Determinants of Modern Contraceptive Methods (MCM) discontinuation among childbearing age women in Kinshasa, Democratic Republic of Congo.

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Abstract

Background: Family planning (FP) is one of the main strategies to reduce maternal mortality in sub-Saharan Africa. However, only 8% of women use modern contraceptive methods in the Democratic Republic of Congo. It is estimated that at least 50% of women stop using Modern Contraceptive Methods (MCM) in sub-Saharan Africa. The objective of this study was to identify factors associated with MCM discontinuation in Kinshasa. **Methods:** A retrospective cohort study was conducted in Kinshasa from April through June 2019. Three hundred and eighty-seven women who attended 10 health facilities in 10 health zones of Kinshasa (one facility per health zone) were enrolled in the study. Predictors of modern contraceptive discontinuation were investigated, using Cox regression. **Results:** The proportion of MCM discontinuation was 21.4% (95% CI: 17.6-25.8); 60.2% for implants and 24.1% for contraceptive injections. Predictors for discontinuation were: unemployment (Hz.R = 2.23; 95% CI: 1.35 - 3.70; p = 0.003); having no or only one child (Hz.R = 2.89; 95% CI : 1.43 - 5.85; p = 0.015); using a short-acting method (Hz.R = 4.61; 95% CI: 2.81 - 7.56; p <0.001); lack of sufficient explanations about MCM (Hz.R = 3.14; 95% CI: 1.93-5.11; p <0.001) and side effects (Hz.R = 2.93; 95% CI: 1.79 - 4.80; p = 0.001). **Conclusion:** MCM discontinuation was high among women in Kinshasa. While it is important to reinforce strategies to increase MCM uptake, it is also critical to increase its continuation.

Background

According to the United Nations World Fertility and Family Planning 2020 report, the use of contraceptives reduced high risk pregnancies as well as maternal and infant mortality in 2019. Family planning (FP) has the potential to avert approximately 30% of maternal and 10% of child deaths (1). Contraception remains one of the main strategies to reduce maternal mortality. Castle S and al 2015 reported that the use of Modern Contraceptive Methods (MCM) by 309 million women in 69 Family Planning (FP) 2020 initiative targeted countries prevented about 84 million unwanted pregnancies, 26 million unsafe abortions and 125,000 deaths in mothers (2). Contraception therefore saves the lives of nearly 250,000 women worldwide each year and could save 100,000 more if most women used MCM; it prevents more than 30% of maternal deaths and more than 10% of infant deaths (3-5). Half of all unintended pregnancies in developing countries are terminated, mostly in illegal or dangerous circumstances, which can lead to death (6). Moreover, currently it was estimated that contraceptive use in sub-Saharan Africa prevents 22% of HIV-positive births (7). Stopping contraceptive use remains a major challenge, particularly in sub-Saharan Africa. Jain et al, estimated that 38% of women using family planning, stopped using MCM. This attrition rate increased to reach more than 50% in 16 in sub-Saharan Africa countries in 2017 (9).

The Democratic Republic of Congo (DRC) was among the countries with the highest maternal mortality rates in the world in 2015 and was among the six countries that contributed to half of the maternal and infant mortality in the world. Its fertility rate and proportion of contraceptive use were respectively of 5,8 and 22,4% in 2019 (1). According to Demographic Health Survey (DHS) data in 2014 more than 80% of all men and women in the DRC knew at least one contraceptive method, and 24% of women who did not use

any contraceptive method, expressed an unmet need for FP (14). The aim of this study was to determine the magnitude of MCM discontinuation and identify factors associated with discontinuation in Kinshasa.

Methods

Study setting

Kinshasa representing the highest contraceptive prevalence with 19% (14), is the capital city of the DRC with a multi-ethnic population estimated at around 12 million inhabitants and it includes 35 Health Zones. Out of the 876 health facilities, 428 offer the FP package and are distributed in all 35 health zones. Ten health facilities were selected by reasoned and convenience choice, each located in a different health Zone were included in the study. Accessible facilities in the FP network were prioritized for inclusion in the study. All health facilities were secondary level general referral hospitals, among them four were public, two faith based and four private hospitals.

Study design and inclusion criteria

A retrospective cohort study was carried out from February through May 2019. The first step consisted of a review of registers and client' charts in health facilities to select women on MCM according to the study criteria. This step was followed by data abstraction using a data collection tool. To collect missing data, clients were also traced and interviewed in the community. Study participants were selected women of reproductive age (18-49 years) having used MCM for a period ranging from 3 months to 5 years from facilities offering FP services, located in urban and urban-rural areas.

Data were collected from 387 women aged 18-49 years in the city of Kinshasa, followed during the period from 2014-2018 and having used MCM at least 3 months before data collection (**Fig 1**).

Data collection

A team of experienced investigators was recruited and trained. They worked with the health providers and affiliated community health workers (CHW) of the selected health facilities.

These health providers offer health services at the facility level including FP services and collect data using specific routine data collection tools. The CHWs used text messages, phones calls and home visits streamline the patients' monitoring and if needed to collect follow up information.

Data collection took place from February - May, 2019. Client charts, registers and data collection tools of CHWs were used to abstract the needed information related to the selected clients. The study staff used a structured questionnaire for data abstraction. In addition, the most missing information was collected by using simple data collection tool based the needs.

Data processing and analysis During data collection, data quality control was performed to ensure completeness, accuracy and reliability of the data. Responses were also checked to correct

inconsistencies. The data were keyed using the EPIDATA 3.1 software and analyzed with SPSS version 23 (Statistical Package for Social Sciences) and R software. Frequency and proportion measures were used to summarize the categorical variables; means and standard deviations (SD) or medians and interquartile range to summarize continuous variables. The categorical variables were presented as absolute and relative frequencies. Missing data were imputed by the mean for continuous variables such as age, and by the predominant category for categorical variables such as parity or occupation.

We used Kaplan-Meier methods to estimate the probability of discontinuation stratified by experience of side effects, by type of MCM (short-acting vs long acting), and by pre-MCM counselling, with a log-rank test to assess differences in discontinuation rates. Cox proportional risk models were used to assess factors associated with MCM discontinuation. Likelihood ratio was used to identify potential variables to include in the multivariable model and proceeded with the backward stepwise elimination. The variable's association was assessed using the crude and adjusted Hazard ratios (Hz.R). Statistical significance was assessed using the 95% confidence intervals (CI) and p-value <0.05.

Results

The mean age was 30 years (SD: 7.12), 77.8% of women were between 25 and 49 years. The median parity was 3 (IQR: 2), 59.7% had 2-4 children; 60.2% were officially married, 26.4% were living together with a sexual partner, 86.8% had only one sexual partner and most women (86.8%) had a primary or secondary educational level (**Table 1**) Eighty three women (21.4% ; 95% CI: 17.6-25.8) discontinued MCM. Most discontinued methods were implants in 50 (60.2%) and contraceptive injections in 20 (24.1%). Reasons for MCM discontinuation cited by participants were: side effects, expiration of time to use the method, desire of pregnancy, poor perception/misconceptions and unexpected pregnancy. No removal of implants was reported. (**Table 2**) Two hundred twenty two (57.4 %) reported side effects, 172 (44.4%) of them continued to use the MCM. Among the 47 women who discontinued MCM for side effect, the main cited side effects were: amenorrhea, vaginal bleeding, dizziness, headache, weight gain. In multivariable analysis, MCM discontinuation was associated with - unemployment; -lower parity; - short-acting MCM; -lack of effective FP counseling; - and side effects (**Table 3**). Figures 2-5 show the Kaplan-Meier curves of participants continuing MCM, according to type of methods, side effects and poor pre-MCM counseling.

Discussion

Our results show that two out of ten women discontinued MCM. Implants and contraceptive injection were the methods most frequently discontinued. Side effects, product expiration and desire for pregnancy were the main reasons for giving up MCM. Short-acting methods, lack of informed explanation before using MCM, side effects, lower parity and unemployment were factors associated with discontinuation of MCM use.

The main reasons for discontinuation cited by women were side effects (59%), expiration of the the product (mostly for the implant) (14.5%), desire for pregnancy (13.3%) and poor perception of MCM (9.6%). Several studies have reported side effects as the main reason for discontinuation (13;24;27;48;51;52).

Our result showed a higher implant discontinuation rate (60.2%) compared to many other studies. For example, Barden et al,2018; Rachidul et al, 2015 and Njoku et al, 2014 reported 6.3%; 0.72% and 11% as implant discontinuation respectively (11;13; 24;27;50;51).

Many women in our study with an implant (67%) reported side effects, mainly menstrual disorders. The lack of optimal FP counseling about potential side effects, prior to insertion, can negatively influence the retention of the implant (56; 57).

Similar to other studies, the desire to become pregnant was also an important reason for discontinuation (54; 55). Product (MCM) expiration was reported as the second main reason for withdrawal. However, this was only reported by women with an implant. This could be due to insufficient follow up of women on MCM as well as poor pre-MCM counseling. Clients' follow-up offers the possibility for additional advice and early management of possible side effects. Improved monitoring of MCM use will ensure the success of the FP strategy (55).

Five factors were significantly associated with the discontinuation of MCM (**Table 4**). Women who used short-acting MCM were more likely to discontinue than those who were on long-acting MCM. A similar result was found by Sara Casey et al. in North Kivu and Simmons R et al. in the USA (13, 52). This association could be due to the fact that stopping short-term MCM, in contrast with long-acting MCMs, does not require provider's assistance (27). In addition, contraceptive injections and oral contraceptive , may produce side effects leading to discontinuation (13) as also reported by .Nigisti B et al. in northern Ethiopia (49).

Similar to the Ethiopian study, women who did not receive sufficient explanations about MCM were more likely to abandon MCM. Improving the quality of contraceptive counseling is one of the strategies to reduce contraceptive discontinuation and unwanted pregnancies (49). Women who use MCMs with no or only one child were more likely to abandon the method than those who had more children as was also reported in many other studies (24, 50, 53). Unemployed women were more likely to abandon MCM than those with a profession as was also previously reported (32;33). Women with a profession are likely to have a higher level of education, allowing them to have more access to FP services and information. Moreover they more likely to want to keep their job than to have an unwanted pregnancy. Our study has some limitations. In our retrospective study, in some medical charts information such as client age, profession and parity and follow up information was missing. All missing data were imputed by the mean for quantitative variable, or the mode for qualitative variables. During the interviews in the community may be responses were influenced by social desirability.

Conclusion

This study found a significant level of discontinuation of MCM among women in the city of Kinshasa. The use of short-acting MCM, side effects, lack of sufficient explanations about MCM before the use of MCMs, having no or only one child and unemployment were identified as the main predictors of discontinuation of MCMs. There is a need to streamline FP strategy by strengthening the MCM counseling and improving the follow up of clients using MCM.

Declarations

Ethics approval and consent to participate

The study protocol was approved by the Institutional Review Board (IRB) of the Kinshasa School of Public Health (N°ESP/DIR/MK/048/MM/2019), as well as the administrative authorities offices of the Health Zone. All methods were performed in accordance with the relevant guidelines and regulations (Declaration of Helsinki). All study participants were 18 years old and over and those who were interviewed provided a written informed consent. The informed consent statement, included important and relevant information of the study. To ensure confidentiality, the data were collected anonymously and only available to the study investigators. The study team was bound by professional secrecy with regard to all the information collected. The data collection cards are kept secured by the principal investigator until the required time before their total destruction.

Consent for publication

Not applicable

Availability of data and material

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

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Conceptualization, NP, CL and JD; formal analysis, CL, NP and JD; funding acquisition, NP and JD; methodology, NP, JD, DNM and CL; project administration, NP; supervision, JD; writing—original draft, NP and JD; writing—review, editing, and revisions, NP, JD, RC, CL, DNM, LL and SHE. All authors have read and agreed to the published version of the manuscript.

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Abbreviations

CHWs: Community Health Workers; CI: confidence interval; DHS: Demographic and Health Survey; DRC: Democratic Republic of Congo; FP: Family Planning; IQR: interquartile range; MCM: Modern Contraceptive Method; SD: Standard deviation; SPSS: Statistical package for social sciences.

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Tables

Table 1: Women's socio-demographic characteristics (1)

Variables	Frequency (n=387)	Percentage (%)
Age (years)		
Mean(SD)		30.56 (7.12)
18-24	86	22.2
25-34	188	48.6
35-49	113	29.2
Marital status		
Single	41	10.6
Married	233	60.2
Living without married	102	26.4
Separated / Divorced	11	2.8
Number of sexual partners		
None	10	2.6
Only one	252	65.1
One but not married	84	21.7
Multiple partners	41	10.6
Age of partner (years)		
< 35 years	89	26.5
35-44 years	114	34.0
45-54 years	52	15.2
≥55 years	81	24.1
Occupation of partner		
Public official	64	19.3
Private sector	68	20.5
Small jobs	166	50.0
Driver	34	10.2
Education level		
Primary school	16	4.1

Secondary school	316	81.7
College level	55	14.2

SD: Standard deviation; IQR: Interquartile range;

Table 1: Women's socio-demographic characteristics (2)

Variables	Frequency (n=387)	Percentage (%)
Profession		
Unemployed	111	28.7
Public official	41	10.6
Small jobs	178	46.0
Shop keeper	57	14.7
Parity		
Median(IQR)		3 (2)
0-1 children	62	16.0
2-4 children	231	59.7
≥5 children	94	24.3

Table 2: Main type of MCM discontinued by women

Type of MCM	Frequency (n)	Percentage (%)
Contraceptive Implant, n (%)	50	60.2
Contraceptive injection, n (%)	20	24.1
Oral contraceptive (Pill), n (%)	11	13.3
Intrauterine Device (IDU), n (%)	1	1.2
Contraceptive Ring, n (%)	1	1.2
Total	83	100

Table 3: Main reasons mentioned for MCM discontinuation

Reasons	Frequency (n=83*)	Percentage (%)
Side effects		
No	36	43.4
Yes	47	56.6
Product expiration		
No	71	85.5
Yes	12	14.5
Desire of pregnancy		
No	72	86.7
Yes	11	13.3
Rumors		
No	75	90.4
Yes	8	9.6
MCM failure		
No	77	92.8
Yes	6	7.2
Advices from relatives		
No	77	92.8
Yes	6	7.2
Husband's order		
No	80	96.4
Yes	3	3.6

*Number of times reasons were mentioned by the 47 women who discontinued MCM. A woman could mention more than one reason.

Table 4: Factors associated with MCM discontinuation in women

Factors	Frequency	Hz.R. crude	IC 95% Hz.R. crude	Hz.R. adjusted	IC 95% Hz.R. adjusted	p-value
Effective counseling						
Yes	285	1				
No	102	3.82	2.47 – 5.89	3.14	1.93 – 5.11	<0.001
Profession of women						
employed	276	1				
Unemployed	111	1.98	1.25 – 3.15	2.23	1.35 – 3.70	0.003
Parity						
≥ 5 children	94	1				
0-1 children	62	2.11	1.10 – 4.04	2.89	1.43 – 5.85	0.015
2-4 children	231	1.12	0.67 – 1.86			
Type of MCM						
Long term action	315	1				
Short term action	72	4.69	2.96 – 7.43	4.61	2.81 – 7.56	<0.001
Awariness on MCM effectiveness						
Not effective	29	1				
Effective	358	0.28	0.16 – 0.50	--	-----	-----
Side effects						
Yes	221	1.86	1,16 - 2,98	2,93	1,79 – 4,80	0,010
No	166	1				

Hz.R: Hazard ratio

MCM: Modern contraceptive method

Figures

Figure 1

Consort Chart

Figure 2

MCM drop out by side effects

Figure 3

MCM drop out by MCM ty

Figure 4

MCM drop out by lack of pre-MCM counselling

Figure 5

Overall MCM drop out

Supplementary Files

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