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Higher contraceptive uptake in HIV treatment centers offering integrated family planning services: A national survey in Kenya

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Abstract

Objectives: Integrating family planning (FP) into routine HIV care and treatment are recommended by WHO guidelines to improve FP access among HIV-infected individuals in sub-Saharan Africa. This study sought to assess factors that influence the delivery of integrated FP services and the impact of facility-level integration of FP on contraceptive uptake among women living with HIV (WLWH).

Study design: A national cross-sectional study was conducted among WLWH at HIV Care and Treatment centers with >1000 antiretroviral treatment (ART) clients per year. A mobile team visited 108 HIV Care and Treatment centers and administered surveys to key informants regarding facility attributes and WLWH regarding FP at these centers between June and September 2016. We classified facilities offering FP services within the same facility as 'integrated' facilities.

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Author contributions

Y.C., W.M., D. A., J.G, L.N., C.J.M, A. L, J.K., B.S., and A.L.D contributed to the study design. Y.C. and E.B conducted statistical analyses. Y.C, A.D., G.J.S. wrote and revised the initial drafts of the manuscript. All authors contributed to manuscript revisions and interpretation of study results.

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Results: 4805 WLWH were enrolled at 108 facilities throughout Kenya. The majority (73%) of facilities offered integrated FP services. They were more likely to be offered in public than private facilities (Prevalence Ratio [PR]: 1.86, 95% Confidence Interval [CI]: 1.11–3.11; $p = 0.02$] and were more common in the Nyanza region than the Nairobi region (77% vs 35% respectively, $p = 0.06$). Any contraceptive use (89% vs 80%), use of modern contraception (88% vs 80%), dual method use (40% vs 30%), long-acting reversible contraception (LARC) (28% vs 20%), and non-barrier short-term methods (34% vs 27%) were all significantly higher in facilities with integrated FP services ($p < 0.001$).

Conclusions: The majority of high volume facilities integrated FP services into HIV care. Integrating FP services may increase modern contraceptive use among WLWH.

Implications: Integration of FP services was associated with higher modern contraceptive use, lower unmet need for modern methods and higher use of long-acting, reversible contraception (LARC), and non-barrier short-term methods among women living with HIV. Despite high prevalence of integration of FP services, organizational challenges remain at integrated clinics.

Keywords

Family planning; Integration; Contraception; Kenya; HIV

1. Introduction

Family planning (FP) is an important public health intervention, with significant health benefits for women and their families. FP is important for women living with HIV (WLWH) to prevent unintended pregnancies, avoid adverse outcomes from unsafe abortion, reduce the rate of mother-to-child HIV transmission (MTCT), and improve maternal and child health (MCH) outcomes [1]. Prevention of unintended pregnancies among WLWH is one of four pillars of a comprehensive prevention of mother-to-child HIV transmission (PMTCT) strategy [2]. FP also helps WLWH delay future pregnancies until treatment with ART and suppression of viral load, the most important predictor of PMTCT. Additionally, FP offers HIV-serodiscordant couples time to consider safer conception strategies to reduce periconception HIV risk among HIV-uninfected male partners [3,4].

Both WHO and Kenya guidelines recommend integrating FP into routine HIV care and treatment to improve FP access among HIV-infected individuals and HIV-related outcomes [5,6]. There is evidence that integration of FP into HIV care improves FP uptake among WLWH in sub-Saharan Africa, including increased use of condoms and other modern contraceptive methods [7–9]. In a cluster randomized trial conducted in Kenya, integrating FP into HIV care led to a 19% decrease in pregnancy incidence over 2 years [10]. While integration of FP into HIV care may be an effective and cost-efficient strategy to improve contraceptive coverage and improve MCH outcomes [7], gaps in service delivery may limit utility of this approach. For example, HIV care providers may provide a limited range of FP services (e.g., only offer condoms) despite being trained to offer comprehensive FP methods and services [11]. Moreover, consideration of service delivery characteristics alone is insufficient to understand how to achieve effective, sustained delivery of integrated FP services into HIV care at scale. Previous studies suggest structural and organizational

factors, such as poor clinic readiness and provider preparation, might impede delivering integrated FP and HIV services [1,12–14]. However, the impact of these factors on the ability to offer integrated services or improve contraceptive use have not been explored. We conducted a large, national evaluation of HIV Care and Treatment centers in Kenya to assess the impact of facility-level factors on integration of FP into HIV care, and compare contraceptive use among WLWH at integrated vs. non-integrated facilities.

2. Materials and methods

2.1. Study design and sampling

Between June and September 2016, we conducted a cross-sectional study, sampling all 109 HIV care and treatment centers with >1000 female antiretroviral treatment (ART) clients per year in seven of eight regions from 31 counties in Kenya. A total of 108 facilities were included in the study (1 facility that met eligibility criteria was not included due to a delay in obtaining facility approval). The Northeastern region was excluded from the sampling frame as there was no facility in the region with >1000 female ART clients per year. In each facility, one key informant responsible for the facility's HIV care and treatment center was identified by an official in-charge (e.g., facility matron or supervisor) and administered a standardized survey. In addition, study staff administered a FP survey to all women attending the HIV Care and Treatment centers during a 5-day period. Women were eligible for study participation if they were HIV-infected, between 15 and 49 years old, reported having vaginal heterosexual intercourse within the past 6 months, and able to provide written informed consent. Women who were ineligible if they were pregnant or previously underwent a surgical sterilization or if their partner had a vasectomy.

2.2. Study procedures

Key informants were asked about their facility and HIV care and treatment services provided at their center, including facility type, ART patient volume and provision of ART and PMTCT services. They were also asked about provision of FP services, including average staffing levels, stock-outs of FP commodities in the past year, and provision of FP referrals. Women attending HIV care visits were asked about their FP use in a separate survey. Questions included FP use in the last month, type of FP methods used, receipt of FP services at the facility where they were seeking HIV care at the time of the survey, and type of FP services received. This study was approved by the ethical review boards at the Authors' Institutes, and was reviewed according to human research protection procedures.

2.3. Key definitions and statistical analysis

We defined integrated FP facilities as those that offer FP in the same facility as HIV Care and Treatment centers, as reported by key informants, or a "one-stop shop" model [15]. Any FP service includes either FP consultation, FP methods, or both. We defined receipt of a FP method as dispensing an initial prescription or method insertion, removal, change, or refill. Non-public facilities include those supported by a for-profit company or a non-governmental organization (NGO). Modern contraceptive methods included condoms, injectables, implants, intrauterine devices (IUDs), oral contraceptives (OCs), and vaginal ring. Long-acting, reversible contraception (LARC) included IUDs and implants, while non-barrier

short-term methods included injectables and OCs. Dual methods use consisted of condoms plus another modern contraceptive method. Other methods included lactation amenorrhea, abstinence, herbal methods, and natural methods (standard days method, withdrawal, and rhythm method). Counties were classified by HIV burden (low, medium, or high) based on the PEPFAR 2015 Strategic Direction Summary for Kenya [16].

Contraceptive prevalence rate (CPR) was calculated as the proportion of women who reported using, or whose sexual partners were using, any form of contraception. This proportion was also calculated for modern contraceptive use and was presented as the modern contraceptive prevalence rate (mCPR). Facility-level mean CPRs were calculated by site using survey data from women and compared between integrated and non-integrated facilities. Unmet need for modern FP methods was defined as no desire for pregnancy in the next two years and no current use of a modern FP method among women who were fecund (no history of hysterectomy or tubal ligation) and sexually active.

Facility-level characteristics were compared between integrated and non-integrated facilities using *t*-tests and categorical variables compared using Pearson's chi-square tests. $P < 0.05$ was considered statistically significant. Poisson generalized linear models (GLM) with a log-link function were constructed to assess the relationship between cofactors and FP integration; this method is appropriate when the prevalence of the outcome is high [17,18]. All statistical analyses were conducted using Stata 14 (College Station, TX) and the GLM model accounted for clinic level clustering for data from the women's survey. Location of integrated FP sites vs. non-integrated sites were mapped using ArcGIS (Redlands, CA).

3. Results

3.1. General facility information and HIV-related characteristics

Of the 31 counties included in the study, 18 (58%) were medium or high HIV burden (Fig. 1). Eighty-nine percent of facilities were hospitals, over half (63%) were public (Table 1), and 78% were in medium or high HIV burden counties. One third ($n = 35$, 32%) of facilities were in Nyanza, 20 (19%) in Nairobi, and only 6 (6%) were from the Coast. More than half (59%) of respondents in the facility survey were nurses and 33% were clinical officers. The median number of ART patients accessing care each month was 1,500 [IQR: 900–2361] and the median number of ART patients treated per staff each month was 78 [IQR: 50–130].

3.2. FP integration

Overall, 73% of facilities offered integrated FP services in the same facility. Integrated facilities were less prevalent in Nairobi than the Nyanza region [35% vs. 77%, respectively; prevalence ratio (PR): 0.45, 95% confidence interval (CI): 0.20–1.04; $p = 0.06$] (Table 2). There did not appear to be geographical clustering of integration around major cities in Nyanza (Fig. 1). Public facilities were significantly more likely to offer integrated FP services compared to non-public facilities (88% vs. 48%, respectively; PR: 1.86, 95% CI: 1.11–3.11; $p = 0.02$). Facility type (hospital vs. clinic), ART patient volume, ART patient to staff ratio, and offering PMTCT services were not significantly associated with integrated FP services ($p > 0.10$).

Among facilities that offered integrated FP services, most (82%) followed up with clients to confirm FP was received when patients were referred (Table 3). Among the 29 facilities that did not offer FP services, almost all (90%) provided referral services to another facility but did not confirm whether FP was received. One third of providers delivering care in the HIV Care and Treatment center were also trained to deliver FP. Key informant surveys indicated that most integrated facilities (>90%) discussed IUDs, implants, injectables, OCs, and condoms with HIV-infected women. Across all integrated sites, injectables (50%) were the most frequent FP method provided, followed by condoms (35%) and implants (12%). In the past year, 32% of integrated facilities experienced FP method stock-outs, the majority of which 60% were condoms, and 40% were injectables.

Facility-level FP services received by HIV-infected women are shown in Fig. 2. The proportion of HIV-infected women who reported receiving FP services at the time of their visit when the survey was administered was significantly higher at integrated facilities than at non-integrated facilities (18% and 13%, respectively; $p < 0.01$). Overall, 12% of HIV-infected women at both integrated and non-integrated facilities only reported receiving some information or a consultation on FP at the time of the survey. The proportion of women who reported receiving a FP method from the facility was higher at integrated facilities than at non-integrated facilities (7% and 3%, respectively; $p < 0.01$).

Most WLWH (89%) at integrated facilities reported having used a FP method in the last month, compared to 80% of women at non-integrated facilities ($p < 0.01$) (Fig. 2). The mCPR was 88% and 80% at integrated vs. non-integrated facilities, respectively ($p < 0.01$). In addition, the proportion of WLWH using dual methods who sought care at integrated facilities was higher than at non-integrated facilities (40% and 30%, respectively; $p < 0.01$). Use of LARC and non-barrier short-term methods were significantly higher at integrated facilities than non-integrated facilities, (LARC: 28% and 20%, respectively, $p <0.001$; non-barrier short-term methods: 34% and 27%, respectively; $p < 0.001$) (Fig. 2). Among LARC users, 16% used IUDs and 84% used implants overall; the distribution of LARC by integrated vs non-integrated facilities was similar ($p > 0.05$). Use of condoms alone, or use of other FP methods were similar at integrated and non-integrated facilities (70% and 69%, respectively).

Unmet need for modern FP methods was significantly lower among WLWH at integrated facilities than at non-integrated facilities (8% and 15%, respectively; $p < 0.01$) (Fig. 2). The proportion of women who reported their last pregnancy was unintended was similar between women at integrated and non-integrated facilities (36% and 35%, $p = 0.81$).

4. Discussion

In this national evaluation of FP integration into HIV Care and Treatment centers throughout Kenya, we found that the majority of facilities (73%) offered integrated FP services and 90% of non-integrated sites offered FP referrals if integrated FP services were not available. Integration of FP services was associated with higher mCPR and use of LARC, and non-barrier short-term methods among WLWH. In addition, unmet need for modern methods was significantly lower among facilities that offered integrated services. Public facilities

were nearly twice as likely to offer integrated FP services as private facilities. Policy guidance on offering integrated care and sustained funding allocated from national centers in public facilities may have influenced facility provision of integrated services [9]. We found that integration did not vary by county-level HIV burden or the client volume, which suggests these factors do not influence the ability to offer integrated services and integrating FP into HIV care and treatment could be broadly implemented in national programs.

Although FP integration has been implemented widely across Kenya, we identified several organizational challenges within integrated clinics. HIV care providers are expected to offer FP services within the context of HIV care; however, only one third of providers in integrated facilities have been trained on FP, limiting the ability to provide high quality FP services. These findings are consistent with another Kenyan study of HIV providers at youth voluntary counseling and testing (VCT) clinics, which found that only 33% of providers at facilities where integrated FP services were offered were trained in FP as part of their in-service training [19]. Stock-outs of contraceptive commodities were common in our study and may have prevented clients from receiving FP methods, potentially decreasing mCRP. Stock-outs of FP commodities due to lack of systems that support regular supplies of commodities has been previously reported in integrated HIV clinics in Eastern and Central Kenya and other parts of sub-Saharan Africa [1,20].

Clinic readiness to offer FP services may influence provision of FP methods and contraceptive method mix among women. Injectables were the most frequently provided and used FP method in Kenya, while IUD use was very low. Long duration of device stock-outs, high patient volume, and lack of providers trained to deliver IUDs may have limited administration of IUDs. Moreover, providers need to provide comprehensive HIV services, which may limit time for FP counseling and services. Women may be deterred from waiting for FP services after already waiting for HIV care. Prior qualitative studies have noted that provider workload and long waiting times were aggravated by integration: there were additional tasks and increased demand for FP services after integration, but a lack of systems adaption to support integration [20,21]. There is a need to improve provider training on FP, clinic flow, and prioritization of FP care within the context of HIV care. Given the high prevalence of integration in HIV care and treatment centers, addressing these challenges may further reduce unmet need for FP services at integrated facilities.

Dual method use in our study was <40%, which is consistent with findings from previous studies in Africa [7,22]. Although mCPR was high (88%), it was largely driven by condom use (70%); use of other modern contraceptive methods remained low (<34%). Consistent condom use has benefits for the prevention of HIV and sexual transmitted infections [23,24]. However, condoms alone are not as effective for pregnancy prevention as other modern methods [25], making dual method use important for preventing unintended pregnancy and improving MCH outcomes among women living with HIV [26]. One trial in Zambia suggested that providing LARC at HIV testing sites leads to increased LARC uptake among HIV-infected clients [27]. Given the high reliance on condoms for pregnancy prevention in our study, addressing system and service delivery-level challenges such as inadequate trained staff, time constraints, and stock-outs of commodities may facilitate the provision of more effective FP methods and diversify the method mix among HIV-infected women.

Our study contributes to the understanding of how broader system and service delivery-level factors may influence the integration of FP services. The study had a large sample size of WLWH sampled from 108 facilities across Kenya, and analyzed data from both patient and facility perspectives. Facilities were drawn from over 30 counties across seven regions of Kenya with a high volume of ART clients, and are representative of these types of facilities. However, our study had limitations. Results from key informants and women may be subject to recall or social desirability bias. Nevertheless, most questions for women were asking about their experiences during recent visits or in the past month, which may attenuate potential recall bias. In addition, our results may not be generalizable to facilities with a lower volume of ART clients. Some factors evaluated in our analysis may have less heterogeneity in high volume facilities than in lower volume facilities, including patient volume and provider-client ratios. Additionally, we did not assess the location of receipt of FP services for women using a contraceptive method who did not receive FP services at the HIV Care and Treatment center; therefore we are unable to distinguish between women who received FP from HIV care providers at a previous visit or if women received FP elsewhere. Finally, the cross-sectional study design is subject to reverse causality. Our analysis may be subject to confounding due to the small number of facilities included in our study which limited power.

We found most high volume facilities in Kenya integrated FP services into HIV care, and integration was associated with higher use of modern contraceptive methods among HIV-infected women. Despite the high prevalence of integration, there remained health system and service delivery challenges that could be addressed to improve integration of FP services within HIV Care and Treatment centers.

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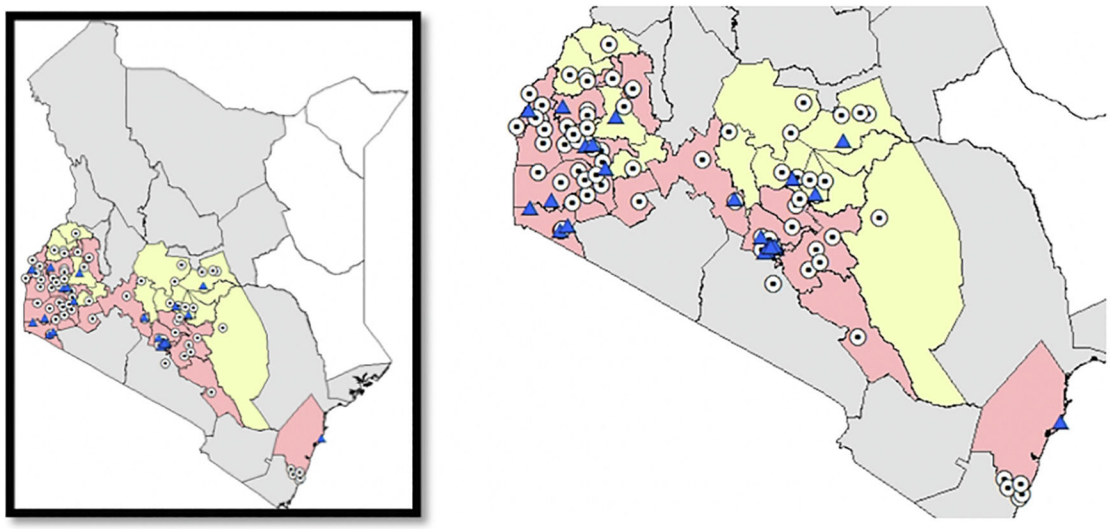
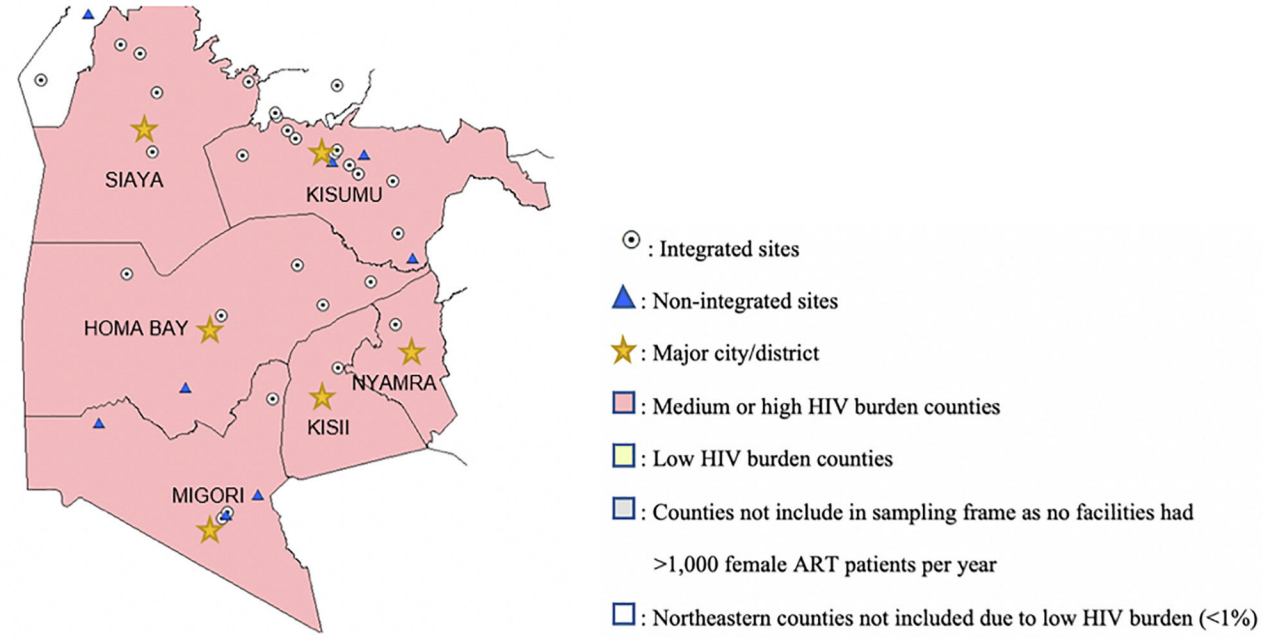


a) Location of facilities (N=108) by county HIV burden and integration of family planning services



b) Location of facilities in Nyanza (N=35), by integration of family planning services

Fig. 1.

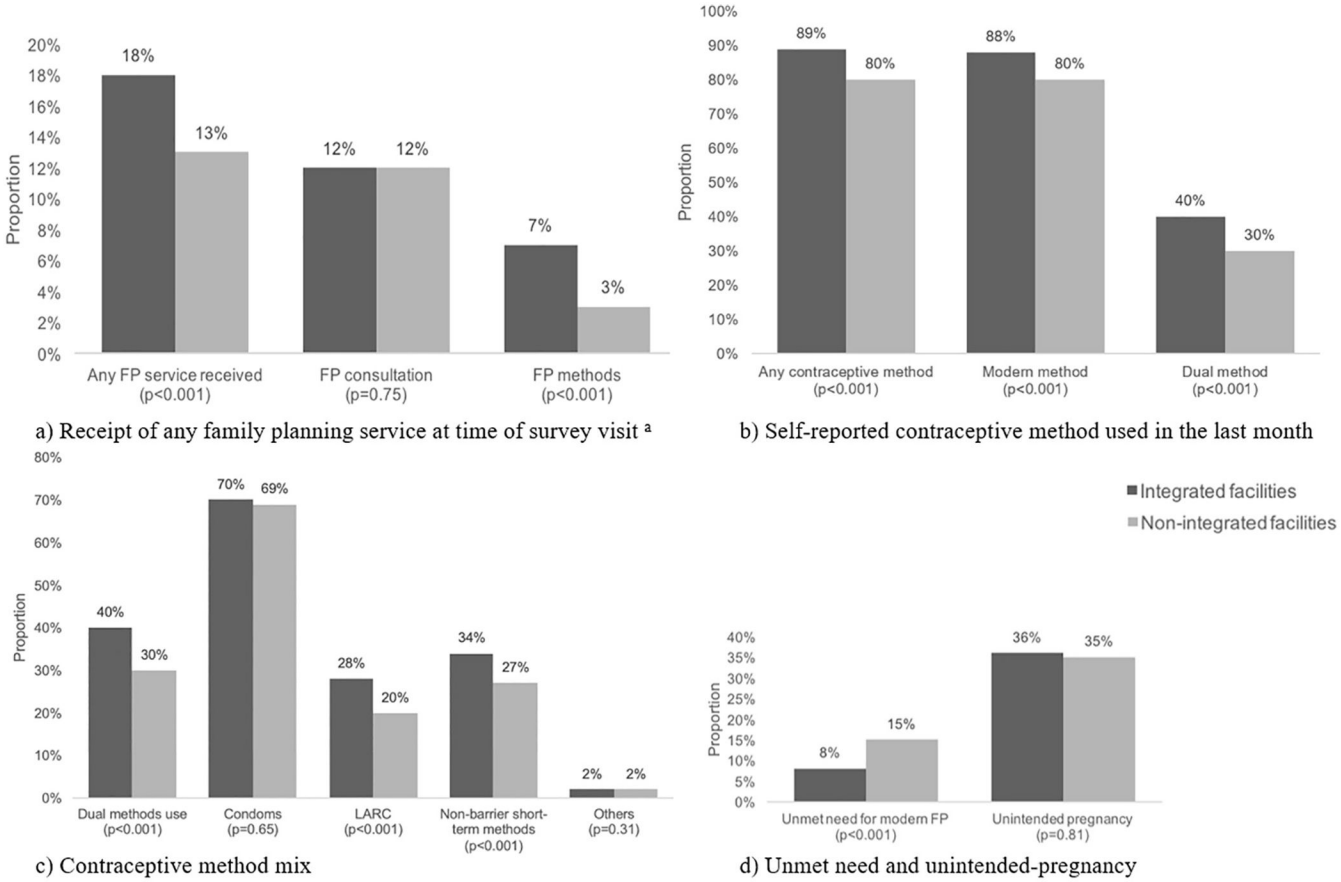


Fig. 2.

Table 1

Characteristics of facility survey respondents and facilities in Kenya in 2016 (N = 108).

	N	**All facilities *n* [%] or Median [IQR]**
Characteristics of survey respondents		
Title	108	
Medical officer		2 [2]
Clinical officer		36 [33]
Nurse		64 [59]
Counselor		2 [2]
Other		4 [4]
Age	105	40 [32–50]
Female		76 [70]
Facility characteristics		
Medium or high HIV burden county	108	84 [78]
Region [a]	108	
Central		10 [9]
Coast		6 [6]
Eastern		13 [12]
Nairobi		20 [19]
Nyanza		35 [32]
Rift Valley		12 [11]
Western		12 [11]
Hospital (vs. clinic)	95	85 [89]
Public	108	68 [63]
ART patient volume (per month)	106	1500 [900–2361]
Number of ART patients treated per staff (per month)	104	78 [50–130]
Offers PMTCT	108	104 [96]

FP = Family planning, IQR = interquartile range, ART = Antiretroviral therapy, PMTCT = Prevention of mother-to-child HIV transmission.

[a]Northeastern counties were not included since no facilities in the region had >1000 female ART clients per year.

Table 2

Facility-level correlates of integration of family planning services into HIV care in Kenya in 2016.

	Integration of FP services		**Poisson Generalized Linear Model**	
	***N* [%]**		**Crude PR [95% CI]**	***p***
	Yes	**No**		
HIV burden				
Low	20 [83]	4 [17]	1.19 [0.71–1.97]	0.51
Medium or high	59 [70]	25 [30]	ref	ref
Region				
Nyanza	27 [77]	8 [23]	ref	ref
Nairobi	7 [35]	13 [65]	0.45 [0.20–1.04]	0.06
Other[a]	45 [85]	8 [15]	1.10 [0.68–1.77]	0.69
Hospital vs. clinic				
Hospital	63 [74]	22 [26]	1.21 [0.60–2.44]	0.59
Clinic	9 [90]	1 [10]	ref	ref
Facility type				
Public	60 [88]	8 [12]	1.86 [1.11–3.11]	0.02 *
Private	19 [48]	21 [52]	ref	ref
ART patient volume per month				
>1500	40 [78]	11 [22]	1.10 [0.71–1.71]	0.67
≤1500	39 [68]	18 [32]	ref	ref
No. of ART patients treated per staff per month				
>78	41 [73]	15 [27]	0.96 [0.62–1.50]	0.86
≤78	38 [73]	14 [27]	ref	ref
PMTCT services offered at the facility				
Yes	76 [73]	28 [27]	0.97 [0.31–3.10]	0.99
No	3 [75]	1 [25]	ref	ref

PR = prevalence ratio, CI = confidence interval; ART = Antiretroviral therapy, PMTCT = Prevention of mother-to-child HIV transmission.

[a]Other regions include Central, Coast, Eastern, Rift Valley, and Western provinces.

* $p < 0.05$.

Table 3

Characteristics of facilities offering integrated family planning services in Kenya in 2016 (*N* = 79).[a]

	N	***n* [%] or Median [IQR]**
Provides FP follow-up [b]	79	65 [82]
Providers trained to deliver FP (%)	78	30 [14–50]
Waiting time for FP services (minute) [c]	77	20 [l0–30]
FP methods discussed [d]		
IUD	79	74 [94]
Implants	79	76 [96]
Injectable	79	77 [97]
OC	79	73 [92]
Condoms	79	77 [97]
Other [e]	79	61 [77]
Most frequently provided FP method at clinic	79	
IUD		1 [1]
Implant		9 [12]
Injectable		39 [50]
OC		1 [1]
Condoms		27 [35]
Natural methods		2 [1]
Facilities experiencing any FP stock-outs (past year)	79	25 [32]
Stock-outs by method [f]		
IUD	25	5 [20]
Implant	25	6 [24]
Injectable	25	10 [40]
OC	25	5 [20]
Condoms	25	15 [60]
Duration of stock-outs by method [f,g]		
IUD	3	90 [7–330]
Implant	4	75 [32–210]
Injectable	4	44 [18–195]
OC	4	75 [30–210]
Condoms	4	34 [5–150]

FP = Family planning, IQR = interquartile range, IUD = intrauterine device, OC = Oral contraception.

Characteristics in this table are based on key informant surveys.

[a] At 29 non-integrated facilities, 90% provided referral services to another facility.

[b] At integrated facilities offering FP referrals, clients are followed up to confirm FP has been received.

[c] Average number of minutes a patient waits to receive FP services at this facility.

[d] More than one method may be discussed at a clinic but not all clinics discussed all methods.

[e] Other methods include abstinence, natural methods, and diaphragm.

[f] A clinic may experience stock-outs of more than one method but not all clinics experienced stock-outs of all methods.

[g] Number of days experiencing stock-outs in the past year.