	0.117		0.507
Current pregnancy	12.5	10	12.3
P - value	0.009**		0.031*
Unwanted pregnancy	38.3	30.7	58.7
P - value	<0.0001***		<0.0001***

more than 10% of the women in all of the groups were pregnant at the time of the baseline survey. Out of the currently pregnant women, 58.7%, 38.3% and 30.7% in CMW, Suraj and control areas respectively reported their pregnancies unwanted (refer to table 3).

Awareness, ever use and current contraceptive use

Awareness about any method of family planning in CMW, Suraj and Control areas ranged from 61%, 78, and 88% respectively and almost a similar number of women in these areas knew about any modern method (refer to table 4). About half of the women in Suraj and control areas, and 30% in CMW areas, reported that they had ever used any contraceptive method at some point in their lives; however, ever use of any modern method was reported at a lower level by these women (refer to table 4). Regarding current contraceptive use, majority of the women in all of the study areas reported that they were not using any contraceptive method. Only 34.3% of the women in Suraj, 27.0% in control and 17.1% in CMW areas were using any contraceptive method at the time of survey. Method wise, only about 3% of the women were using IUCD in Suraj and control areas while only about 2% were using

Table 4: Contraceptive knowledge and practices reported by the responding women

Indicators	Suraj	Control	CMW
Awareness of any contraceptive method	77.6	88.3	61.3
P - value	<0.0001***		<0.0001***
Awareness of any modern contraceptive method	75.8	87.2	58.1
P - value	<0.0001***		<0.0001***
Awareness of any traditional method	45.4	52.1	24
P - value	<0.0001***		<0.0001***
Ever use of any contraceptive method	49.9	48.3	30.2
P - value	0.301		<0.0001***
Ever use of any modern contraceptive method	43.7	39.8	25.2
P - value	0.012*		<0.0001***
Ever use of any traditional method	14.5	15.5	7.4
P - value	0.364		<0.0001***
Current use of any contraceptive method	34.3	27	17.1
P - value	<0.0001***		<0.0001***
Current use of IUCD	3	3.3	2.1
P - value	0.583		0.035*
Intention to use FP method in future	77.4	66.9	75
P - value	<0.0001***		<0.0001***
Unmet need	25.1	23.3	32.5
P - value	0.19		<0.0001***

Significant at p-value: *p <0.05, **p <0.01, *** p <0.001.

Table 5: Method-wise awareness, ever use and current contraceptive use

Indicators	Model	Contraceptive methods						
		Pill	Condom	Injection	IUD	Implant	Withdrawal	Periodic abstinence
Awareness	Suraj	68.7	60.4	65.1	54.4	15.4	36.7	36.9
	CMW	45.9	34.9	42.4	28.6	11.2	14.1	15.5
	Control	80.4	66	73.9	55.3	20.1	36.4	39.9
Ever Use	Suraj	10.3	23.3	12.3	5.3	0.4	10.4	6.3
	CMW	7	8.2	7.2	4.3	0.2	6.1	1.7
	Control	8.6	19.6	10.1	5.8	0.2	10.3	6.6
Current Use	Suraj	3.8	14	6.4	3	0.3	3.2	0.7
	CMW	3.1	3.6	3.7	2.1	0.1	2	1
	Control	3	9.6	5.1	3.3	0.3	2	0.8

Table 6: Reasons for currently using or not using any modern contraceptive method and source of method

Reasons for currently using any modern contraceptive method	Suraj	CMW	Control
	(n=659)	(n=240)	(n=552)
Affordability	29.7	30.8	29.7
Quality	30.5	14.2	24.1
Long term effective	9.7	17.5	15.6
Short term effective	17.3	25	14.3
Fewer side effects	0.6	0.4	0.2
Others (suggested by husband/mother in law/doctor, accessible)	2.2	1.7	2.9
Source of getting current modern contraceptive method	Suraj	CMW	Control
	(n=583)	(n=198)	(n=500)
Government hospital/clinic/RHSC	15.1	24.7	19.2
Family welfare	19.4	12.6	16.2
Private hospital/clinic	16.6	12.6	12.2
Friends/relative/husband	15.2	22.7	10.8
Lady Health Worker	16.3	15.7	28.6
Pharmacy/chemist	8.6	2.5	7.8
Basic health unit	2.6	0	1.4
Dai	1.2	6.6	1.4
Others (NGO centre, mobile camp, Hakim, Shop – other than pharmacy)	4.9	2.5	2.4
Reasons for not currently using any contraceptive method	Suraj	CMW	Control
	(n=1261)	(n=1089)	(n=1445)
Want more children	27	27.9	35.9
Lack of knowledge	2.5	2.5	1.5
Husband opposed	3.9	5.9	5.2
Affordability	0	2.3	0
Worry about side effects	2.6	1.6	2.6
Health concerns	10.3	6.7	5.3
Menstrual disturbances	1.5	0.6	1.7
Religion reasons	1	0.6	1.2
Up to God	6.8	17.5	13.4
Infrequent sex	1	0.5	0.7
Menopausal/Hysterectomy	1.3	0.6	1.5
Declared fertile	1.4	0.7	0.8
Husband Absent	6.3	1.7	4.9
Breastfeeding	12.4	22	18.4
Pregnant	3.9	1.2	3.5
Don't know/no reason	16.7	5	1.9
Others (lack of quality service/hard to get/opposed to family planning/inconvenient)	1.3	2.8	1.5

* We asked respondents to report most important reason rather than multiple answers.

it in CMW area. A significant number of women in CMW area (32.5%) and 25.1% in Suraj and 23.3% in control areas reported an unmet need for family planning (refer to table 3). Interestingly, at the time of the survey, more than two thirds of the women in Suraj and CMW areas and

two thirds of women in control area showed their intention that they would like to use family planning methods in future (refer to table 4).

Method-wise awareness, ever use and current contraceptive use

More than half of the women in all study areas knew about pills, condoms, injections, and IUD. Implant was the least known methods in all of the study areas. Among the traditional methods, around one third of the women were aware about withdrawal and periodic abstinence. Condoms, injections and pills were the most common methods reported with regard to ever use of contraceptives across all of the study areas. About five percent of the women also reported ever use of IUD across the study sites. Regarding the methods in current use, most of the women across the study sites reported that they were using condoms followed by injections and pills. Only about 3% of women reported current use of IUD while use of implants was less than one percent (refer to table 5).

Reasons for currently using or not using any modern contraceptive method and source of method

Most often cited reason for current modern method in use included affordability and quality of the method, and this was almost similar across the study sites (refer to table 5). Short-term effectiveness was also reported by many women across the study sites as a reasons for using the current contraceptive method which is also explained by the fact most common methods in use included short-term methods. Long term effectiveness was reported as the fourth common reasons for current method use by women across the study sites.

Most common source for getting any modern contraceptive method in Suraj intervention area included Family Welfare Centre, Private Hospital/Clinic, Lady Health Worker (LHW), Friends/Relatives/Husband followed by Government Hospital/Clinic. While in CMW areas, the most common source of getting a method included Government Hospital/Clinic, Friends/Relatives/Husband, LHW, and Private Hospital/Clinic. Sources of getting the method in Control area were more or less same as in the other two intervention areas; however, the most common source in control areas was LHW.

The dominant reasons for not using any contraceptive method included the desire for more children. A significant number of women reported that they were not using any contraceptive method because

they were breastfeeding. Religious concern (up to God) was also mentioned by 17.5%, 13.4% 6.8% of the women in Control, CMW and Suraj areas. In addition, health concerns, husband's opposition and absence of husband were a few other reasons for not using contraception as reported by the women across the study sites (refer to table 6).

Assessing the need for contraception and intention to use contraception in future (among current non-users)

The baseline survey results revealed a high overall need for contraception among the women across the study sites (refer to table 4). Group-wise, 32.5%, 25.1% and 23.3% of the women in CMW, Suraj and control respectively were not using any contraception despite their expressed desire to delay or avoid pregnancy. Out of the women not using any contraception currently, about two thirds in Suraj and CMW areas (66.1% and 59.8% respectively) expressed their intention to use contraception in future. Similarly, more than half of the women in control area expressed their willingness for contraceptive uptake in future. Concerning method preference in future, majority of the women in Suraj and Control areas showed their preference for periodic abstinence followed by condoms, pills and injections. In contrast, majority of women in CMW areas informed that they would like to use injections and pills in future. Moreover, a significant proportion of women across the study sites reported that they would avail contraceptive methods which will be suggested to them by the health provider (refer to table 7).

Discussion and Conclusion

The baseline findings showed low contraceptive prevalence and high need for contraception. More than 10% of the pregnancies were reported unintended. The main reasons reported for currently not using contraception included desire for more children, breastfeeding, up to God, health concerns, and opposition from husband. The findings also register low utilization of long acting reversible contraceptive methods. These findings are also reflecting national data [1, 2] which reports low CPR and high unmet need among poor and uneducated women and women residing in rural areas. Research studies also demonstrate association of reproductive health practices with education, place of residence, profession and religious orientation [1,3,27].

Interestingly, majority of the women not currently using contraception showed the desire to space births and willingness to avail family planning and birth spacing services in future. The baseline findings also highlight that women intending to avail family planning services are not fully aware or confident of what methods would be suitable for them.

The findings also highlight that women intending to avail FP services are not fully aware or confident of what methods would be suitable for them. These findings suggest that contraceptive uptake can significantly increase if program efforts are geared towards providing information about full range of FP methods, quality and affordable services and effective counseling to help women avail contraceptive method that best suit their needs.

These baseline findings suggest that contraceptive uptake can significantly increase if program efforts are geared towards providing information about full range of FP methods, quality and affordable

Table 7: Intention to use contraception in future (among current non-

Indicatorsv	Suraj	CMW	Control
	(n=1276)	(n=1162)	(n=1535)
Willing to use contraceptive in future	66.1	59.8	52.3
Preferred method	Suraj	CMW	Control
	(n=866)	(n=826)	(n=868)
Pill	17.3	23.5	11.4
IUD	9.1	9.1	10.5
Injections	18.1	23.5	19
Condom	20.1	4.6	14.2
Periodic abstinence	21.9	12.7	24.9
Female sterilization	2	2.3	1.2
Male sterilization	2.7	3.1	3.6
Emergency pills	2	0	1.3
Implant	0	0	0.1
Whatever suggested by doctor/provider	6.8	21.2	13.9

services and effective counseling to help women avail contraceptive methods that best suit their needs. Sensitization efforts can also be viable for helping women initiate family planning after delivery and address women's concerns about side-effects or health problems associated with modern contraceptive methods. Engaging males in family planning initiatives can change their attitudes towards family planning and modern contraception and thus increase contraceptive uptake.. Outcomes of the intervention will be shared in a separate paper in order to provide evidence on improving the coverage, quality, and uptake of FP services and expansion of MNH strategies in Pakistan and similar developing countries.

Acknowledgement

This research study was funded by the Research and Advocacy Fund (RAF) - Pakistan. The study was implemented in the field with the collaboration of Marie Stopes International (MSI) and MSS-Pakistan.

Authors' Contribution

Conceived and designed the experiments: SKA, W Hameed, GM and JA. Performed the experiments: SKA, WH, GM, GA, MI, OMF, SA, W Hussain, AA. Analysed the data: IS, GM, W Hameed, SKA, W Hussain. Wrote the manuscript: SKA, W Hameed, GM, MI, OFK, SA.

Competing Interest:

The author(s) declare that they have no competing interests.

References

1. National Institute of Population Studies (NIPS) [Pakistan] and ICF International. Pakistan Demographic and Health Survey 2012–13. Islamabad: NIPS and ICF International. 2013.
2. National Institute of Population Studies (NIPS) [Pakistan], and Macro International Inc. 2008. Pakistan Demographic and Health Survey 2006-07. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc.
3. Khan YP, Bhutta SZ, Munim S, Bhutta ZA. Maternal health and survival in Pakistan: issues and options. *J Obstet Gynaecol Can.* 2009; 31: 920-929.
4. Bongraats J, Sinding SW. A response to critics of family planning programs. *Int Perspect Sex Reprod Health.* 2009; 35: 39-44.
5. Judith RS. The Origins and Evolution of Family Planning Programs in Developing Countries. Santa Monica, CA, RAND Corporation. Ref Type: Serial (Book, Monograph) (REF8). 2002.
6. Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, Innis J. Family planning: the unfinished agenda. *Lancet.* 2006; 368: 1810-1827.
7. Rutstein SO. Further Evidence of the Effects of Preceding Birth Intervals on Neonatal, Infant, and Under-Five Years Mortality and Nutritional Status in Developing Countries. Macro International Inc. Demographic and Health Research Division. 2008.
8. Population Council, Unwanted Pregnancy and Post-Abortion Complications in Pakistan: Findings From a National Study, Islamabad, Pakistan: Population Council, 2004
9. Khan A, Shaikh BT. An all-time low utilization of IUCDs as birth spacing methods: A qualitative descriptive study in District Rawalpindi. *Reprod Health.* 2013; 10: 10.
10. Sathar Z, Jain A, Ramarao S, ul Haque M, Kim J. Introducing client-centered reproductive health services in a Pakistani setting. *Studies in Family Planning.* 2005; 36: 221-234.
11. Population Council. Pakistan Demographic Transition in the Developing Context "Examining fertility change and its impact on household poverty and welfare". The World Bank, Islamabad. 2009
12. Ali S, Rozi S, Mahmood MA. Prevalence and factors associated with practice of modern contraceptive methods among currently married women in District Naushahro Feroze. *J Pak Med Assoc.* 2004; 54: 461-465.
13. Balaiah D, Naik DD, Parida RC, Ghule M, Hazari KT, Juneja HS. Contraceptive knowledge, attitudes and practices of men in rural Maharashtra. *Adv Contraception.* 15: 217-234.
14. Brindis C, Boggess J, Katsuranis F, Mantell M, McCarter V and Wolfe A. A Profile of the Adolescent Male Family Planning Client. *Fam Plann Perspect.* 1998; 30: 63-68.
15. Dahal GP, Padmadas SS and Hinde PR. Fertility-Limiting Behavior and Contraceptive Choice Among Men in Nepal. *Int Fam Plan Perspect.* 2008; 34: 6-14.
16. Mahmood N, Mahmood MA. Gender differences in child health-care practices: Evidence from the Pakistan Demographic and Health Survey, 1990-91. *Pakistan Development Review.* 1995.
17. Zafar I, Asif F, Adil S. Religiosity as a factor of fertility and contraceptive behaviour in Pakistan', *Pakistan J App Sci.* 2003; 3: 158-166.
18. Tuloro T, Deressa W, Ali A, Davey G. The role of men in contraceptive use and fertility preference in Hosanna Town, Southern Ethiopia. *Ethiopian J Health Dev.* 2006; 20: 135-205.
19. World Health Organization. Public policy and franchising reproductive health: current evidence and future directions Guidance from a technical consultation meeting. 2007.
20. Bhatia MR, Gorter AC. Improving access to reproductive and child health services in developing countries: are competitive voucher schemes an option? *J Int Dev.* 2007; 19: 975-981.
21. Prata N, Montagu D, Jefferys E. Private sector, human resources and health franchising in Africa. *Bulletin WHO.* 2005; 83: 274-279.
22. Frost N. Social franchising of sexual and reproductive health services in Honduras and Nicaragua. Marie Stopes International; 2006.
23. Basinga P, Gertler PJ, Binagwaho A, Soucat ALB, Sturdy JR, Vermeersch CMJ. Paying Primary Health Care Centers for Performance in Rwanda. Policy Research Working Paper. 2012.
24. Gupta I, Joe W, Rudra S. Demand Side Financing in Health: How far can it address the issue of low utilization in developing countries? World Health Organization. 2010; Report No.: 27.
25. Azmat SK, Shaikh BT, Hameed W, Mustafa G, Hussain W, Asghar J, et al. Impact of Social Franchising on Contraceptive Use When Complemented by Vouchers: A Quasi-Experimental Study in Rural Pakistan. *PLoS One.* 2013; 8: e74260.
26. Azmat SK, Shaikh BT, Mustafa G, Hameed W, Ali M, Asghar J, et al. Social franchising to promote long term methods of family planning in rural Pakistan: A qualitative stock taking with the stakeholders. *J Pak Med Assoc.* 2013; 63: 3.
27. Midhet F, Becker S. Impact of community-based interventions on maternal and neonatal health indicators: results from a community randomized trial in rural Balochistan, Pakistan. *Reprod Health.* 2010; 7: 30.
28. Nishtar NA, Sami N, Alim S, Pradhan N, Hasnain FU. Determinants of contraceptives use amongst youth: an exploratory study with family planning service providers in Karachi Pakistan. *Global J Health Sci.* 2013; 5: 1-8.
29. Sultan M, Cleland JG, Ali MM. Assessment of a new approach to family planning services in rural Pakistan. *Am J Public Health.* 2002; 92: 1168-1172.
30. Stephenson R, Tsui AO, Sulzbach S, Bardsley P, Bekele G, Giday T, et al. Franchising reproductive health services. *Health Serv Res.* 2004; 39: 2053-2080.
31. Azmat SK, Hameed W, Hamza HB, Mustafa G, Ishaque M, Abbas G, et al. Engaging with health-based public and private mid-level providers for promoting the use of modern contraceptive methods in rural Pakistan: results from two innovative birth spacing interventions. *Reprod Health.* 2016; 13: 1-15.
32. Hameed W, Azmat SK, Ishaque M, Hussain W, Mustafa, G, Khan OF, et al. Continuation rates and reasons for discontinuation of intra-uterine device in three provinces of Pakistan: results of a 24-month prospective client follow-up. *Health Res Policy Systems.* 2015; 13(Suppl 1): 53.