

UPTAKE OF INTRAUTERINE CONTRACEPTIVE DEVICE AMONG HIV POSITIVE WOMEN AT SELECTED HEALTH FACILITIES IN NAIROBI CITY COUNTY, KENYA

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**International Academic Journal of Health, Medicine and Nursing (IAJHMN) | ISSN
2523-5508**

Received: 29th December 2021

Published: 6th January 2022

Full Length Research

Available Online at: <https://iajournals.org/articles/iajhm v2 i1 220 241.pdf>

Citation: Asava, D. N., Ochieng, J. O., Ogutu, J. O. (2022). Uptake of intrauterine contraceptive device among hiv positive women at selected health facilities in Nairobi City County, Kenya. *International Academic Journal of Health, Medicine and Nursing*, 2(1), 220-241.

ABSTRACT

The increased maternal and neonatal mortality in Kenya among women living with HIV and AIDS can be attributed to high unmet needs of family planning at 52%. In Kenya there are approximately 1.5 million people living with HIV and 36000 people die annually due to HIV related diseases. In Kenya the uptake of intra-uterine device in the general population is 3.4% compared to other modern methods. The study therefore aims at improving Intra-uterine contraceptive device uptake among women living with HIV/AIDS in selected health facilities in Nairobi City County, Kenya. The study specifically focuses on knowledge and barriers associated with intra-uterine device uptake in Nairobi City County. The study adopted a cross sectional-descriptive study design to collect data through a researcher administered questionnaires through research assistants. A total of 353 participants were interviewed from the selected facilities of Mathare North health Center, Huruma Lions Health Center and Pumwani Majengo Health Center which were purposively chosen. The study used quantitative collection methods. Systematic random sampling was used to select primary respondents at a predetermined interval of 8. Quantitative data was cleaned and entered into a Microsoft excel database before being analyzed by SPSS version 22.0. Descriptive statistics were presented using percentages, frequency tables, graphs and pie-charts. Inferential statistics were calculated to establish the association between study variables using chi-square

tests done at 95% confidence interval. The results revealed that only 4.8% of respondents utilized intra-uterine contraceptive device. The study established low knowledge levels on intra-uterine device among women living with HIV/AIDS in Nairobi City County. Knowledge levels were significantly associated with utilization intra-uterine contraceptive device ($p=0.047$). A number of factors were identified as possible barrier which hindered intra-uterine contraceptive device uptake which included facility reception ($p=0.026$), provision of information ($p=0.002$), culture/religion ($p=0.004$) and spouse allows use ($p=0.002$). The study concludes that there were low utilization rates and low knowledge levels on intra-uterine contraceptive device. The study further concludes that other barriers were possible reasons for low uptake of intra-uterine uptake among women living with HIV/AIDS in Nairobi City County. The findings of this study would help relevant stakeholders in structuring programs and strategize on interventions to improve intra-uterine contraceptive uptake among women living with HIV/AIDS in the Nairobi City County and the country at large. This will discourage reliance on wrong knowledge on IUCD so as to reduce the unmet needs of family planning and reduce unintended pregnancies that crop up in the long run.

Key words: Knowledge, Barriers, Intra-Uterine Device Uptake, Neonatal Mortality, Family Planning, Facility Reception

INTRODUCTION

The global rate uptake of intrauterine contraceptive device (IUCD) among women of reproductive age is estimated to be at 14.3%, and most users are from Asia (27%). The developed areas have an uptake of 9.2% while the less developed countries have 15.1% (Ali *et al.*, 2019; Daniele *et al.*, 2017) This can be attributed to lack of training among health care workers, cost differences and medico-legal environment (Daniele *et al.*, 2017). In Africa IUCD uptake is < 2% (in Sub-Saharan, Eastern, Western and Southern regions), however the Northern region of Africa has the highest IUCD use (18.1%) and Egypt and Tunisia being the hotspots (28.8% and 36.1%) (Buhling *et al.*, 2014; Ali *et al.*, 2019).

Family planning methods combined with antiretroviral (ARVs) reduces human immunodeficiency virus (HIV) infections and thus reducing neonatal and maternal deaths by up to 43% in Sub-Saharan Africa (SSA) and Southern Asia (UNAIDS, 2016). Intrauterine contraceptive device as a family planning method can prevent unwanted pregnancies and mother-to-child transmission (MTCT) among women living with HIV. More than 52% of the women who are HIV positive have unmet needs of family planning increasing their risk of maternal and neonatal deaths from unplanned pregnancies (MOH, 2016). However, the rate of unmet need for the general population was 18% in Kenya and 11% in Nairobi City County five years ago ((KDHS, 2014). There is a high rate of unintended pregnancies: (26%) untimed and 17% unwanted among women living with HIV in Kenya ((Shabiby *et al.*, 2015). Sub-Saharan Africa has the most serious burden of HIV and AIDS epidemic and 24.7 million people live with it accounting to 74% of global HIV prevalence. Of this population, 1.6 million live in Kenya and 25,000 of them die every year of AIDS related complications (UNAIDS, 2018). Majority of the affected populations are women of the reproductive age at a prevalence of 6.1% compared to 4.9% of the overall population. Among the reproductive age women, 68% of the adults are on retroviral treatment thus reducing the prognosis of HIV among them (UNAIDS, 2018)

IUCD as a LARM of family planning is under-utilized by the Kenyan population. Uptake of IUCD among women of reproductive age is very low according to the survey done by KDHS in 2014 which was at 3.4% in Kenya and 4.5% in Nairobi County. There is high unmet family planning need of 52% among people living with HIV in Kenya (MOH, 2016) and thus causing an increased risk of maternal and neonatal deaths from unplanned pregnancies. IUCD is the most effective (99%) family planning method with a pregnancy rate of <1 pregnancy per 100 women in a year (MOH, 2018) yet it is being underutilized.

There is paucity of data of HIV positive women of reproductive age who use IUCD in Kenya. Most women use the modern methods like injectable, implants and oral contraceptives with uptake rate of 23%, 10% and 8% respectively. This has led to unintended pregnancies among people living with HIV and thus causing increase of infant mortality due to HIV (Shabiby *et al.*, 2015). Use of IUCD can reduce the number of unintended pregnancies and also reduce number of infant mortality. Though KDHS 2014 states that there was an increase in CPR from 46% in 2008-09 to 58% in 2014 for the general population, the uptake of IUCD is still

low and discontinuation rate at 43% due to health reasons and side effects. The main purpose of this study was to uncover the barriers and drivers of IUCD uptake. This would enable inform the public to embrace the use of LARM (IUCD) so as to reduce unintended pregnancies among HIV positive clients and thereby scale down infant mortality among them.

LITERATURE REVIEW

Knowledge factors affecting IUCD uptake

Knowledge of IUCD among all women in Kenya is 77% which shows that many women have the knowledge of the device but are unable to use it. (KDHS, 2014) while in Ethiopia Use of IUCD is 2.5% compared to implants at 12.1%, this is attributed to lack of knowledge on IUCD. This made the Integrated Family Health Program to support the government on introduction of IUCD (Nigatu *et al.*, 2016). A study done in Abakaliki showed that the acceptance rate of IUCD is 13.2% compared to the previous studies that were done in health facilities, this is because women in rural areas are uneducated and have no knowledge of contraceptives (Igwe, 2016), thus making use of IUCD to be low. We also find that IUCD uptake in South Africa is low (1%) because of little information on IUCD in public facilities than private institutions (Zijl, Morroni, & Spuy, 2010).

Married couples who are living in India with HIV talked about provider stigma, most women were counseled on condom use which led to low use of other family planning methods and also reduced knowledge on IUCD (Chi *et al.*, 2012). There is low awareness of IUCD among the reproductive age women according to a study done in South Africa by Todd *et al* despite it being available and free in the public sector. Lack of knowledge of the method has also led women who are living with HIV not to use the method because they fear of their safety because of their health status. Most of them get negative information from their peers therefore making them loose interest in using the method (Todd *et al.*, 2012). In another study done in South Africa on intention to use IUCD, it was revealed that majority of the respondents were aware of the existence of IUCD (Van der Westhuizen *et al.*, 2016).

In a study done in rural Lagos in South-west Nigeria on non-use, use and source of information on contraceptive use, was shown that the major source of information on IUCD was health facilities (Afolabi *et al.*, 2015). In another study done in Arba Minch Zuria District in Ethiopia it was revealed that healthcare workers acted as the main source of information on IUCD use as a method of family planning (Gulte *et al.*, 2016). In another Ethiopian study on knowledge and practice of IUCD it was shown that media was the common source of information on IUCD as reported by majority of respondents (Lenjisa *et al.*, 2014).

The Ministry of Health identifies two types of IUCD licensed for use in Kenya namely; copper based devices (Copper T380A) and hormone releasing device (Mirena) which are 99% effective when used correctly (GOK, 2016). Given there are two types, one is hormonal and its effectiveness lasts for 5 years while the non-hormonal IUCD lasts for up to 12 years

(Kamunya, 2015). Since IUCD is underutilized it seems people are selective on the information they get on IUCD since they prefer short-acting family planning methods thus overlooking IUCD. In another study it was indicated that the long acting copper T (non-hormonal) is licensed for ten years hence one can stay with it without removal for such a period and without experiencing pregnancy (FPO, 2016). Similarly, in a study done on attitude and knowledge regarding IUCD use, respondents reported wrong knowledge on the length of using non-hormonal copper T device as a long acting family planning method (Gomez et al., 2015).

Low knowledge levels have been associated with low utilization rates of IUCD across the world. For example, a study done in South Africa among women of reproductive age, it was reported that despite the device being available and free in the public health facilities its use has been significantly affected based on the type of information available to potential users (Todd et al., 2012). Lack of correct IUCD knowledge leads women living with HIV not to use the method since they fear of their safety due to their health status. Most of them get negative information from their peers therefore making them loose interest in using the method (Todd et al., 2012). In a study done in Singapore on knowledge factors determining choice of contraceptive use among women, majority of respondents had poor/low knowledge levels (Gosavi et al., 2016). According to another study done in Arba Minch Zuria District in Ethiopia on predictors of long acting contraceptives utilization among reproductive age women, it was revealed that knowledge level played a significant influence on the utilization of intra-uterine device (Gulte et al., 2016).

Barriers to IUCD uptake

Most women lived with HIV cited that myths and misconceptions of the method was a major setback in using IUCD as a family planning method. Partner influence was also a key barrier because most of them did not know its mode of action (Ochako et al., 2015). The spouse also had an influence on choice of family planning method in that because most of them did not have knowledge of IUCD this made their partners to decline using the method (Chi et al., 2012). A study done in Nigeria on request for temporary contraception at University of Calabar Teaching Hospital where it was revealed that IUCD was easily affordable and effective thus increasing the demand for its use (Iklaki et al., 2015).

A Study done in Kenya showed that most people living with HIV said that their status determined their selection of family planning choice and limiting them condom use (Kimani et al., 2015). The uptake is still low and can be attributed to poor image of IUCD among clients, fear of HIV transmission from one client to the other, provider preference of one method to the other and lack of knowledge on IUCD insertion method among the health care providers (Kimani et al., 2015).

Provider stigma was another barrier that was faced by married couples in India, whereby the service provider emphasized use of condom. This is causing a barrier to use other methods leading to low use of other methods like IUCD. Prevalence of dual method use among people

living with HIV is generally low, with reports ranging from 2.3% to 23% (Chi et al., 2012). Reception at the facilities determines how the clients use services that are available for use to them. This has been highly associated with utilization of IUCD. This is because when clients are poorly treated by healthcare providers they may shy away from using the available services thus significantly affecting health seeking behavior. A study done in Nyamira County on health seeking behavior towards prostatism screening services for men above forty years, the nature of client reception affected health seeking behavior among clients (Matoke, 2018). There are reports all on poor handling of patients in public health facilities where Kenya is not an exception due to provision of services to a large number of clients in congested facilities. Thus paying an attention to one individual may seem to be a challenge. In a study done in Ghana on predictors of postpartum family planning uptake where it was revealed that majority of respondents did not like reception at the respective facilities hence decreased usage of family planning (Tirah, 2015).

Culture and religion has affected use of family planning methods in different parts of the world. A study in EThekwin district on factors influencing the uptake of long acting reversible contraceptives among women at primary healthcare clinics, religion was significant associated with their uptake (Nhlumayo, 2017). In another study done in Rwanda on factors influencing uptake of postpartum IUCD among puerperal mothers attending Muhima Hospitals revealed that religion was the major barrier for uptake of IUCD among respondents (Mungatana, 2014).

In a true African society men are the sole decision makers when it comes to family issues as they are the heads of the families. This means that in places where men are against use of such family planning methods, it is difficult for their wives to use them. There has been a reported a significant statistical association between being allowed by the spouse to use IUCD and its uptake. In another study done in an urban setting in Uganda, it was revealed that acceptability of IUCD use for family planning by spouses of men was the major reason for non-acceptance (Tusiime, 2014). In another study it was revealed that partner influence was also a key barrier to IUCD use since most men did not know its mode of action (Ochako et al., 2015; Nuriah et al., 2016).

The availability of health personnel to offer IUCD services play a key role in provision of services to the increasing number of clients in public health facilities. In a study done on expanding method choice in Africa with long acting methods of family planning, majority of respondents revealed that lack of trained staff affects uptake of family planning services (Benova et al., 2017). In another study on increasing use of postpartum family planning and the postpartum IUCD in West Africa, it was revealed that there was a significant statistical association between availability of health personnel and uptake of IUCD among respondents (Pleah et al., 2016). Provider stigma was another barrier that was faced by married couples in India, whereby it affected usage modern methods of family planning services such as IUCD thus a reason for its low uptake (Chi et al., 2012).

MATERIALS AND METHODS

Study design

The research adopted a cross-sectional descriptive design. This design enabled the researcher to identify and classify elements and data collected at one point in time. It was mainly an observational study where outcome and the exposure in study participants were measured at the same time (Setia, 2016). This kind of study is inexpensive and faster.

Location of the study

The study was carried out at Pumwani Majengo Health Centre, Mathare North and Huruma Lions Health Centre in Nairobi City County. The study locations were chosen because they offer both family planning services and comprehensive care services in the same room. The client does not need to leave the room and go to a different one for family planning.

Study population

The study population included female clients aged 15-49 years attending the Comprehensive Care Centre (CCC) clinic at Pumwani Majengo Health Center, Huruma Lions Health Center and Mathare North Health Center for the retroviral therapy who consented to participate.

Sampling technique

Purposive sampling was done to determine the selection of sub counties and facilities for data collection which are Kamukunji, Mathare and Ruaraka Sub Counties. Systematic random sampling was then done in the selected centers so as to get the sample population that was interviewed. Every K^{th} person was selected from the sampling frame. This was done by calculating the population size by desired sample size.

$$K = \frac{2790}{}$$

$$372$$

$$\sim 7.5$$

Every 8th person existing the family planning clinic was selected for interviewing. The first respondent was selected through simple random sampling using yes/no raffles. Then subsequent respondents were selected using systematic random sampling where every 8th respondent exiting the family planning clinic was picked for interviewing until the required number of respondents per facility was reached.

Sample size determination

Fishers *et al* (1998) formula was used to calculate the sample population

$$n = \frac{Z^2 \cdot p \cdot q}{d^2}$$

Where: n= the desired sample size (if the target population is greater than 10,000) z = the standard normal deviate at the required confidence level (1.96)

p = the proportion in the target population estimated to have characteristics measured (0.5) q = 1-p

$$d = \text{degree of accuracy (statistical significance) } 0.05 \quad n = \frac{(1.96^2)(0.5)(0.5)}{(0.05)^2}$$

$$= 384$$

Calculation of the population less than 10,000

$$n_f = \frac{n}{1 + (n/N)}$$

Where n_f = the desired sample size if the target population is less than 10000

n = the desired sample (when the target population is greater than 10000)

N = the estimate of the population size (2790)

$$n_f = \underline{384}$$

$$1 + (384/2790)$$

$$n = 337.7$$

$$\sim 338$$

10% of respondents were added to cater for non-responses. Therefore 372 respondents were selected for interviewing.

Research Instruments

The study used self-administered semi-structured questionnaires for collection of quantitative data from the selected respondents. The contents of the questionnaires covered socio-demographic, utilization, knowledge and barriers towards IUCD.

Data Management and Analysis

Quantitative data was entered and stored in Microsoft Excel program. Data cleaning and editing was done where extreme, missing and inconsistent values were identified and corrected. Coding and verification of the data was done for easy manipulation, analysis and presentation. Data was then exported to Statistical Package for Social Sciences (SPSS) software version 22.0 for analysis. Descriptive analysis was presented in form of percentages, frequency tables, charts and graphs. Inferential statistics were computed using Pearson's Chi-square and Fisher's Exact Test presented in cross tabulations. This was done at 95% confidence interval and p-values of less than 0.05 considered significant in testing the association between study variables.

RESULTS

IUCD utilization

Uptake of IUCD among respondents

Figure 1 presents the utilization of IUCD among the respondents. The results revealed that majority 336 (95.2%) of the respondents had not used IUCD while the rest 17 (4.8%) had used IUCD.

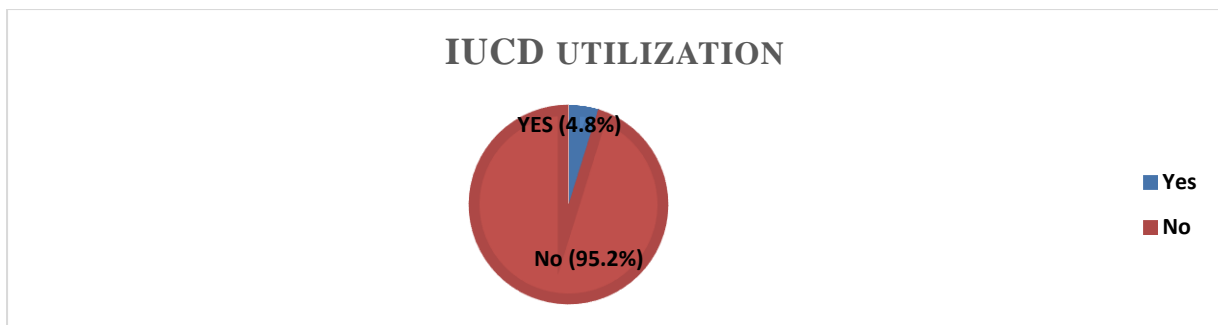


Fig 1: Utilization of IUCD among respondents

Reasons for using IUCD

The study sought to further understand the reasons for IUCD usage among the respondents. The results showed that slightly more than a third 6 (35.3%) of the respondents used IUCD so that they can have the children at the time they felt is appropriate for them. This was followed by 5 (29.4%) who used IUCD because they felt that they can get pregnant immediately it is removed. The other reasons for usage were 4 (23.4%) IUCD did not have effect on their weight and 2 (11.8%) one didn't need to go to clinic every time. The results were as shown in the table 1 below:

Table 1: Reasons for using IUCD among respondents (N=17)

Independent variable	Respondent response	Per cent (%)
To have children at the time I feel	6	35.3
One does not need to go to clinic every time	2	11.8
Does not have effect on my weight	4	23.5
I can get pregnant immediately it is removed	5	29.4

Length of using IUCD

The study sought to find out how long the respondents had been using IUCD. The results showed that more than a third 6 (35.3%) of the respondents had been using IUCD between 4-6 years followed by 5 (29.4%) who had been using IUCD between 5-8 years. The results were as presented in the figure 2 below:

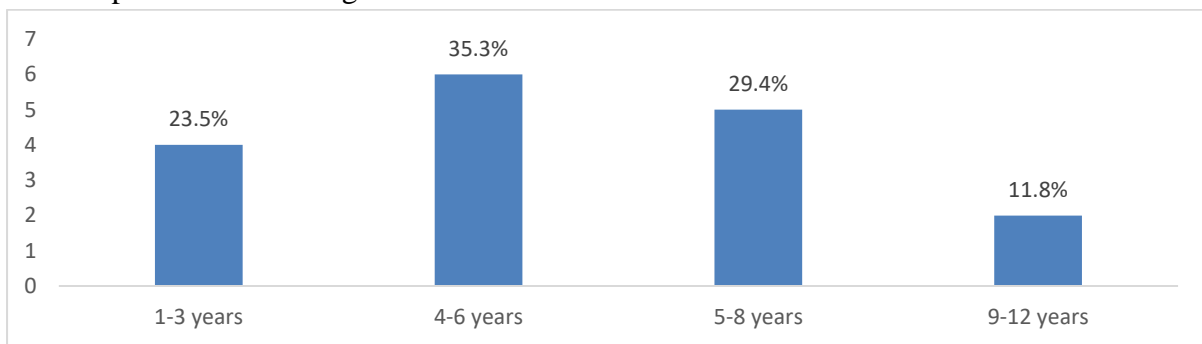


Fig 2: Length of using IUCD among respondents

Knowledge factors on IUCD

Responses on IUCD knowledge factors

Regarding respondents’ knowledge on IUCD, the study participants were given seven (7) responses on IUCD. They were supposed to indicate whether the statements were true or false according to them. Their responses were captured as either correct or wrong. Regarding the meaning of IUCD, results revealed that majority 247 (89.8%) of the respondents had correct knowledge while the rest 28 (10.2%) had wrong knowledge. More than half 197 (55.8%) of the respondents had correct knowledge and 156 (44.2%) of them had wrong knowledge on whether there should be Investigations done before IUCD insertion.

Concerning the type of investigations that should be done before IUCD insertion, results indicated that majority 127 (64.5%) of the respondents had correct knowledge and 70 (35.5%) had wrong knowledge on the types of investigations. On whether one can get pregnant when IUCD is not inserted well, results showed that majority 262 (74.2%) of the

respondents had wrong knowledge while the rest 91 (25.8%) had correct knowledge on the same.

Study findings revealed that majority 233 (66.0%) of the respondents had wrong knowledge and 120 (34.0%) had correct knowledge on the duration in years the non-hormonal IUCD can help prevent one from getting pregnant. Results further showed that majority 197 (71.6%) of the respondents who had ever heard of IUCD had wrong knowledge on the types of IUCD with the rest 78 (28.4%) having correct knowledge. Regarding the possibility of IUCD causing cancer, the results indicated that slightly more than half 190 (53.8%) had wrong knowledge while the rest 163 (46.2%) had correct knowledge. The results were as presented in the table 2 below:

Table 2: Responses on knowledge factors on IUCD among respondents

Variable	Respondent response	Frequency (N)	Percentage (%)
IUCD meaning	Correct	247	89.8
	Wrong	28	10.2
	Total	275	100.0
Investigations are done before IUCD insertion	Correct	197	55.8
	Wrong	156	44.2
	Total	353	100.0
Type of investigations done	Correct	127	64.5
	Wrong	70	35.5
	Total	197	100.0
One can get pregnant when IUCD is not inserted well	Correct	91	25.8
	Wrong	262	74.2
	Total	353	100.0
Non-hormonal IUCD if not needing a child	Correct	120	34.0
	Wrong	233	66.0
	Total	353	100.0
Types of IUCD if ever heard	Correct	78	28.4
	Wrong	197	71.6
	Total	275	100.0
Do you think IUCD causes cancer	Correct	163	46.2
	Wrong	190	53.8
	Total	353	100.0

Level of knowledge on IUCD

This section consisted of results concerning knowledge on IUCD among respondents. The Seven questions on knowledge had scores which ranged from 0-7 marks. Each correct answer was awarded a score of 1 while a wrong answer was awarded a score of zero (0). The scores of knowledge were further divided into two categories; low knowledge level ranged from 0-3 scores while high knowledge level ranged from 4-7 scores. The results revealed that more than a half 206 (58.4%) of the respondents had low knowledge level on IUCD while the rest 147 (41.6%) had high knowledge. The results were as shown in the figure 3 below:

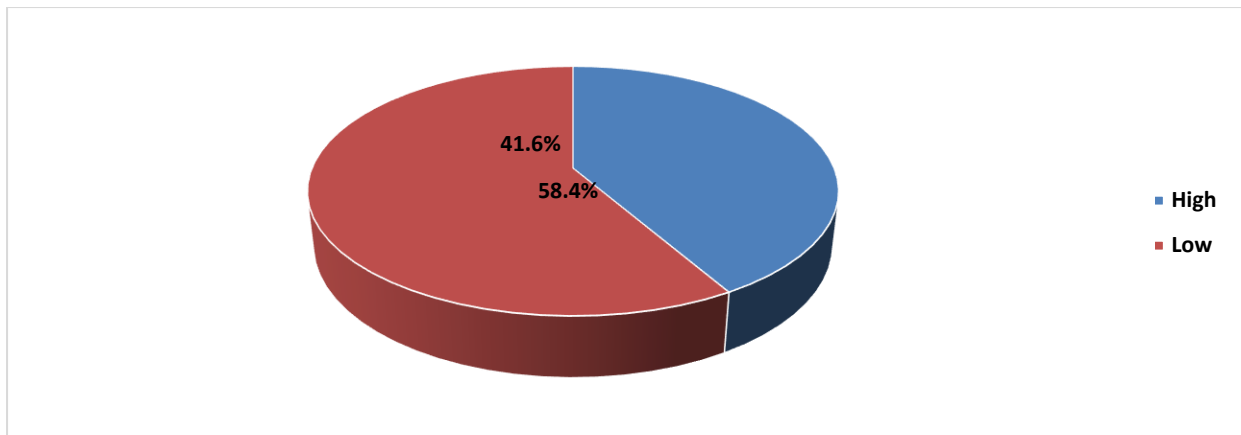


Fig 3: Level of knowledge on IUCD among respondents

Influence of knowledge level on uptake of IUCD among respondents

The study sought to determine the influence of knowledge level on uptake of IUCD among the respondents. The results revealed that majority 10 (58.8%) of the respondents who had high knowledge level on IUCD had used IUCD device. There was a statistical association between level of knowledge and IUCD uptake among the respondents ($p=0.047$). The results were as in the table 3 below:

Table 3: Association between knowledge level and IUCD uptake among respondents (n=353)

Independent variable	Respondent response	IUCD uptake		Statistical significance
		Yes (N=17)	No (N=336)	
Level of knowledge on IUCD	Low	7(41.2%)	199(59.2%)	$\chi^2=2.169$ df=1 $p=0.047$
	High	10(58.8%)	137(40.8%)	

Barriers towards utilization of IUCD

The researcher sought to establish the influence of barriers on uptake of IUCD. The results revealed that majority 10 (58.8%) of the respondents who reported that IUCD was affordable had used IUCD. There was no statistical association between affordability of IUCD and IUCD uptake ($p=0.345$). The results indicated that more than half 175 (52.1%) of the respondents who did not like the reception had not used IUCD. There was a significant association between liking the reception at the facility and IUCD uptake ($p=0.026$). Most 9(52.9%) of the respondents who reported to have been given information on FP before service had used IUCD. There was an association between being given information on FP service and IUCD uptake ($p=0.002$). Concerning culture/religion allowing use of IUCD, results revealed that majority 12 (70.6%) of the respondents who reported that it allowed used

IUCD. There was a significant statistical association between culture/religion allowing use of IUCD and IUCD uptake (p=0.004).

The study findings showed that majority 11 (64.7%) of the respondents who reported that their spouse allowed them to use IUCD had used IUCD. There was a significant statistical association between being allowed by the spouse to use IUCD and IUCD uptake (p=0.002). Majority 13 (76.5%) of the respondents who revealed that myths on IUCD affects usage had used IUCD. There was no statistical association between myths/misconceptions on IUCD affecting its usage and IUCD uptake (p*=0.106). More than half 181 (53.9%) of the respondents who reported that health personnel to offer services were not enough did not use IUCD. There was no association between the health personnel being enough and IUCD uptake ((p=0.794).

Results further revealed that more than half 10 (58.8%) of the respondents who revealed that time factor during IUCD insertion did not affect its uptake had used IUCD. There was however no significant statistical association between time factor affecting IUCD use and IUCD uptake among the respondents (p=0.550). The results were as shown in the table 4 below:

Table 4: Association between barriers and utilization of IUCD among respondents (n=353)

Independent variable	Respondent response	Dependent variable (IUCD uptake)		Statistical significance
		Yes (N=17)	No (N=336)	
Affordability of IUCD	Yes	10(58.8%)	195(58.0%)	$\chi^2=0.890$ df= 1 p=0.345
	No	7(41.2%)	141(42.0%)	
Liked reception at the facility	Yes	9(52.9%)	161(47.9%)	$\chi^2=0.009$ df= 1 p=0.026
	No	8(47.1%)	175(52.1%)	
Given information on FP before service	Yes	9(52.9%)	223(66.4%)	$\chi^2=1.295$ df= 1 p=0.002
	No	8(47.1%)	113(33.6%)	
Culture/religion allows use of IUCD	Yes	12(70.6%)	178(53.0%)	$\chi^2=0.006$ df=1 p=0.004
	No	5(29.4%)	158(47.0%)	
Spouse allows use of IUCD	Yes	11(64.7%)	136(40.5%)	$\chi^2=9.399$ df= 1 p=0.002
	No	6(35.3%)	200(59.5%)	
Myths/misconception on IUCD affects usage	Yes	13(76.5%)	227(67.6%)	$\chi^2=3.364$ df= 1 p=0.067 p*=0.106
	No	4(23.5%)	109(32.4%)	
Enough health personnel to offer services	Yes	8(47.1%)	169(50.3%)	$\chi^2=0.068$ df=1 p=0.794
	No	9(52.9%)	167(49.7%)	
Time factor during IUCD insertion affect its uptake	Yes	7(41.2%)	155(46.1%)	$\chi^2=0.357$ df=1 p=0.550
	No	10(58.8%)	181(53.9%)	

Discussions

Uptake of IUCD

The results revealed that majority of the respondents had not used IUCD. In fact, the rate of IUCD utilization among women living with HIV/AIDS was found to be 4.8%. This could be explained by the fact that IUCD uptake is still lowly utilized as a means of family planning worldwide especially in the developing countries. The low IUCD uptake among people living with HIV/AIDS may be attributed to lack of knowledge and poor perceived risks such as fear of HIV transmission during insertion of the device that limits its usage among other myths and misconceptions. The current study results are contrary to other previous reports by the Ministry of Health in Kenya which showed that IUCD uptake stood at 3.4% countrywide which is well below the results of this study (KDHS, 2014). In Nairobi City County, it was reported to have an IUCD uptake of 4.5% compared to the hormonal contraceptive use. This was attributed to the discontinuation of IUCD use by some clients due to health concerns/side effects while others do not prefer the method (KDHS, 2014). Usage of IUCD in Kenya varies where it is highly used among women in urban areas compared to those living in rural areas at 4.7% and 2.6% respectively.

The study results revealed that majority of respondents who were not on IUCD used Depo Provera. This may be attributed to the fact that Depo Provera is the most common and easily available method of family planning in health facilities especially among postpartum mothers. The results concurred with studies done in Northern Ethiopia and USA among women who were seropositive to HIV which revealed that injectables (Depo Provera) was the most common method of family planning used (Melaku *et al.*, 2014; Sun *et al.*, 2013).

The results were contrary to a study done in Zimbabwe among women of reproductive age living with HIV/AIDS which revealed that combined oral was the common method of family planning used (Dasgupta *et al.*, 2014). Inconsistent findings were also reported by other studies done in Ethiopia, India and China which showed that most women living with HIV used condoms as part of modern contraceptives (Berhane *et al.*, 2013; Chi *et al.*, 2012).

Knowledge on IUCD

Majority of the respondents reported to have had heard about IUCD. This may be supported by the fact that the study was done in an urban area especially in a health facility where access to information on family planning was easily available to the respondents. The results were contrary to studies done in South Africa where the rates of IUCD awareness was low among the reproductive age women despite it being available and free in the public sector (Todd *et al.*, 2012).

Regarding the source of information on IUCD among those respondents who reported to have heard about it, the results revealed that more than a third of them reported to have heard about

IUCD from their peers for the first time. This may be due to the fact that women share a lot about their sexual and reproductive health issues when they are in groups with their peers hence a major source of information. The results were contrary to a study done in rural Lagos in South-west Nigeria on non-use, use and source of information on contraceptive use which showed that the major source of information on IUCD was health facilities (Afolabi *et al.*, 2015).

Regarding on whether investigations are done before IUCD insertion, majority of the respondents the respondents reported that examinations are done before its insertion. This means they had had correct information since in most cases pregnancy tests are done before one is put under IUCD. The results were in accordance with another study which was done in Nepal on knowledge on IUCD which revealed that majority of the respondents had correct knowledge since they said that pregnancy tests is a mandatory test that is done before IUCD insertion (Chakraborty *et al.*, 2015).

The findings of this study revealed that majority of the respondents had wrong knowledge on the duration in which the non-hormonal IUCD prevents conception. This is due to the fact that majority of the respondents said that the duration of non-hormonal IUCD prevents pregnancy is 8 years. This may attributed to the fact that most of the respondents are selective on the information they want regarding IUCD since they prefer short-acting family planning methods thus overlooking IUCD. The results are contrary to another report which indicated that the long acting copper T (non-hormonal) is licensed for ten years hence one can stay with it without removal for such a period (FPO, 2016).

The results further showed that majority of the respondents who had ever heard of IUCD had wrong knowledge on the types of IUCD used in Kenya. This is because despite their knowledge on IUCD, they were not in a position to identify the common types of IUCD used in the country probably because that question was too critical for them. In fact majority of the respondents indicated that there is only one type of IUCD. The results were contrary to a report by the Ministry of Health in Kenya which revealed that there are two types of IUCD used in Kenya namely copper based devices (Copper T380A) and hormone releasing device (Mirena) which are 99% effective when used correctly (GOK, 2016). In another study done in Kenya on intra-uterine device use among service providers and family planning clients, inconsistent results were reported where it was revealed that there are two commonly used types of IUCD in Kenya (Kamunya, 2015).

According to the study results it was revealed that majority of the respondents had low knowledge levels among women living with HIV/AIDS in selected facilities in Kenya. This probably explains the reasons for its low utilization rates among this group of individuals. There was a significant statistical association between level of knowledge and IUCD uptake as majority of the respondents who had high knowledge level had used IUCD. Poor perceptions on IUCD could also play larger part in lowering the knowledge levels of those interviewed. These study findings were contrary with the Ministry of Health report which

showed that the level of knowledge on IUCD among all women in Kenya is high but they are unable to use it due its perceived risks (KDHS, 2014).

Low knowledge levels were with low utilization rates were also reported by a study done in South Africa among women of reproductive age despite the device being available and free in the public health facilities. They lack correct IUCD knowledge leading women living with HIV not using the method since they fear of their safety due to their health status. Most of them get negative information from their peers therefore making them loose interest in using the method (Todd *et al.*, 2012). In another study done in Singapore on knowledge factors determining choice of contraceptive use among women, consistent results were also reported where majority of respondents had poor/low knowledge levels (Gosavi *et al.*, 2016).

Barriers towards utilization of IUCD

There was no significant statistical association between affordability and utilization of IUCD. This is because in public health facilities intra-uterine devices are readily available for use as a method of family planning method but not at large numbers due to low reported rates of its utilization across the country. Similar results were reported by a study done in South Africa among women of reproductive age which revealed that IUCD was available and free in the public health sector facilities (Todd *et al.*, 2012).

There was a significant statistical association between reception and utilization of IUCD among respondents. This is because when clients are poorly treated by healthcare providers they may shy away from using the available services thus significantly affecting health seeking behavior. Similar results were reported by a study done in Nyamira County on health seeking behavior towards prostatism screening services for men above forty years where the nature of client reception affected health seeking behavior among clients (Matoke, 2018).

There was a significant statistical association between provision of information and utilization of IUCD services. The results concur to a study on women social communication about IUCD which the respondents revealed that information provision influences IUCD utilization (Anderson *et al.*, 2014).

Most of the respondents reported that culture/religion allows them to use IUCD as a method of family planning. This may be explained by the fact that majority of the respondents were Protestants where their religion does not prohibit family planning in controlling births. The results further revealed that there was a significant statistical association between culture/religion and uptake of IUCD in the current study. The study results were similar to a study in EThekwin district on factors influencing the uptake of long acting reversible contraceptives among women at primary healthcare clinics where religion was significant associated with their uptake (Nhlumayo, 2017).

Most of the respondents reported that spouse would allow them use IUCD. In a true African society men are the sole decision makers when it comes to family issues as they are the heads

of the families. This means that in places where men are against use of such family planning methods, it is difficult for their wives to use them. There was a significant statistical association between being allowed by the spouse to use IUCD and its uptake. The results were inconsistent with another study done in an urban setting in Uganda which revealed that acceptability of IUCD use for family planning by spouses of men was the major reason for non-acceptance (Tusiime, 2014).

The findings revealed that majority of the respondents reported that myths and misconceptions affected IUCD usage. This has proven to be a major barrier when it comes to IUCD usage. There exists misperceptions and gossips about IUCD usage in our communities and their associated effects. The results were similar to another study done on use of long-acting reversible contraceptives to reduce the rate of teen pregnancy where it was revealed that myths and misconceptions remains the common reported barrier for low IUCD utilization (Rome, 2015). However, there was no existence of a significant statistical association between myths and misconceptions and uptake of IUCD among respondents. This means that myths and misperceptions plays an indirect role on IUCD usage among respondents.

Inconsistence results were also reported in a study done in Wolaita Zone in Southern Ethiopia on uptake of long acting methods of family planning where myths and misconceptions were significantly associated with uptake of IUCD (Meskete and Mekonnen, 2014).

There was no association between availability of enough personnel and utilization of IUCD as more than a half of the respondents who perceived unavailability of enough health personnel to offer services did not use IUCD. The results were inconsistent with a study done on expanding method choice in Africa with long acting methods of family planning in which majority of respondents revealed that lack of trained staff affects uptake of family planning services (Benova *et al.*, 2017).

Conclusions

There was an association between level of knowledge and IUCD uptake among WLWHA. The study revealed that the respondents had low knowledge levels with regards to IUCD in Nairobi City County. This consequently, explains the reasons for its underutilization. This is further affected by poor perceptions and negative information from their peers thus reducing the respondents' knowledge levels.

The findings of the study showed that IUCD in Nairobi City County was underutilized by women living with HIV/AIDS seeking family planning services. However, its utilization was slightly above the national average. It was the least preferred as the respondents opted for short –acting methods of family planning such as Depo Provera, Condoms and Combined oral contraceptives.

Barriers exist that prevent women living with HIV/AIDS in Nairobi City County. There was a significant statistical association between barriers and uptake of IUCD among respondents. It was further indicated that culture/religion, reception at the facility, information on family planning and spousal recommendation were the main barriers to IUCD uptake.

Recommendations

- i. The study recommends that the county government of Nairobi City should intensify health talks and sensitization through community health volunteers and community health workers on IUCD use especially among women living with HIV/AIDS.
- ii. The study further recommends that the ministry of health together with the county government of Nairobi City to integrate family planning with other services so as to improve the uptake of IUCD among WLWH thus increased utilization rates.
- iii. The Ministry of Health should tailor and scale up family planning services through health promotion strategies such as social media and mass media so as to disseminate the right information aimed at improving their knowledge levels on IUCD.
- iv. The ministry of health together with other relevant organizations should dispel the myths, cultures and religious beliefs associated with IUCD utilization and advocate for male involvement in preconception care to break the barriers associate with IUCD underutilization.

Recommendations for further study

A further research should be conducted to determine the effectiveness of long acting methods of family planning services in public health facilities in Kenya.

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