ORIGINAL RESEARCH ARTICLE

Strengthening access to long-acting reversible contraception within postabortion care in Tanzania: A pre-post evaluation

Colin Baynes[1]*, Danielle Garfinkel[2], Justin Kahwa[3], Grace Lusiola[3], Kathryn A. O'Connell[2]

EngenderHealth, Seattle, Washington, USA[1]; EngenderHealth, Washington, District of Columbia, USA[2]; EngenderHealth, Dares Salaam, Tanzania[3]

***For Correspondence:** Email: *colin.baynes@gmail.com*; Phone: +1 (917) 882-3705

Abstract

Postabortion care services provide lifesaving treatment for abortion-related complications and addresses women's needs by offering family planning (FP) counseling and voluntary access to contraception. Between 2016 and 2020, the Government of Tanzania sought to strengthen its PAC program by enhancing FP counseling and clients' access to a wide range of contraceptive options. The project team conducted a pre-post evaluation in 17 public sector healthcare facilities in mainland Tanzania and 8 in Zanzibar. It comprised structured client exit interviews (CEIs), completed first in 2016 (n=412) and again in 2020 (n=484). These data complemented an evaluation that used routine service statistics to demonstrate the intervention's effects on client-reported outcomes. Primary outcomes of the CEIs reflected client experience and satisfaction with services, and researchers compared pre-post differences using chi-square tests. There were improvements in numerous indicators, including client waiting times, recall of emergency procedure counseling, contraceptive uptake, and satisfaction with the quality of overall counseling and FP information and services; however, triangulation of CEI data with service statistics indicated that some outcomes, though still improved since baseline, attenuated. Strengthening the FP component of PAC is feasible in Tanzania and Zanzibar, but strategies to sustain quality improvements over time are needed. *(Afr J Reprod Health 2022; 26[5]: 28-40).*

Keywords: Postabortion care, contraception, service integration, Tanzania

Résumé

Les services de soins après avortement fournissent un traitement salvateur pour les complications liées à l'avortement et répondent aux besoins des femmes en offrant des conseils en matière de planification familiale (PF) et un accès volontaire à la contraception. Entre 2016 et 2020, le gouvernement tanzanien a cherché à renforcer son programme SAA en améliorant les conseils en matière de PF et l'accès des clientes à un large éventail d'options contraceptives. L'équipe du projet a mené une évaluation pré-post dans 17 établissements de santé du secteur public en Tanzanie continentale et 8 à Zanzibar. Il comprenait des entretiens de sortie structurés avec les clients (CEI), réalisés d'abord en 2016 (n = 412) et à nouveau en 2020 (n = 484). Ces données ont complété une évaluation qui utilisait des statistiques de service de routine pour démontrer les effets de l'intervention sur les résultats rapportés par les clients. Les principaux résultats des CEI reflétaient l'expérience du client et sa satisfaction à l'égard des services, et les chercheurs ont comparé les différences avant et après à l'aide de tests du chi carré. Il y a eu des améliorations dans de nombreux indicateurs, y compris les temps d'attente des clients, le rappel des conseils sur les procédures d'urgence, l'utilisation des contraceptifs et la satisfaction à l'égard de la qualité globale des conseils et des informations et services de PF ; cependant, la triangulation des données de l'IEC avec les statistiques de service a indiqué que certains résultats, bien qu'encore améliorés depuis la référence, se sont atténués. Le renforcement de la composante PF des SAA est faisable en Tanzanie et à Zanzibar, mais des stratégies pour maintenir les améliorations de la qualité au fil du temps sont nécessaires. *(Afr J Reprod Health 2022; 26[5]: 28-40).*

Mots-clés: Soins après avortement, contraception, intégration des services, Tanzanie

Introduction

Integration of health services improves the health of clients by increasing access to and use of numerous services. Indeed, since the Cairo International Conference on Population and Development of 1994, integration of voluntary and wide-ranging family planning services (FP) has been a cornerstone of sexual and reproductive health programs owing to its promise to meet the manifold needs of women and girls that engage health systems in different ways[1]. In this vein, the World Health Organization promotes the large-scale adoption of service packages that embed access to FP across the continuum of care, including pre-pregnancy, pregnancy, childbirth, and postpartum

stages of women's reproductive life cycle. Postabortion care (PAC) is often excluded from other maternal and reproductive health services, owing to restrictive policy and legal circumstances as well as to social stigma and their effects on the delivery of women's healthcare[2,3]. When this occurs, women faced with life-threatening complications from abortion, whether induced or spontaneous, may receive suboptimal care and miss opportunities to learn about FP and access contraception.

Studies evaluating PAC in low- and middle-income countries recommended that programs and health systems undertake systematic efforts to ensure that the organization and practice of PAC are prioritized, along with convenient access to a variety of contraceptive methods[4–8]. Fertility can return one to two weeks after PAC and all FP methods are safe to use after receiving PAC, whether the procedure was performed medically, through uterotonic drugs, or surgically[9]. When treated medically, a PAC client may start using hormonal methods—including oral contraception, injectables, and implants—immediately after the onset of treatment, or may receive an intrauterine device (IUD) when it is certain that the uterus is empty. After vacuum aspiration, the individual receiving care may begin all methods, including the IUD, immediately following a first- or second-trimester procedure. Providing voluntary access to FP during PAC, rather than at a follow-up visit, increases method uptake and reduces risk of recurrence of unintended pregnancy and subsequent abortion[10,11]. It follows that various international agencies and technical assistance organizations have called for the global scale-up of a PAC model that integrates emergency treatment, accurate FP information and counseling, voluntary access to short-term and long-acting contraceptive methods (LARCs), and referrals for ongoing care[12].

PAC in Tanzania. While data on the need for PAC services in Tanzania are limited, researchers estimate the incidence of annual induced abortions at 405,000 and the majority of these are unsafe. Subnational estimates for induced abortion are highest in Lake Zone, putting the region at a particularly high risk for maternal mortality and morbidity[13–15]. The Government of the United Republic of Tanzania maintains a long-standing and strong record of commitment to PAC, which it includes in its National Package of Essential Health Interventions[16]. In 2005 the Ministry of Health, Community Development, Gender, Elderly, and Children (MOHCDGEC) initiated a pilot project in the Lake Zone of the country to demonstrate how to scale up PAC from tertiary healthcare facilities to primary care settings at health centers and dispensaries. The model employed for this reflected the above recommendations and available global guidance, and incorporated coordinated efforts involving demand generation and community sensitization (Figure 1). After the pilot demonstrated the "proof of concept" that PAC indeed could be decentralized, a scale-up ensued that oversaw from 2007 to 2014 the expansion of the service from the 11 facilities reached during the pilot demonstration to 239 facilities in the Lake Zone regions of Geita, Mwanza, Shinyanga, and Simiyu. A post-hoc evaluation of these efforts reported that the decentralization of PAC resulted in reaching nearly 20,000 clients with essential care for incomplete abortion, of whom over 80 percent between 2008 and 2014 were discharged from PAC with a modern contraceptive method[17]. Since 2016, the international sexual and reproductive health and rights nongovernmental organization EngenderHealth has collaborated with the MOHCDGEC of mainland Tanzania and the Ministry of Health of Zanzibar to expand the program to an additional 65 sites and to develop scalable approaches for ensuring quality PAC with a focus on supporting improvement of FP counseling and integration of LARC methods available to clients treated for abortion complications. The program was aptly titled the *Postabortion Care Family Planning Project (PAC-FP)*. The present analysis evaluates whether this strategy, enacted in mainland public sector health facilities in Geita and Mwanza regions in the Lake Zone of mainland Tanzania and Zanzibar effectively achieved those aims over the course of four years of *PAC-FP* support to these regions from 2016 to 2020.

Methods

The intervention

The Project team implemented *PAC-FP* in two phases. From 2016 to 2018, it directly supported

Table 1: Implementation actors in the postabortion care=family planning intervention

| Team	Actors	Role	Steps
CST	EngenderHealth/ Tanzania CST, District Medical Officers, MOHCDGEC FP trainers	Guide CHMTs in assessing the capacity of sites to improve quality of PAC and integrate FP and to determine the level of integration and the elements of high-impact postabortion FP that each site could potentially adopt.	1, 2, 3, 5
PAC-FP District Management Team (DMT)	1 per district; includes Reproductive and Child Health Coordinator, HMIS Officer, Facilities' in-charges, District Nursing Officer	Receiving technical assistance from the CST: Assesses the capacity of the district to manage the organizational change required to strengthen PAC services including FP ; develop and implement action plans for management strengthening; and monitor and assist facility-level QI teams to implement site-specific action plans.	3, 5
Facility-level QI teams	Facilities' in-charges, PAC providers, nurses and triage-staff	Receiving technical assistance from the DMT and, initially, the CST: Assess the capacity to improve quality and enhance FP integration at their respective sites, develop site-specific action plans to reorganize PAC services, ensure quality and broad method choice for PAC clients; implement these plans and report to the DMT.	3, 5
Evaluation Team	M&E Staff of EngenderHealth/ Tanzania	Implement data collection, management, and analysis; report findings to counterparts from the CST and DMTs; and provide decision-support for how to accelerate QI and plan for scale-up.	4, 5
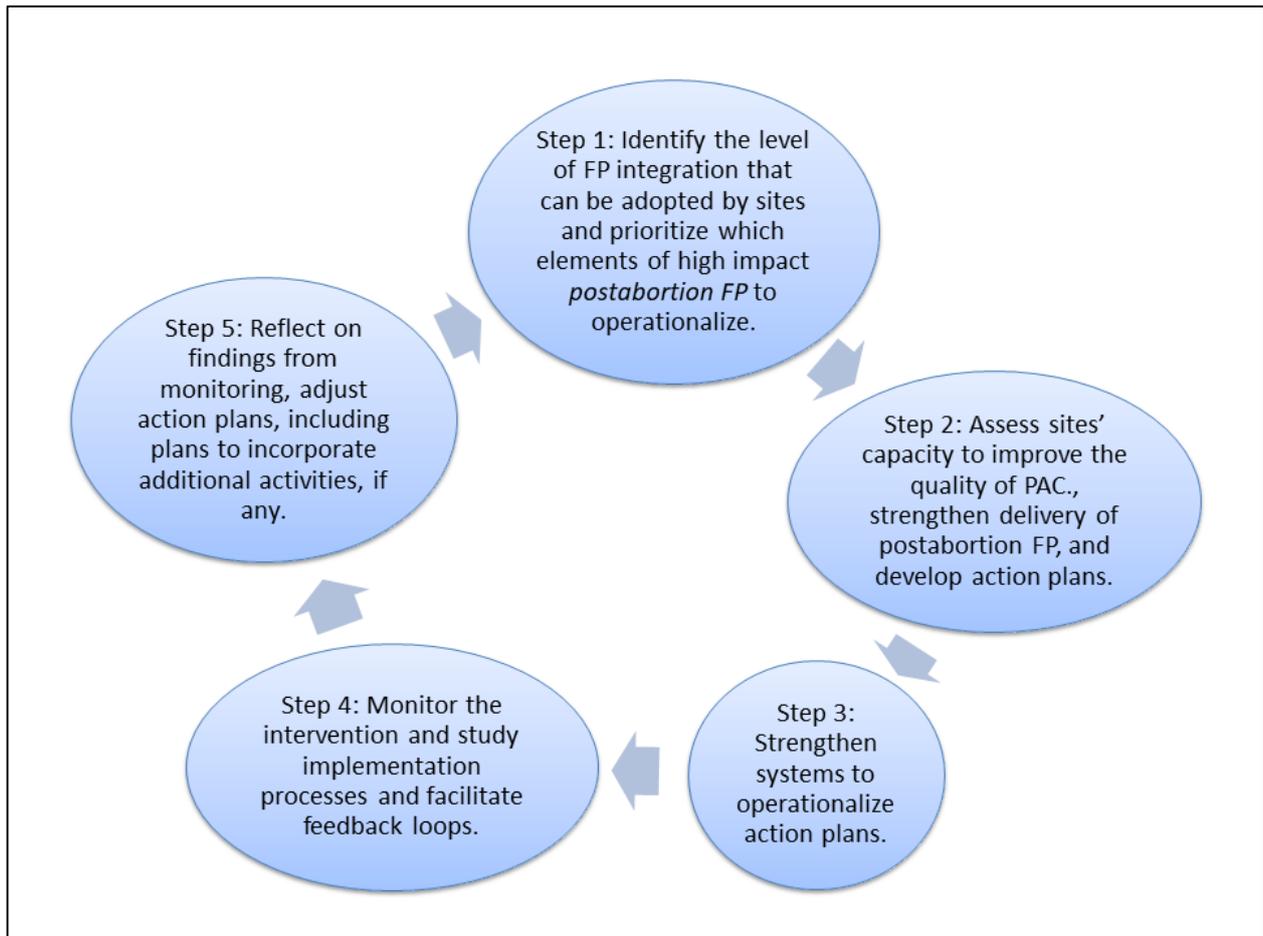
Figure 1: Five-step framework for QI and service integration

council health management teams (CHMT) and facility staff in capacity building efforts aimed at training, quality improvement (QI), and service integration at 17 public sector healthcare facilities in the Geita and Mwanza regions of mainland Tanzania and 8 facilities in Zanzibar. The second phase, from 2018 to 2020, focused on backstopping CHMT efforts to supervise and sustain gains achieved in phase 1 and support the scale-up of phase 1 interventions to additional lower-level sites in Mwanza and Zanzibar. The objective of these phases was to operationalize key programmatic features adopted by PAC-FP's funder, the United States Agency for International Development (USAID) as "high impact" postabortion FP services. Among these were: (1) provision of FP services at the same time and same location as where clients receive emergency treatment, (2) promote a service delivery environment that protects the dignity of PAC clients, (3) ensure equitable access to a wide range of FP services, regardless of the emergency treatment procedure, (4) address organizational barriers to FP use and (5) support provision of PAC, including FP services, by mid-level providers[18].

From 2016 to 2018, members of EngenderHealth/Tanzania's Clinical Services Team (CST) engaged stakeholders in designing and adopting routine practice implementation strategies to effectively achieve the above tenets of postabortion FP. The approach used by the CST, which comprised five steps, drew upon extant capabilities and resources for innovation at the council- and facility-levels and, in doing so, was adaptable to contextual realities of each intervention area. Rather than operationalize all the above elements at once, this approach focused on stakeholder engagement, strategic planning, and prioritization based on consensus of perceived need, feasibility, and likely impact. Table 1 presents the collaboration structure established during the first phase of PAC-FP.

Figure 1 depicts the five-step approach. It drew upon QI approaches and methodologies of adult learning that are cyclical in nature, engaging teams in assessing problems, needs, and the feasibility of alternative solutions to for addressing them. We further detail steps below:

Step 1: Identify the level of integration that each site can adopt and prioritize which elements of high-impact postabortion FP to operationalize. In early 2016, the capacity building team worked with council counterparts to form PAC-FP DMTs. The former led these counterparts through organizational capacity assessments (OCAs) to understand the barriers and potentially facilitating factors related to improving the quality of PAC and integrating a wider range of FP methods. The capacity building team, along with the DMTs customized OCAs for PAC and drew upon participatory action research and planning techniques to elicit stakeholders' insights, root causes, and feasible solutions with regard to different aspects of PAC. This step entailed ad-hoc consultations with other stakeholders, including community representatives, youth, religious leaders, healthcare workers, and facilities' in-charges, to orient each to the 10 components of high-impact postabortion FP and to obtain perspectives on what to prioritize, adapt, and operationalize during the first phase of the project. In mainland Tanzania, where the PAC program was more mature, and uptake of short-term methods of contraception was already high, stakeholders prioritized integrating LARC in the postabortion FP method mix. In Zanzibar, where the PAC program had received little external assistance to date, stakeholders chose to phase in FP integration more gradually, focusing first on better counseling and availability of FP services generally, in the context of developing clinical guidelines on PAC that promotes access to all types of postabortion contraception.

Step 2: Assess the sites' capacities to improve PAC quality, strengthen delivery of postabortion FP, and develop an action plan. From April to August 2016, the evaluation team undertook a baseline study in project-supported sites[19]. Findings fed back to the CST and DMTs. All three teams shared the findings from the baseline with staff from supported sites. The latter two teams oriented facility staff to EngenderHealth's COPE (which stands for client-oriented, provider-efficient) model, an organizational approach to assess a site's particular needs and capacities, and then plan and guide QI and

service integration based on findings[20]. During workshops, project staff formed QI teams for each facility and each team developed site-specific action plans.

Step 3: Strengthen systems to operationalize action plans. Following the workshops, MOHCDGEC trainers implemented technical trainings in PAC, focusing on reinforcing the skills of mid-level providers (i.e., midwives and nurses) in FP counseling and insertion and removal of IUD and implants. These trainings followed the MOHCDGEC policy guidelines and an integrated curriculum for PAC, which included a follow-up visit from trainers within two months of the training to assess their competencies vis-à-vis national PAC performance standards. Concurrently, QI teams led orientations at their sites, educating facilities' staff and representatives from surrounding communities on the action plans, and DMTs conducted facilitative supervision at sites every other month to benchmark action plan progress.

Step 4: Monitor the intervention and study implementation processes and facilitate feedback loops. During quarterly visits to sites, the CST monitored quality, adherence, and progress vis-à-vis the action plans using COPE. They gave feedback, and engaged QI teams and facilities' staff in deliberations on how to accelerate progress and set new goals during meetings held three to four times per year.

Step 5: Reflect on findings from monitoring, adjust action plans, including plans to incorporate additional activities, if any. Based on lessons from Step 4, QI teams and DMTs decided how to improve performance and if it would be possible to pursue new activities to further support PAC quality including FP integration. The CST supported these deliberations and engaged the evaluation team, when possible, to obtain basic analytics to inform decisions. The project team completed Step 5 within 18 months of the initiation of Step 1, by November 2018. At this point, the team from EngenderHealth/Tanzania focused on scaling up good practices to other lower-level sites in Mwanza and Zanzibar, withdrew direct support from the original 25 sites in those regions, but continued to support activities described under Steps 4 and 5

above. The findings described in the remainder of this article report on the long-term results of this intervention, focusing on comparing results of client exit interviews (CEIs) carried out in 2016 in the original 17 facilities in mainland Tanzania and 8 facilities in Zanzibar (i.e., Step 2) with those conducted after phases 1 and 2, four years later, in 2020.

The evaluation

We conducted quantitative exit interviews, employing structured questionnaires, with clients from two regional referral hospitals, six district hospitals, and nine health centers, all in the public sector, in mainland Tanzania, and one regional referral hospital, three district hospitals, and four health centers in Zanzibar. All regional referral hospitals are in urban areas, and two of the six district hospitals are close to urban areas near regional capitals in the Geita and Mwanza regions. The remaining facilities are in rural settings. We selected these sites based on data from 2015–2016, which indicated service volume for public-sector facilities. We considered sites with a PAC client volume of four per month as eligible for inclusion in this study. We determined the number of clients recruited at each facility based on the sample size needed to evaluate the effect of the described intervention on voluntary postabortion FP uptake before and after the QI intervention. Given the difference in baseline measures for PAC clients' uptake of a modern FP method, we made separate calculations for mainland Tanzania and Zanzibar. We considered the need to measure at 80% power a threefold increase in the proportion of PAC clients who chose a LARC before discharge. We also employed a design effect set at two to address clustering and assumed a client refusal or nonresponse rate of 10%. Using population proportionate to size sampling techniques, we established recruitment targets for the proportion of PAC clients to enroll at each facility to reflect service utilization trends during the past year. At baseline, we enrolled 228 PAC clients at 17 sites in Geita and Mwanza and 184 at 8 sites in Zanzibar, for a total of 412 participants. At endline we interviewed 205 clients from facilities in mainland Tanzania and 289 from facilities in Zanzibar (n=484).

The exit interview took approximately 45 minutes and included binary or categorical questions on sociodemographic characteristics; reproductive health and family formation experiences; recognition of complications; care-seeking and social aspects of negotiating access to care; perceptions of the facility environment; features of the client interaction with staff and provider; post-procedure knowledge and recall of counseling; postabortion contraceptive use; and satisfaction with PAC received. The final section of the questionnaire included 12 questions that used Likert scales for ranking the level of satisfaction or agreement with various dimensions of PAC quality, such as waiting time, privacy, cleanliness, and treatment from staff and the PAC providers. Scoring was 1 to 4 (1 being the lowest, 4 being the highest) for each of the questions.

During the baseline, at all sites, PAC providers oriented to the project screened clients who sought treatment for postabortion complications for eligibility to participate based on whether they seemed physiologically and emotionally capable of understanding informed consent procedures. Prior to deployment, 20 data collectors with clinical and social science backgrounds, including experience conducting quantitative and qualitative interviews with client on related topics, received a 10-day training on the ethical, technical, and logistical aspects of data collection. This training included pretesting and refining the survey instrument and in-depth interview guide. From April to June 2016, data collectors recruited PAC clients identified as eligible to participate. Informed consent included an explanation of the rationale for data collection, the future use of data, rights to confidentiality and anonymity, rights to withdraw from the study, protections against adverse consequences in terms of future healthcare utilization, and other potential risks and benefits of study participation. Consenting individuals signed or provided an inked thumbprint on a consent form. Participants then completed an exit interview at the facility where they received PAC, either in a private room or immediately outside the facility. Enrollment followed a consecutive sampling approach: we asked every client who met the inclusion criteria to participate until an acceptable sample size was achieved.

During the endline, due to conditions related to the COVID-19 pandemic, the evaluation team adapted the study procedures used for the baseline and carried out exit interviews by phone. With consent of national ethical review committees, evaluation team members obtained a roster of the most recent PAC clients who had obtained the service at facilities and called these clients to enroll them. Attending healthcare workers completed the calls, first to inquire as to the clients' well-being and subsequently to ask whether they would be willing to answer some questions about the quality of care they received during PAC. Healthcare workers read clients who agreed the same informed consent form that the project used during the baseline study and gave clients the opportunity to ask questions. They enrolled those that agreed in the endline survey. The truncated data collection instrument comprised a subset of the questions from the original survey.

Data management and analysis

The project team entered client data from the questionnaires into an Epi Info database through "double entry" to ensure accuracy. After cleaning, we transferred data into R version 4.0 for statistical analysis. We first present sociodemographic characteristics, including age, education, marital status, and parity, in the baseline and endline period. We then present indicators related to the content and quality of PAC, including FP, by the baseline and endline period in each region (mainland Tanzania and Zanzibar) and overall. Indicators on the content of services included whether clients received counseling on emergency treatment procedures, the type of treatment procedure, pain medication, and the correct information on resumption of fertility after PAC. Quality of care indicators included the duration of the waiting period in between a client's admission and discharge from PAC and their satisfaction with various dimensions of PAC services, including interactions with staff and the provider, counseling and information, the facility environment, FP services, and their perceptions of providers' competency and readiness to perform PAC. FP service indicators included recall of counseling on postabortion contraceptive eligibility and method options, whether they had an unmet need for contraception upon discharge from care, and postabortion contraceptive uptake by method

Results

type. As all our indicators were categorical, Chi-square tests were used to test for differences between variables obtained at baseline and endline, respectively. Significance was assessed at an α of 0.05.

Results

Table 2 provides information on the sociodemographic characteristics of participants in the CEIs. Overall, there were no appreciable differences between the samples enrolled in pre- and post-intervention surveys. While we observe in both surveys that most participants were under 30 years old, we also note that the sample obtained at endline is slightly older; however, this difference is not statistically significant. Marginally significant were differences in the levels of educational attainment of the two groups compared. Whereas 72% of the participants enrolled in the baseline had completed primary school, this was only the case for 64% of participants enrolled in the endline survey in 2020 (p=0.092). Among both samples, over two-thirds of participants were in the first trimester of their pregnancies when they sought treatment for incomplete abortion.

Table 3 presents the pre-post differences between PAC clients who participated in the structured CEIs at baseline and endline, overall and by region (mainland Tanzania and Zanzibar). Regarding timely access to PAC after admission into facilities, we observed an increase in the proportion of clients who waited for 30 minutes or less between baseline and endline surveys, from 55% to 80% (p<0.001); however, it seems that this owes to differences observed in Zanzibar only. Similarly, even though findings from both regions suggest improvements in clients' recall of counseling on emergency treatment procedures (39% to 51%, p<0.027), at the regional level, this difference was only statistically significant among participants in Zanzibar. Conversely, we observed that improvements recorded in mainland drove the overall statistically significant improvements in clients' recall of correct information on when they will become fertile following the procedure. Though encouraging, it is critical to note how few clients were discharged from PAC with an accurate understanding of their fertility (4% baseline, 9%

endline, p<0.009). The evaluation reported indicators that demonstrated outcome improvements in both regions as well. In mainland sites as well as in those in Zanzibar, a larger proportion of clients interviewed in the endline survey reported receiving pain relief medication during the treatment procedure (52% to 85%, p<0.0001). We observed a similar finding with respect to clients' recall of counseling on immediate use of contraception after PAC (30% to 73%, p<0.0001). In terms of actual uptake of a contraceptive method during PAC, the evaluation reports an overall improvement between survey periods from 17% at baseline to 33% (p<0.0001) at endline; however, it seems that this is due to statistically significant differences between surveys in Zanzibar only (11% to 38%, p<0.0001). Notably, the evaluation does not report meaningful differences in the contraceptive method mix received by clients interviewed in the two survey periods, nor in the proportion of clients from each survey discharged with a reported unmet need for contraception. Finally, in both regions, the evaluation reports increases in the proportion of PAC clients who felt satisfied with the quality of information and counseling on PAC (15% to 95%, p<0.0001) and the provision of FP services during PAC (17% to 69%, p<0.0001).

Discussion

This evaluation demonstrated that the four-year intervention was effective in strengthening the FP component of PAC, including counseling, and access to a variety of contraceptive methods and that the intervention sustained results across the project period. A larger proportion of PAC clients could recall details on postabortion contraceptive counseling, felt satisfied with the quality of FP services they received, and accepted modern contraception before discharge from PAC at the endline than at baseline. Furthermore, a greater number of clients interviewed in 2020 reported provision of pain relief medication, counseling and information on emergency treatment procedures and steps, shorter waiting times, and general satisfaction with information and counseling during PAC compared to those in 2016. These are encouraging results for the local health systems of mainland

Table 2: Sociodemographic characteristics of study respondents at baseline and endline

	Baseline (2016)		Endline (2020)		
	N	%	N	%	p-value
Age					0.210
<20	50	12	57	12	
20-24	113	27	129	27	
25-29	82	20	125	26	
30-34	70	17	92	19	
35-39	54	13	61	13	
≥40	30	7	60	12	
Education level					0.092
Did not complete primary school	115	28	172	36	
Completed primary school	297	72	312	64	
Marital status					0.563
Married	332	81			
Parity					0.284
None	115	28	119	24	
1	82	20	101	21	
2-3	111	27	121	25	
4-5	64	16	71	15	
≥6	40	9	72	15	
Gestational age					0.993
≤12 weeks	283	69	329	68	
13-18 weeks	65	16	80	17	
≥19 weeks	64	16	75	15	

Tanzania and Zanzibar, and their development partners, which aimed at generating lasting improvements in the quality and integration of PAC services. Nevertheless, there are numerous and critical areas for improvement.

Though statistically significantly improved from baseline, the level of awareness among clients of when they may become fertile again after receiving PAC was still extremely low at endline. Although postabortion FP uptake increased between the surveys, this mostly owes to large increases in the acceptance of short-acting methods among clients in Zanzibar. Results of the CEIs complement the existing analysis of service statistics obtained from PAC registers maintained at project-supported facilities in mainland Tanzania and Zanzibar, suggesting that improvements in the method mix available to PAC clients had improved in both regions by the end of 2018[21]. The notable shifts in the method mix illustrated by analyses of routine service statistics at the end of phase 1 had attenuated by the end of phase 2. The analysis of the CEI adds to that and helps form a richer picture of PAC-FP's longer-term impact, focusing on the second phase of the project when support from the CST was limited to activities described under Steps 4 and 5. As the endline CEIs were conducted shortly after the onset

of the COVID-19 pandemic, results are reflective of service provision and client experience during this unique time period and may not fully represent gains made during the broader sustainment period. Service provision and access challenges related to the pandemic may have affected the results in ways that are not yet understood and were beyond the scope of this analysis. Overall, a comparison of CEIs' responses from 2016 to 2020 showed significant signs of improvement in terms of what clients recalled in terms of their waiting time, receipt of counseling on the emergency treatment procedure, use of pain medication during treatment, counseling on postabortion fertility and contraception, uptake of contraceptive methods during PAC, and satisfaction with specific quality domains on FP and information and counseling. Though routine service statistics from facility-based registers and CEIs are not comparable instruments, jointly interpreting the findings from both is worthwhile from a programmatic standpoint. It indicates that although several successes of the intervention were sustained throughout phase 2, some of these gains waned. By the end of phase 2 it seems, PAC providers in mainland Tanzania and Zanzibar were as successful at helping their clients use FP to address their desires to space or stop future

Table 3: Postabortion care utilization, service content and quality, including family planning, indicators at baseline and endline, overall and by region

	Mainland			Zanzibar			OVERALL		
	Baseline N (%)	Endline N (%)	p-value	Baseline N (%)	Endline N (%)	p-value	Baseline N (%)	Endline N (%)	p-value
All PAC Clients	228 (55)	205 (42)	-	184 (45)	279 (58)		412 (100)	484 (100)	-
Waiting time*									
≤30 minutes	154 (68)	161 (79)	0.345	74 (40)	225 (81)	**0.001**	228 (55)	386 (80)	**0.001**
>30 minutes	74 (32)	44 (21)		110 (60)	54 (19)		184 (45)	98 (20)	
Received counseling on treatment procedure(s)*									
Yes	102 (45)	98 (48)	0.762	56 (30)	147 (53)		158 (38)	245 (51)	**0.027**
No	126 (55)	107 (52)		128 (70)	132 (47)	**0.004**	254 (62)	239 (49)	
Procedure type									
Manual vacuum aspiration	139 (61)	152 (75)		124 (67)	178 (64)		263 (64)	330 (68)	
Misoprostol	4 (2)	7 (3)	**0.016**	29 (16)	33 (12)	0.238	33 (8)	40 (8)	0.505
Dilation and Curettage	55 (24)	27 (13)		22 (12)	55 (20)		77 (19)	82 (17)	
Other	30 (13)	19 (9)		9 (5)	13 (4)		39 (9)	32 (7)	
Received pain medication*									
Yes	114 (50)	168 (82)	**0.002**	101 (55)	245 (88)	**0.002**	215 (52)	413 (85)	**<0.0001**
No	114 (50)	37 (18)		83 (45)	34 (12)		197 (48)	71 (15)	
Correctly recalls timing of postabortion fertility*									
Yes	6 (3)	30 (15)	**<0.0001**	11 (6)	14 (5)	0.144	17 (4)	44 (9)	**0.009**
No	222 (97)	175 (85)		173 (94)	265 (95)		395 (96)	440 (91)	
Counseled on postabortion contraception*									
Yes	76 (33)	128 (62)	**<0.0001**	48 (26)	224 (80)	**<0.0001**	124 (30)	352 (73)	**<0.0001**
No	152 (67)	77 (38)		136 (74)	55 (20)		288 (70)	132 (27)	
Received contraception before discharge*									
Yes	52 (23)	56 (27)	0.465	20 (11)	106 (38)	**<0.0001**	72 (17)	162 (33)	**<0.0001**
No	176 (47)	149 (73)		164 (89)	173 (62)		340 (83)	322 (67)	
Postabortion contraceptive method mix									
Short-acting method	34 (66)	26 (46)	0.370	18 (90)	84 (79)	0.858	52 (72)	110 (68)	0.771
Long-acting method	18 (34)	30 (54)		2 (10)	22 (21)		20 (28)	52 (32)	
Met need for contraception upon discharge									
Yes (no demand or demand met)	134 (59)	93 (45)		68 (37)	153 (55)	0.029	202 (49)	246 (51)	0.802
No	94 (41)	112 (55)	0.139	116 (63)	126 (45)		210 (51)	238 (49)	
Satisfaction with PAC									
Accessibility[1]	199 (87)	203 (99)	0.400	156 (85)	275 (99)	0.307	355 (86)	478 (99)	0.282

Facility environment[2]	203 (89)	192 (94)	0.770	166 (90)	267 (96)	0.718	369 (90)	459 (95)	0.450
Information and counseling*	41 (18)	195 (95)	**<0.0001**	22 (12)	265 (95)	**<0.0001**	63 (15)	460 (95)	**<0.0001**
Postabortion family planning*	55 (24)	141 (69)	**<0.0001**	17 (9)	192 (69)	**<0.0001**	72 (17)	333 (69)	**<0.0001**
Client staff interaction	211 (93)	200 (98)	0.754	174 (95)	273 (98)	0.854	385 (93)	473 (98)	0.675
Provider competency and readiness[3]	211 (93)	193 (94)	0.965	171 (93)	263 (94)	0.972	382 (93)	456 (94)	0.906

*Respondent correctly recalls when she will become fertile again after receiving the PAC procedure (after 7-14 days).

[1]A combined measure that is the average of all respondents that were satisfied with amount of time it took to access PAC after starting to seek care and waiting time at the facility after admission until receiving PAC.

[2]A combined measure that is the average of all respondents that were satisfied with the cleanliness of the facility and the level of privacy they felt while in care.

[3]A combined measure that is the average of all respondents that were satisfied with the comfort they felt while receiving the procedure and the availability of essential medications, supplies and equipment.

childbearing as they were before the intervention began. Altogether, these findings suggest that improving the quality of PAC services in a relatively short period is feasible given an appropriate level of attention and support from development partners, but that challenges still exist in sustaining results long-term. Sustained QI of health services is necessary to strengthen health systems, and requires that programmatic activities and outcomes achieved by implementers at an initial or project phase are maintained after the focused funding period ends[22]. An understanding of effective drivers of sustainability is critical for implementers to rationalize programmatic decisions, and a body of literature is beginning to determine best practices. A recent systematic review of the sustainability of health-related programs in the context of Sub-Saharan Africa identified community ownership and mobilization as crucial factors to ensuring long-term success of programmatic activities, in addition to working within existing resources, community buy-in through volunteerism, and the creation of infrastructure and its continued maintenance[23]. PAC-FP implemented several evidence-based practices shown to improve quality of healthcare in the long-term, including partnerships with local leaders, support to existing infrastructure, capacity building and supervision, and systemic QI at the facility level. More research is needed to understand the effects of the COVID-19 pandemic on PAC service provision, particularly related to sustainment of program interventions that began prior to the pandemic. While sustainability of healthcare activities can be difficult to achieve in low- and middle-income countries—due to economic constraints, workforce shortages, and weak health systems—program planners should anticipate such efforts and tailor their interventions to the context and resource availability of a community to ensure sustainability. Planning for program sustainability is a necessity for development and health in low- and middle-income countries[24].

Conclusion

PAC-FP in Tanzania adapted and employed a capacity building strategy to expand operational best practices in postabortion FP[18]. It employed approaches characteristic of "implementation process strategies," which aim to strengthen how teams execute activities required to select, adapt, and integrate evidence-based interventions into routine practice[25]. The project carried out its technical support to local health systems in phases, the first of which involved the direct engagement of stakeholders to assess the context, needs, and capacities; help establish goals and objectives; and select evidence-based interventions on postabortion FP. Accordingly, project staff set up teams to adapt and implement the plan onsite at facilities and in management settings, and facilitated continuous organizational learning. In the second phase, PAC-FP withdrew and focused on the final step at the 25 sites described in this article. It follows that this evaluation's findings contribute to a larger body of evidence and programmatic experiences with embedding and sustaining QI and sustainability in complex healthcare environments. Given the myriad challenges of embedding sustainable services in resource-constrained settings, stakeholders should implement activities with mechanisms in place to strengthen structures for promoting and sustaining QI at various levels of the health system.

Ethical approval and consent to participate

The Tanzanian National Institute of Medical Research and the US-based Western Internal Review Board approved the study protocol. The study received ethical approval from the Zanzibar Health Research Institute (ZAHREC/03/PR/MARCH/2020/18) and the National Institute for Medical Research (NIMR/HQ/R.8a/Vol. IX/3424). At baseline, we obtained written consent from all respondents. At endline, we obtained verbal consent from respondents given questionnaires were administered by telephone.

Availability of data

The datasets used and/or analysed during the current study are available from the corresponding author or EngenderHealth authors and are available on reasonable request.

Competing interests

Funding

Authors' contributions

C.B. designed the study, led the data analysis, and wrote the manuscript with input from D.G., J.K. and K.OC. G.L directed the field work that included data collection and management of data collectors. J.K. coordinated data collection, entered and cleaned data and helped C.B. with data analysis. .All authors discussed the results and contributed to the final manuscript.

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