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Magnitude of intrauterine contraceptive use and its associated factor among women attending family planning service, Cross sectional study

Abstract

Background: From the different Family planning methods available an intrauterine contraceptive device, IUCD is widely available and is highly effective in terms of safety and effectiveness. Despite this fact, there is low utilization of IUCD in Ethiopia.

Objectives: The aim of this study was to determine the magnitude of intrauterine contraceptive device use and associated factors among women attending family planning services in selected public health centers in Kolfe Keraniyo Sub-City, Addis Ababa, Ethiopia 2021.

Method: This facility based cross- sectional study was conducted among 399 women attending the FP clinics of randomly selected health centers in Kolfe Keraniyo Sub City, from June 15 to July 20, 2021.The data were collected with pretested questionnaire and entered to Epi-info version 7.2 and analyzed by using SPSS statistical software version 25. Descriptive analysis was done to describe the variables in frequencies, percentages, and mean with the standard deviation. Logistic regression analysis was also used to identify the presence of association between dependent and independent variables. 95% CI and P-value <0.05 were used to indicate the significance level.

Result: A total of 399 women were included in the study (with response rate of 100%). The mean age of the participants was 29.8(SD±8.2). This study determined IUCD utilization among participants to be 14.8%. Factors associated with IUCD utilization among women attending family planning service were: Maternal age (AOR=3.1; 95%CI(2.07-7.36), Educational status of no formal education (AOR=0.35; 95%CI (0.01-0.40), future plan of fertility to limit birth (AOR=5.87, 95% CI :2.33-14.87), monthly income ≤600ETB (AOR=0.06; 95%CI(0.01-0.25), number of children alive (AOR=0.13; 95%CI(0.03-0.52) and wanting any more children (AOR=0.10; 95%CI(0.01-0.70) were significantly associated with IUCD utilization.

Conclusion and recommendation: Age of the women, income and educational status were identified as factors increasing the likelihood of IUCD utilization. Therefore, to scale up the utilization of IUCD, empowering women, FP counseling and expanding female education should be undertaken.

Keywords: intrauterine contraceptive use, yanet health science college, cross sectional study

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Abbreviations: AOR, adjusted odd ratio; BSc, bachelor of science; CI, confidence interval; COR, crude odd ratio; EDHS, Ethiopia demographic and health survey; ETB, Ethiopian birr; FMOH, federal ministry of health; FP, family planning; HP, health professional; IUCD, intrauterine contraceptive device; KKSC, kolfekeraniyo sub city; MPH, master of public health; NGO, non-government organization; PI, principal investigators; SPSS, statistical package for social science; STIs, sexual transmition infection; WHO, World health organization

Introduction

Intrauterine contraceptive devices (IUCD) are devices made of plastic or metal objects that are inserted into a women's uterus to prevent unwanted pregnancy.[1] They are normally small T- shaped in nature and it is they are highly effective, long-acting, reversible Modern Family planning methods. Once the device is inserted, the user benefits from 12 years of effective protection against unintended pregnancy.[2] The recommended years of use can vary according to the guidelines and policies of a country. Health care providers should follow program guidelines. Also, it costs a cost-effective contraceptive method used in many countries, including Ethiopia.[3]

Worldwide in 2017, among married or in-union women of reproductive age, the proportion of the demand for family planning was satisfied by modern contraceptive methods was 78 percent.[4] Globally 14.3% of women of reproductive age use IUCDs, but the distribution of IUCD users is strikingly non-uniform and the reasons for the variation are not well documented.[5] According to EDHS 2016 report in Ethiopia 99% of currently married women and men age 15-49 knowing at least one method of contraception. The most well-known methods for currently married women and men are injectable and the pill, but intrauterine contraceptive devices (IUCDs) is only 2%.

According to EDHS 2016, the growth of intrauterine contraceptive devices (IUCDs) use has less improvement when we compare to injectable and other contraceptives. The IUCD works by changing the

uterine lining and preventing the fertilized egg from getting attached to the wall of the womb, therefore preventing implantation. Some women may experience abdominal cramps, heavier periods, and vaginal discharge after IUCD insertion. However, these symptoms usually disappear after 2 - 3 months. According to World Health Organization, trends in Maternal Mortality, 1990 to 2008, an estimated 358 000 maternal deaths occurred worldwide in 2008, 34% decline from the levels of 1990. Despite this decline, developing countries continued to account for 99% (355 000) of maternal deaths. Most the unintended pregnancies in developing countries end in unsafe abortion which contributes significantly to maternal morbidity and mortality.[2]

Federal Ministry of Health initiated the IUCD scale-up, expanding access to IUCD and constructing new health centers in 2011 to increase access to long-acting family planning services. Consequently, there appear to be huge discrepancies in the utilization of LACMs which could be attributed to several factors. A retrospective study conducted in India in 2012, Lack of information about the method was the main reason for poor utilization in Indian FP clients.[6] Another qualitative study conducted in Pakistan in 2012, Reasons mentioned for low utilization of IUCD utilization were inadequate counseling about the method by service providers and misconceptions about the method.[7]

In Ethiopia, although the knowledge about FP programs has been reported to be adequate, however underlying reasons and factors for poor utilization of long-acting options remain poorly elucidated. In addition, even though the health management information system (HMIS) is being rolled out currently in Ethiopia, little information is available to document progress on FP in regions and health facilities.[1,3]

Thus, this study was designed to assess IUCD utilization in Addis Ababa FGAEs and pinpoint potential factors associated with low utilization to focus on so that possible targeted solutions or interventions could be made to increase the utilization of the method.

Method and material

Study design and settings

A Facility based cross- sectional study was employed by using a quantitative approach. June 15/ 2021 to July 20/ 2021in selected public health centers in kolfekeraniyo Sub- city Addis Ababa Ethiopia.

This study was conducted in Addis Ababa Ethiopia, specifically in Kolfekeraniyo Sub City. Kolfekeraniyo Sub City is one of the eleven sub- cities in Addis Ababa contain 15 woredas, 11 government health center, 1 government hospital, 133 different private clinics and 4 private hospitals. It has a 546,219 of total population and female in age 18-49 year attend to family planning service is 99,968 client.

Population

All women attending family planning service in selected public health centers in kolfekeraniyo sub city were the source population and all eligible women fulfilled the inclusion criteria (Women age (18-49 year) were the study population. Those women severely ill and not agreed to respond and client who lived less than 6-month resident in kolfekeraniyo sub city were excluded from the study.

Sample size determination and sampling technique

All health centers in the sub -city was included in the study purposively, and the study participants were selected from each health center using proportional allocation technique. A systematic random sampling technique was also used to select study participants from each health center.

Currently, a total of 11 public health centers are found in Kolfe-Keraniyo Sub-City which gives family planning services. All 11public health centers were included in the study. in all health centers, based on the last month's and 2012e.c annual all family planning performance report is 37,902 so that monthly 3,158 women were expected to attend for family planning service during data collection period. Based on the month's Family planning users report in all health centers 3,158 women were expected to attend all health centers for family planning service during data collection period. The number of participants in each health center was allocated proportionally based on the one month of family planning users report. 3,158 is divided for 399 to get k value (distance) which becomes 6 (k=N/n=3,158/399=8). Therefore, women attending health centers for family planning service are enrolled every 8th women until calculated sample size achieved.

Operational definition

IUCD users- are those reproductive-age women who are IUCD users at the time of the study

Non IUCD users- are those reproductive age women using OCPs, Injectable, implant and another method of contraceptives except IUCD at the time of the study.

Current use of contraceptive - is the current level of contraceptive use which is a measure of actual contraceptive practice at the time of the survey.

Women of reproductive age group - Women with age group between 15 and 49 years old.[8]

Data collection tools, methods and procedures

Data collection was carried out through exit interview using structured and pre-tested questionnaire adapted from different literatures. The questionnaires were pre-tested to check on the length, content, question wording and language. The questionnaire was administered to 5% the sample size, who were attending Family Planning at Nifas Silk sub city in selected health center. This allows modifications on the questionnaires by correcting mistakes and Ambiguous questions corrected to ensure clarity and to elicit the required information therefore enhancing reliability. The questionnaire was first prepared in English and then translated to Amharic and translated back to English to maintain its consistency.[9]

Data was collected by interviewer-administered questionnaire attending family planning service. Ten[10] data collector and two supervisors were required. They were trained by principal investigators. The training was focus on objective of the study, confidentiality of information and the contents of the questionnaire in detail.

Data quality control

To maintain data quality training was given for data collectors and for supervisors. Properly designed data collection material was developed by reviewing different literatures. Supervision was carried out on daily bases to check completeness, consistency of collected data by the principal investigators. Correctly a complete questionnaire was collected from data collectors by principal investigators. In addition, at the end of data entry data cleaning was done using frequencies, cross tabulations, sorting and listing to check missed values and outliers. An error identified was corrected by revising the original questionnaire.

Data processing and analysis

Each questionnaire was given a code and was entered in to Epi Info version 7 and it was exported to SPSS 25.0 statistical package for analysis of statistical inferences. Data cleaning and editing was made before analysis. The result of study was presented in both descriptive statistics (percent, table, graph, mean, median values, dispersion measurements like standard deviation, interquartile range) and inferential statistics (odds ratio). Simple and multiple binary analysis was used to calculate the univariate and multivariate crude and adjusted odds ratios so that to determine independent predictors of dependent variable.

Ethical considerations

The proposal was submitted to Yanet health college ethical committee for ethical approval and clearance. Permission was also obtained from kolfekeraniyo sub city health office and other concerned bodies. To protect confidentiality no personal identifier was recorded in the questionnaire and the recorded data was not accessed by a third person. Informed consent was obtained from study participants to get permission to participate in the study. Study participants who identified as having family planning service.

Results

Socio demographic characteristics of the participants

A total of 399 participants were interviewed and the response rate for the study was 100%. The participant's age ranges from 17 to 46 with mean age of 29.9 and standard deviation ± SD 8.1 years.

More than one fourth of respondents 135 (33.8 %) were in the age range of 20-29years. On the list 172 (43.1 %) participants were married, and 83 (20.8 %) of them were Single. More than half of respondents 229 (57.4%) them were Orthodox Christian followers, nearly 104 (26.1%) of the respondents were Muslim. One third, 123 (30.8%) of the participants have higher educational status and 112 (28.1 %) of them were secondary school, Seventy-seven (19.3%) of the respondents were primary school education. One hundred sixty-one (40.4%) of the Family size were greater than or equals to five and 121 (30.5 %) of the family size were 3-4. One hundred twenty-six (31.6%) of respondents were housewives and 60 (15.0%) of partners were government employees. 139 (34.8%) respondents income were <600 ETB and more than half 203 (50.9%) of respondents income had >3000 ETB (Table 1).

Table 1 Socio-demographic characteristics of the women interviewed in the selected health center in kolfe keranyo sub-city of Addis Ababa, Ethiopia 2021, (n=399)

Variable	Category	Frequency	Percent
Age group	Less or equal to 19	62	15.5
	20-29 years	135	33.8
	30-39 years	123	30.8
	40-49 years	79	19.8
Marital status	Single	83	20.8
	Divorced	70	17.5
	Widowed	74	18.5
	married	172	43.1
Religion	Orthodox	229	57.4
	Muslim	104	26.1
	Protestant	63	15.8
	Catholic	3	0.8
Education	Illiterate	43	10.8
	read and write only	44	11
	Primary school	77	19.3
	Secondary school	112	28.1
	Higher education	123	30.8
Family size	2-Jan	117	29.3
	4-Mar	121	30.3
	>=5	161	40.4

Table Continued...

Variable	Category	Frequency	Percent
Occupation	government employee	87	21.8
	private work	55	13.8
	Merchant	45	11.3
	daily labourer	46	11.5
	house wife	126	31.6
	Student	30	7.5
	Other	10	2.5
Household income/ Monthly in ETB	<600	139	34.8
	600-3000	57	14.3
	>3000	203	50.9

Reproductive and obstetric characteristics of respondents

The majority of the study participants were 323 (81.0%) had a history of pregnancy at least once. Among those women who had a history of pregnancy 286 (71.7%) were given first birth at the age of greater than 18-years and 27 (6.8%) of them were given first birth less than 18 years and Among those women who had a history of pregnancy 116 (29.1%)of them had 1-2 child. And Nearly 157 (29.0%) of them were 3-4 alive children. The majority 307 (76.9%) of the respondents were want to have another child. Among those women who want to have another child 133 (33.3%) of study participants want to have from two years up to ten years (Table 2).

Table 2 Obstetrics history of women (18-49years) attending family planning service in the selected public health center in kolfe keranyo sub-city, Addis Ababa, Ethiopia 2021 (n=399)

Variables	Category	Frequency	Percent (%)
Have you ever given birth?	Yes	323	81
	No	76	19
At what age you gave first birth?	<18 years	27	6.8
	>=18 years	286	71.7
	Don't remembers	10	2.5
How many births you gave	1-2 child	111	27.8
	3-4 child	116	29.1
	>=5 child	96	24.1
How many of them are alive	1-2 child	126	39
	3-4 child	113	35
	>=5 child	84	26
Do you want to have any more children?	Yes	307	76.9
	No	99	23.1
When did you want to have any more children?	Less than two years	82	20.6
	Two years to ten	133	33.3
	above ten year	92	23.1

Intrauterine contraceptive device utilization prevalence and related information's of the participants

More than two-third of study participants plan about fertility were 239 (59.0%) to space births and 92 (23.0%) of them want to limit birth. Nearly 285 (71.4%) of them had information about IUCD and among those women 128 (32.1%) reported husband, family, and friend opposed the utilization of IUCD. 151 (37.9%) of them reported the decision to utilize IUCD were decided together. The highest proportion of the respondents' source of information about IUCD was 254 (63.8%) from Health professionals (Table 3).

Table 3 IUCD utilization and related information of women attending family planning service in selected public health centers in kolfe keranyo subcity,Addis Ababa, Ethiopia 2021(n=399)

Variable	Category	Frequency	Percent (%)
What is your future plan of fertility	To limit birth	91	22.8
	To space births	240	60.2
	I don't know	68	17
Do you have information on IUCD	Yes	285	71.4
	No	114	28.6
What is your husband, family and friend attitude on IUCD?	Approves	113	28.3
	Opposes	128	32.1
	I don't know	158	39.6
Form you, husband, family and friend Who is the main decider on using IUCD?	Self	92	23.1
	Husband	64	16
	Both decide together	151	37.9
	Friend	60	15
	Family	32	8

Intrauterine contraceptive device utilization and associated factors

In this study, the majority of the study participants 340 (85.2%) of them were not currently utilizing IUCD (Figure 1). Among those women who did not utilized IUCD, 94 (27.6 %) of respondents reason for not utilizing IUCD were due to Fear of complication; the second main reason 54 (15.9%) was health problems, 37 (10.9%) Partner/ husband /family opposed, 38 (11.2%) of them think IUCD may cause infertility and cancer, 36 (10.6%) religious prohibition, 43 (12.6%) need to have a child recently, 11 (3.2%)Fear to expose reproductive organ, the other reason was 27 (7.9%) health professional resistant for removal of IUCD (Figure 2).

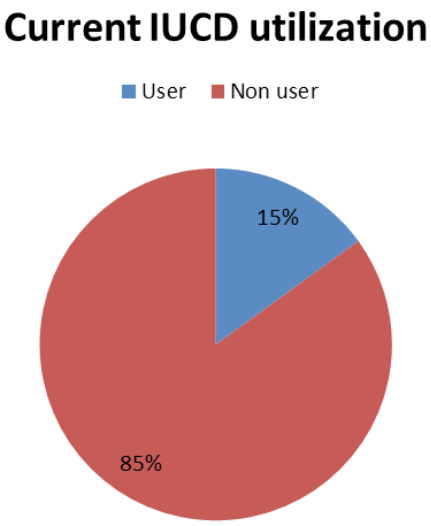

Figure 1 The proportion of women who use IUCD among the family planning users, attending the health centers of Addis Ababa, Ethiopia, 2021.

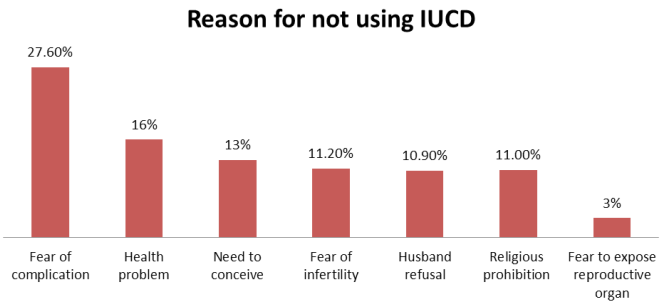

Figure 2 The reasons for not using IUCD among family planning user women in the health centers, Kolfe Keranyo S/C, Addis Ababa, Ethiopia, 2021.

Factors associated with intrauterine contraceptive devices utilization

A two-step logistic regression analysis was used to determine the factors associated with IUCD utilization. In the bivariate logistic regression analysis, p values less than 0.25 were considered to include the variables in to the next step of multivariate logistic regression model. Accordingly age of the women, educational status, household Income, marital status, ever giving birth, number of alive children, wanting another child, future plans of fertility, and partner/husband attitude towards IUCD were found to be significantly associated with IUCD utilization.

In the next step of multivariable logistic regression, it was found that Age of the woman 35 and above (AOR=3.1; 95%CI(2.07-7.36), Educational status of no formal education(AOR=0.35; 95%CI(0.01-0.40), future plans of fertility to limit birth (AOR=0.02; 95%CI(0.01-0.37), wanting more children (AOR=0.10; 95%CI(0.01-0.70), number of alive children 1-2 (AOR=0.13; 95%CI(0.03-0.52), and household income levels <600(AOR=0.06; 95%CI(0.01-0.25) were shown to have a statistically significant association with the use of

IUCD at P-value <0.05. Women whose age is above 35 were about 3 times more likely to use IUCD when compared to those below 25 years of age. Women who have no formal education have a 65% less probability of IUCD use when compared to those have higher education. The women who has household income of <600 have a 94% less likelihood of using IUCD as a contraceptive method (Table 4).

Table 4 Multi variable logistic regression model identifying factors associated with IUCD utilization among women in attending family planning service in select public health center in Kolfe Keranyo sub-city, Addis Ababa, Ethiopia 2021(n=399)

Variables	IUCD utilization		COR(95%CI)	AOR(95%CI)	p-values
	Yes	No			
Age of respondents					
<25 years	4	112	1	1	
25-34 years	19	139	3.8(1.30-11.60)	2.86(0.36-14.8)	
35 and above years	36	89	11.3(3.90-33.0)	3.10(2.07-7.36)	0.000**
Educational level					
No formal education	9	78	0.33(0.15-0.73)	0.35 (0.01- 0.40)	0.001*
Primary	5	72	0.19(0.07-0.53)	0.22(0.01-0.93)	0.025*
Secondary	13	99	0.37(0.18-0.75)	0.13(0.01-1.17)	0.93
Higher education	32	91	1	1	
Household Income level					
<=600 ETB	15	124	0.60(0.31-1.15)	0.06(0.01-0.25)	0.000**
601-3000 ETB	10	47	1.06(0.49-2.29)	1.94(0.39-9.66)	0.418
>3000 ETB	34	169	1	1	
Number of children alive					
2-Jan	11	115	0.17(0.06-0.25)	0.13(0.03-0.52)	0.004*
4-Mar	9	104	0.11(0.05-0.23)	0.30(0.07-1.26)	0.1
>=5	38	46	1	1	
Future plan of fertility					
Limiting birth	29	62	3.95(1.01-9.68)	5.87(2.33-14.87)	0.000**
Spacing births	23	217	0.91(0.37-2.22)	0.04(0.01-0.41)	0.007*
Do not know	7	61	1	1	
Want any more child					
Yes	10	297	0.03(0.01-0.06)	0.10(0.01-0.70)	0.000**
No	49	43	1		

Note: **PV <0.001, * P-value<0.01, P-value <0.05

Discussion

This study aimed to assess the magnitude of intrauterine contraceptive device use and associated factors among women (18-49 years) attending family planning services in selected public health centres in KolfeKeraniyo Sub City, Addis Ababa, Ethiopia. The current study showed overall utilization of IUCD among reproductive age women was found to be 14.8% and was high as compared to Ethiopian Demographic and Health Survey (EDHS) (2%).[11–15] The difference might be brought by study setting differences. Our study area was in selected Health centres found in one sub city and is health facility based, but EDHS covers many parts of Ethiopia and community based. The higher proportion of IUCD users in this study might be due to the literacy status, urban setting, and health facility-based study. The current finding was also higher than the studies conducted in Addis Ababa in November 2015 (7.7%),[10] studies conducted in Bishoftu town 2017 (9.4%).[16] This may be attributed to the time difference that there could be an improvement in accessing and utilizing health care service through time. Or else this variation can also be attributed to the study was conducted in the urban area, particularly institution-based study.

However, this finding was still lower than the study conducted in Addis Ababa, Ethiopia (18.7%) (21). The most possible reason could be the difference in the study area, the awareness of the women, accessibility of IUCD might be different as compared to the study area.[17–24] Similar findings were seen in studies conducted in worldwide intrauterine contraceptive devices use global (14.3%) but in some country less than 2% and another country greater than 40%,[25] The possible reason to the discrepancies might be due to

cultural differences, time differences of study socioeconomic status, geographical factors, heterogeneity of study population and political concern of governments. This study finding was also lower when compared to other studies conducted in Belgium 2014(74%),[9] studies conducted in Pakistan 2012(22.7%),[12] studies conducted in low and middle income countries 60% in China,[26–30] studies conducted in Egypt (30%).[30] Also lower than a recent study conducted in Addis Ababa Ethiopia August 2019 (35.2%).[26] This difference it might be due to lack of information about intrauterine contraceptive devices use, duet Fear of complication ,lack of support from Partner/husband /family, misconception about IUCD utilization like move out from uterus of to other organ, religion prohibition, Makes infertile and cancer and low attention of health professionals counselling of women about importance of IUCD and if women need to remove IUCD less than removals date (less than 10-12year) in sum health professional there is resistant for removal of IUCD.

Age of the woman, educational status, household income levels, future plans of fertility to limit birth, wanting any more children, number of alive children were the factors found to be associated with IUCD utilization in this study. The findings almost in line with previous studies conducted in Mekelle town, Tigray region, north Ethiopia (13%),[29] other studies conducted in Ethiopia; Bahir Dar, North West Amhara 2018, (13.3%),[31] studies conducted in southeast Nigeria (13.2%).[10]

According to this study the odds of IUCD utilization among women with no formal education decreased by 65% as compared to those with higher educational status. This finding is consistent with the study done in Bahir Dar, North West Amhara, Ethiopia, 2018,[32] in Addis Ababa, Ethiopia,[26] The possible reasons for this similarity might be since once a woman is educated, her autonomy and decision making skill on her health and maternal health care services utilization is high. This might be because those women who were educated might know IUCD, and they might know said effect of using other hormonal contraceptives and they might have a positive attitude toward IUCD so that they might not accept negative misconceptions about IUCD. Therefore, those women who used IUCD.

This study also showed that women who had future plan to limit birth were found about five times more utilize IUCD than those who had future plan to space birth (AOR=5.869, 95% CI :(2.326,14.807). Similarly, a study was done in Addis Ababa in October 2014 found that Women who have limit birth less than two were utilized of IUCD are less likely to use IUCD than those Women who with space birth.[8] This was also supported by the reason given by those women who didn't utilized IUCD during this study.

The analysis also showed that women who had 1-2 children alive are less likely utilized of IUCD than who were 3-4 alive children. This is consistent with studies done in Addis Ababa, Ethiopia, ever given birth three times more utilized than those women hadn't ever given birth.[8] Addis studies conducted in Addis Ababa November 2015,[7] Malawi studies conducted in.[31] This is might be those women who ever given birth were more likely importance of utilized IUCD and concerning child desire and fertility plan, women who wanted to wait for two years and above before having the next child were found to use the IUCD more than women who were not waiting to have children. Similarly, this finding may lead to a conclusion that the IUCD utilization is strongly influenced by the family size of women

Conclusion

Although this study determined overall prevalence of IUCD Utilization was high as compared to the EDHS 2016 repor, it is far below the Federal Ministry of Health and World Health Organization recommended level (it should be at least 50% method from short term to long term). The study also identified factors that increase and decrease the likelihood of IUCD Utilization as age of women being 35 and above, having future plan of fertility to limit birth, household monthly income, wanting more births, and number of alive children.

And also this study identified major reasons not to use IUCD among these population were fear of complications, husband disapproval, mis-conceptions like IUCD makes infertile, fear to expose reproductive organ.

The study shows that the awareness about IUCD as a contraceptive method is not merely sufficient for its utilization. The educational status of women and their husband, supportive husband, as well as knowledge on its safety and efficacy is critical in increasing the likelihood of utilization of IUCD. The use of IUCD among women with a history of abortion needs further exploration. However, competent counselling and universal access are also instrumental in increasing the utilization of IUCD.

Limitations

The utilization of IUCD was self-reported by the respondents and there was no other way of verifying the utilization. This study was conducted in Health centers of a single sub city which may cause lack of generalizability of the study findings. In addition, in this study, private facilities and hospitals were not included; this might limit the generalization of the study. However, more affluent and better-educated women have the means (e.g., money, knowledge, educational status, transportation) to attend private clinics and, based upon this study, are more likely to use IUCD than the general population. Moreover, this study is solely in the urban setting and cannot be generalized for the rural women.

Acknowledgments

Consent for publication

The Author declares that any person named as co-author of the contribution is aware of the fact and has agreed to being so named. The Authors guarantees that the Work has not been previously published elsewhere. All authors read and approved the final manuscript and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Research registration number

Not required.

Availability of data and material

The author is willing to share up on request.

Conflicts of interest

The authors have no conflicts of interest to declare.

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