

Scaling Modern Family Planning Through the Challenge Initiative: Insights from 15 Urban Districts in Pakistan

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Abstract

Background: The Challenge Initiative (TCI) is a global platform operating in 13 countries, with implementation in Pakistan led by Greenstar Social Marketing. Partnering with 15 local governments, TCI delivers high-impact interventions (HIIs) in government's priority areas to expand universal access to reproductive health and family planning, while advocating for behavioral change. This study aimed to assess the effect of TCI's HIIs on the uptake of short-acting methods (SAM), long-acting reversible contraception (LARCs), and permanent methods (PM) in 15 urban districts of Pakistan.

Methodology: Starting in June 2022, TCI introduced multiple HIIs across 15 urban districts. Performance was evaluated using data from the Contraceptive Logistics Management Information System (cLMIS) from June 2020 to August 2024. A two-sample t-test was applied to estimate the interventions' effect on average monthly client volume per district.

Results: Average monthly clients increased by 715 for SAM (1,425 to 2,150), 740 for LARCs (670 to 1,410), and 66 for PM (88 to 154), with total monthly clients rising by 1,521 (2,183 to 3,704). Since June 2022, TCI-supported facilities have served approximately 678,200 modern family planning clients—60% SAM, 35% LARCs, and 5% PM—and generated 288,010 unique additional users across all districts.

Conclusion: TCI has substantially expanded access to modern family planning services in 15 urban districts, contributing 288,010 additional users—a critical step toward Pakistan's FP2030 commitments. By strengthening local government capacity, TCI promotes sustainability and long-term program ownership.

Keywords: Family planning; high-impact interventions; additional users; urban health; FP2030; Pakistan; TCI

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Introduction

An estimated 121 million unintended pregnancies take place each year globally which is nearly half of all pregnancies; 60% of these result in abortions, predominantly unsafe in low- and middle-income countries (LMICs) (1). Use of modern contraception plays a critical role in preventing unintended pregnancies and improving maternal and child health outcomes (2). However, despite widespread awareness, access and use of modern contraception remains uneven across regions, especially in LMICs (3,4).

In Pakistan, 12.7 million pregnancies take place annually with 47 % of these pregnancies being unintended (5). 63 % of these unintended pregnancies are resolved through abortions, most of which are unsafe, while the remaining 37% result in unintended births or miscarriages (5). The major culprit behind these high incidence rates of unintended pregnancies and abortions is the low modern contraceptive prevalence rate (mCPR) of 25% (5,6). Despite the fact that there is universal awareness of modern contraceptive methods among married women of reproductive age (MWRA), high level of unmet need persists as this high level of awareness has not resulted in the corresponding level of use (6,7). To bridge this gap, The Challenge Initiative (TCI) began implementation of its high-impact interventions (HIIs) in 15 urban districts of Pakistan, covering



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28% of the total national population and 53% of total urban population, in collaboration with the government's provincial departments of Population Welfare and Health (8).

The Challenge Initiative (TCI)

The Challenge Initiative (TCI) is a global platform implemented in 13 countries across Africa and Asia, managed by the Johns Hopkins Bloomberg School of Public Health (9–12). In Pakistan, Greenstar Social Marketing has been leading the implementation of HIIs since June 2022. The high-impact interventions selected for Pakistan focus on improving service delivery, demand generation, and advocacy for modern family planning (FP). Under service delivery, there are eight HIIs: 1) Integrated In-reaches, which are dedicated facility-based days for providing family planning services, 2) Integrated Out-reaches, which refers to contraceptive services provided through outreach vans and satellite camps, 3) Family Planning Integration, which refers to the integration of modern family planning services into other health areas such as vaccination or disease prevention, 4) Post-partum Family Planning and 5) Post-Abortion Family Planning refers to the provision of modern contraception to women after their delivery or abortion, 6) On-the-Job Training, refers to the on-the-job training provided to field staff by senior medical staff on provision of contraceptive counselling and services, 7) Whole Site Orientation refers to facility-based sessions where each staff member including facility's janitorial staff and guards on modern family planning methods to facilitate clients better, and 8) Facility Makeover refers to TCI-funded infrastructure renovations of health facilities that improve service delivery and client experience. Under demand-generation, the main HII is Community Health Workers which refers to either the training of existing of health workers of government departments on social mobilization for modern contraceptive methods or recruitment of community health volunteers (CHVs) for the same purpose (9–13).

TCI's three-year implementation began in June 2022 across Faisalabad, Gujranwala, Lahore, and Rawalpindi. While implementation began in Hyderabad, Karachi Central, Karachi East, Karachi South, Karachi West, Karachi Korangi, and Karachi Malir in September 2022. Islamabad was initiated into the program in December 2022. Implementation began in Karachi Keamari in May 2023 after it was carved-out as a new district from Karachi West in March 2023. Lastly, TCI's two-year implementation began in Multan and Khanewal in October 2023. These districts' governments self-selected into the program as they consisted of high urban populace totaling to 63 million representing 28 % of Pakistan's total population.

TCI model banks on enhancing government's capacity to deliver high-impact interventions and ensures sustainable impact by increasing government's self-reliance to implement HIIs over the course of a three-year partnership with each local government or two-year partnership in case of Rapid-Scale Implementation (RSI) in districts Khanewal and Multan. Government partners include Provincial Departments of

Population Welfare and Health, Integrated Reproductive Maternal Neonatal and Child Health, and Peoples' Primary Healthcare Initiative.

This study provides evidence on the effectiveness of government-led high-impact interventions in urban districts of Pakistan. It contributes insights towards achieving national FP2030 targets by estimating additional users for family planning generated through public sector provision of family planning services.

Methodology

Study Design

The study used a retrospective observational study design using secondary data from the contraceptive Logistics Management Information System (cLMIS) on contraceptive performance for each implementing district. This design was adopted to assess trends in contraceptive performance across 15 urban districts by analyzing data reported before and after the implementation of TCI's high-impact interventions.

Data Source

Data were obtained from the cLMIS which is a Management Information System (MIS) developed for tracking and management contraceptives logistics (14,15). Contraceptives being supplied throughout the country through the Central Warehouse through the manual record keeping, with all its inadequacies and ensuing errors and delays on the national scale, have been replaced by the online system of "the Contraceptives Logistics Management Information System (cLMIS)" developed in cooperation with the Ministry of Health and Coordination, the Provincial Departments of Health (DOH), the Population Welfare Departments (PWD) with support of the USAID Deliver Project (15). To regularize the flow of logistics, cLMIS was launched in Pakistan in 2010 and gradually had spread through most of the country (143 districts) by October 2012 (15). The system aids in stock management as well as the assessment of consumption patterns (Pakistan Logistics Management Information System) in public sector. Since the cLMIS contains data on units dispensed including data on permanent contraceptive methods i.e., tubal ligation and vasectomies, it can be used to infer programmatic impact as well (14,15). The database contains method-wise data on Injectables, Emergency Contraceptive (EC) pills, Condoms, Oral Contraceptive Pills, Intra-uterine Device (IUDs), Implants, Tubal Ligation, and Vasectomies. Aggregated variables were created for short-acting methods, long-acting reversible contraceptives, and permanent methods.

The cLMIS provides monthly dispensation data from all government facilities in the 15 TCI intervention districts, namely, Faisalabad, Gujranwala, Lahore, Rawalpindi, Hyderabad, Karachi Central, Karachi East, Karachi South, Karachi West, Karachi Keamari, Karachi Korangi, Karachi Malir, Islamabad, Multan, and Khanewal. Monthly data were obtained

from June 2020 to July 2024. A new variable 'TCI intervention' tracing operationality of TCI was added to the dataset marking months without TCI implementation as '0' and months after TCI began implementation as '1'.

Data Analysis

Since cLMIS reports on the number of commodities, data were extracted on each contraceptive method separately, and are converted into clients using the Couple-Years of Protection (CYP) conversion factor for each contraceptive method(16). Once converted into clients, 45 two-sample t-tests were conducted to compare the monthly average units aggregated variables across districts between pre-TCI and post-TCI intervention. District Keamari was excluded from these analyses as there was no baseline for the pre-TCI period, as Keamari became a new district during TCI implementation. Additional clients were estimated by first calculating the number of visits or active users for various contraceptive methods, followed by estimating the net accumulated clients (NAC), which reflects the cumulative number of clients, accounting for client retention over time (using carry-forward techniques with decay rates for discontinuation). NACs are estimated for each city in the month before the implementation month as the baseline NAC. The same methodology is applied to estimate the NAC at the current implementation month, October 2023. Additional clients are then calculated by measuring the increase in clients compared to the baseline period.

Inclusion and Exclusion Criteria

The inclusion and exclusion criteria for the study is shared in Table 1 below:

Table 1: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Districts with TCI implementation reporting in the cLMIS	District Keamari, due to the absence of baseline data, as it was carved out as a separate district during the TCI implementation period
Districts reporting data consistently during the pre-TCI and post-TCI periods	Districts not part of TCI intervention were excluded

Ethics

The study protocol was reviewed and approved by the Research Ethics Committee of Research and Development Solutions (RADS) (Ref: No. RADS/IRB-GSM/26-11-2024/067).

Results

Overall – Comparison

The overall comparison of average monthly clients between the pre-TCI intervention period and post-TCI intervention period showed statistically significant increments for SAM, LARC, PM, and Total Clients (Figure 1). Average monthly clients increased by 715 from 1,425 to 2,150 for short-acting methods, by 740 from 670 to 1,410 for long-acting reversible contraception, by 66 from 88 to 154 for permanent methods, and by 1,521 from 2,183 to 3,704 for overall clients.

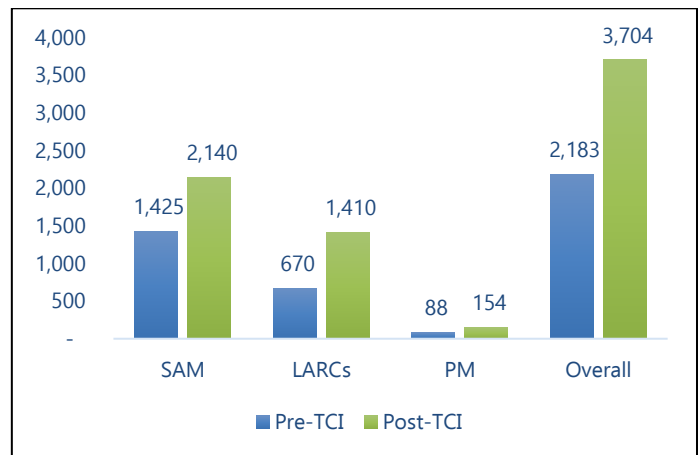


Figure 1: Comparison of Average Monthly Clients Pre- and Post-TCI

District-level Comparison – Short-Acting Methods (SAM)

The district-level comparison for monthly average of short-acting methods showed statistically significant increments for Faisalabad, Gujranwala, Hyderabad, Islamabad, Karachi Central, Khanewal, Lahore, Multan, and Rawalpindi (Table 2). The highest increase of 2,753 was observed for district Rawalpindi increasing from a monthly SAM average of 2,923 clients to 5,676 clients. Moreover, no statistically significant differences were observed for districts Karachi East, Karachi South, Karachi West, Karachi Korangi, and Karachi Malir.

District-level Comparison – Long-acting Reversible Contraception (LARCs)

The district-level comparison for monthly average of long-acting reversible contraceptive (LARC) methods showed statistically significant increases for all intervention districts except for Karachi West (Table 3). The highest increase of 1,811 was observed for district Multan increasing from a monthly LARC average of 1,740 clients to 3,551 clients.

Table 2: Comparison of Average Monthly Clientele for SAM Pre- and Post-TCI

City	Pre-TCI	95% Confidence Interval	Post-TCI	95% Confidence Interval	Difference	95% Confidence Interval
Faisalabad	2,388	2,057; 2,719	3,006	2,718; 3,294	617**	191; 1,044
Gujranwala	1,050	914; 1,185	1,755	1,658; 1,852	705***	546; 864
Hyderabad	1,327	1,202; 1,452	1,876	1,762; 1,991	549***	383; 715
Islamabad	651	522; 779	1,843	1,625; 2,062	1,192***	958; 1,427
Karachi Central	719	666; 772	903	742; 1,064	176*	21; 347
Karachi East	926	785; 1,065	963	855; 1,071	37	-136; 211
Karachi South	973	906; 1,040	959	926; 993	13	-87; 60
Karachi West	932	765; 1,098	1,080	966; 1,193	148	904; 1,105
Khanewal	1,287	1,077; 1,495	2,026	1,840; 2,212	740**	362; 1,118
Karachi Korangi	805	721; 887	822	782; 862	17	-72; 108
Lahore	3,436	3,004; 3,867	4,590	4,235; 4,945	1,154**	614; 1,694
Karachi Malir	664	429; 898	1,107	742; 1,572	443*	24; 863
Multan	3,379	2,797; 3,960	4,940	3,985; 5,894	1,561**	430; 2,691
Rawalpindi	2,923	2,562; 3,283	5,601	5,014; 6,189	2,678***	1,969; 3,387
Level of Significance: *p<0.05, **p<0.01, ***p<0.001						
Values estimated using Two-sample T-test with Equal Variances						

Table 3: Comparison of Average Monthly Clientele for LARCs Pre- and Post-TCI

City	Pre-TCI	95% Confidence Interval	Post-TCI	95% Confidence Interval	Difference	95% Confidence Interval
Faisalabad	860	629; 1,090	2,651	2,464; 2,839	1,792***	1,505; 2,078
Gujranwala	501	341; 660	2,115	1,928; 2,302	1,614***	1,368; 1,861
Hyderabad	728	638; 819	1,010	887; 1,133	282**	134; 430
Islamabad	663	580; 745	1,222	1,067; 1,377	559***	399; 720
Karachi Central	244	211; 276	340	297; 384	96**	43; 149
Karachi East	183	163; 202	356	272; 440	173**	90; 256
Karachi South	471	412; 530	594	498; 691	123*	14; 232
Karachi West	323	238; 407	430	376; 483	106*	8; 205
Khanewal	752	528; 974	1,857	1,498; 2,217	1,106***	674; 1,538
Karachi Korangi	219	190; 247	319	237; 402	100*	16; 184
Lahore	1,472	1,191; 1,752	3,248	2,907; 3,588	1,775***	1,333; 2,218
Karachi Malir	144	104; 182	508	309; 706	364**	170; 557
Multan	1,740	1,429; 2,050	3,641	3,079; 4,204	1,901***	1,285; 2,517
Rawalpindi	1,586	1,246; 1,925	3,187	2,580; 3,794	1,601***	881; 2,321
Level of Significance: *p<0.05, **p<0.01, ***p<0.001						
Values estimated using Two-sample T-test with Equal Variances						

Table 4: Comparison of Average Monthly Clientele for Permanent Methods Pre- and Post-TCI

City	Pre-TCI	95% Confidence Interval	Post-TCI	95% Confidence Interval	Difference	95% Confidence Interval
Faisalabad	174	103; 243	442	404; 480	268***	193; 342
Gujranwala	81	48; 113	183	171; 194	102***	71; 134
Hyderabad	171	129; 213	259	232; 285	87**	39; 136
Karachi Central	76	66; 85	75	67; 82	-1	-12; 11
Karachi East	5	3; 7	7	4; 10	2	-2; 5
Karachi South	235	208; 262	301	268; 334	66**	24; 107
Karachi West	26	19; 33	20	16; 24	-6	-13; 2
Khanewal	134	100; 167	140	106; 173	6	-55; 68
Karachi Korangi	16	12; 20	17	6; 28	1	-10; 12
Lahore	78	46; 110	161	143; 178	82***	48; 115
Karachi Malir	26	19; 32	44	30; 57	18**	4; 32
Multan	98	69; 127	132	108; 155	34	83; 128
Rawalpindi	197	156; 239	378	348; 408	180***	261; 330
Level of Significance: *p<0.05, **p<0.01, ***p<0.001						
Values estimated using Two-sample T-test with Equal Variances						

Table 5: Comparison of Average Monthly Clientele Pre- and Post-TCI

City	Pre-TCI	95% Confidence Interval	Post-TCI	95% Confidence Interval	Difference	95% Confidence Interval
Faisalabad	3,422	2932; 3913	6,100	5,799; 6,411	2,677***	2129; 3225
Gujranwala	1,632	1,394; 1,870	4,054	3,806; 4,303	2,422***	2,082; 2,763
Hyderabad	2,227	2,049; 2,405	3,146	2,944; 3,348	919***	657; 1,181
Islamabad	1,341	1,165; 1,516	3,066	2,702; 3,430	1,726***	1,360; 2,091
Karachi Central	1,039	964; 1,113	1,319	1,139; 1,499	279**	92; 467
Karachi East	1,114	974; 1,253	1,327	1,145; 1,508	212	-9; 435
Karachi South	1,680	1,560; 1,799	1,856	1,739; 1,973	176	12; 339
Karachi West	1,282	1,037; 1,525	1,530	1,394; 1,668	249	-26; 525
Khanewal	2,172	1,734; 2,608	4,024	3,574; 4,475	1,852***	1,052; 2,653
Karachi Korangi	1,040	948; 1,132	1,159	1,047; 1,271	119	-21; 260
Lahore	4,987	4,359; 5,614	7,999	7,476; 8,522	3,012***	2,222; 3,802
Karachi Malir	833	571; 1,094	1,659	1,132; 2,186	826**	258; 1,393
Multan	5,217	4,336; 6,097	8,713	7,498; 9,928	3,496**	1,831; 5,161
Rawalpindi	4,707	4,167; 5,245	9,167	8,128; 10,205	4,460***	3,243; 5,677

Level of Significance: *p<0.05, **p<0.01, ***p<0.001
Values estimated using Two-sample T-test with Equal Variances

District-level Comparison – Permanent Methods (PM)

The district-level comparison for monthly average of permanent methods showed statistically significant increments for Faisalabad, Gujranwala, Hyderabad, Karachi South, Lahore, Karachi Malir, and Rawalpindi (Table 4). The highest increment of 268 was observed for district Faisalabad increasing from a monthly PM average of 174 clients to 442 clients. Furthermore, no statistically significant differences were observed for districts Karachi Central, Karachi East, Karachi West, Khanewal, Karachi Korangi, and Multan.

District-level Comparison – Total Clients

The district-level comparison for monthly average of total clients showed statistically significant increments for districts Faisalabad, Gujranwala, Hyderabad, Islamabad, Karachi Central, Khanewal, Lahore, Karachi Malir, Multan, and Rawalpindi. The highest increment of 4,533 was observed for district Rawalpindi increasing from a monthly average of 4,707 total clients to 9,240 clients. Moreover, no statistically significant differences were observed for Karachi East, Karachi South, Karachi West, and Karachi Korangi as shown in Table 5.

Additional Clients

From June 2022 to September 2024, TCI Pakistan has supported the government in generating 288,010 Additional Clients for Modern Family Planning with 227,646 additional clients generated for long-acting reversible contraceptives, 39,104 additional clients generated for short-acting methods, and 21,260 additional clients generated for permanent methods. Highest additional clients for SAM were reported by district Malir in Karachi at 30,083 and lowest were reported by district Faisalabad at -12,262. Highest additional clients for LARCs were reported by district Lahore at 42,708 and lowest were reported by Karachi Central at 1,912. Moreover, highest additional clients for permanent methods were reported by district Faisalabad at 7,512 and lowest being reported by district Islamabad at -587.

With regards to overall performance in terms of additional clients, the highest number of additional clients were being reported by district Rawalpindi at 48,361 and the lowest number of additional clients were being reported by district Karachi West at 1,757.

Table 6: Additional Clients for Modern Family Planning by Method and District

City	Additional Clients for SAM	Additional Clients for LARCs	Additional Clients for PMs	Total Additional Clients
Faisalabad	-12,262	42,304	7,512	37,555
Gujranwala	1,523	36,725	2,872	41,119
Hyderabad	3,896	6,363	2,081	12,340
Islamabad	4,484	11,307	-587	15,203
Karachi Central	3,066	1,912	-58	4,920
Karachi East	10,588	3,707	49	14,345
Karachi South	55	2,743	1,548	4,345
Karachi West	-365	2,264	-141	1,757
Keamari	14,679	4,963	64	19,706
Khanewal	-4,797	7,698	-32	2,868
Korangi	1,291	2,070	-101	3,260
Lahore	-6,912	42,708	2,254	38,050
Malir	30,083	7,783	438	38,304
Multan	-11,544	17,171	250	5,876
Rawalpindi	5,322	37,927	5,112	48,361
Total	39,104	227,646	21,260	288,010

Discussion

This study provides quantitative evidence on the effectiveness of the TCI platform for increasing modern contraceptive users

across 15 urban districts in Pakistan. The study found a 110% increase in LARC users demonstrating substantial impact resulting in 227,646 additional LARC users generated since the program's inception. These findings align with results reported from other TCI-supported countries, Nigeria, India, and Kenya, where a similar set of high-impact interventions led to significant increases in contraceptive uptake (9,11,13). This study's findings further substantiate the generalizability of the TCI model to other LMIC contexts, especially in urban areas with high population density and supportive local governments. Moreover, the alignment of TCI's primary outcome, additional users, with FP2030 goals further highlight the potential of TCI in advancing countries towards achieving their global family planning commitments.

While the results are encouraging for LARCs, marginal declines in short-acting methods across districts is a cause for concern; this decline in the number of users for short-acting methods coincides with a drop in the level of contraceptive stock (17). Analysis of cLMIS stock records from 2022 to 2024 show a marked reduction in the availability of short-acting contraceptives i.e., condoms, oral pills, and injectables (17). The decline in the level of contraceptive stock available has particularly affected district Multan which had higher levels of stock in the months pre-intervention (17). Limited improvements were observed in Karachi districts which can be explained by women's preference for private facilities for modern contraceptive methods. The PDHS 2017-18 reported that in urban Sindh, only 31 % of the modern contraceptive methods were availed through government sources with the private and informal sector accounting for the larger proportion of the modern contraceptive usage (6).

This study reinforced the effectiveness of the TCI platform in significantly increasing modern contraceptive uptake, particularly for LARCs, across urban Pakistan. While supply-side challenges and private sector preferences affected short-acting method use in some districts, the overall programmatic impact remains strong. These findings support the scalability and adaptability of the TCI model for similar urban contexts in LMICs striving to meet their FP2030 commitments through sustainable, government-led family planning interventions.

Limitations

The study provides credible evidence on the impact of the TCI intervention; however, it only uses the baseline as a comparator and does not compare the temporal impact of the intervention with contraceptive performance of control districts. Future studies should focus on conducting a more robust analysis by comparing client volumes of TCI intervention districts with control districts. Furthermore, the assessment could not account for any covariates or confounding variables as the assessment was primarily based on the data coming in through the cLMIS which only reports on the districts' consumption of modern contraceptive methods.

Conclusion

The Challenge Initiative (TCI) has demonstrated measurable success in strengthening local government capacity to implement high-impact family planning interventions across 15 urban districts in Pakistan. Over the course of its implementation, the program has generated 288,010 additional modern contraceptive users, including 227,646 additional LARC users, reflecting a 110% increase in monthly LARC uptake. These results validate the effectiveness of TCI's model in translating political commitment and technical support into significant improvements in family planning service delivery and utilization.

Importantly, the initiative has also succeeded in embedding family planning into local government structures by influencing planning, budgeting, and workforce practices, laying the groundwork for long-term institutionalization of these interventions. While the gains in LARCs are substantial, supply chain limitations particularly for short-acting methods underscore the urgent need to strengthen commodity security to sustain and expand these improvements. Furthermore, the adaptability of the TCI model makes it a viable framework for improving outcomes in other health areas, especially when aligned with government priorities and ownership.

Overall, the initiative has not only accelerated progress toward Pakistan's FP2030 targets but also demonstrated that government-led, data-driven, and time-bound models like TCI can deliver meaningful, scalable, and sustainable impact in urban health systems.

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Ethical Approval:

The study protocol was reviewed and approved by the Research Ethics Committee of Research and Development Solutions (RADS)

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Conflict of interest: The authors declare that they have no conflicts of interest related to this project.

Authors' Contribution:

All Authors: Design, analysis, writing of the manuscript, final review

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