Service Delivery Models

Performance and Measurement of a Community-Based Distribution Model of Family Planning Services in Pakistan

Syed Khurram Azmat, MBBS, MPH,[2] Shirin Ahmed, BA,[1] Waqas Hameed, MSc,[2] Mohsina Bilgrami, MBBS,[2] Ayesha Khan, MBBS, MPH,[1] Adnan Ahmad Khan, MBBS, MS,[1] Ghulam Mustafa MSc[2]

Abstract

Introduction: Community-based distribution (CBD) has been successfully applied to family planning (FP) services worldwide. It forms the basis for the large lady health worker (LHW) programme in Pakistan which serves a limited number of women with contraception services. Thus, the concept has seen limited application in Pakistan. We present the outcomes of a CBD model that was implemented in 49 districts across Pakistan by a non-government organization (NGO).

Methods: The Marie Stopes Society (MSS) developed a CBD model around its fixed centres and reached around half a million married women of reproductive age (MWRA) with services. The services provided included outreach, counselling, condoms, pills, injections, and referrals for intrauterine contraceptive devices (IUCDs) and other reproductive health services. Services were provided in peri-urban locations for a subsidized fee using a businesslike target setting approach. The results of the programme were assessed by triangulating inception records against a cross-sectional end-of-project survey and service delivery records.

Results: The contraceptive prevalence rate (CPR)had increased from 38% to 51% by project-end with modern method use increasing by 50-200% and traditional method use remaining unchanged. Unmet need and self-reported pregnancy rates fell correspondingly. Approximately 73,500 new users were added to the initial user registered numbers to a total of 132,300; MSS accounted for 53,000 per year at the end of the project,

which matched the commodities supplied by the NGO.

Conclusions: The MSS CBD model presents a viable option for scaling effective FP services that may be replicated and scaled up with either donor support or by contracting out by the government. Triangulation of multiple data sources can provide more in-depth assessment of service delivery programmes and provide inferences that can inform service delivery.

Introduction

With a population of 174 million, Pakistan is the sixth most populous nation in the world and has seen its population grow almost six-fold since becoming independent in 1947.[1,2] This rapid population growth overshadows any economic gains and over 20 million individuals have descended into poverty in the last five years.[3]

Rates of contraception usage in Pakistan have risen from around five percent in the 1960s[4] to approximately 30% in 2007[1] with the most recent advances coming from rural areas.[5] These changes have come against a backdrop of evolving management approaches in family planning (FP) programmes that grew from an initiative in the 1960s to a full-fledged ministry in 1982.[4] The lady health worker (LHW) programme was initiated in the early 1990s and now reaches around 110 million people. It contributed significantly to FP in rural areas.[6,7] Despite these initiatives, overall population growth continues to out pacecontrol efforts.

The Pakistan Demographic Health Survey (PDHS) 2006-7 showed that around 12% or 2.9 million married women of reproductive age (MWRA) access FP services nationwide. About four percent of MWRA are served by the ministries of Population Welfare and Health and only a third of all contraceptive users receive their method

••
[1]Research and Development Solutions, Islamabad, Pakistan. [2]Marie Stopes Society, Karachi, Pakistan.
Correspondence: Khurram Azmat. Email: khurram.azmat@mariestopes.org

from a facility. Over 52%of all FP methods are self-procured by women/couples from shops and stores without seeing a health provider or counsellor.[7-9] More alarmingly, 25% of MWRA or nearly twice as many women as those that access FP services, have an unmet need for contraception due largely to a lack of contraception service availability.[8,9] These findings suggest the need for reliable, high-quality, and inexpensive facility-based or outreach services that can meet existing demand and be scaled up.

There is a longstanding debate in Pakistan over whether demand- or supply-side approaches would work. Historically, there has been considerable emphasis on creating demand.[4] Due to these efforts or because of secular trends, there is considerable demand for FP in Pakistan that remains unmet since supply-side efforts have lagged behind demand creation.[10] In fact, twice as many women have an unmet need than those availing FP services. Supply-side programmes from as early as the 1970s, showed spectacular results even in extremely remote or culturally conservative locations.[11,12] Thus, it appears that supply-side approaches are needed to complement demand creation. Under current conditions, they may provide much higher short-term returns on investment in FP than simply creating demand.

Community-based distribution (CBD) approaches have been successfully applied for nearly 30 years to increase FP outreach, access marginalized populations, and possibly reduce costs over facility-based services.[13-15] The government's LHW programme uses this approach to serve 110 million rural residents with primary healthcare, including FP. However, the system remains bogged down by its size, management issues, and costs. Its funding for contraceptives and other health commodities is constrained and inconsistent; political interference, mismanagement, and LHWs' other responsibilities that allow only five percent of their time to be devoted to providing FP, mean that around a third of LHWs under perform or remain absent.[6] As a result, the programme's 100,000 LHWs serve only 430,000 women with FP services per year. This paper explores the outcomes of an NGO-run CBD model that was implemented by the Marie Stopes Society (MSS) in 49 districts across Pakistan, and suggests that nationally-placed NGOs can provide quality FP services in poorly-served locations.

This paper triangulates available inception registration records with service and commodity delivery data and a baseline survey to measure how services from the project changed contraceptive use, decreased unmet need, and the proportion of these changes that may be attributed to the project.

Methodology
The CBD model

The CBD model was implemented in 49 districts in all four provinces of Pakistan between November 2009 and November 2010 and reached around 490,000 MWRA from a catchment population of over three million. MSS clinics within each service district called Behtar Zindagi (Better Life) Centres had been established within five kilometres of government district headquarter hospital (DHQs). Much of the catchment of this project was not covered by LHWs as DHQ hospitals are located in urban/peri-urban areas.

Behtar Zindagi Centres are static clinics providing FP — condoms, pills, injections, sterilization, and intrauterine contraceptive devices (IUCDs) — sexual, and reproductive health services to clients visiting these centres. Beneficiary populations are usually located within five kilometres of the MSS centres in all districts, and on average, are around 6,000-8,000 per CBD worker or around 70,000 for a centre.

The administration based at the centres also oversees ten CBD workers that operate in the surrounding communities, each serving approximately 1,000 MWRA. These CBD workers are recruited from the communities they serve and trained in providing effective FP counselling, identifying client needs and medical conditions, and sustaining supplies. They counsel women in their own homes about FP and reproductive health and deliver oral contraceptive pills, condoms, or injections, onsite. If required, they refer those seeking IUCDs or sterilization to MSS centres.

During their home visits, CBD workers record client views, choices and needs, and respond to these individuals' needs with services. The district teams used this information and changes in needs to adjust anticipated targets for each service provided or commodity supplied, each month. Thus, the project used a business approach where the district set need-estimates for each individual service and then followed up to ensure that these targets were met. The targets were for the number of clients who were offered a complete array of methods for which they paid a fee. Clients paid a nominal fee for the services they received while MSS used donor funding to pay for salaries and operations costs. Apart from salary, CBD workers were also incentivized through

commissions for the referrals of IUCD and permanent methods, to MSS static clinic. The project promoted FP by making quality services available, but neither coerced nor incentivized the use of contraception or any particular method.

Outcomes were evaluated by comparing information from inception registration records to data from services monitoring and commodities provided, and an end-of-project survey.

Inception registration records

At the onset of the project between August 2008 and February 2009, CBD workers registered all of their clients and gathered information about their FP-related knowledge, attitudes, and practices. Thus, nearly all eligible 490,000 MWRAs (approximately 10,000 per district) in the service area were interviewed. Any married women between the ages of 15 and 49 years who could give informed consent and were not mentally retarded, were enrolled. The inception record adapted questions from the instrument used for the PDHS 2006-07 and included questions on patterns of knowledge, attitudes, current practices, and intentions regarding fertility, reproductive health, FP, and spacing. No biological samples were collected.

End-of-project survey

An end-of-project survey was conducted in 40 intervention districts approximately 18 months after the project began. Nine districts that could not be accessed due to civil strife and floods were excluded, although they had been part of implementation. Four districts were from Baluchistan, two each from Khyber Pakhtunkhwa (KPK) and Sindh, and one from Punjab. This meant that only district Hub was included for Baluchistan.

The survey was conducted by externally-hired data collectors. The survey questionnaire from inception was reused, with the exception of demographic information, which was reduced. Approximately 675 MWRA were randomly selected from each district using the MWRA list of women enrolled at inception, yielding a total sample size of approximately 27,000 MWRA for the end-line survey. To avoid bias, the end-of-project survey had no input from the district team or the CBD workers. Data were available to allow MWRAs' responses from the end-line survey to their inception responses, allowing analysis of how individuals' behaviours and practices had changed over time. The non-response rate was around six percent and due mainly to migration.

Service delivery data

Data on the amount of each commodity supplied was made available by the district each month, as were the overall costs of the project. We calculated the amount of each commodity needed to serve one woman for a year by dividing total condoms by120, oral pills by 12, and injections by three. For IUCDs, the number of months between IUCD insertion and project-end was divided by 12 to determine the years of service from IUCDs. For example, an IUCD inserted in month one of the project was to remain in place for 21 months, making its contribution 21/12=1.75 years. This would be 1/12 = 0.08 years for an IUCD inserted in the last month of the project.

Data analysis

Data were collated and analyzed using IBM SPSS 13.0® and MS Excel 2007®. Data from the end-line survey for each MWRA were matched against their responses during inception registration using a unique respondent code. Data analysis included narrative descriptions of data and uni-variate correlations using chi-square tests. We disaggregated variables by region and method type and cross-verified key conclusions with more than two variable answers. For example, contraceptive prevalence rate (CPR) changes were verified with pregnancy rates to establish accuracy in data analysis. Service delivery data was then triangulated by region and method to assess the strengths and limitations of the model.

A key piece of analysis was a comparison of inception data to the end-line survey for CPR, unmet need, method mix, and attribution of change to MSS intervention. Attribution to MSS was determined by calculating the number of women at baseline using a modern method that they had received from an MSS source (either a CBD worker or a facility) and comparing this number with the quantities dispensed from service delivery data.

Results

At inception, the MWRA in the sample were a mean of

Table-1: Demographics at inception.

	Contraception users	Contraception non-users	p
	N:10,640	N: 17,360	
Mean age	34	33	<.001
Occupation			
Housewife	93%	94%	<.001
Skilled labour	3%	2%	<.001
Education: illiterate	48%	52%	<.001
No. of children	3.8	3.5	<.010

Table-2: Changes in contraception and fertility indicators.

	Inception %	End-line %	%Change	p
Currently using anFP method				
Overall	38 (37-39)	51 (50-51)	32	<.001
Sindh	27(26-28)	48 (47-49)	19	<.001
Upper Punjab	45 (44-46)	55(54-57)	9	<.001
Lower Punjab	38 (37-39)	53 (52-54)	15	<.001
KPK	44 (42-46)	46(45-49)	2	<.001
Baluchistan (Hub district only)	37 (35-40)	25(22-28)	-12	<.001
Unmet need	23%	19%	-17	<.001
Self-reported pregnancyrates	11%	7%	-36	<.001
Desire for more children				
No more	58%	51%	-12	<.001
Want another	36%	38%	6	<.001
Ideal family size (mean)	4.2	4.2	0	1.0

Table-3: Changes in methods used.

	Inception % for all MWRA	Inception % among those included in end-line	End-line %	Change %
	N: 176,400	N: 10,640	N: 14,280	N: 3,640
Any contraception	36	38	51	32%
Modern	26	27	41	52%
Condom	9	9	15	67%
Oral contraceptive pill	2	2	6	200%
Female sterilization	9	9	9	0%
IUCD	3	3	5	67%
Injection	3	3	6	100%
Traditional	9	11	9	10%
Withdrawal	8	8	9	25%
Abstinence	1	1	1	0%
Other	1	<1	1%	0%
None	64	62	50	-20%

34 years of age. Nearly all were housewives and half were illiterate. Current contraception users and non-users were similarly distributed for all of these factors (Table-1) with the exception that women who were currently using contraception had more children (3.8 vs. 3.5, p<0.01).

The overall rate of contraceptive use increased from 38% at inception to 51% at project-end. The CPR increased in all provinces except Baluchistan where it fell by 12% (Table-5). The use of a modern method increased by 52%; increases were seen for all methods, particularly for pills and injections. Correspondingly, unmet need and the proportion of women reporting themselves as pregnant, fell. The proportion of women seeking to extend their families and the number of children that are felt to be ideal for a family, remained unchanged.

Table-4: Sources of contraception.

	Current method source N: 13,117 %	Preferred method source in future* N: 11,009 %
Public sector	33	23
LHW/LHV	7	8
Government hospital	19	13
Family welfare centre	4	
RHC/basic health unit/government clinic	3	2
Private sector	67	74
CBD worker	17	20
MSS BehtarZindagi Centre	8	19
Private clinic or hospital	10	7
Friend/relative/husband	18	16
Drugstore/shop	7	5
NGO centre	<1	1
Community health worker	3	2
Hakim/homeopath		0
Other	4	4

*May prefer more than one source.

Compared to no women having received their FP method from an MSS source at inception, 25% of MWRA at project-end reported receiving their current method from the MSS system; 17% from CBD workers and eight percent from MSS clinics. Approximately 40% of MWRA said they would prefer receiving future contraception services from CBD workers or MSS centres (Table-4). Thirty-six percent of women reported having received information about FP from either television or cable, followed by 22% from a CBD worker.

Applying CPR to the study area populations, it was found that 132,300 MWRA were using a modern contraceptive method at inception and 205,800during the end-line survey — an increase of 73,500. The MSS contribution at project-end came to 53,200MWRA served annually or around 72% of the total change. This is consistent with commodity supply records showing that approximately 57,000 women were supplied with commodities by the project during these 18 months.

The uptake of all commodities increased rapidly at the beginning but peaked around the sixth-seventh month for all programme districts and remained at that level for the remainder of the project. In addition, approximately 70% of all household visits in Punjab and Sindh and all visits in KPK and Baluchistan were for counselling. This means that CBD workers provided counselling nearly every time they met an MWRA, or mistakenly recorded

Table-5: Contraceptive prevalence rates by district.

District	Baseline	End-line
Punjab		
Hafizabad	47%	49%
Attock	40%	51%
Khaniwal	43%	53%
Sheikhupura	49%	57%
Lodhran	34%	59%
Haripur	44%	48%
Toba Tek Singh	45%	59%
Khushab	42%	48%
Jhang	32%	57%
Bhakkar	40%	66%
Rahim Yar Khan	36%	53%
Sialkot	37%	45%
Kasur	63%	60%
MandiBahauddin	38%	36%
Jhelum	53%	63%
Sahiwal	56%	54%
Mianwali	50%	75%
Vehari	26%	45%
MuzfarGarh	45%	51%
Layya	48%	62%
Rajan Pur	20%	51%
Okara	40%	47%
Pak Patan	37%	52%
Bhawal Nagar	46%	44%
KPK		
Sawabi	35%	51%
Mansehra	41%	21%
Mardan	54%	63%
Sindh		
Jamshoro	25%	54%
Thatta	26%	51%
Badin	23%	34%
Gujrat	26%	61%
Matari Hala	26%	46%
Dadu	33%	46%
Nosherofroz	23%	58%
Mithi Tharparkar	23%	36%
Tando Muhammad Khan	39%	51%
Tando Allahyar	17%	52%
Umer Kot	29%	58%
Baluchistan		
Sibi	28%	22%
Hub Lasbella	46%	29%
Overall	38%	51%

all encounters as counselling.

Discussion

We describe the results of the MSS-implemented CBD modelin peri-urban and urban locations in 49 districts across Pakistan. At inception, CPR in target locations was 38% (which is similar to the national urban CPR[1] of 36%)

and rose to 51% during the project's 18-month duration. The MSS contributed around 70% of the increase in CPR and these changes are consistent with the amount of commodities that were provided during the project. This change compares to a one percent increase per year in national CPR between the PDHS 1990 and the PDHS 2006-7. However, there was no change in CPR in the LHW-covered areas between 2000 and 2006.[6,16] Thus, overall CPR growth in these locations outpaced the national average five to ten times.

This CBD project served urban and peri-urban locations which are not served by LHWs (who serve rural locations in Pakistan or any other outreach or FP programmes). More importantly, approximately 73,500 new MWRA started using modern contraception during the project. Extrapolating from the end-line survey, over 53,000 MWRA had received their method from MSS, which corresponds to service records showing that commodities sufficient for 56,000 women were distributed during the project. This suggests that the NGO was largely responsible for the change in FP rates.

Attitudes, norms, and values may be more important in explaining fertility in developing countries and traditional societies,[17] suggesting that "ideational changes" may critically influence moral acceptance of the principal of FP and of particular methods. Indirect evidence[1,18] supports the fact that even in traditional rural Pakistani households, FP acceptance and perhaps even fertility reduction are already taking place and must be matched with readily available FP services for maximum impact. The PDHS 2006-07 shows that over half of all FP services are self-procured and the fact that our clients paid a subsidized fee for their FP services validates the observation that if contraception services can be introduced and sustained effectively in a culturally acceptable manner, they will be used even when clients have to pay for them.

The value of this project is in the scale at which it operated. It served 49 of 135 districts in the country using health workers often present in target communities. The government applied a similar approach employing LHWs in all 135 districts nationwide, but their FP services reach only around 430,000 women. However, these modest results may simply reflect the fact that LHWs are not able to devote more than five percent of their professional time to FP.[19,20] By contrast, the dedicated focus of the CBD model and its business-like approach allows the setting of targets and effective personnel management.

Although our findings demonstrate a definite, rapid, and significant increase in contraceptive use in response to the availability of services, several issues must be considered. This study was not a randomized controlled one where intervention areas were compared with a controlled non-intervention area. It is therefore possible that unforeseen secular trends may have influenced CPR. However, this is unlikely given that improvements were seen in nearly all 40 districts where the end-line survey was conducted, and because until 2007, the national rate of increase in CPR had been 0.5-1%, annually. However, future studies should consider using comparison areas within districts to overcome this study design limitation; this model was implemented in peri-urban locations whereas nearly 60% of Pakistan's population lives in rural locations where outreach is more difficult and there are fewer facilities to anchor this outreach. Applying lessons from this model to rural settings will require some local adaptations.

This CBD model successfully demonstrates that it is possible to provide quality outreach FP services by ensuring trained providers and a steady supply of services and commodities. Regular supplies and demand creation via counselling services helped increased CPR at a rate nearly 5-10 times that of the national average, while reaching a large scale, very quickly. It also demonstrates the value of triangulating multiple data sources to arrive at a richer understanding of a complex issue. While this approach does not obviate the need for an experimental design, the corroboration of findings from multiple data sources provides a measure of reassurance about the accuracy of the claim that the project succeeded in increasing CPR in target areas. These are powerful lessons that may be applied to government funding of NGOs to implement large-scale programmes for providing FP services in Pakistan. This analysis methodology may be applied to projects to allow more robust results monitoring. More research is needed to see how this or similar outreach programmes may be applied to rural settings, and how more effective cost-sharing strategies can be included in such models.

Acknowledgements

Conflict of interest

There are no conflicts of interest.

Reference

1. National Institute of Population Studies P, Macro International I. Pakistan Demographic and Health Survey 2006-7. 2008 Jun.
2. Mahsud-Dornan S. Pakistan, population programmes and progress. Ulster Med J 2007 Sep;76(3):122-3.
3. Ministry of Finance. Pakistan Economic Survey 2008-9. 2009.
4. Robinson WC, Shah MA, Shah NM. The Family Planning Program in Pakistan: What Went Wrong? Int Fam Planning Perspectives 1981 Sep;7(3):85-92.
5. Carton TW, Agha S. Changes in contraceptive use and method mix in Pakistan: 1990-91 to 2006-07. Health Policy Plan 2011 Mar 26.
6. The Oxford Policy Management Group. The Third Party Evaluation of the Lady Health Worker Program. 2009.
7. Douthwaite M, Ward P. Increasing contraceptive use in rural Pakistan: an evaluation of the Lady Health Worker Programme. Health Policy Plan 2005 Mar;20(2):117-23.
8. Research and Development Solutions. Policy Brief 1: Overview of Family Planning in Pakistan. 2012 Jan 1.
9. Research and Development Solutions. Policy Brief 2: Family Planning Services in Pakistan. 2012 Jan.
10. Jooma R, Khan AA. Contraception, synergies and options. J Pak Med Assoc 2009 Sep;59(9 Suppl 3):S39-S40.
11. Osborn RW. The Sialkot experience. Stud Fam Plann 1974 Apr;5(4):123-9.
12. Shelton JD, Bradshaw L, Hussein B, Zubair Z, Drexler T, McKenna MR. Putting Unmet Need to the Test: Community Based Distribution of Family Planning in Pakistsan. Int Fam Planning Perspectives 1999 Dec;25(4):191-5.
13. Kaseje DC, Sempebwa EK, Spencer HC. Community-based distribution of family planning services in Saradidi, Kenya. Ann Trop Med Parasitol 1987 Apr;81 Suppl 1:135-47.
14. Legemate C, Blignaut P, van VN, Wertlen W, van NS, Theron M, et al. A community-based distribution strategy for family planning. S Afr Med J 1996 Nov;86(11):1386-8.
15. Mwaikambo L, Speizer IS, Schurmann A, Morgan G, Fikree F. What works in family planning interventions: a systematic review. Stud Fam Plann 2011 Jun;42(2):67-82.
16. Research and Development Solutions. Policy Brief Series No. 15: The Contribution of Lady Health Workers Towards Family Planning in Pakistan. 2012.
17. Cleland J, Wilson C. Demand Theories of the Fertility Transition: An Iconoclastic View. Population Studies 1987;41(1):5-50.
18. National Institute of Population Studies P. Pakistan Demographic and Health Survey 1990-1. 1990.
19. Research and Development Solutions. Policy Brief 02: Family Planning Services in Pakistan. 2012.
20. Research and Development Solutions. Policy Brief 04: Utilization and Costs of Family Planning Services in the Public Sector in Pakistan. 2012.