RESEARCH



Integration of family planning into the primary health care in Ethiopia: results from national assessment

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Abstract

Background Family planning (FP) is part of Ethiopia's essential health service package. However, integrating FP into other health care services is a relatively new concept. Integrated service can minimize missed opportunities and allow health workers to provide FP services and Reproductive, Maternal, Newborn, Child, Adolescent, and Nutrition (RMNCAH-N) services simultaneously. Thus, the objective of this study was to assess the levels of FP integration into maternal and child health (MCH) services at primary health care service delivery units in Ethiopia.

Methods This was a facility-based cross-sectional study conducted from July to October 2022. We conducted a nationally representative survey of primary health care (PHC) facilities selected from seven regions and two-city administrations in Ethiopia to assess the current level of FP integration across four service delivery units (antenatal care unit, postnatal care unit, post-abortion care unit, and immunization unit) of the facilities. We collected data from selected health facilities through interview with health facility managers, healthcare providers in the selected service units, clients seeking health services, and extraction of data from facility records. We employed descriptive analysis, and categorized the degree of FP integration according to the FP information and services provided in the selected service delivery units.

Results This national FP integration survey included 122 health facilities (39 primary hospitals, 42 health centers, and 41 health posts) from seven regions and two city administrations. The study found a huge discrepancy regarding FP counselling given at ANC, PNC, PAC, and immunization service delivery units as reported by health care providers and clients. The proportion of PNC and immunization clients who received FP counselling was higher at health post compared to hospitals and health centers. Moreover, the proportion of PAC clients who received FP information was higher in primary hospitals compared to health centers.

Conclusion Data from facility records and provider interviews showed significant FP integration within ANC, PNC, and immunization units of PHC facilities. However, client exit interviews indicated low FP counselling integration. Facility records revealed few PNC and PAC clients received contraceptives in the past year. The study found high FP counselling and provision of at least one short- or long-acting contraceptive at PNC and PAC units. No facility offered contraceptives at immunization units, indicating missed FP integration opportunities.

Keywords Integration, Family planning, Primary health care, Ethiopia

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Introduction

The United Nations' adoption of the Sustainable Development Goals in September 2015 reaffirmed the reduction of maternal and newborn mortality as a global priority in the coming decades by 2030 [1]. In the past two decades, Ethiopia has made substantial progress in reducing maternal mortality, from 1,250 deaths per 100,000 live births in 1990 to 412 deaths per 100,000 live births in 2016 [2]. A more recent estimate by UN suggested that Ethiopia has further reduced the maternal mortality ratio to 267 [3].

Ethiopia has achieved considerable gains through its FP interventions over the past two decades and thus has increased access to FP services considerably [2, 4].The unmet need for FP has declined from 37% in 2000 to 22% in 2016 [2]. Strengthening the integration of FP services into the PHC system is a key initiative to addressing supply side unmet need [5] and increasing uptake of FP services. This initiative, identified in Ethiopia's Health Service Transformation Plan II (2021–2025) underscores its significance in achieving universal health coverage [6].

Integrating FP into the Reproductive, Maternal, Neonatal, Child and Adolescent Health and Nutrition (RMN-CAH-N) services can reduce missed opportunities and enable healthcare providers to simultaneously provide FP and RMNCAH-N services. WHO defines integrated services more broadly as "health services that are managed and delivered so that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease-management, rehabilitation and palliative care services, coordinated across the different levels and sites of care within and beyond the health sector, and according to their needs throughout the life course" [7]. Integration is cost-effective model of service provision and allows for the most efficient utilization of health services in a single visit [8]. In sub-Saharan Africa, the onsite availability of integrated FP services with HIV care services varies, with 10–61% of HIV care providing facilities achieving minimum readiness to offer the integrated FP services [9].

Expanding access to FP and reproductive health (RH) services is one of the best investments for a country to achieve its aspirational targets outlined in global development initiatives and goals [1, 10]. Investment in FP/ RH can assist countries meet their social and economic development goals [11]. Additionally, addressing the unmet need for FP can save countries millions of dollars in health costs, averting maternal and child deaths, improving education access, and contributing to poverty reduction and economic growth [12].

While previous studies have examined the integration of FP into MCH services [13–15] at the local level, there is lack of comprehensive national-level evidence assessing the extent and levels of FP integration into MCH services delivery units at PHC facilities. Therefore, the objective of this study was to assess the levels of FP integration into MCH services at PHC service delivery units in Ethiopia.

Methods

Study design

This study employed a cross-sectional facility-based study design and a quantitative method to assess the level of FP integration at PHC facilities in Ethiopia. The study was conducted from July to October 2022.

Study settings

We conducted the study in seven regional states and two city administrations across Ethiopia, which operates a three-tier health care delivery system. The first level consists of a district (woreda) health system, including a primary hospital, health centers, and satellite health posts. The second level is a general hospital and the third level is a specialized hospital. Nationally there are 347 public hospitals, 3,735 health centers, and 17,550 health posts. We conducted a nationally representative survey of PHC facilities. The current study focused on the assessment of FP services integration across four service delivery units of primary healthcare facilities. These units include the antenatal care unit, postnatal care unit, post-abortion care unit, and immunization unit from selected primary hospitals, health centers, and health posts of nationally representative PHC facilities.

Study population

During the study period Ethiopia was composed of ten regional states and two city administrations. For this study, we included seven regional states and two city administrations. Due to the prevailing security situation at the time of the study, we excluded three regions (Tigrai, Benshangul Gumuz, and Gembella Regions). (Supplementary Table 1). The selected facilities are distributed across the regions in varying numbers. Primary health care facilities, health providers in the selected service delivery units, and clients seeking health services from the units participated in the study. We excluded health facilities that were closed, non-functional, or located in conflict areas, including hospitals, health centers, and health posts. Besides, it is important to note that this assessment was limited to public facilities.

Sample size estimation

A representative national sample of public health facilities was selected from seven regional states and two city administrations. We employed a stratified random sampling technique with probability proportional to size. Considering the type of facility as a stratum, the sample size was proportionally allocated accounting for the size or number of facilities in each region. In the first round of sampling, primary hospitals were selected using simple random sampling. Subsequently, health centers were randomly selected from those located within the catchment of the selected hospitals. This technique was similarly cascaded down to select catchment health posts under selected health centers. This ensured the selection of health facilities that are administratively integrated and connected through a referral system, allowing for assessment of FP services integration across different levels.

The sample size was calculated based on the total number of health facilities in seven regional states and two city administrations. We utilized an adapted the sampling methods and assumptions from the Service Availability and Readiness Assessment (SARA) of health facilities in Ethiopia 2018 [16] and WHO 2013 recommendations [17]. We assumed confidence level at 95% (1.96); margin of error (ME) of 15% (considering the skewed distribution of health facilities at the regional level in the country); proportion (p) of facilities with the attribute of interest at 0.5; q=1-p; N represents the total number of facilities in each stratum, and design effect (d) of 1. We also accounted for a 10% rate of refusals and closed facilities. The sample size was estimated to be 134, which included 41 primary hospitals, 46 health centers, and 47 health posts. These facilities were allocated to the seven regions and two city administration proportion to the size of different type of PHC facilities in the regions.

Sampling procedure Healthcare facilities

In order to maintain the administrative and referral network among primary hospitals, health centers, and health posts, we sampled a network that includes these facilities. In the case of the Harari region and Dire Dawa city administration, where primary hospitals are absent, we sampled networks of health centers and health posts. For Addis Ababa, where only health centers exist and neither primary hospitals nor health posts are present, we sampled the health centers.

From the 308 primary hospitals included in the sampling process for this study, 39 were randomly selected. No primary hospitals from Harari, Dire Dawa, and Addis Ababa were included, as these regions do not have any. One health center from the catchment area of each selected hospital was randomly selected, followed by the selection of one health post from the catchment area of the selected health centre. This resulted in a total of 122 health facilities, including 39 primary hospitals, 42 health centers, and 41 health posts. The distribution of the facilities across regions varies based on the number and types of facilities available. The majority were located in Oromia (32%, or 39 facilities), and Amhara (30%, or 36 facilities), followed by South Nations Nationality People (16%, or 20 facilities). Further details are presented in supplementary Table 2.

Healthcare providers and clients

Health providers from the service delivery units of interest were selected from the selected primary hospitals, health centers, and health posts for interviews. One health provider was selected from each participating ANC, PNC, PAC, and immunization service delivery units of the chosen primary hospitals and health centers. When there were multiple eligible providers representing the units of interest, the person in charge of the unit was selected and approached for interview. Meanwhile, one health extension worker from the selected health post was selected using simple random sampling. This provided an estimated sample size of 447 healthcare providers. Similarly, whenever available during facility visit for data collection, one client seeking services at the health facilities was selected and interviewed from each respective service delivery units (Supplementary Table 2).

Data collection

We designed the questionnaires in alignment with the primary objectives of the survey. Tools from the Demographic and Health Survey and Service Provision Assessment were adapted to measure the extent of integration of FP across various services. The assessment included service availability and inventory to determine national FP integration across the service delivery units.

Each tool underwent a pretest prior to the actual field data collection, and we modified any unclear questions based on the pretest results. To ensure the collection of high-quality data, we recruited and trained 12 qualified and experienced enumerators and seven supervisors for three days. The training focused on the purpose and objectives of the national survey, the content and scope of different data collection tools, and interview techniques.

Data were collected by Open Data Kit (ODK) (Version 1.0) using smart phone [18]. Our data manager carefully designed the electronic data collection forms ensure the ODK software automatically check the internal consistency and validity of the information for all questions during field data collection. The program also verified the completeness of the information before the enumerator left the data collection site where the information was collected. The supervisors conducted spot-checks of each interviewer at least once a day to ensure data quality. As

the collected information was sent to the central server daily, the data manager checked the completeness, consistency, reliability, and validity of each piece of the information. In case of errors and inconsistencies, feedback was given to the data collection team to take immediate corrective action if the data collector was at that site or go back to the site and correct the error(s). The collected data was stored in a password-protected server and access was restricted only to the relevant study team members.

Statistical analysis

We exported the collected data from the server to Stata software version 15 for quality assessment and statistical analysis [19].The quality assessment involved checking of completeness and consistency of responses. This was achieved by running frequency tables and crosstabulations of related variables to detect errors and take corrective measures. Once the data was confirmed to be complete, descriptive statistics, including frequency and percentage distributions as well as cross-tabulations, were utilized to characterize the status of FP integration. We presented the statistical analysis results using tables and graphs as appropriate.

We defined and categorized the level of FP integration into three levels for each type of health facility. Level zero (0) indicated no integration, where neither FP counselling nor FP methods were provided at the facility. Level one (1) represented some integration, where the facility provided FP information, education and communication materials, counselling, and referral but did not provide short-term or long-term methods at the facility. Level two (2) FP integration represented where the facility provided FP information, education and communication materials, counselling, and referral plus at least one type of short or long acting FP methods.

Results

Description of the study population

This national FP integration survey included 122 health facilities (39 primary hospitals, 42 health centers, and 41 health posts) from seven regions and two city administrations (Supplementary Table 1). 37 (95%) of the primary hospitals, 26 (62%) of the health centers and 13 (32%) of health posts were located in the urban area. 91 (74.6%) of the facilities had electric power supply and 74 (61%) had water supply. The majority, 27 (66%), of the health posts did not have electric power. Water supply was not available in 10 (24%) of the health centers. Further detail is presented in supplementary Table 3.

Of the 477 sampled healthcare providers, 413 participated in the study and were interviewed, representing 92.3% of the expected participants. The distribution was as follows: 116 (28.1%) from ANC, 116 (28.1%) from PNC, 72 (17.4%) from PAC, and 109 (26.4%) were from immunization service providers (Table 1).

The majority of the MCH service providers at the health facilities were females, with the exception of PAC services, which were predominantly provided by males. The MCH service providers were mostly midwives at hospitals 118 (79.2%) and health centers 99 (63.9%). As expected, health extension workers were the predominant service providers at health posts. The age of the MCH service providers ranged from 27.5 to 31.1 years. Their years of experience after graduation ranged from 4.6 to 11.5 years, while their tenure at the current facility ranged from 2.4 to 5.6 years. The MCH service providers were relatively young and had a few years of experience across all assessed facility types.

Availability of FP methods

We conducted observations on the availability of RH commodities and supplies in 37 hospitals, 39 health centers, and 35 health posts out of the total sampled 39, 42, and 41 hospitals, health centers, and health posts, respectively. Facilities where observations were not conducted did not have their stock on-site, as their stocks were housed at zonal or regional stores making observation unfeasible. Table 2 displays the commodities and supplies that were observed and verified in the assessed health facilities.

Most of the short and long-acting FP methods were available at hospital and health center levels. However, certain methods, such as Jadelle® (Implant) from the long-acting methods, and female condoms and emergency contraceptives from short-acting methods, were relatively scarce, particularly at the health center level. Both the short and long-acting FP were unavailable at many health posts. Majority of the health posts reported having Depo-Provera, male condoms, and Implanon. Moreover, availability of emergency contraceptives, Ulipristal acetate tablet and Mifepristone tablet, was similar at all levels of health facilities. On the other hand, the National FP guideline and FP checklists/job aids were available at the majority of health facilities. However, the guideline was not available at three-fourths of the health posts.

Based on the reports from the health facility managers and observation of health facility stock, there was a stockout of the FP commodities and supply across numerous hospitals, health centers, and health posts over the past three months. Among the assessed health facilities, the most frequently out of stock FP commodity was injectable contraceptives, with 15 (40.5%) hospitals and 20 (51.3%) health center reporting a shortage. Additionally,

	Primary ho	spital (n=39)			Health cent	rre (n=42)			Health post	ts (n=35)		
	ANC	PNC	PAC*	lmm.*	ANC	PNC	PAC*	lmm.*	ANC	PNC	PAC**	mm
Sex												
Male	19 (48.7)	16 (41.0)	27 (71.0)	20 (60.6)	15 (35.7)	16 (38.1)	21 (63.6)	22 (57.9)	4 (11.4)	3 (8.6)	(0) 0	3 (7.9)
Female	20 (51.3)	23 (59.0)	11 (29.0)	13 (39.4)	27 (64.3)	26 (61.9)	12 (36.4)	16 (42.1)	31 (88.6)	32 (91.4)	(0) 0	35 (92.1)
Age, mean (SD)	27.5 (3.6)	27.0 (5.0)	28.8 (3.9)	29.1 (5.5)	28.8 (5.9)	28.9 (4.6)	28.1 (3.1)	30.4 (7.3)	31.1 (5.0)	30.2 (5.2)	(0) 0	31.2 (6.5)
Technical qualification												
Health officer	0) 0	(0) 0	(0) (0)	2 (6.0)	2 (4.8)	2 (4.8)	6 (18.2)	5 (13.2)	0 (0)	(0) 0	(0) 0	0 (0)
Nurse	0) 0	1 (2.6)	5 (13.2)	18 (54.6)	5 (11.9)	2 (4.8)	6 (18.2)	26 (68.4)	2 (5.7)	1 (2.9)	(0) 0	2 (5.3)
Midwife	39 (100)	38 (97.4)	29 (76.3)	12 (36.4)	35 (83.3)	38 (90.4)	21 (63.6)	5 (13.2)	2 (7.7)	2 (5.7)	(0) 0	0 (0)
Health extension worker	0) 0	(0) 0	0 (0)	1 (3.0)	0 (0)	0 (0)	0 (0)	2 (5.2)	31 (88.6)	32 (91.4)	(0) 0	36 (94.7)
Years after graduation, mean (SD)	4.6 (2.9)	5.1 (2.5)	4.9 (2.3)	6.1 (3.9)	6.1 (3.2)	6.3 (3.3)	6.6 (2.9)	6.5 (3.4)	11.5 (4.5)	10.9 (4.9)	(0) 0	11.3 (5.8)
Working at this facility, mean (SD)	2.4 (2.2)	3 (2.0)	3.3 (1.8)	3.3 (2.5)	4.5 (3.4)	4.6 (3.9)	3.9 (2.4)	4.2 (2.6)	5.6 (4.7)	5.7 (4.7)	(0) 0	5.9 (5.6)
ANC Antenatal care, PNC Postnatal Care, P	4C Post abortion	Care, IMM Imm	unization									
* PAC and IMM. Units do not have health c	are providers in	primary hospita	ils and health c	enters at the tin	ne of interview							

** There is no designated PAC provider at health post

 Table 1
 Demography and experience of MCH providers per facility and service units, Ethiopia, 2022

Maternal and Child Health units by facility type (n, %)

Factor

Variable	PH (n=37) n (%)	HC (n=39) n (%)	HP (n=35) n (%)
Combined oral contraceptive pills	32 (86.5)	29 (74.4)	19 (54.3)
Progestin-only contraceptive pills	27 (73.0)	28 (71.8)	18 (51.4)
Depo-Provera	33 (89.2)	33 (84.6)	28 (80.0)
Male condoms	33 (89.2)	31 (79.5)	25 (71.4)
Female condoms	3 (8.1)	8 (20.5)	3 (8.6)
Levonorgestrel implant (Jadelle [®])	16 (43.2)	8 (20.5)	6 (17.1)
Etonogestrel implant (Single Rod Implanon)	32 (86.5)	33 (84.6)	23 (65.7)
Ulipristal acetate tablet 30 mg (emergency contraceptive)	14 (37.8)	9 (23.1)	6 (17.1)
Mifepristone tablet 10–25 mg (emergency contraceptive)	23 (62.2)	16 (41.0)	5 (14.3)
Intrauterine contraceptive device (IUCD)	34 (91.9)	32 (82.1)	7 (20.0)
National FP guidelines	24 (61.5)	26 (61.9)	10 (25.6)
FP check-lists and/or job-aids	32 (82.1)	33 (78.6)	24 (61.5)

Table 2 Availability of reproductive health commodity and supply by observation, Ethiopia, 2022

19 (54.3%) health posts reported a shortage of combined oral contraceptives (Supplementary Table 4).

Healthcare provider training

The proportion of healthcare providers who had ever received training on FP was found to be lower at the hospitals compared to health centers and health posts, specifically in the ANC, PCN, and immunization service delivery units. Conversely, the proportion of PAC healthcare providers who received training on FP was higher at the hospital level (Fig. 1).

Integration of FP into MCH service units

The integration of FP in different service delivery units of hospitals, health centers, and health posts was detailed in Table 3. Based on data extracted from the registers, a high proportion of ANC clients (83–91%), PNC clients (87–89%), and PAC clients (92.9–100%) at



Fig. 1 Proportion of MCH providers in ANC, PNC, PAC, and immunization service delivery units trained on FP, Ethiopia, 2022

Table 3 Integration of FP with maternal and child health services at primary health care, Ethiopia, 2022

Service units	PH n (%)	HC n (%)	HP n (%)
Antenatal care			
During this ANC visit, received information on FP methods a couple may use (Cli- ent interview)	15/39 (38.5%)	22/42 (52.4%)	12/30 (40.0%)
FP information provided to ANC clients (Provider interview)	34/39 (87.2%)	40/42 (95.2%)	31/35 (88.6%)
The Proportion of first-visit ANC clients who received FP information in the last 12 months (Record Review)	944.7/1097.6 (86.1%)	785.1/860.5 (91.2%)	90.5 /108.9 (83.1%)
During this ANC visit, a client received any written materials about FP (Client interview)	1/39 (2.6%)	5/42 (11.9%)	1/30 (3.3%)
Postnatal care			
During this PNC visit, received information on FP methods couples may use (Client interview)	20/38 (52.6%)	21/32 (65.6%)	15/18 (83.3%)
FP information provided to PNC clients (Provider interview)	37/39 (94.9%)	38/42 (90.5%)	32/35 (91.4%)
The mean number of first-visit PNC clients who received FP information in the 12 months (Record Review)	855.8./981 (87.2%)	455.8 /511.3 (89.1%)	80.8 /3770.6 (2.1%)
During this PNC visit, received any written materials about FP (Client interview)	3/38 (7.9%)	2 /32 (6.7%)	1/18 (5.6%)
The proportion of PNC clients who received a contraceptive method in the last 12 months (Record Review)	142.1/981 (14.5%)	120.4/455.8 (26.4%)	54.5/80.8 (67.5%)
Post-abortion care			
During the PAC visits, received information about FP (Client interview)	15/19 (78.9%)	1/3 (33.3%)	0
FP counselling provided to PAC clients (Provider interview)	34/38 (89.5%)	31/33 (93.9%)	1/41 (2.4%)
The median number of PAC clients who received FP counseling in the last 12 months (Record Review)	143.0/154 (92.8%)	22.5/22.5 (100%)	14.0/14 (100%)
Proportion of PAC clients who received a contraceptive method in the last 12 months (Record Review)	65.0/154 (42.2%)	7.0/22.5 (31.1%)	14/14 (100%)
Immunization			
During the Immunization visits, received information about FP (Client interview)	12/29 (41.4%)	16/30 (53.3%)	20/28 (71.4%)
FP counseling provided to Immunization clients (Provider interview)	25/33 (75.8%)	28/38 (73.7%)	31/35 (88.6%)
During this immunization visit, received any written materials about FP (Client interview)	4/29 (13.8%)	2/30 (6.7%)	3/28 (10.7%)

Proportion was calculated for the actual number of facilities that participated in the study

hospitals and health centers received information about FP.

Most of the healthcare providers reported providing FP information to the clients (ANC: 87.2–95.2%, PNC: 94.9–90.5%, PAC: 78.9–33.3%) at hospitals and at health centers. However, a relatively lower proportion of providers in the immunization service delivery unit reported providing FP information (at hospitals and health centers, 75.8 and 73.7%, respectively).

Interview with clients exiting ANC, PNC, PAC, and immunization service delivery units provided a much lower estimate of receiving FP information. Among the 110 ANC clients interviewed, the proportion who reported receiving FP information upon exiting the ANC service delivery unit was much lower (38.5–52.4%) compared to estimates based on ANC register data and providers' report. Similarly, interview with PNC, PAC, and immunization clients revealed lower estimates of the clients receiving FP information and communication materials compared to what was estimated based on record review and provider interviews.

Data on provision of FP method was extracted from the registers of PNC and PAC service delivery units. Data on provision of FP method was extracted from the registers of PNC and PAC service delivery units. The data revealed that the proportion of PNC clients who received contraceptives was very low at hospitals and health centers, at 14.5 and 26.4% respectively. Similarly, the proportion of PAC clients who received contraceptives was low at hospitals and health centers, 42.2 and 31.1% respectively. However, proportion of clients at the health posts level who received contraceptives was high at PNC and PAC service units, 67.5 and 100% respectively.

Level of FP integration by MCH service units

Level of integration was computed based on the responses from 122 MCH heads for ANC, PNC, and PAC units, who were responsible for leading, managing, and monitoring service provision in each unit. For immunization, however, the level of FP integration was computed based on the healthcare providers' response at the units, as the information was collected only from the healthcare providers from the service delivery units. Table 4 presents the extent of FP integration into ANC, PNC, PAC, and Immunization service delivery units across primary hospitals, health centers, and health posts.

In primary hospitals, the highest level of FP integration (Level 2, which includes FP counselling and service provision) was observed in PNC and PAC service delivery units, with rates of 100% and 94.7% respectively. ANC service delivery unit shows a Level 1 FP integration (FP counselling) at 89.7%, while immunization services have a similar Level 1 FP integration at 90.9%. However, there was no provision of FP methods in immunization service delivery units.

Health centers followed a similar pattern, with high Level 1 FP integration in ANC (95.2%) and immunization services (92.1%). Postnatal care also demonstrates a high integration of FP counselling and methods provision at 95.2%. Notably, all health centers provided FP counselling and methods in the PAC service delivery units (Level 2 FP integration).

In contrast, health posts showed the least integration of FP. ANC and immunization service delivery units had a Level 1 FP integration (FP counselling) at 91.4% and 97.1% respectively. PNC service delivery units had a

Table 4Level of Integration of FP in Primary Health Care,Ethiopia, 2022

	Level 0 FP integration n (%)	Level 1 FP integration n (%)	Level 2 FP integration n (%)
Primary Hospital			
Antenatal care	4 (10.3)	35 (89.7)	NA
Postnatal care	0 (0.0)	0 (0.0)	39 (100) [£]
Post-abortion care	2 (5.3)	0 (0.0)	37 (94.7) [£]
Immunization	3 (9.1)	36 (90.9)	0 (0.0)
Health Center			
Antenatal care	2 (4.8)	40 (95.2)	NA
Postnatal care	2 (4.8)	0 (0.0)	40 (95.2)*
Post abortion care	0 (0.0)	0 (0.0)	42 (100)*
Immunization	3 (7.9)	39 (92.1)	0 (0.0)
Health Post			
Antenatal care	3 (8.6)	32 (91.4)	NA
Postnatal care	4 (11.4)	0 (0.0)	31 (88.6)*
Post-abortion care	35 (100.0)	0 (0.0)	0 (0.0)
Immunization	1 (2.9)	34 (97.1)	0 (0.0)

* At least one short and one long term FP method provided in the facility

 ${}^{{\scriptscriptstyle \mathrm{f}}}$ Two of the hospitals provide permanent FP methods

NA Not applicable

comparatively lower Level 2 FP integration (FP counselling and methods provision) rate of 88.6%. It is important to note that health posts were not expected to provide PAC, hence the FP integration into PAC services is not applicable for them.

Discussion

The objective of this study was to assess the levels of FP integration into MCH services at PHC service delivery units in Ethiopia. Based on data from review of facility records and provider interviews there is a high level of FP counselling integration at ANC, immunization, and PNC service delivery units. In contrast, interview with the clients exiting the service delivery units suggested a lower level of FP counselling integration. Actual provision of contraceptive methods, based on facility record data, showed a smaller percentage of PNC and PAC clients receiving contraceptive in the last 12 months preceding the survey. The study also found a high level of both FP counselling and provision of at least one type of short- or long-acting contraceptive method was high at all levels of PNC and PAC service delivery units. Notably, no facility provided contraceptive methods at their immunization service delivery units.

This study found a significant discrepancy regarding the reported proportion of MCH clients who received information on FP. While a large number of health care providers claimed to have provided information on FP to ANC and PNC clients, a considerably smaller number of clients confirmed receiving such information. The discrepancy could be attributed to data falsification, poor data quality, recall bias, and social desirability bias among respondents. A related qualitative study on the data reporting system found that maternal and newborn healthcare workers tended to over report service provision data and underreported negative health outcomes [20].

Based on the clients' reports, a higher proportion of ANC, PNC, and immunization service delivery clients at health center and health posts received FP counselling compared to those at hospitals. The lower level of FP counselling practice at these units could be partly due to inadequate training on FP service, as evidenced by a higher proportion of providers in the health centers and health posts having received training on FP in the 12 months preceding the survey. A qualitative study on integrated FP and childhood immunization services in five African countries, including Ethiopia [21], and a longitudinal data from Performance Monitoring for accountability 2020 in Ethiopia, reported that this platform increased women's understanding of the benefits and consequences of modern contraceptive methods. These community level platforms enhanced women's

exposure to accurate information about the using modern contraceptive methods to space or limit births [22].

Unlike ANC, PNC, and immunization service delivery units, a larger proportion of PAC clients reported receiving counselling at the primary hospitals rather than health centers and health posts. Global evidence indicates that post abortion women accept FP method post abortion when offered concurrently and at the same location as abortion or PAC treatment, prior to discharge [22]. Abortion and PAC present an optimal opportunity to offer women with different FP options. Ethiopian FP guideline recommended offering post abortion FP services to women seeking abortion or PAC services before discharge at all service levels [4]. The guideline also advocates for integrated postpartum FP (PPFP) into maternal, newborn, and child health services, increasing the chances that every new mother will leave the clinic having made an informed choice about PPFP.

The proportion of ANC clients who received FP information at health centers was larger than at hospitals and health posts. The high caseload at hospitals and absence of health extension workers at health post could account for the lower level of FP counselling reported at hospitals and health posts levels compared to health centers. Previous studies have shown that FP counselling during ANC service often falls short, failing to provide sufficient information on all methods [23, 24]. This is particularly true for postpartum Intrauterine Device, where only about half of the pregnant women receive counselling [25]. Similarly, a study on the quality of FP counselling in Ethiopia found that none of the regions achieved a quality score above 50% [23].

Based on data from the registers, our study showed, the proportion of PNC and PAC clients receiving contraceptives at hospitals and health centres was significantly lower than at health posts. This could be attributed to the accessibility of the FP services, which are more readily available and conveniently located for clients at health pots, and are often provided at health posts or home by health extension workers. A systematic review in Ethiopia found a low prevalence of postpartum modern contraceptive use [26]. Furthermore, a national survey of revealed that while 94% of facilities offer Immediate Postpartum FP (IPPFP) services, only 27% of postpartum women received IPPFP counselling [14]. Another systematic review showed that the overall prevalence of postabortion FP utilization in Ethiopia and Eastern Africa was lower than the level reported in Brazil, Asia and Sub-Saharan Africa, Pakistan, and India (81%) [27].

This national assessment identified different levels of FP integration within the ANC, PNC, PAC and immunization service delivery units of primary hospitals, health centers, and health posts. FP counselling (Level 1 FP integration) is provided to most of the ANC, PNC, PAC, and immunization clients, according to data obtained from facility records and providers' interviews. In contrast, client interviews suggested lower rates of information receipt. This discrepancy indicates, as highlighted above, potential data quality and data falsification gaps. Furthermore, the provision of both FP counselling and contraceptives (Level 2 FP integration) was lower at hospitals and health centers compared to health posts, suggesting differences in effectiveness of provision of FP in the PNC and PAC service delivery units across facilities. None of the facilities offered contraceptives at their immunization service delivery units. Although the numbers are quite low, some hospitals, health centers, and health posts (up to 10%) reported that they did not provide FP counselling or contraceptives in their ANC, PNC, PAC, and immunization service delivery units.

Another study in Ethiopia showed a low level of FP counselling integration within maternal and neonatal services. Among the women who received ANC and/or PNC services, a mere 20% reported receiving any form FP counselling during their visits [24]. The variation in the FP integration across the MCH units could be attributed to disparities in the infrastructure, supplies, training, and the availability of skilled manpower at the PHC facilities.

The finding of this study should be interpreted with the context of the following limitations. The small sample size for client interviews could potentially compromise the accuracy of our estimates on the FP counselling and contraceptive usage. Findings from the healthcare providers' interview often overestimate the FP integration due to potential data falsification and social desirability bias. To mitigate this, we have triangulated the finding with facility data extracted from facility registers and client interviews. However, due to limited time and resource, we have not included direct observation of FP counselling and contraceptives provision across the four service delivery units which would have provide more accurate picture of the extent and level of FP integration into MCH services. Despite these limitations, the study had several strengths, including its comprehensive scope in terms of geo-cultural diversity, the inclusion of all types of PHC facilities, and utilization of multiple data sources.

Conclusions

Based on data extracted from facility records and interviews with providers, there was a substantial degree of FP counselling integration within ANC, PNC, and immunization service delivery units of PHC facilities. However, client exit interviews suggested a low level of FP counselling integration. The actual provision of contraceptive methods, as evidenced by facility record data, revealed that a small proportion of PNC and PAC clients received contraceptives in the 12 months prior to the survey. The study also discovered a high degree of FP counselling and provision of at least one type of short- or long-acting contraceptive method at PNC and PAC service delivery units. None of the facility offered contraceptive methods within their immunization service delivery units suggesting missed opportunities of FP integration in the immunization service delivery units.

Abbreviations

FP	Family planning
RMNCAH-N	Reproductive, maternal, newborn, child, adolescent and
	nutrition
MCH	Maternal and child health
PHC	Primary health care
PAC	Post abortion care
HIV	Human immunodeficiency virus
RH	Reproductive health
ANC	Antenatal care
PNC	Postnatal care
ODK	Open data kit
PPFP	Postpartum family planning

Supplementary Information

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Additional file 1
Additional file 2
Additional file 3
Additional file 4

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Author contributions

MR, BS, AS, NF, AT, KO conceived the study, participated in the design, data collection, and coordination of the study and performed the statistical analyses. MR and BL wrote the original draft manuscript, reviewed and edited the manuscript. AS, AT and NF participated in the design and coordination of the study, contributed to the statistical analyses, and reviewed and edited the manuscript. YA and SS participated in coordination of the study, contributed to the statistical analyses, reviewed and edited the manuscript. YA and SS participated in coordination of the study, contributed to the statistical analyses, reviewed and edited the manuscript. AT, YA, KO, JK revisiting of the manuscript critically for relevant intellectual content. All authors gave full approval of the version to be published.

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Availability of data and materials

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

Declarations

Ethics approval and consent to participate

Ethical clearance and approval was obtained from the Institutional Review Board of SPH_REC and the College of Health Sciences at Addis Ababa University (Ref: 031/22/SPH). Written permission to perform the studies was obtained from the respective Regional Health Bureau and offices of the selected woredas for the study. All data collection instruments were accompanied with informed written consent forms in which the consent of the respondents was ensured. All respondents were informed about the purpose of the study by reading out the informed consent statements prepared for the study. They were also informed about the confidentiality of the information they provided during data collection. The right not to participate at all or to withdraw at any time during the interview was made clear to the respondents. The risk and benefits of the study were explained. All data collected during the fieldwork was stored, organized, analyzed, and retrieved guaranteeing confidentiality.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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References

- 1. United Nations. The 2030 Agenda and the Sustainable Development Goals: An opportunity for Latin America and the Caribbean. Santiago https://repositorio.cepal.org/server/api/core/bitstreams/6321b2b2-71c3-4c88-b411-32dc215dac3b/content1018.
- Central Statistical Agency al, Central Statistical Agency (CSA) [Ethiopia], and ICF. Ethiopia Demographic and Health Survey (EDHS) 2016. Addis Ababa, Ethiopia, Rockville, Maryland, USA: CSA and ICF https://dhspr ogram.com/pubs/pdf/FR328/FR328.pdf; 2016.
- WHO, World Health Organization. Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, world bank group and UNDESA/population division. Geneva: World Health Organization; 2023.
- Ministry of Health. Family Planning Service Integration National Implementation Guideline. Addis Ababa, Ethiopia https://scorecard.prb.org/ wp-content/uploads/2022/03/National-Guideline-for-Family-Planning-Services-In-Ethiopia-2020.pdf2021.
- Senderowicz L, Maloney N. Supply-side versus demand-side unmet need: implications for family planning programs. Popul Dev Rev. 2022;48(3):689–722.
- Federal Ministry of Health. Health sector transformation plan: 2015/16-2019/20, 2015. https://www.globalfinancingfacility.org/./Ethiopia-healthsystem-transformation-plan.pdf.
- World Health Organization. Integrated health care services what and why. 2008. https://www.who.int/docs/default-source/primary-health-careconference/linkages.pdf.
- Mutisya R, Wambua J, Nyachae P, Kamau M, Karnad SR, Kabue M. Strengthening integration of family planning with HIV/AIDS and other services: experience from three Kenyan cities. Reprod Health. 2019;16(S1):62. https://doi.org/10.1186/s12978-019-0715-8.

- Kanyangarara M, Sakyi K, Laar A. Availability of integrated family planning services in HIV care and support sites in sub-Saharan Africa: a secondary analysis of national health facility surveys. Reprod Health. 2019;16(60):2–9. https://doi.org/10.1186/s12978-019-0713-x.
- Starbird E, Norton M, Marcus R. Investing in family planning: key to achieving the sustainable development goals. Glob Health Sci Pract. 2016;4(2):191–210.
- 11. Federal Ministry of Health. National reproductive health strategy 2014–2018 In: Minstry of Health E, editor. Addis Ababa https://www.prb.org/wp-content/uploads/2020/06/Ethiopia-National-Reproductive-Health-Strategy-2016-2020.pdf2014.
- Singh S, Darroch JE, Ashford LS, Vlassoff M. Adding It Up: The costs and Benefits of Investing in family Planning and maternal and new born health. Guttmacher Institute https://www.guttmacher.org/report/adding-it-costs-and-benefits-investing-family-planning-and-maternal-andnewborn-health; 2009.
- Muchie A, Getahun FA, Bekele YA, Samual T. Magnitudes of postabortion family planning utilization and associated factors among women who seek abortion service in Bahir Dar Town health facilities, Northwest Ethiopia, facility-based cross-sectional study. PLoS ONE. 2021. https://doi. org/10.1371/journal.pone.0244808.
- Silesh M, Lemma T, Abdu S, Fenta B, Tadese M, Taye B. Utilisation of immediate postpartum family planning among postpartum women at public hospitals of North Shoa Zone, Ethiopia: a cross-sectional study. BMJ Open. 2022. https://doi.org/10.1136/bmjopen-2021-051152.
- Krishnaratne S, Hamon JK, Hoyt J, Chantler T, Landegger J, et al. What mechanisms drive uptake of family planning when integrated with childhood immunisation in Ethiopia? A realist evaluation. BMC Public Health. 2021. https://doi.org/10.1186/s12889-020-10114-8).
- Ethiopian Public Health Institute (EPHI). Ethiopian Service Availability and Readiness Assessment 2016 Summary Report. Addis Ababa Ethiopia https://www.washinhcf.org/wp-content/uploads/2021/07/Final-SARA-Report-Jan-2017.pdf; 2018.
- WHO. Service Availability and Readiness Assessment: An annual monitoring system for service delivery reference manual https://www.who.int/ data/data-collection-tools/service-availability-and-readiness-assessment-(sara)2013.
- 18. Get ODK Inc. https://getodk.org.
- 19. Stata Corp., College Station, TX, U.S.A https://www.stata.com/stata15/.
- 20. Estifanos AS, Gezahegn R, Keraga DW, Kifle A, Hill Z. 'The false reporter will get a praise and the one who reported truth will be discouraged': a qualitative study on intentional data falsification by frontline maternal and newborn healthcare workers in two regions in Ethiopia. BMJ Glob Health. 2022. https://doi.org/10.1136/bmjgh-2021-008260.
- Hoyt J, Krishnaratne S, Hamon JK, Boudarene L, Chantler T, Demissie SD, et al. "As a woman who watches how my family is I take the difficult decisions": a qualitative study on integrated family planning and childhood immunisation services in five African countries. Reprod Health. 2021;18:1–13.
- Zimmerman LA, Yi Y, Yihdego M, Abrha S, Shiferaw S, Seme A, et al. Effect of integrating maternal health services and family planning services on postpartum family planning behavior in Ethiopia: results from a longitudinal survey. BMC Public Health. 2019;19:1–9. https://doi.org/10.1186/ s12889-019-7703-3.
- Mehare T, Mekuriaw B, Belayneh Z, Sharew Y. Postpartum contraceptive use and its determinants in Ethiopia: a systematic review and metaanalysis. Int J Reprod Med. 2020. https://doi.org/10.1155/2020/5174656.
- 24. Mickler AK, Karp C, Ahmed S, Yihdego M, Seme A, Shiferaw S, et al. Individual and facility-level factors associated with women's receipt of immediate postpartum family planning counseling in Ethiopia: results from national surveys of women and health facilities. BMC Pregnancy Childbirth. 2021;21(1):1–14.
- Kozuki N, Lee AC, Silveira MF, Sania A, Vogel JP, Adair L, et al. The associations of parity and maternal age with small-for-gestational-age, preterm, and neonatal and infant mortality: a meta-analysis. BMC Public Health. 2013;13:1–10.
- Converse PJ, Mariam DH, Mulatu M, Mekonnen W, Kloos HJ. Bibliography on HIV/AIDS in Ethiopia and Ethiopians in the diaspora: the 2012 update. EJHD. 2013;27(2):156–86.

27. Lule E, Singh S, Chowdhury SA. Fertility regulation behavior and their costs: contraception and unintended pregnancies in Africa and Eastern Europe and Central Asia. Washington, DC: World Bank; 2007.

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