

ST PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

USE OF CONTRACEPTIVES, ASSOCIATED FACTORS AND
CONTRACEPTIVE RECOMMENDATIONS AMONG FEMALE
HEALTH CARE PROVIDERS AT SPHMMC AND AFFILIATE
CENTERS

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SUMMARY

BACKGROUND: Family planning enables individuals to attain their desired number of children and determine the spacing of pregnancies, through the use of contraceptive methods. The use of contraceptive by women is influenced by various factors including healthcare providers. HCPs have a big role in women's choice of family planning methods. Studies have shown the personal contraceptive choice of HCPs may affect their counseling and recommendations to their clients. There is no study done in Ethiopia that assesses the use of contraceptives and contraceptive recommendation among health care providers.

OBJECTIVE: The objective of this study is to assess the contraceptive use, associated factors and contraceptive recommendations among female health care providers at St Paul's Hospital Millennium Medical College and affiliate centers.

METHODS: An institution based cross-sectional study design was conducted on 180 female healthcare providers involved in family planning services on August 2023 using simple random sampling. An online Google form was used to assess the socio-demographic, occupational and obstetric characters, Contraceptive use and contraceptive recommendation among female health care providers. Data was entered and analyzed using SPSS version 26. Descriptive analysis was computed in order to determine frequencies, mean, standard deviation, and percentages. Bivariate logistic and multi variable regression analysis was then used to determine the association between the dependent and independent variables.

RESULTS: The study showed that current contraceptive use among female HCPs was 31.7%. The three commonest methods used were Implants (50.9%) followed by pills and Cu IUDs. On multivariable binary logistic regression marital status [Single: AOR: 0.282, 95% CI: (0.102, 0.781), p-value: 0.015], and having children [Parous: AOR: 3.145, 95% CI: (1.114, 8.882), p-value: 0.031] were found to have significant association with contraceptive use. The top recommendation for Spacers was Implant while Sterilization was the top recommendation for Limiters. HCPs who currently use implants are 2.5 times more likely to recommend implants for spacers than those who do not currently use implants (COR: 2.486, 95% CI: 1.110, 5.569, p-value: 0.027).

CONCLUSION: Our study showed that contraceptive use among female HCPs was 31.7% and Implants were the most used types. Marital status and parity had a statistically significant impact on current contraceptive use while professional level did not. Personal use of contraceptive methods has also showed an influence on contraceptive recommendations.

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LIST OF ABBREVIATIONS

AOR Adjusted odds ratio

CI Confidence interval

COC Combined oral contraceptives

COR Crude odds ratio

CPR Contraceptive prevalence rate

HCP Health care provider

IUD Intrauterine contraceptive device

LARC Long acting reversible contraceptive

LNG IUD Levonogestrel Intrauterine contraceptive device

OBGYN Obstetrician & Gynecologist

SPSS Statistical Package for the Social Sciences

WHO World health organization

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INTRODUCTION

BACKGROUND

Family planning allows individuals to achieve their preferred number of children and determine the spacing of pregnancies, through the use of contraceptive methods. (1) Contraception gives couples control over pregnancy timing and prevents unintended pregnancy and unsafe abortion. This enables women to recover fully between pregnancies and allow couples to plan for healthier pregnancies, seek appropriate prenatal care, and make informed choices about childbirth. (2)

Family planning is an important strategy for the reduction of maternal, perinatal, and child morbidity and mortality. (1) Family planning helps individuals, particularly women, to pursue educational and professional goals. Effective control of reproduction is essential to a woman's ability to accomplish her individual goals. When women have control over their reproductive health, they can complete their education, enter the workforce, and engage in decision-making processes within their families and communities. This empowerment contributes to gender equality and overall social development. (1,2)

Family planning plays a crucial role in achieving sustainable development goals. By controlling population growth, it contributes to poverty reduction, as smaller family sizes are associated with improved economic opportunities and increased access to resources for individuals and families. (3)

Currently women around the world have a various contraceptive options. The methods are classified as modern or traditional. Modern methods include female and male sterilization, the intrauterine contraceptive device (IUD), implants, injectables, the pill, transdermal patches, vaginal rings, male and female condoms, emergency contraception, standard days method (SDM), and lactational amenorrhoea method (LAM). Methods such as rhythm, withdrawal, and other folk methods are grouped as traditional. (2)

The utilization of contraceptives varies significantly across countries. The selection of a contraceptive method can be influenced by various factors, such as reproductive intentions, guidance from healthcare providers, perceived risk-to-benefit ratios, cost and availability considerations, and cultural influences. (4,5)

STATEMENT OF THE PROBLEM

Healthcare providers play a major role in counseling and guiding clients on contraceptive use. They should be well aware of the benefits and risks of different contraceptives. The knowledge of HCPs is influential in women's choice of contraceptive methods, as well as the development of family planning initiatives and public policies(6). Researches have shown that HCPs have numerous misconceptions and beliefs about contraceptives that lead to contraceptive underuse. (7,8)

Overall, healthcare providers play a critical role in promoting safe and effective contraceptive use by providing accurate information, personalized guidance, and necessary medical interventions to support individuals and couples in making informed decisions about their reproductive health.(1,5,9)

Personal practices of HCPs are also said to influence their advices and prescriptions to clients. Evidences suggest that personal behaviors and experiences of clinicians affect how they counsel their patients in different clinical scenarios such as counseling about lifestyle modifications.(5) Limited data also showed this applies to contraceptive use as well.(5)

There are some studies on the practices of HCPs regarding contraceptive use and factors influencing their contraceptive choices. Data are also limited about how much HCP'S personal experience impact women's method preference. A multinational survey of healthcare professionals (HCPs) reported that the personal choice of contraceptives significantly influenced their recommendations to women. (5)Evidence suggests that women may appreciate provider's self-disclosure of her personal contraceptive choices in some instances, and clients commonly ask their provider the method she is using.(10)

Ethiopia is a developing country with the second largest population in Africa. There has been an upward trend in the rate of contraceptive use among the general population over the past decade. According to EDHS 2019, 41% of married women in Ethiopia were using modern methods of family planning. The contraceptive prevalence rate (CPR) among all women is 29%. Urban women are much more likely than their rural counterparts to use any method of contraception. Despite the progressive increment in CPR unmet need did not show expected decline and it is reported to be 22%. (2)

Even though promising changes in contraceptive use in Ethiopia have been seen, it still has among the highest levels of unmet need for contraception in Africa and unplanned pregnancy continued to be a significant problem.(11) Studies have described various factors associated with unmet need of family planning and better training of family planning providers and

improved health education were part of the strategies suggested for increasing contraceptive usage.(12,13)

There is a lack of information regarding contraceptive use among health care providers and trainee health workers in Ethiopia. The choice and personal experiences of health care providers as well as their counseling and recommendation for clients has not yet been investigated. This research aims to help fill this gap by assessing the contraceptive use among HCPs involved in family planning services at St Paul's Hospital Millennium Medical College located in Addis Ababa and its affiliate centers.

LITERATURE REVIEW

Contraceptive knowledge and services are essential to everyone's health and human right. Globally, 190 million women of reproductive age have an unmet need for contraception. The proportion of women with unmet need for family planning stands currently at 10 per cent. The proportion of women who have their need for family planning satisfied with modern methods increased from 74 to 76 per cent from 2000 to 2019.(3)

In general, the prevalence rates of contraceptive use tend to be higher in developed countries than in developing countries. Contraceptive prevalence rate is currently as low as 25% in Middle and Western Africa, about 43% in East Africa and above 70% in Europe, and America.(14)

Contraceptive use is mainly influenced by factors such as access to medical care, social interactions, and healthcare providers.(15) Healthcare providers are in a position to give adequate and accurate information to their clients about the range of contraceptive options and help eliminate misconceptions and increase acceptance of contraception.(1) It is the responsibility of family planning providers to support individuals in making informed decisions and help them follow through with those choices.

Healthcare providers have the leading role in exploring women's individual characteristics, their need of contraception and the most important reasons for their need. The knowledge and attitudes providers have towards contraceptives has been shown to affect their counseling.(6) Various studies have indicated that, among HCPs there are some gaps in knowledge of contraceptive use particularly for adolescents. A 2015 study conducted in Osun State in Nigeria showed that less than half of HCPs knew about all the types of contraceptive methods.(16) A similar study in Botswana showed only 41.3% of HCPs were confident to explain how to use newer contraceptive methods like transdermal contraceptive patches and vaginal rings.(17)

Misconceptions, wrong beliefs and biases providers may have can also limit contraceptive use.(7) More than half of the health workers in a Nigerian study perceived providing contraceptives to unmarried adolescents encouraged sexual promiscuity and 44.2% believed teenagers, married or not, should be denied contraceptives.(18) There is an ongoing misperception HCPs have, about IUDs regarding increase risks of infections, infertility and technical difficulties of insertion especially in nulliparous women which was highlighted by a global survey done in 15 countries about HCPs beliefs and perceptions around IUD use.(8)

Contraceptive use among Health care providers

Review of literature revealed a limited number of researches done worldwide that assessed the use of contraceptives among different groups of family planning providers.

The first one is a widely known international study on the contraceptive use and contraceptive recommendations of healthcare providers involved in family planning counseling. In this survey which involved 1001 HCPs from 10 different countries, the prevalence of contraceptive use was 53.9% and LNG-IUD was the most frequently used method in nearly all countries. It was followed by COCs and the male condom.(5)

According to an internet based US survey on family planning providers in 2013, contraceptive use at the time was reported to be 67.8%. From HCPs using contraceptives 41.7% of them used LARC; majority of which were IUDs and it was significantly higher compared to the general population (12.1%). (19) A similar study among Chinese OBGYNs revealed that 61.9% were using contraceptives with Cu IUDs being the most preferred method(6). There is also a comparable figure from a study on practice and perception of IUDs among Latvian OBGYNs in which 59.4% of the participants were on any form of a method during the survey. In contrary to the previous studies COCs and Condoms were the most used types.(20)

Majority of the studies done in African countries focused on the knowledge and perceptions of healthcare providers towards contraceptives with emphasis on emergency contraceptive methods and adolescent contraceptive use. But recently a study was done in Ghana on the practices of HCPs and medical students on contraception. According to that study 50.2% of the participants reported ever use of contraceptives but contraceptive use during the study period was only 18%.(1) Contrary to similar studies done in most developed nations, condoms were the most commonly used method. This findings maybe the result of the fact that most respondents were single and students were included.(1)

Contraceptive use among healthcare providers has also been compared with the general population in few surveys. Reasons for method preference have also been sought. For example in Spain, methods such as the transdermal patch and the vaginal ring were more widely used among healthcare providers than the general population and the former particularly appreciated the ease of use of the methods.(21)

Few studies have also assessed the contraceptive recommendations and potential association with providers' personal use of contraceptives. In a 2012 nationwide survey of German OBGYNs the most commonly prescribed method was COC followed by the LNG-IUS and

the vaginal ring. Of the respondents 61% of them chose LNG-IUS for themselves or their partner while 18% preferred COCs.(4) The contraceptive methods preferred for personal use differed somehow from those prescribed to patients (4) whereas the largest international survey healthcare providers involved in family planning counseling concluded that personal contraceptive use had an influence on contraceptive recommendation. HCPs that used LNG-IUS were significantly more likely to recommend this method as the first choice for clients who completed their family size while those using COCs had higher likelihood of recommending COCs as the method of first choice for those planning to space their pregnancies.(5)

Factors associated with contraceptive use among healthcare providers

As previously stated the available literatures on contraceptive practices of health care professionals are quite limited. In addition comprehensive assessment of contributing factors is lacking. Despite this limitation our literature review found difference in contraceptive use among HCPs based on some factors such as socio demographic characters, parity, level of profession and years of practice.

In the US based survey that aimed to compare contraceptive use of family planning providers with the general population, physicians had nearly four times higher odds of using LARC as other providers(19). The difference in the popularity of methods among distinct levels of providers was also evident in the multinational study. The results of that study showed that the most widely selected method by OBGYNs was LNG IUD while the General practitioners (GP) preferred condoms mostly and the likelihood of using LNG IUD was significantly higher in OBGYNs compared to GPs(p-value:0.014). It also conveyed that years of practice had an association with type of contraceptive methods selected, HCPs that graduated more than 10 years before were significantly more likely to use COCs compared with those that graduated ≤ 10 years ago (p-value:<0.001).(5)

Age of the HCPs was another factor that was found to contribute to choice of a contraceptive method. In a survey of 122 gynecologists in Latvia, a significantly greater proportion of younger female doctors took COCs compared to older doctors, who preferred the IUD (p-value: 0.002).(20) A similar study among Chinese OBGYNs had a different outcome based on parity where the use of rhythm only method was high among nulliparous OBGYNs compared to parous ones (48.3% vs. 3.3%; $p < 0.0001$) and copper IUDs were the most common method used in the latter group (42.6% vs. 1.7%; $p < 0.0001$). (6)

SIGNIFICANCE OF THE STUDY

Family planning is one of the areas where due emphasis is given in Ethiopia's health sector transformation plan. The FP 2030 vision of the country is to see a healthy and prosperous society through increased access and utilization of contraceptives. Contraceptive use is affected by various factors including the counseling by service providers. It is believed that the knowledge, perspectives and potential misconceptions and bias they may have towards different contraceptive methods influence their counseling. Limited evidence also suggests that the choice of contraceptive methods and personal experience of health care providers has an impression on their recommendations to clients.

Different studies have been done on practices and choices of contraceptives among family planning service providers in the developed countries and few developing nations. In Ethiopia there are plenty of researches done on contraceptive related areas but as to our knowledge none of them targeted family planning service care providers. Hence this study aims to help fill this gap by assessing the contraceptive use among health care providers involved in family planning services at St Paul's Hospital Millennium Medical College and its affiliate centers. Generally speaking the contraceptive use among health care providers is expected to be higher than the national contraceptive prevalence rate given that they have a better knowledge about its benefit. The results of the study will be an insight and give clue as to the real practice. Overall it aspires to contribute in identifying areas of improvement in family planning services of the country by targeting healthcare professionals involved in family planning counseling and provision.

OBJECTIVES

GENERAL OBJECTIVE

- To assess the use of contraceptives, associated factors and contraceptive recommendations among female health care providers involved in family planning services

SPECIFIC OBJECTIVES

- To assess the use of contraceptives among female health care providers involved in family planning services
- To identify possible factors associated with the use of contraceptives among female health care providers involved in family planning services
- To assess the contraceptive recommendation for women among female health care providers involved in family planning services

METHODOLOGY

STUDY SETTING

The study was conducted at St Paul's Hospital Millennium Medical College and its affiliate centers. St. Paul's Hospital is located at Gullele sub city in Addis Ababa, Ethiopia. Although the medical school was opened in 2007 GC, the hospital was established in 1968 G.C by the late Emperor Haile Selassie. It has a capacity of providing service to an average of 300,000 patients annually. The college has more than 2800 clinical, academic and administrative and support staffs.

There are over 13 departments amongst which department of Obstetrics and Gynecology is one. The OBGYN department provides a broad range of clinical services including family planning. It has postgraduate residency program and fellowship programs in five different subspecialty trainings. It also has a Center of Excellence for promotion and provision of reproductive health, training, and research. To widen its clinical services and strengthen the postgraduate programs the department collaborates with various affiliate centers. These are Ras Desta Damtew Memorial Hospital, and Dagmawi Minilik Referral Hospital located in Addis Ababa, Worabe Comprehensive Specialized Hospital located in Worabe Town, Silte zone and AneDima Health Center in Burayu city, Oromia region.

STUDY PERIOD

The study was conducted over a period of a month on August 2023.

STUDY DESIGN

A cross sectional Study design was used to assess the use of contraceptives, associated factors and contraceptive recommendations among female health care providers involved in family planning services.

SOURCE AND STUDY POPULATION

SOURCE POPULATION

All female healthcare providers working in Obstetrics & Gynecology department at St Paul's Hospital Millennium Medical College and its affiliate centers.

STUDY POPULATION

All female healthcare providers involved in family planning services at St Paul's Hospital Millennium Medical College and its affiliate centers that fulfill the inclusion criteria

INCLUSION CRITERIA

- Nurses, Midwives, Medical interns, General Practitioners, Residents and OBGYNs working in OBGYN department
- Those above mentioned HCPs who are working at the labor ward, Emergency OPDs, Maternity and Gynecology wards, Antenatal care clinic, Regular OPD, Family planning clinic and Comprehensive abortion care room

EXCLUSION CRITERIA

- Those who are on a leave during the study period

SAMPLING METHODS

SAMPLE SIZE CALCULATION

The following sample size was first calculated using sample size calculation formula for single population proportion

$$n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2}$$

$$d^2$$

There was no local data on the contraceptive use of health care providers; hence P value was taken as 0.5 and with 95% confidence interval (CI), margin of error 0.05

$$n=384$$

The number of female health care providers involved in family planning services at each study setting was received from the respective OBGYN department. The total number combined was 260 and taken as the finite population. Since the study population (N=260) is less than 10,000 the sample size is corrected for finite population using the correction formula

$$n = \frac{n^{\circ}}{1 + \frac{n^{\circ} - 1}{N}}$$

$$n=155$$

20% non-response rate was added that gave a final sample size of 186.

SAMPLING TECHNIQUE

The proportion of samples to be taken from each study setting was calculated based on their total number at the respective sites. Simple random sampling method was then used to select the samples from each site.

DATA COLLECTION AND QUALITY MANAGEMENT

A structured self-administered questionnaire written in English was developed to assess Socio-demographic, occupational and obstetric characteristics; Contraceptive recommendations for two groups of women, Spacers and Limiters; and Current and past contraceptive use by the HCPs. The questionnaire was then prepared in Google Forms to be filled in electronic platforms online. Two data collectors at SPHMMC and one at each remaining sites were trained to send the questionnaire to the study participants. Reminders were sent in a week time to alert non-responders. To assure the data quality, the data collection instrument was pre-tested on 5% of the

sample size out of study area to improve clarity and appropriateness of data collection tools. The estimated time required, and necessary amendments were made after the piloting of the questionnaire.

STUDY VARIABLES

DEPENDENT VARIABLE

Contraceptive Use

INDEPENDENT VARIABLES

Socio-demographic factors: Age, Religion, Marital status, Educational level

Occupational factors: Professional level, Service area in the department, Years of work experience, having received family planning training

Obstetric characteristics: Parity, Previous unplanned pregnancy

DATA ANALYSIS

The data was initially downloaded in excel format from Google drive. It was then coded, entered and analyzed using SPSS version 26. Descriptive analysis was computed in order to determine frequencies, mean, standard deviations, and percentages. The outcomes are displayed in tables and presented in figures. Bivariate logistic regression model was used to determine the association between dependent and independent variables. Those variables with p value of <0.25 were taken to multivariate analysis. In this statistical analysis, association was determined, if P-value is less than 0.05 and it was considered as statically significant.

OPERATIONAL DEFINITION

Contraceptive use: is the utilization of at least one modern contraceptive method by reproductive age women.(13)

Current contraceptive users: are reproductive age women who are using at least one modern contraceptive method during the study period.(13)

Modern contraceptive methods: female and male sterilization, IUD, implants, injectables, the pill, male and female condoms, emergency contraception, standard days method (SDM), and lactational amenorrhoea method (LAM).(2)

Spacers: women who are seeking to space out the time between the births of their children.(5)

Limiters/Family completers: women who are not planning to have any more children.(5)

ETHICAL CONSIDERATION

Formal approval letter for ethical clearance was obtained from the institutional review board of St Paul's Hospital Millennium Medical College. The information extracted was only that is required for the sole purpose of this study.

DISSEMINATION PLAN

The findings of this study will be shared with the SPHMMC department of OBGYN for possible recommendations. It will be available for the college's research database for any future references and as a base for further related studies.

RESULTS

A total of 180 female healthcare professionals involved in family planning service from the five different sites participated in the study, making a 96.8% response rate.

Socio-demographic characteristics

The mean ($\pm$ standard deviation) age of the respondents was 28.89 ($\pm$ 4.23) years. Over half of the healthcare professionals were between 25-29 years of age. With regards to their marital status, equal numbers (49.4%) of respondents were married and single. Most of the female healthcare professionals involved in family planning services were followers of Orthodox Christianity (60.0%) and have degrees (75.6%) as their maximum educational achievement.

Table 2: Socio-demographic characteristics of female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variables		Frequency	Percentage
Five-years-age group	20-24 years	17	9.4
	25-29 years	103	57.2
	30-34 years	40	22.2
	35-39 years	14	7.8
	40 years and above	6	3.3
Religion	Orthodox	108	60.0
	Muslim	42	23.3
	Protestant	25	13.9
	Catholic	3	1.7
	Other	2	1.1

Marital status	Single	89	49.4
	Married	89	49.4
	Divorced	2	1.2
Educational level	Diploma	12	6.7
	Degree	136	75.6
	Masters	27	15.0
	Subspeciality and above	5	2.8

Occupational characteristics

The mean ($\pm$ standard deviation) years of experience of female healthcare professionals involved in family planning service was 4.73 (± 3.47) years. Half (50.6%) of the respondents have 0-4 years of experience. A little over half (52.2%) of them were midwives. One hundred and two (56.7%) of the respondents were working at St. Paul's hospital millennium medical college. The respondents were working at labor wards at time of data collection in 29.9% of the cases and 81 (45.0%) had never received formal training on family planning.

Table 3: Occupational characteristics of female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variables		Frequency	Percentage
Profession	Midwives	94	52.2
	Residents	34	18.9
	Nurse	28	15.6
	Obstetrician and	8	4.4

	gynecologists		
	General practitioners	8	4.4
	Medical Interns	8	4.4
Hospital of work	St. Paul's Hospital Millennium Medical College	102	56.7
	Ras Desta Damtew Memorial Hospital	30	16.7
	Dagmawi Minilik Referral Hospital	18	10.0
	Worabe Comprehensive Specialized Hospital	15	8.3
	Anedima Health Center	15	8.3
Service area in the department	Labor ward	53	29.9
	Maternity ward	36	20.0
	Emergency OPD	32	17.8
	Gynecologic ward	20	11.1
	Family planning clinic	9	5.0
	Antenatal care clinic	8	4.4
	Comprehensive abortion care room	8	4.4
	Regular OPD	14	7.8
Years of experience	0-4 years	91	50.6
	5-9 years	78	43.3
	10 years and above	11	6.1
Had received FP training	No	81	45.0
	Yes	99	55.0

Obstetrics characteristics

Over one third (36.1%) of the respondents have any number of children. Half (49.2%) of the female healthcare workers with children have only one child while the highest number of children reported was four by 6.2% of the participants. Unplanned pregnancy occurred in 22 (12.2%) of the female healthcare providers who are involved in providing family planning services.

Table 3: Obstetric characteristics of female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variables		Frequency	Percentage
Have children	No	115	63.9
	Yes	65	36.1
Number of children	1	32	49.2
	2	18	27.7
	3	11	16.9
	4	4	6.2
Had any unplanned pregnancy	No	157	87.2
	Yes	22	12.2
	I don't want to answer	1	0.6

Contraceptive use

Only less than a third (31.7%) of the respondents are currently using any form of contraceptive method. Out of the female healthcare workers who are currently using a contraceptive method, 29 (50.9%) use implants and 14 (24.6%) use pills. The main reasons for choosing the currently used method were: thinking the contraceptive method was the most effective and comfort and ease of use. Sexual inactivity was the most common reason for not using a contraceptive method during the study period while fear of side effects was reported by 6.8% of the users. Most current contraceptive users (93.0%) are satisfied with the method they are using.

Among female healthcare workers involved in providing family planning that do not have current contraceptive use, 44 (35.8%) had used at least one contraceptive method in the past. Pills (38.6%), emergency contraceptives (36.4%) and Implants (29.5%) were the three commonest methods used. Comfort and ease of use was the most common reason for previous contraceptive method choice. Two thirds (65.9%) of past contraceptive users were satisfied with their method choices. Seventy nine (43.9%) of the female healthcare workers who participated in the study have never used any contraceptive and the main reason for never using a contraceptive was sexual inactivity.

Table 4: Current and Past contraceptive use, Contraceptive method used and Reasons for use and non-use among female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variables		Frequency	Percentage
Currently using any contraceptive	No	123	68.3
	Yes	57	31.7
Contraceptive method currently used (n=57)	Implant	29	50.9%
	Pills	14	24.6%
	Copper IUD	7	12.3%
	Condoms	6	10.5%

Variables		Frequency	Percentage
	Injectables	5	8.8%
	Rhythm method	3	5.3%
	Emergency contraceptives	3	5.3%
	Withdrawal method	2	3.5%
	LNG IUD	1	1.8%
Main reason for current method choice (n=57)	Because I think it is most effective method	22	38.6
	Comfortable and easy to use	21	36.8
	Side effects of other methods	13	22.8
	Medical reasons/health concerns	1	0.6
Satisfied with current method (n=57)	No	4	7.0
	Yes	53	93.0
Main reason for not using contraceptive currently (n=44)	Sexually inactive	25	56.8
	Desire to have a child	11	25.0
	Fear of side effects	3	6.8
	I don't want to disclose my reason	2	1.1
	Religious beliefs	1	2.3
	Medical reason/health concern	1	2.3
	Other reason	1	2.3
Past contraceptive use (n=123)	No	79	64.2
	Yes	44	35.8
Contraceptive	Pills	17	38.6%

Variables		Frequency	Percentage
method used in the past (n=44)	Emergency contraceptives	16	36.4%
	Implants	13	29.5%
	Condoms	12	27.3%
	Rhythm method	9	20.5%
	Injectables	9	20.5%
	Withdrawal method	8	18.2%
	LAM	5	11.4%
	Copper IUCD	3	6.8%
	LNG IUD	1	2.3%
Main reason for past method choice (n=44)	Comfortable and easy to use	24	54.5
	Because I think it is most effective method	11	25.0
	Side effects of other methods	4	9.1
	Partner's choice	3	6.8
	Medical reasons/health concerns	1	2.3
	Other reason	1	2.3
Satisfied with past method used (n=44)	No	15	34.1
	Yes	29	65.9
Main reason for never using a contraceptive(n=79)	Sexually inactive	55	69.6
	Desire to have a child	7	8.9
	Religious beliefs	7	8.9
	Fear of side effect	5	6.3
	Medical reason/health	1	1.3

Variables	Frequency	Percentage
concern		
I don't want to disclose my reasons	4	5.1

Factors associated with current contraceptive use

On bivariable logistic regression, age of the healthcare providers, marital status, years of experience, having children and the number of children were found to have statistically significant association with current contraceptive use. Healthcare workers who are above 30 years were 4 times more likely to use contraceptive than those who are 30 years and below. Single female healthcare professionals were 0.113 times less likely to use contraceptive than married healthcare workers. Respondents who have 6 years and more professional experience were 3 times more likely to use contraceptive than those who have less than 6 years professional experiences. Female healthcare workers with children were 9 times more likely to use contraceptive than those without children. And those with more than 2 children were 13 times more likely to use contraceptive than those with 2 or less children.

Religion, level of education, profession, hospital of work, service area in the hospital, having training on family planning and history of unplanned pregnancy were not found to have statistically significant association with current use of contraceptive.

On multivariable binary logistic regression, marital status, having children and the number of children were found to have statistically significant association with current contraceptive use. (See Table 5) Single healthcare workers were less likely to use contraceptives than married female healthcare workers (AOR: 0.282, 95% CI: 0.102, 0.781, p-value: 0.015). Female healthcare workers with children were 3 times more likely to use contraceptive than those without any child (AOR: 3.145, 95% CI: 1.114, 8.882, p-value: 0.031).

Table 5: Bivariable and multivariable binary logistic regression of factors associated with current use of contraceptive among female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variable	Current use		COR (95% CI)	P-value	AOR (95% CI)	P-value
	Yes	No				
Age						
20-30 years	34 (24.3%)	106 (75.7%)	1.00		1.00	
31-45 years	23 (57.5%)	17 (42.5%)	4.218 (2.02-8.80)	.000	1.515 (0.578-3.969)	.398
Marital status						
Married	47 (52.8%)	42 (47.2%)	1.00		1.00	
Single	10 (11.2%)	79 (88.8%)	0.113 (0.052-0.246)	.000	0.282 (0.102-0.781)	.015
Divorced	0 (0.0%)	2 (100.0%)	0.000 (0.000-0.000)	.999	0.000 (0.000)	.999
Years of experience						
0-6 years	42 (27.6%)	110 (72.4%)				
6 years and above	15 (53.6%)	13 (46.4%)	3.022 (1.326-6.885)	.008	1.164 (0.409-3.312)	.777
Have children						
No	17 (14.8%)	98 (85.2%)	1.00		1.00	
Yes	40 (61.5%)	25 (38.5%)	9.224 (4.501-18.903)	.000	3.145 (1.114-8.882)	.031

Number of children

2 and less	26 (52.0%)	24 (48.0%)	1.00		1.00	
More than 2	14 (93.3%)	1 (6.7%)	12.923 (1.577- 105.876)	.017	10.990 (1.218- 99.192)	.033

Contraceptive Recommendations

Implants and Copper IUD were the most common primarily recommended contraceptive methods for spacing among female healthcare workers who are involved in providing family planning. Implant was recommended by the respondents in 36.7% and 39.4% of cases as a first and second contraceptive method for spacing respectively. For limiting purpose, sterilization is the most commonly recommended primary contraceptive method followed by Copper IUD.

Table 6: Contraceptive recommendation for Spacers among female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variables	First choice	Second choice	Third choice
Recommendation for spacing			
Implants	66 (36.7%)	71 (39.4%)	32 (17.8%)
Copper IUD	60 (33.3%)	33 (18.3%)	15 (8.3%)
LNG IUD	16 (8.9%)	18 (10.0%)	12 (6.7%)
Pills	14 (7.8%)	20 (11.1%)	54 (30.0%)
Injectables	8 (4.4%)	19 (10.6%)	38 (21.1%)
Rhythm method	8 (4.4%)	3 (1.7%)	6 (3.3%)
Condoms	4 (2.2%)	7 (3.9%)	7 (3.9%)

Variables	First choice	Second choice	Third choice
LAM	3 (1.7%)	6 (3.3%)	11 (6.1%)
Withdrawal method	1 (0.6%)	2 (1.1%)	1 (0.6%)
Emergency contraceptives	-	1 (0.6%)	3 (1.7%)
Sterilization	-	-	1 (0.6)

Table 7: Contraceptive recommendation for Limiters among female healthcare providers who are involved in providing family planning in SPHMMC and its affiliates, Ethiopia

Variables	First choice	Second choice	Third choice
Recommendation for limiting			
Sterilization	81 (45.0%)	18 (10.0%)	14 (7.8%)
Copper IUD	41 (22.8%)	80 (44.4%)	17 (9.4%)
Implants	31 (17.2%)	33 (18.3%)	69 (38.3%)
LNG IUD	14 (7.8%)	27 (15.0%)	24 (13.3%)
Injectables	4 (2.2%)	5 (2.8%)	21 (11.7%)
Condoms	3 (1.7%)	3 (1.7%)	5 (2.85)
Pills	2 (1.1%)	7 (3.9%)	13 (7.2%)
LAM	2 (1.1%)	4 (2.2%)	6 (3.3%)
Withdrawal method	2 (1.1%)	2 (1.1%)	1 (0.6%)

Current or Past contraceptive use of female healthcare professionals' and Contraceptive recommendations

Female healthcare providers who currently use implants are 2.5 times more likely to recommend implants for spacers than those who do not currently use implants (COR: 2.486, 95% CI: 1.110, 5.569, p-value: 0.027). Previous use of implants by female healthcare professionals was not found to have statistically significant association with their implants recommendation (COR: 1.086, 95% CI: 0.340-3.468, p-value: 0.889). Current use of Cu IUD by female health professionals was found to increase the recommendation of Cu IUD for Limiters but it was not statistically significant (COR: 3.452, 95% CI: 0.610, 19.539, p-value: 0.161).

DISCUSSION

It is well known that contraceptive coverage and provision is one of the critical areas for the development of a nation. Health care workers play a significant role for this service. Their personal practices may reflect their attitude towards contraceptive methods and its potential influence on contraceptive counseling, recommendation and provision for clients. However there is no local data in this regards in Ethiopia. To the best of our knowledge this is the first study done in the country to assess the use of contraceptive methods and contraceptive recommendations among health care professionals that provide family planning.

In this institution based study 31.7% of the respondents were currently using any form of contraceptive method. This finding was higher than the results of a research done in Ghana where less than a fifth (18.0%) of the participants were using a contraceptive method during the study(1) while much higher numbers were reported from surveys done in the developed nations: In an international survey 53.9% (5), 61.9% in a Chinese study of OBGYNs(6) and 67.8% from a US based survey(19). The reason for the lower result in our study can be due to the majority of the HCPs who have never used a contraception being sexually inactive.

Among the current contraceptive users in this study Implants were the most used method (50.9%) followed by the pills (24.6%). Implants were also the third commonly used methods by HCPs that had used contraceptives in the past following Pills and Emergency contraceptives. This result is in contrast to other studies where implants were among the least used methods consistently. Condoms were the most widely used method(67.7%) in the Ghanaian study(1) while being the second most commonly used choice among Latvian(20) and Chinese OBGYNs(6). In other studies LNG IUDs were reported to be the most used methods. According to an internet based US survey on family planning providers in 2013, majority of the participants (39.9%) used LNG IUDs(19). It was also LNG IUDs which were the most used types (29.3%) in the largest survey of HCP's contraceptive use across ten countries(5). The differences with our finding may be a result of setting differences, relative unavailability of LNG IUD in our country and perhaps the year the studies were done.

In our study the main reasons for current contraceptive choice was method efficacy and ease of use. High contraceptive efficacy was also the main reason selected by 22.8 % of LNG IUD users in the multination international survey(5).

According to the results of our study, single healthcare workers were less likely to use contraceptive than married female healthcare workers (AOR: 0.282, 95% CI: 0.102, 0.781, p-value: 0.015). This also can be explained by most of the providers not using a contraceptive being sexually inactive. Parous healthcare providers were 3 times more likely to use a contraceptive than nulliparous HCPs (AOR: 3.145, 95% CI: 1.114, 8.882, p-value: 0.031). Similar to age parity was also related with the method of choice in other studies. For instance in

the Chinese study the use of rhythm only method was high among nulliparous OBGYNs compared to parous ones (48.3% vs. 3.3%; $p < 0.0001$) and copper IUDs were the most common method used in the latter group (42.6% vs. 1.7%; $p < 0.0001$)(6). Other factors like professional level, years of experience and being trained formally on family planning have not been found to have significant association with current use of contraceptives or method choice in our study. But professional level was found to have an association in previous studies like the international survey of HCPs where the likelihood of using LNG IUD was significantly higher among the OBGYNs than GPs($P=0.014$)(5). This difference may be explained by the smaller number of some of the professions like physicians, OBGYNs in particular involved in our survey.

This study also assessed the contraceptive recommendations of HCPs given to two groups of women: Spacers and Limiters. The results show that Implants were recommended by the respondents in 36.7% and 39.4% of cases as a first and second contraceptive method for spacing respectively while pills were the third choice. For Limiters, sterilization was the most commonly recommended primary contraceptive method followed by Copper IUD and Implants. We found only few researches that assessed contraceptive recommendations. The largest one was the multinational international survey that involved 1001 HCPs. In that study the top three choices for spacers were combined oral contraceptives (COCs) followed by LNG IUDs and progestin only pills (POPs) whereas for Limiters were LNG IUDs followed by female sterilization and CU IUDS(5). The difference between these studies may be partly a result of differences in the settings and the relative unavailability of LNG IUD in our country.

Personal contraceptive practice was shown to have an influence in the aforementioned international survey. HCPs that used LNG-IUS were significantly more likely to recommend this method as the first choice for Limiters ($P < 0.001$) and those using COCs had higher likelihood of recommending COCs as the method of first choice for Spacers ($P = 0.002$)(5). Our study has a similar finding where HCPs who currently use implants are 2.5 times more likely to recommend implants for spacers than those who do not currently use implants (COR: 2.486, 95% CI: 1.110, 5.569, p -value: 0.027). However the association with the top recommended method for limiters with its personal use could not be done since there were no HCPs using sterilization while Cu IUD use was not found to significantly affect the likelihood of recommending Cu IUD for limiting purposes.

STRENGTH OF THE STUDY

This study is the first of its kind to be conducted in our setup. The absence of prior studies conducted in our particular setup underscores the novelty and originality of our research. It gives a tangible insight on the subject matter and will be a base for future studies.

LIMITATIONS OF THE STUDY

Limitations of the present study include the smaller sample size and the paucity of literatures available for comparison of results. In addition, the study includes a relatively sensitive issue. Thus, social desirability bias could not be ruled out.

CONCLUSION

In conclusion our study showed that contraceptive use among female HCPs was 31.7% and Implants were the most used types. Marital status and parity had a statistically significant association with current contraceptive use while professional level did not. Personal use of contraceptive methods has also showed an influence on contraceptive recommendations.

RECOMMENDATIONS

Larger studies over a wider study area should be done to obtain a better view of the national picture on the use of contraceptives among HCPs, identify barriers for contraceptive use and evaluate its impact on contraceptive recommendations for clients further. Although significant association between family planning training and contraceptive use was not found, the result of the study showed a higher number of health care professionals that are involved in counseling and provision of family planning without a proper training. Hence comprehensive training programs for health care providers on contraceptive methods should be provided.

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ANNEXES

INFORMATION SHEET

Purpose of the research:

Greetings,

My name is Dr. Gelila Dejene. First of all, I would like to thank you for your time. You are invited to participate in a research study examining contraceptive use and contraceptive recommendations among female healthcare providers at SPHMMC and affiliate centers. The aim of the study is to assess the contraceptive choice and personal experiences of health care providers and its potential impact on their counseling and recommendation for patients.

Participation:

Participation in this study is voluntary. If you choose to participate, you will be asked some questions about your socio-demography, professional background and reproductive history. You do not need to provide your name and all your responses are completely anonymous. The study is expected to take approximately ten minutes.

Risk and /or discomfort:

There is no risk in participating in this study. By participating, you will sacrifice your time only. The survey will take about ten minutes.

Benefits:

There are no direct benefits for you from participating in this study. However, your participation is likely to help us meet the research objective and improve the quality of care we provide.

Incentives/payments for participating:

You will not be provided with any incentive or payment to take part in this study.

Confidentiality:

The data collected in this study are completely anonymous. No personally identifiable information will be collected and the information you choose to provide in this study cannot be connected back to you. No online identifiers such as name, email address, IP address, or username will be collected. Your survey answers will be stored initially on Google Drive in a password protected electronic format. Data will later be downloaded and stored on a password protected computer. Data will be kept confidential and will not be revealed to anyone except the study team. Results from this study may be published or presented at research conferences.

Right to ask questions:

If you have any questions or comments about this study, you may contact the researcher using the contact details provided below.

Right to refusal or withdrawal:

You have the full right to refuse from participating in this research. You also have full right to withdraw from this study at any time you wish.

Person to contact:

This research was reviewed and approved by the IRB of Saint Paul's Hospital Millennium Medical College.

In case you need more information about the study you can contact: -

Name: - Dr. Gelila Dejene

Tel: - +251937873266

Email: - dejenegelila@gmail.com

Informed consent:

I have read and understand the above consent form and agree to participate in the study.

1. Yes 2. No

QUESTIONNAIRE

1. Socio demographic characteristics

1.1 Age

1.2 Religion

A. Orthodox

B. Muslim

C. Protestant

D. Catholic

E. Others, specify.....

1.3 Marital status

A. Married

B. Single

C. Cohabiting

D. Divorced

E. Separated

F. Widowed

1.4 Educational Level

A. Diploma

- B. Degree
- C. Masters
- D. Subspecialty and above

2. Occupational characteristics

2.1 Professional level

- A. Nurse
- B. Midwife
- C. Medical intern
- D. General practitioner
- E. Resident
- F. Obstetrician & Gynecologist

2.2 Where do you currently work?

- A. AneDima Health center
- B. Dagmawi Menelik Referral Hospital
- C. Ras Desta Damtew Memorial Hospital
- D. Worabe Comprehensive Specialized Hospital
- E. St Paul's Hospital Millennium Medical College

2.3 Where is your specific site of work in the department?

- A. Labor ward
- B. Emergency OPD
- C. Maternity ward
- D. Antenatal care clinic
- E. Regular OPD

- F. Family planning clinic
- G. Comprehensive abortion care room
- H. Gynecology Ward

2.4 How many years of work experience do you have?

.....

2.5 Have you ever received formal training on family planning?

- A. Yes
- B. No

3. Obstetric characteristics

3.1 Do you have children?

- A. Yes
- B. No

3.1.1 If your answer to Q 3.1 is yes, how many children do you have?

.....

3.2 Have you ever had an unplanned pregnancy?

- A. Yes
- B. No
- C. I don't want to answer

4. Contraceptive Recommendations to Women

4.1 Given there are no medical contraindications, what contraceptive method do you recommend for a woman who needs to space her pregnancies (Spacer)?

Select your top three contraceptive methods in order of preference

First choice for Spacing

- A. Sterilization (BTL/vasectomy)

- B. Cu IUD
- C. LNG IUD
- D. Implants
- E. Injectables
- F. Pills
- G. Condoms
- H. Lactational amenorrhea
- I. Rhythm Method
- J. Withdrawal Method
- K. Emergency contraceptives

Second choice for Spacing

- A. Sterilization (BTL/vasectomy)
- B. Cu IUD
- C. LNG IUD
- D. Implants
- E. Injectables
- F. Pills
- G. Condoms
- H. Lactational amenorrhea
- I. Rhythm Method
- J. Withdrawal Method
- K. Emergency contraceptives

Third choice for Spacing

- A. Sterilization (BTL/vasectomy)
- B. Cu IUD

- C. LNG IUD
- D. Implants
- E. Injectables
- F. Pills
- G. Condoms
- H. Lactational amenorrhea
- I. Rhythm Method
- J. Withdrawal Method
- K. Emergency contraceptives

4.2 Given there are no medical contraindications, what contraceptive methods do you recommend for a woman who has completed her family and is not planning to have more children (Limiter)?

Select your top three contraceptive methods in order of your preference

First choice for Limiting

- A. Sterilization (BTL/vasectomy)
- B. Cu IUD
- C. LNG IUD
- D. Implants
- E. Injectables
- F. Pills
- G. Condoms
- H. Lactational amenorrhea
- I. Rhythm Method
- J. Withdrawal Method
- K. Emergency contraceptives

Second choice for Limiting

- A. Sterilization (BTL/vasectomy)
- B. Cu IUD
- C. LNG IUD
- D. Implants
- E. Injectables
- F. Pills
- G. Condoms
- H. Lactational amenorrhea
- I. Rhythm Method
- J. Withdrawal Method
- K. Emergency contraceptives

Third choice for Limiting

- A. Sterilization (BTL/vasectomy)
- B. Cu IUD
- C. LNG IUD
- D. Implants
- E. Injectables
- F. Pills
- G. Condoms
- H. Lactational amenorrhea
- I. Rhythm Method
- J. Withdrawal Method
- K. Emergency contraceptives

5. Contraceptive Practices

5.1 Are you currently using any form of contraceptive?

A. Yes

B. No

5.1.1. If your answer is Yes to Q 5.1, which contraceptive method are you currently using?

(More than one reply is possible)

A. Sterilization (BTL/vasectomy)

B. Cu IUD

C. LNG IUD

D. Implants

E. Injectables

F. Pills

G. Condoms

H. Lactational amenorrhea

I. Rhythm Method

J. Withdrawal Method

K. Emergency contraceptives

5.1.2. If your answer is Yes to Q 5.1, why did you choose the contraceptive method you are currently using?

(Select the single main reason)

A. Because I think it is the most effective method

B. Comfortable and easy to use

C. Side effect of other methods

D. Medical reasons/Health concern

E. Partner's choice

F. Because it matches my lifestyle or family situation

G. Recent positive news about the method

H. Friend/Family recommendation

I. Because I no longer want to have children

J. Other.....

5.1.2. If your answer is Yes to Q 5.1, are you satisfied with the contraceptive method you are using currently?

A. Yes

B. No

5.2. If your answer is No to Q 5.1, have you ever used any form of contraceptive method in the past?

A. Yes

B. No

5.2.1 If your answer is Yes to Q 5.2, which contraceptive method have you used?

(More than one reply is possible)

A. Sterilization (BTL/vasectomy)

B. Cu IUD

C. LNG IUD

D. Implants

E. Injectables

F. Pills

G. Condoms

H. Lactational amenorrhea

I. Rhythm Method

J. Withdrawal Method

K. Emergency contraceptives

5.2.2 If your answer is Yes to Q 5.2, why did you choose the contraceptive method you used in the past?

(Select the single main reason)

A. Because I think it is the most effective method

B. Comfortable and easy to use

C. Side effect of other methods

- D. Medical reasons/Health concern
- E. Partner's choice
- F. Because it matches my lifestyle or family situation
- G. Other....

5.2.3. If your answer is Yes to Q 5.2, were you satisfied with the contraceptive method you have used?

- A. Yes
- B. No

5.3. If your answer is No to Q 5.1, what is the reason you are not using a contraceptive method currently?

(Select the single main reason)

- A. Currently not sexually active
- B. Currently breastfeeding
- C. Currently pregnant
- D. Desire to have a child
- E. Religious beliefs
- F. Fear of side effects
- G. Medical reasons/Health concern
- H. Opposition of partner
- I. Don't want to respond/Not willing to disclose
- J. Other.....

5.4 If your answer to Q 5.2 is No, What is the reason you have not used a contraceptive method ever?

(Select the single main reason)

- A. Not sexually active
- B. Desire to have a child
- C. Religious beliefs
- D. Fear of side effects
- E. Medical reasons/Health concern
- F. Opposition of partner
- G. Don't want to respond/Not willing to disclose
- H. Other.....

