RESEARCH ARTICLE

Revisiting the costs and utilization of family planning services in the public sector in Pakistan

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Abstract

Objective: We revisited the costs of Family Planning per woman served per year in the public sector using data from the Pakistan Demographic and Health Survey 2017-18. These costs were estimated previously in 2006-07. The public sector (Population Welfare Department and the Department of Health) accounts for around 35% of all family planning services provided each year. We looked at utilization patterns of public sector family planning services and estimated its costs of FP per woman served per year and cost per Couple Years of Protection (CYP).

Methods: Pakistan Demographic and Health Survey 2017-18 was used to estimate the number of users of public sector services and their usage patterns. These were depicted using simple tables and with binary logistic regression analysis. National Health Accounts 2012-16 were used to estimate government allocations for family planning. Costs of FP were estimated by simply dividing the allocation by the two public sector departments - Population Welfare (PWD) and Health (DoH) — with the number of users they serve each year. Costs were also depicted per CYP generated.

Results: Both the public and private sectors provide family planning services. The PWD serves an estimated 724,320 clients annually compared to 915,817 by DoH. Together these amount to around 5% of all MWRA, a proportion that remains unchanged over past decade. Due to their very different method mix PWD serves 2,344,411 CYP while DoH serves 988,603. DoH delivers most of its services in the form of condoms and pills which LHWs can carry. The PWD, having increased its range of products as compared to a decade ago, provides condoms, pills, IUDs and tubal ligations. Users of the public sector tend to belong to urban areas (AOR 1.2, range 1.2-1.2), are poor (AOR 2.7, range 2.7-2.7), and tend to have more children (AOR 1.1, range: 1.1-1.1). The exception is that DoH's lady health workers serve a large portion of rural population. Costs of FP per woman per year for PWD are USD 28 and for DOH are USD 14, costs per CYP are calculated are USD 9 and 13 respectively.

Conclusion: The public sector fills an important niche by serving a poorer population and through rural household outreach. While costs have decreased since 2007, they remain higher than regional averages and suggest significant inefficiencies as both fixed facilities and lady health workers are considerably underutilized.

Keywords: family planning, Cost per CYP, Cost per woman served, Public sector, Efficiency.

(JPMA 71: S-33 [Suppl. 7]; 2021)

Introduction

Public sector in Pakistan accounts for 30% of all outpatient visits[1] and 32% (PKR 302.3 billion) of all healthcare spending.[2] In family planning (FP), 44% of all current users received their current method from public sector,[3] although only around 35% of FP services provided within the past year were provided by the public sector (the rest of the users had received their methods in previous years).[4] Within the public sector, contraceptives are provided through provincial Departments of Population Welfare and Health. Most of FP services by Departments of Health (DoH) are in the form of condoms and oral pills, distributed during household visits by lady health workers (LHWs), with a smaller contribution from health facilities. Departments of Population Welfare (PWD) operate from their facilities which mostly provide tubal ligations and Intra Uterine Devices (IUDs).

In a previous paper using data from 2007-08, we had arrived at public sector costs of family planning services at USD 55 per woman served per year or USD 17 per CYP.[5] We revisit these costs with more recent data.

Methodology

The Pakistan Demographic and Health Survey (PDHS)[6] describes the age and other demographics of individual family planning users along with the venue from which they availed their FP services. This information was used to determine the characteristics of women who had availed FP services from the public sector. Users of public and private sector were then compared in terms of their demographic profile and methods mix.

Costs of FP services were estimated by dividing budgetary allocations for FP (from the National Health Accounts -

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NHA) by the number of FP users, and the CYPs generated, of the public sector, as estimated from the PDHS 2017-18.[6]

Allocations for FP services are inferred differently for the two government departments. The PWD mostly provides FP services, and claims that around a third of their visits are for FP, while the rest are general medical visits by women. Thus, we estimated their costs of FP services to be a third of the total allocation given to them, as per the NHA. This is the same assumption used in our previous analysis.

The costs per woman served per year through DoH are more complicated to compute due to lack of budgetary disaggregation between the lady health workers programme (LHWP) and facility-based services; and for the proportion of services that are for family planning. Estimates were developed using assumptions from previous analysis (2007-08) where 16% of total DoH funds were allocated to the LHWP and 84% to health facilities. Of the latter, 25% of the budget was spent on outpatient services, of which 15% were for FP services.[5] Thus 0.84*0.25*0.15=0.0315 or 3.15% of total health department spending was allocated for FP from facilities. Similarly, the LHWP Report 2009-10 suggests LHWs spend an average of 4.27 hours per week or 5.7% of their time on family planning. Thus, 0.16*0.057=0.00912 or 0.91% of all DoH allocation was for FP through LHWP.

Allocations for FP in the public sector vary widely by the year (Table-1) and even more widely between provinces. For e.g., Balochistan had no allocations for PWD for 2015-16. To account for this variation, costs were estimated using the average of the allocations for the 3 years succeeding 2010-11 when decision-making responsibilities were devolved to the provinces.

Number of users were estimated using the PDHS 2017-18. PDHS describes what proportion of users received their methods from the public sector. These were multiplied with population data from the census 2017 to arrive at the number of users of FP services. Total FP users was further adjusted by only including those women with tubal ligation (7%) or an IUD (5%) that had received the procedure in the 12 months prior to the PDHS 2017-18 to estimate the number of women that avail any FP services in a given year.

Couple Years of Protection (CYP) were estimated by multiplying users for each contraceptive with the CYP unit conversion factors from Measure Evaluation website. For example, total users of tubal ligation were multiplied by 10 to arrive at estimated CYPs.

The cost of FP in public sector was calculated by dividing public sector costs on FP by each of the departments by the total number of women that avail FP, as well as by total number of CYPs generated:

The FP cost per woman per year is calculated as:

$$\frac{\text{Total budget allocation}}{\text{Total no.of women served with FP in past 12 months}}$$

The FP cost per CYP is calculated as:

$$\frac{\text{Total budget allocation}}{\text{Total no.of CYPs generated in past 12 months}}$$

Results

Of all women that availed FP services in the year prior to the PDHS 2017-18 (a proxy for services rendered each year), 35% did so from the public sector. Altogether 15% had availed services from PWD and 19% from the DoH (15% through LHWs and 4% from health facilities).

Users of public (DoH or PWD) and private sector (includes private facilities, NGO run facilities and self-procurement from shops etc.) were similar in terms of age, education, number of children, age at first birth, and births in past 5 years. While public and private sector are equally likely to serve rural areas, within the public sector, DoH (via its LHW) have more rural coverage than PWD (Table-2). Compared to users of the private sector, those who avail public sector facilities are older, have higher parity and had a visit by field workers in past 12 months (Table-3). A binary logistic regression model also confirms that public sector users are poorer and more likely from Sindh, Balochistan or Gilgit-Baltistan and had heard FP messaging on radio. They were more likely to be older,

Table-1: Annual budget allocations for family planning.

	2005-06	2007-08	2009-10	2011-12	2013-14	2015-16	Average annual since 2012
PWD	6,400	3,967	2,325	6,582	11,456	968	6,335
DoH	721	218	372	749	1,207	1,663	1,206
Total	7121	4185	2697	7331	12,663	2,631	7,542

All funds in million PKR.
Source: National Health Accounts[2 2016, Pakistan Demographic and Health Survey 2017-18.[6]
PWD: Population Welfare Department. DoH: Department of Health.

Table-2: Profile of users of Public vs. Private and PWD vs. MOH Facilities.

Means	Public	Private	p-value	PWD	DoH	p-value
Respondent's current age	36	32	<0.01	36	34	<0.01
Highest year of education	4	4	<0.01	4	4	<0.01
Number of living children	5	3	<0.01	5	4	<0.01
Births in last five years	1	1	<0.01	1	1	<0.01
Age of respondent at 1st birth	21	21	<0.01	20	21	<0.01
Percentages	**Public**	**Private**	**<0.01**	**PWD**	**DoH**	**<0.01**
Urban	36	37	<0.01	36	23	<0.01
Heard of FP on television in last month	25	22	<0.01	26	14	<0.01
Wealth quintiles						
Poorest	17	18	<0.01	17	19	<0.01
Poorer	21	20	<0.01	21	34	<0.01
Middle	25	20	<0.01	24	31	<0.01
Richer	20	21	<0.01	20	14	<0.01
Richest	17	21	<0.01	17	01	<0.01

Source: Pakistan Demographic and Health Survey 2017-18.[6]
PWD: Population Welfare Department. MoH: Ministry of Health. DoH: Department of Health. FP: Family Planning.

Table-3: Factors Associated with the Use of Public (vs. Private) Sector.

	Public sector		
	AOR	95% C.I. for EXP(B)	
		Lower	Upper
Region			
Sindh	2.10	2.10	2.10
Baluchistan	1.70	1.70	1.70
Punjab	1.87	1.87	1.87
KPK	0.95	0.95	0.95
Gilgit-Baltistan	3.91	3.90	3.91
Urban	1.18	1.18	1.18
Education in single years	0.97	0.97	0.97
Sex of Household Head	0.94	0.94	0.94
Wealth index			
Poorest	2.74	2.74	2.74
Poorer	2.30	2.30	2.30
Middle	1.89	1.89	1.89
Richer	1.36	1.36	1.36
Births in last 5 years	0.84	0.84	0.84
Age of respondent at first birth	0.99	0.99	0.99
No. of living children	1.12	1.12	1.12
Heard FP on radio	1.35	1.35	1.35
Heard FP on TV	0.98	0.98	0.98
Heard FP by text	0.30	0.30	0.30
Visited by field worker in past 12 months	2.15	2.15	2.15
Visited health facility in past 12 months	0.90	0.90	0.90
Worked after marriage	0.75	0.75	0.75
Constant	.271		

Source: Pakistan Demographic and Health Survey 2017-18.[6]
FP: Family Planning. TV: Television.

and less likely to have had recent birth (AOR: 0.8, $p < 0.05$), to have received texts about FP (AOR: 0.3, $p < 0.05$), or to have worked after marriage (AOR: 0.7, $p < 0.05$).

Method mix

We compared the method mix for public sector and private users from service source data in PDHS 2017-18. Male condoms (36%) were the most served method closely followed by injections (31%). Condoms account for 54% of all clients of DoH through their lady health workers, while the PWD serves more clients with injections (40%), and tubal ligations (19%). On the other hand, private sector users mostly (85%) buy short term methods such as condoms and pills.

Table-4: Family Planning Method Mix PDHS 2017-18 (%).

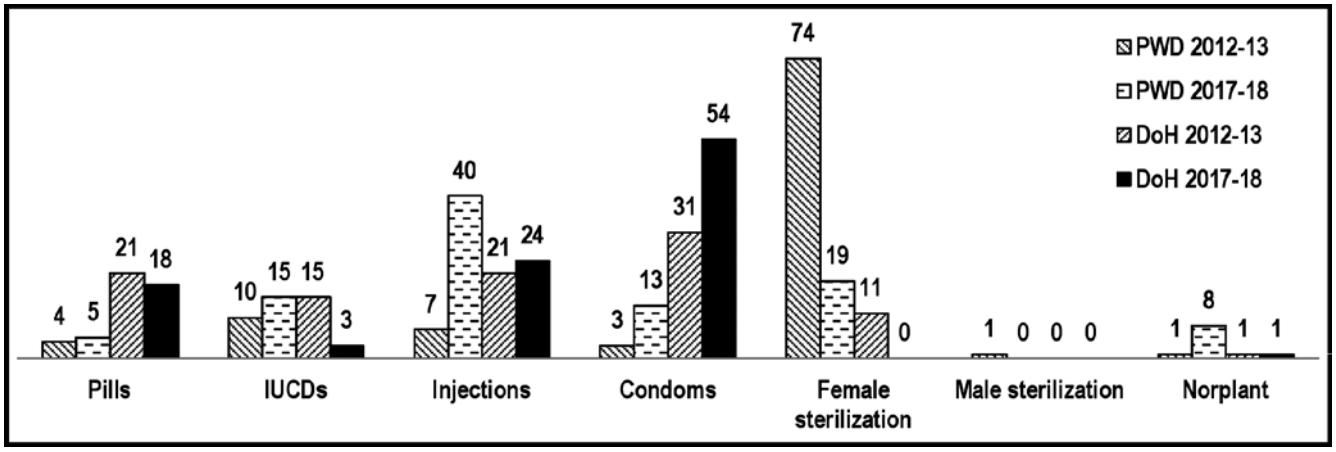
Method mix (percentages)	PWD	DoH	p-value	Public	Private	p-value
Pill	5	18	<0.01	13	10	<0.01
IUD	15	3	<0.01	8	2	<0.01
Injections	40	24	<0.01	31	9	<0.01
Male condom	13	54	<0.01	36	75	<0.01
Tubal ligation	19	0	<0.01	8	3	<0.01
Implants/Norplant	8	1	<0.01	4	0	<0.01

Source: Pakistan Demographic and Health Survey 2017-18.[6]
PWD: Population Welfare Department. DoH: Department of Health. IUD: Intra Uterine Device.

The services provided by the PWDs have varied more than that of DoH between PDHS 2017-18 and PDHS 2012-13.[6,7] Tubal ligation, a previous mainstay, has fallen considerably while injections, condoms and implants have increased significantly. By contrast, the method mix from DoH remains stable except a slight rise in provision of condoms.

Costs of family planning

An estimated 724,320 women were served with 2.344 million CYP through the PWDs. Average allocation for the



Source: PDHS 2013 and 2018.[6,7]
IUCDs: Intra Uterine Contraceptive Device. PWD: Population Welfare Department. DoH: Department of Health.

Figure: Change in method mix served by the public sector.

Table-5: Cost of Family Planning per woman per year and Costs of Family Planning per Couple Years of Protection (CYP).

	PWD	DoH
Users	724,320	915,817
CYP	2,344,411	988,603
	PKR (USD)	**PKR (USD)**
Budget (in million)	6,335 (61)	1,206 (11.6)
FP allocation (in million)	2,112 (20)	1,317 (12.66)
Cost per user 2017	2,916 (28)	1,438 (13.82)
Cost per CYP 2017	901 (8.66)	1,332 (12.80)

Source: National Health Accounts 2016,[2, Pakistan Demographic and Health Survey 2017-18.[3]
PWD: Population Welfare Department. DoH: Department of Health. CYP: Couple Years of Protection.

post-2011 period for the PWD was PKR 6,335 million (USD 61 million) per year; however, since PWD estimates that only around a third of the clients served in their clinics are for FP, this allocation was re-adjusted to PKR 2,112 million (USD 20 million). Applying these allocations to users and CYP, the costs of FP come to PKR 2916 (USD 28) per user served and PKR 901 (USD 8.66) per CYP. This compares to (inflation adjusted) USD 84 per user and USD 20 per CYP from the 2007 assessment.[5]

Similarly, DoH has served 915,817 users with 988.603 CYP — mostly via short term methods distributed by the LHWs — for an allocation of PKR 1,206 million (USD 11.6 million) per year. This translates into costs of PKR 1,438 (USD13.82) per user and PKR 1,332 (USD 12.80) per CYP. This is compared to inflation adjusted USD 28 per user and USD 21 per CYP from 2007.

Discussion

The public sector serves around a third of all family planning clients each year. It remains an important source of FP services to the poorest due to lower out of pocket costs to clients and better coverage in rural areas through the LHWs. The average public sector FP user is rural, poor, and has more than 4 children. Within the public sector, DoH has higher coverage through the LHWs and provides a combination of short to medium-term contraceptive methods (condoms, pills and injections). The PWDs on the other hand serve with longer-term reversible contraceptive methods such as injections, IUDs and implants plus tubal ligations; although the number of tubal ligations has fallen significantly in the past 5 years.

The overall utilization of the public sector remains sparse and has changed very little since 2006. e.g., the average utilization of a PWD facility would be around 226 clients a year or less than a client a day. Similarly, LHWs - who serve nearly half of the clients served by the public sector each year — on average serve fewer than 10 clients each year per LHW, or around 4% of all eligible women in their own catchment areas. These suggest that the use of these services is passive. There is little promotion of FP by any of the government departments. Low utilization in conjunction with fixed costs explains why unit costs are so much higher than regional averages.

Allocation of funds to FP has been inconsistent and suggests that, despite strong claims and commitments, family planning has low priority for the government. This is exemplified by the lack of change in public sector funding in the aftermath of Pakistan's well publicized commitment at the FP2020 conference in London in 2012. Also, some provinces had no allocations at all for some years. It is unclear how these departments operated in those years. This diminished funding, rather than

organizational efficiency explains the reduction in unit costs that were observed for PWD and DoH.

Despite a significant drop in costs per woman served per year under PWD (from USD 54 in year 2007-08 to USD 28 in 2016-17) or DoH (USD 33 in 2009-10 and USD 12.6 in 2016-17); their costs remain much higher than estimated local and reported global averages suggesting continued inefficiencies. E.g. for their cost benefits analysis,[8] the UNFPA estimated that it costs USD 13 for tubal ligation, USD 7 per IUD, USD 4 for pills, USD 2 for condoms and USD 5 for injections by LHWs in Pakistan (Ms. Federica Maurizio, UNFPA, personal communication, July 2020). One voucher based FP programme in the private sector reported an average cost of USD 19.5 per woman served per year and USD 4.5 per CYP.[9] Global costs may be higher, e.g. the average costs of FP per woman per year across Asia and Africa range between USD 18-28, and globally between USD 5-39.[10] Costs are lower for facility-based services (USD 5-15), while programmes with community outreach can be 2-3 times more expensive.[11] By any reckoning, public sector costs in Pakistan far exceed these national and global averages. That said, the UNFPA report suggests that each USD 1 invested in FP can save USD 4 in direct healthcare costs.[8] Even at their inefficient rates investing in the public sector — with particular emphasis on rural household outreach and the poor — there is considerable merit in funding and improving public sector FP services.

Limitations

One of the limitations of this study is that the data from NHA depicts funding allocations and not actual spending. Furthermore, NHA data show great variation in budgetary allocations for FP. The NHA 2016 shows very low budget allocation for PWDs. In fact, it shows no budget for Punjab and Sindh and a total of PKR 705 million spent in KP (PKR 20 million) and Balochistan (PKR 685 million). Actual figures for utilization are not publicly available. Thus, to account for this lack of publicly available data, we have used post-devolution average budget allocation to estimate costs. The absence of any allocation for some years for some provinces suggests that there are additional sources of funding that cover at least some expenses such as salaries, that are not reported in the NHA.

Specific disaggregated costs for DoH were not available. We therefore used estimated budget divisions based on historical information.[5] The LHWP has also undergone changes over the years and the services of LHWs expanded particularly with regards to immunization. However, due to lack of data on these changes we were unable to adjust time allocations.

Based on PDHS 2017-18 data, utilization of PWD facilities was extremely low, and thus, the binary logistics regression yielded no results for the comparison between the public sector providers (PWD vs. DoH).

Conclusion

The public sector targets the needs of an important niche in family planning programming, that of rural poor, albeit at high costs. Strategic placement and usage of resources to enhance access to FP services can help reduce costs. Further, underutilization can be addressed through coordination with the private sector so that private and community organizations may refer clients to public sector for FP services. Finally, use of service data will both improve the quality of such data and allow better and strategic use of scarce public sector resources.

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