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Utilization of Long –Acting Contraceptive Methods and Associated Factor Among Female Health Care Providers in South Wollo Zone Hospitals, North East, Ethiopia.

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Abstract

Back ground: - Long-acting contraception method utilization was found low (22.7%) among female health care providers. However, as far as my literature search no study was done on long-acting contraception methods utilization among female health providers in the study area. These studies failed to include important variable like socio demography and individual factor which might affect the use of long-acting contraceptive methods female health providers and limited studies in Ethiopia.

Objective: - To assessing utilization of long -acting contraceptive methods and associated factors among health care providers in south wollo zone public hospitals, Amhara region, Ethiopia 2021.

Methods: -An Institutional-based cross- sectional was conducted among 354 female health care workers in south wollo zone hospitals, from March to April 22, 2021. The participants were selected using Systematic random sampling technique. Data were collected by using self-administered questionnaire. The data were entered Epi-data version 4.1 and export to SPSS versions 25 for analysis. Bivariable and multivariable logistic regression analysis were performed. The Adjusted odds Ratio (AOR) along with a 95% confidence interval (CI) was estimated to measure the association and level of significance was declared at a *P*- value of less than 0.05.

Result: -The current utilization of long-acting contraceptive methods among female health care providers was found to be 33.6% [95%, CI 29-39)], discuss with partner [AOR= 2.277,95% CI, (1.026-5.055)], method shift/switched [AOR=4.302,95% CI, (2.285-8.102)], knowledge of respondent [AOR= 1.887,95% CI, (1.020-3.491)], ever birth [AOR=15.670,95% CI, (5.065-48.49)] were significant factors towards the utilization of long-acting contraceptive methods.

Conclusion :The current utilization of long-acting contraceptive methods was found low. Discus with partner, methods shift/switching, ever birth and knowledge of respondents were identified as significant factor. Therefore, encouraging partner discussion targeted Information Education Communication Intervention should be intensified to improve long-acting contraceptive methods utilization.

Introduction

Back ground

Family planning is defined as the ability of individuals or couples to anticipate and attain their desired number of children, and the spacing and timing of their births [1].Family planning methods are classified into natural and modern family planning methods. Modern family planning can be classified as short acting and long-acting contraceptive methods. Furthermore, these long-acting reversible contraceptive methods (LARCs)are divided into intrauterine contraceptive devices (IUCD) and implants [1-3].

Long acting contraceptives (LACs) are types of modern birth control methods which have low failure rate, convenient, safer and cost effective than short acting contraceptives [4]. LARCs protect pregnancy at

least for 3 years for implants and 12 years for IUCD, when removed, return to fertility is prompt[5, 6].Family Planning can be decrease 20-35% of maternal death, and it is a human right and key to women's empowerment, decrease poverty, promote female productivity, lesser fertility and increased child survival and maternal health[3, 7].Over the past four years, the organized international family planning effort has made great progress in expanding the availability and use of voluntary reproductive health and family planning services[8].

Sub-Saharan Africa (SSA) including Ethiopia faces serious population and reproductive health challenges, which is indicated by higher maternal mortality, higher total fertility and population growth rate, and higher unmet need for family planning[9]. For instance, the majority of maternal and newborn deaths can be prevented with confirmed interventions to certify that each pregnancy is desired using modern contraceptives and each birth is safe [10]. Besides, avoiding obstacles to the consumption of contraceptives and increasing the demand for family planning could prevent unintended pregnancies and births, abortions, miscarriages, maternal deaths, and infant deaths each year [11].

Sustainable Development Goal (SDG) plans to ensure universal access to sexual and reproductive health-care services including for family planning. It stepped up the implementation of Health Sector Transformation Plan (HSTP)[12]. Family planning interventions are identified as major components to be strengthened to reduce maternal and child mortality and morbidity[1].

Statement of problem

Pregnancy and childbirth complications are the leading cause of death in low and middle-income countries accounting for 99% of global maternal deaths. Evidence suggests that this maternal mortality ratio, reduced by more than 25% through Family Planning interventions[13].

Globally, LARC utilization among reproductive-age individuals is low, that means 44% of women in reproductive age are not-utilized long-acting permanent contraceptive methods (LAPCMs) (IUD, implants and sterilization). Ten percent of married or in-union women not used female sterilization and 86% not used IUD. However most contraceptive users in Africa utilizes short term family planning methods [14]. Long-acting family planning methods Utilization (LAFPM), especially IUCD and implants are very low In Africa, it shows IUCD and implant 4.6% and 1% respectively[15]. Similarly, in SSA utilization of LAPMs was very low. Even though, around 25% of SSA couples and 29% of Ethiopian couples, who want to space or limit births, does not using any form of modern contraception [16].

In Ethiopia, contraceptive prevalence rate (CPR) has increased by 37% (8% in 2000 to 41.1% in 2019. Whereas, TFR has declined from 5.5 children per woman in 2000, to 4.6 children per woman in 2016[2]. Similarly, in the Amhara region, the Ethiopian demographic health survey (EDHS) 2016 report shows that the utilization of long acting contraceptive methods (LACMs) is 15.1%, which is low, whereas the

utilization of injectable contraceptive method is 63% with unclear reason[17]. As to the mini-EDHS 2019, the CPR increases to 41% from a 36% in EDHS 2016[2]. The government planned to increase implant and IUD to 33 and 15% respectively in the method mix [18]. From the perspectives of unmet need for family planning; LACMs are more use full for spacing and limiting than short acting. But, utilization of LAFP is 11% in Ethiopia which is low [2]. Similarly, utilization of LACMs among female health workers is low, which is 22.7% [19].

Many factors associated with not using LACMs includes: service area or materials are not adequately available, choices are limited, fear of social dissatisfaction, partners 'oppositions, religious reasons, fears of side effects, health concerns, shortage of knowledge about contraceptive choices and their use [10, 20]. The reasons for underutilization of LACMs among female health care providers are Husbands/partners' supportive attitude, the number of children they want to have, desire to have 0–2 children, attitude, and monthly family income were identified as significant factors [19]. Not using LACMs can be a cause for 187 million unintended pregnancies, 54 million unplanned births, 112 million induced abortions, 1.2 mill infant deaths, and 230,000 maternal deaths increased family size, reduced production and income [21].

Ethiopia Ministry of Health (EMOH) sets Reproductive Health strategies to strengthen the provision of all Family panning(FP) methods, especially long-acting reversible contraceptives (LARCs) as a key strategy for reduction of unwanted pregnancies and enabling individuals to meet their desired family size [18, 22]. Consequently, in order to increase the access of FP for house hold at community level family planning extension package was planned. This package is also key strategic device to reduce maternal death by spacing or preventing pregnancies that follow too early or too close [23].In line with Ethiopia's FP2020 commitments, the Ministry of Health (MoH) developed the health sector transformation plan of 2015, which aimed to increase the CPR 42% to 55%. This would mean reaching an additional 6.2 million women and adolescent girls with family planning services by 2020. In addition, A federal ministry promised to achieve 40% utilization of the LARC methods by 2020 [18].

Even though, in Ethiopia, there were many studies conducted that assess the utilization of long acting and permanent method and associated factors among reproductive-age women. However, as far as my literature search no study was done on LACMs utilization among female health providers in the study area. Additionally, since most of the researches were show correctional and case control study among reproductive age group women, these studies failed to include important variable like residency, work experience, fear of side effect, knowledge of LACMs, source of information, previous use of LACMs, miss perception, method preference, time to have the next baby, discussed with partner, and fear of fertility which might affect the use of LACMs female health providers and limited studies in Ethiopia. Hence, this study aims to assess the utilization of long-acting contraceptive methods and associated factor among female health care providers.

Objective

2.1. General objective

- To assess long-acting contraceptive methods utilization and associated factor among female health care providers in South Wollo Zone governmental hospitals, 2021.

2.2. Specific objectives

- To determine proportion of long-acting contraceptive utilization among female health care providers in South Wollo Zone governmental hospitals.
- To identify factor associated with long-acting contraceptive utilization among female health care providers in South Wollo Zone governmental hospitals.

Methods And Material

3.1. Study Design and Period

An institutional based cross-sectional study was conducted from March 22 to April 22, 2021, at selected public hospitals in South Wollo Zone Amhara region Ethiopia among female health care providers.

3.2. Study setting and population

The study was conducted in South Wollo Zone Hospital of Amhara region in Ethiopia. This is one of the 14 zones of Amhara region. The capital of south wollo zone is Dessie city which is located at 401 Km far from capital city, Addis Ababa and 480Km far from Bahirdar. There are a total thirteen governmental hospitals at south wollo zone serving three million populations. Nine of them are primary hospitals, two general hospitals and one specialized hospital. There are 771 female health providers the study area. Randomly selected female health care providers who were working in South wollo zone hospitals during the study period were used as the study population.

3.3. Eligibility Criteria

3.3.1. Inclusion Criteria

All female health care providers who were in the reproductive age group.

3.3.2. Exclusion Criteria

Female health care providers, who were pregnant, have history of hysterectomy and infertility, on annual leave during the data collection period were excluded from the study.

3.4. Sample size determination and sampling techniques

3.4.1. Sample size determination

For the first specific objective sample size was determined by using single population proportion formula

Where n = minimum sample size required

P= Estimated proportion of utilization of LACM =0.23(22.7%).based on research done in [19]

d=margin of error between sample and population (0.05)

Z α/2= critical value at 95%interval which is 1.96

$$n = \frac{(1.96)2 * (0.23) * (0.77)}{(0.05)2} = \mathbf{272}$$

For possible non respondent during the data collection time, 10% was adding which give a final sample size of **299**. For second objective double population formula using Epi info7 software for individual factor at 95% confidence level with 5% marginal of error, 80% power and 1:1 ratio of exposed to unexposed.

Table 1: -Sample size determination for factor associated with utilization of LACMs service using studies, 2021

ariable	LACMs utilization		AOR	Sample size	Final sample size (10% non-respondent add)	Reference
	Exposed (%)	None exposed (%)				
usband ıpport	88.8	97.3	4.62	322	354	[19]
ımily monthly come <5000	91.2	78.7	2.81	286	314	[19]
esire of ıildren 0-2	62.9	37.1	0.347	132	145	[19]
Maximum sample size				322	**354**	

From the above result, the maximum sample size was obtained from the second objective which is **354**.

3.4.2. Sampling Procedure

There are thirteen hospitals in south wollo zone, the study subjects were proportionally allocation from each hospital and randomly selected by using the simple random sampling method. Finally, the study participant was selected from the health care providers register card by using lottery method in selected hospitals.

3.5. Variable

3.5.1. Dependent Variable

Long-acting contraceptive method of Utilization (Yes, No)

3.5.2. Independent Variable

Socio demographic and Socio-economic factor: **-** Age**,** Ethnicity, Current work position/profession**,** Marital status, Religion, Husband education. Residence, work experience Husband occupation, Monthly family income, being student, educational level

Reproductive factor: - Number of children ever born, Number of live children, Time to have the next baby, Discussion between partner**,** Abortion, Desire to have children**,** started sexual intercourse**,** Fear of fertility

Individual factor: - Fear of side effect, Method preference, Miss of perception, Knowledge of LACRCMs**,** Source of information, Attitude of LACMs**,** Pervious use of LACMs**,** Partner support, Method shift/switch

3.6. Data Collection Tool and Procedure

A self-administered structured and pretested questionnaire was used, which was adopted and used to collect using about the study participants. The questionnaire has six information categories includes: Socio demographic, Reproductive history, utilization, Knowledge and Attitude.

Four diploma nurses' data collectors participated in the data collection. Data collectors were trained to have been informed about how to approach the respondents, objectives of study and to keep the privacy of the respondents. During data collection, supervisor was checking the completeness of the questionnaire and receives the collected and completed questionnaire. Respondent were asked written consented and interviewed. Furthermore, on data collection time, when the sampled women were not be accessed for absence, up to two attempts were tried for interviewing to decrease the non-response rate.

3.7. Data Quality management

To assure the quality of the data, the collected data were checked by the principal investigators for the completeness of the questionnaires and necessary correction was done. The data collectors were given training about the objective, relevance of the study, confidentiality of information, and study participants' rights before actual data collection. The questionnaire was pretested before the actual data collection by taking around 5% of the total calculated sample size to check its consistency, validity and acceptability of the questioners. So, vague check lists and other similar mistakes were corrected before the actual data collection has begun. Regular supervision and follow up was made by principal investigator.

3.8. Data processing and analysis

Data were entered and coded into the Epi -data 4.1 then checked and cleaned for completeness and consistency. The data was transferred to a Statistical Package for the Social Sciences (SPSS) version 23 for analysis.

Descriptive statistics were summarized in frequency, graph and percentages. Binary logistic regression was conducted and COR, with 95% CI was estimated to select the candidate variables for the final model. Then, a variable with a p-value of < 0.2 at binary logistic regression was taken into a multi variable logistic regression to control con-founding. Hosmer-Lemeshow goodness-of-fit with step-wise (enter method) logistic regression was used to test for model fitness. AOR with 95% CI was estimated to assess the presence of association at multi variable logistic regression. Lastly, variables with a p-value of < 0.05 were considered as statistically significant predictors of the outcome variable.

3.9. Ethical Consideration

This study was conducted after ethical approval had been obtained from Wollo University College of Medicine and Health Sciences Ethical Review Committee A formal letter was submitted to the selected government hospitals and permission was assured. After explaining the purpose of the study, written consent was obtained from participants before data collection. Privacy of the client and confidentiality of information they give was secured at all level.

Result

4.1. **Sociodemographic Characteristics.**

A total of 354 reproductive age female health care workers were included in the analysis making the response rate 100%. The mean age of the participants was 28 years with SD ±4.6 years. Two hundred thirty-eight (67.2%) participants were married and 230 (65%) participants had a degree educational level. One hundred eighty-eight (53.1%) participants were nursing in their professional. Regarding income, 238 (75.7%) earned more than 5000 ETB per month **(Table 2).**

Table 2 :- Socio-Demographic Characteristic for factor associated with utilization of LACMs service in south wollo zone hospitals, 2021. **n=354**

Socio demographic variable of respondents		Frequency (n= 354)	Percentage
Age group	24 or less	73	20.6%
	25 or more	281	79.4%
Educational level	Diploma	124	35%
	Degree and above	230	65%
Profession	Nurse	188	53.1%
	Midwife	62	17.5%
	Doctor	7	2%
	Laboratory	50	14.1%
	HIT	9	2.5%
	Anesthesia	6	1.7%
Experience	10 or less year	335	94.6%
	10 or more year	19	5.4%
Marital status	Unmarried	116	32.8%
	Married	238	67.2%
Husband educational	Lower class and secondary school	20	5.6%
	Diploma	49	13.8%
	Degree and above	181	51.1%
Husband occupational	Governmental employee	199	56.2%
	Self-employee	38	10.7%
	Merchant	13	3.7%
Monthly income	< 5000	86	24.3%
	≥ 5000	268	75.7%
Learning now	Yes	320	90.4%
	No	34	9.6%

4.2. Reproduction related characteristics of the study participant

Three hundred eleven participants (87.8%) have started sexual intercourse with the mean age 19.8 (SD ± 2.747) years, and out of them, 290 (93.25%) participants made their first sex before the age of 18 years. Concerning the parity of women, 138 (69.3%) gave at least 1 birth before and 40 (11.3 %) had a history of abortion; of these, 33 (82.5%) faced abortion for one time (**Table 3).**

Table 3:- Reproductive History of Participants in south wollo zone hospitals, 2021, **n=354**

Variable	Category	Frequency	Percent (%)
Started sexual intercourse (n=354)	Yes	311	87.8%
	No	43	12.2%
Age at first sex (n=311)	<18	290	93.25%
	≥ 18	21	6.75%
Age at first marriage(n=254)	<18	25	9.85%
	≥ 18	229	90.15%
Ever birth given	Yes	199	65.7%
	No	104	34.3%
Age at first birth (n=199)	<18	10	5%
	≥ 18	189	95%
Parity(n=199)	1-2 times	138	69.4%
	3-4 times	51	25.6%
	≥ 5 times	10	5%
Number of alive children	1-2	139	39.3%
	3-4	52	14.7%
	≥ 5	7	2%
History of abortion	Yes	40	11.3%
	No	314	88.7%
Number of abortions	One	33	82.5%
	Two and above	7	17.5%
Future desire to fertility	Yes	324	91.5
	No	30	8.5%
Number of want children in the future	1-2 children	47	14.5%
	3-4 children	202	62.4%
	≥ 5 children	75	23.1%
Responsible for deciding to have children (n=324)	Wife	31	9.6%
	Husband	18	5.55%
	Joint discussion (both)	275	84.9%

4.3. Attitudes towards the Utilization of Long-Acting Contraceptive Methods

Among the study participated women 114 (32.2%) agreed that insertion of IUCD insertion doesn't lead to lose privacy and 157 (44.4%) said that Implant can't interfere routine activities. 131 (37%) thought that insertion and removal of implant was not highly painful and 143 (40.4%) of them reported that implant cause Irregular bleeding. One hundred eight five (52.3%) and 169 (47.74%) of the female health care providers had positive and negative attitude towards practicing of LACM respectively.

Table 4 :- Attitude towards long-acting contraceptive among female health care providers in South Wollo Zone governmental hospitals, 2021. **n= 354**

Attitude about LACMs	strongly disagree	disagree	not sure	Agree	strongly agree
Using implant cause Irregular bleeding.	20 (5.65%)	66 (18.6%)	46 (13%)	143(40.4%)	79 (22.3%)
Insertion and removal of implant is highly painful	58 (16.4%)	131 (37%)	63 (17.8%)	84(23.7%)	18 (5.1%)
Implant can't interfere routine activities.	29 (8.2%)	62 (17.5%)	28 (7.9%)	157(44.4%)	78 (22%)
Implants do not move through the body after insertion.	25 (7.1%)	64 (18.1%)	64 (18.1%)	136(38.4%)	65 (18.4%)
IUCD insertion doesn't lead to lose privacy.	31 (8.8%)	40 (11.3%)	114 (32.2%)	102 (28.8%)	67 (18.9%)
IUCD doesn't move through body after insertion.	19 (5.4%)	45 (12.7%)	63 (17.8%)	155(43.8%)	72(20.3%)
IUCD has no interference with sexual intercourse desire.	19 (5.4%)	43(12.1%)	70(19.8%)	137(38.7%)	85(24%)
IUCD doesn't restrict normal activities.	19(5.4%)	620(5.6%)	47(13.3%)	161(45.5%)	107(30.2%)
Long-acting contraceptive should not be used only women who do not want more children	24(6.8%)	79(22.3%)	44 (12.3%)	123(34.7%)	84 (23.7%)
Using long-acting contraceptive cause not ectopic pregnancy	29 (8.2%)	55(15.5%)	71(20.1%)	132(37.3%)	67 (18.9%)

4.4. Knowledge on long-acting contraceptive method of study participant

Respondent's level of knowledge about long-acting contraceptive method was assessed by asking fourteen questions and then categorized based on the percent of knowledge as "good knowledge" (those who knew above mean knowledge question), "poor" those who know blew the mean knowledge question. Concerning the level of knowledge about LARCs, one hundred fifty-nine (44.9%) of female health care providers were in the category of good knowledge towards LACMs and the remaining one hundred ninety fifty (55.1%) had poor knowledge.

Half of female health care providers in this study know both implants & IUCD 177 (50%) followed by implants 114 (32.2%) and IUCD 63 (17.8%). Majority of the respondents were aware of that implant 346 (97.7 %) & IUCD (327 (92.4 %)) effectively protect from unwanted pregnancy. One hundred fifty-fives (43.8%) and 65% of the women aware of that IUCD has not interference with sexual intercourse or desire and it results in immediate pregnancies after removal of IUCD, respectively.

The majority (99.2%) of female health care providers aware of that Intra Uterine Device can prevent pregnancies for 12 years. Most study participants 57.11% think that implant is not immediately reversible and 35% participants mentioned that intrauterine device (IUD) can't be immediately removed. Majority of the study participants 352(99.4%) had knowledge about the notion that implants can prevent pregnancy for 3-5 years but 2(0.6 %) of them did not know.

Table 5 :- Knowledge of long-acting contraceptive methods among female health care providers in South Wollo Zone governmental hospitals, 2021,(n = 354)

Knowledge statements	Knowledge on LACM	
	Yes	No
Implants are immediately reversible (become pregnant quickly when removed)	152 (42.9 %)	202 (57.11%)
Implant have side effect	327 (92.4 %)	27 (7.6 %)
Implant effectively protect from unwanted pregnancy	346 (97.7 %)	8(2.3 %)
Implant can prevent unwanted pregnancies for 3 up to 5 years	352 (99.4 %)	2(0.6%)
Implants require minor surgical procedure	340 (96 %)	14 (4 %)
Implants prevent STI	17 (4.8 %)	337 (95.2 %)
Intra Uterine Device have side effect	192 (82.5 %)	62 (17.5 %)
IUCD effectively protect from unwanted pregnancy	327 (92.4 %)	27 (7.6 %)
Intra Uterine Device can prevent pregnancies for 12 years	351(99.2 %)	3
IUCD is not appropriate for female at high risk of getting STIs	211 (59.6 %)	143 (40.6 %)
IUCD is not interference with sexual intercourse or desire	155 (43.8 %)	199 (56.2 %)
IUCD is immediately reversible (become Pregnant quickly when removed)	230 (65 %)	124 (35 %)
Intra uterine Device is not Cause cancer	197 (55.6 %)	157 (44.4%)

4.5. Utilization of long-acting family planning methods

In this study, the utilization of long-acting family planning methods among female health care providers was 33.6% at (95% CI 29-39) From them, 68 (57.14%) used implant for three years whereas 20 (16.8%) were using intrauterine devices.

More than one third (66.38%) of the respondents were reported want to space children as a reason for using the long-acting methods. Most of LARC users (82.7%) received services from government health institutions. The main reason cited by the respondents for not using LACM was fear of side effects 97 (41.3%), fear of infertility 71 (30.21%) ,42 (17.87 %) has no interest to use and 25 (10.64%)

misunderstanding respectively. The ever use of long-acting contraceptive methods use were 283 (79.94%). **(Table 6)**

Table 6:- LAPMs Utilization Practice in South wollo zone hospitals, March ,2021, **n=354**

Variables		Frequency	Percent
Ever used any Modern contraceptives (n=354)	Yes	283	79.94 %
	No	71	20.1 %
Where do you get LAPM (n=283)	Governmental facilities	234	82.68 %
	Private hospitals/clinics	38	13.42 %
	Pharmacy	2	-
	Nongovernmental organization	8	2.8 %
Currently Utilize of LAPMs (n=354)	Yes	119	33.62 %
	No	235	66.38 %
Type of contraceptive currently utilized (n=119)	Implants	99	83.2%
	IUCD	20	16.8%
Reason for not using LAPM (n=235)	Fear of side effect	97	41.3%
	fear of infertility	71	30.21 %
	Miss understanding	25	10.64 %
	Have no interest to use	42	17.87 %
Reason for choosing LAPM n=119	Have enough child	13	10.9%
	Want to space	79	66.38%
	Due to the prolonged duration of use	13	10.9 %
	Safe for health	14	11.76 %
Discussions with partner/friends on contraceptive n=354	Yes	246	69.5%
	No	108	30.5%

4.6. Factors associated with long-acting contraceptive use

In this study, both bi variable and multi variable logistic regression analysis were done. The result of multi variable logistic regression shows that discussed with partner, method shift/switching contraceptive, knowledge, ever birth was identified as significant determinants of utilization of long-acting contraceptive use among health care providers.

In these studies, female health care providers who discussed with partner about LACMs were two times more likely to use the method compared to those who did not discussed with partners. [AOR=2.277, 95% CI: 1.026-5.055].

Those who shifting or switching long-acting contraceptive methods were four times more likely to utilize long-acting contraceptive methods than those who don't use long-acting contraceptive methods [AOR=4.302; 95% CI: 2.285-8.102].

Female health care providers who had good knowledge were nearly two time more likely to utilize long-acting contraceptive methods than those who had poor knowledge [AOR=1.887, 95% CI: 1.020-3.491]. Other significant factor is, those who ever birth are 15 times more likely to use long-acting contraceptive methods compared to those who do not ever birth (AOR=15.670, 95% CI: 5.065-48.49].

Table 7 :- Factors associated with the utilization of long-acting contraceptive methods among reproductive aged female health care workers in south wollo zone, Ethiopia, in 2021, n=354

Explanatory variables		Utilization of LACMs		COR 95%CI	AOR 95%CI	P-value
		Yes	No			
Age	**<24**	7	66	6.249 (2.766-14.115)*	0.516 (0.39-1.921)	0.324
	>=25	112	169	1	1	
Marital status						
	Unmarried	8	108	11.142 (5.507-25.28) *	2.793 (0.904-8.629)	0.074
	Married	111	127	1	1	
Educational level						
	Diploma	35	89	1.463 (0.910-2.351) *	0.929 (0.393-2.199)	0.867
	Degree and above	84	146	1	1	
Income	<4999	19	80	2.099 (1.191-3.698) *	0.899 (0.306-2.644)	0.846
	>=5000	100	168	1	1	
Method shifts	Yes	98	80	9.042 (5.253-15.563) *****	4.320 (2.285-8.102)	**0.000*****
	No	21	155	1	1	
Ever birth	Yes	111	85	16.199 (6.645 -39.48)*	15.670 (5.065-48.49)	**0.000*****
	No	6	98	1	1	
Want more children in future						
	Yes	102	222	0.351 (0.164-0.751) *	1.007(0.413-2.457)	0.987
	No	17	13	1		
Discuss with partner		103	207	2.355 (1.175-4.722) *	2.277 (1.026-5.055)	**0.043***
	Yes					
	No	16	123	1	1	
Attitude	Negative	44	125	0.516 (0.329-0.811) *	1.613(0.888-2.927)	0.116
	Positive	75	110	1	1	
Knowledge	Poor	59	136	1.397 (0.897-2.176) *	1.887 (1.020-3.491)	**0.043***
	Good	60	99	1	1	

*Statistically significant (p value < 0.05), ***p-value < 0.0001

Discussion

The proportion of Long-acting contraceptive utilization among female health care providers was 33.6%. Discuss with the partners, methods shift/switched, knowledge of the respondents and ever give birth were significant associated factors with utilization of long-acting contraceptive methods. The proportion of Long-acting contraceptive utilization among female health care providers was higher as compared to studies conducted in East Gojjam zone, northern Ethiopia 22.7% [19]. Similarly, this study result is higher than the prevalence reported from mini EDHS 2019 nationally (9% implants and 2% IUCD (11%) [2]. Similarly, it is lower than in comparison with the study results from Ethiopia's FP2020 commitments [18]. Additionally, this study is in line with studies done in, Adaba town west Arsi zone Oromia, Arsi Negele town, Hossana town and Gondar city Administrative, show that LARCMs use was [28-31]

The difference might be due to the study design and study population differences; this study was institution-based, conducted on educated and government-employed study population with highly accessed information and services. But many studies were conducted in the community-based design and in different groups of the population which means having different socioeconomic status and educational level. The other reason might be the comprehensive long-acting reversible contraceptive training was given to most health care providers. The other reason might be and the government is working on accessibility of service.

The study shows that respondents who had discussion about LACMs with their partners were more likely to use LACMs than those who had no discussion. This is in supported with study done Uganda, East Gojjam Zone, Addis Ababa public health centers, Hossana, Debre Markos town [19, 24, 25, 26, 30], show that**,** discussion with partner was positively associated with LACMs use. This his may flow from to the very fact that Ethiopian wives including female health care service providers have values and respect the attitude of their partners. In addition to this, male/partner involvement & support on long-acting contraceptive methods helps women to adopt more convenient method with confidence.

Female health care providers who had good knowledge of long-acting contraceptive methods were two times more likely to utilize long-acting contraceptive methods than women who had poor knowledge. This finding was in consistent with the study done in Bahir Dar City Public Health Facility, SNNPR, Hossana town, in Chinese health care provider, Gondar city [6, 27, 30, 32, 33].

The possible justification might be to those who had good knowledge has ready to aware and when possible, side effects, infertility happen to them and they are able make a decision on how to solve it in using of the long-acting contraceptive methods and they are able to choose the preferred method according to their fertility need.

Female health care providers who have ever birth were Fifty times more likely to utilize long-acting contraceptive methods than female health care providers who had did not ever birth. The possible justification for this might be due to; having ever birth made them to want to spacing chilled, limit the number of children and safe for health for using long-acting contraceptive methods.

Method switching has a positive association with long-acting contraceptive utilization. This result is in line with to study conducted in Silti district [34]. This might be due to having experience in using different types of family planning method helps to understand its importance and also, they have access to counseling services.

In addition to the finding of this, National reproductive health strategies states that, build the competency of health workers to provide long-acting and permanent methods of contraception, involving men to support their partners, implement FP quality improvement initiatives and put in place regular supervision to offer compassionate client-friendly service, respecting choice, safety and quality and train all service providers (doctors, nurses, midwives and HEWs) on contraception are some of the strategic interventions to improve utilization of family planning. Limitation this study was it does not include all health center and health post health care providers.

Conclusion

The study shows that utilization of long-acting contraceptive methods among female health care providers in south wollo zone, public health facility is low as compared to the national plan. Discussions with partner towards the utilization of LACMs, the method shift/switching knowledge towards the utilization of LACMs and ever birth were statically significant factors with the utilization of LACMs. Strengthening the training for health professionals and teaching the female care provider exhaustively about the LACMs needs discussion with the partners as best to increase the utilization. Further longitudinal studies with a large sample size including the assessment other factors by adding qualitative study method.

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Figures

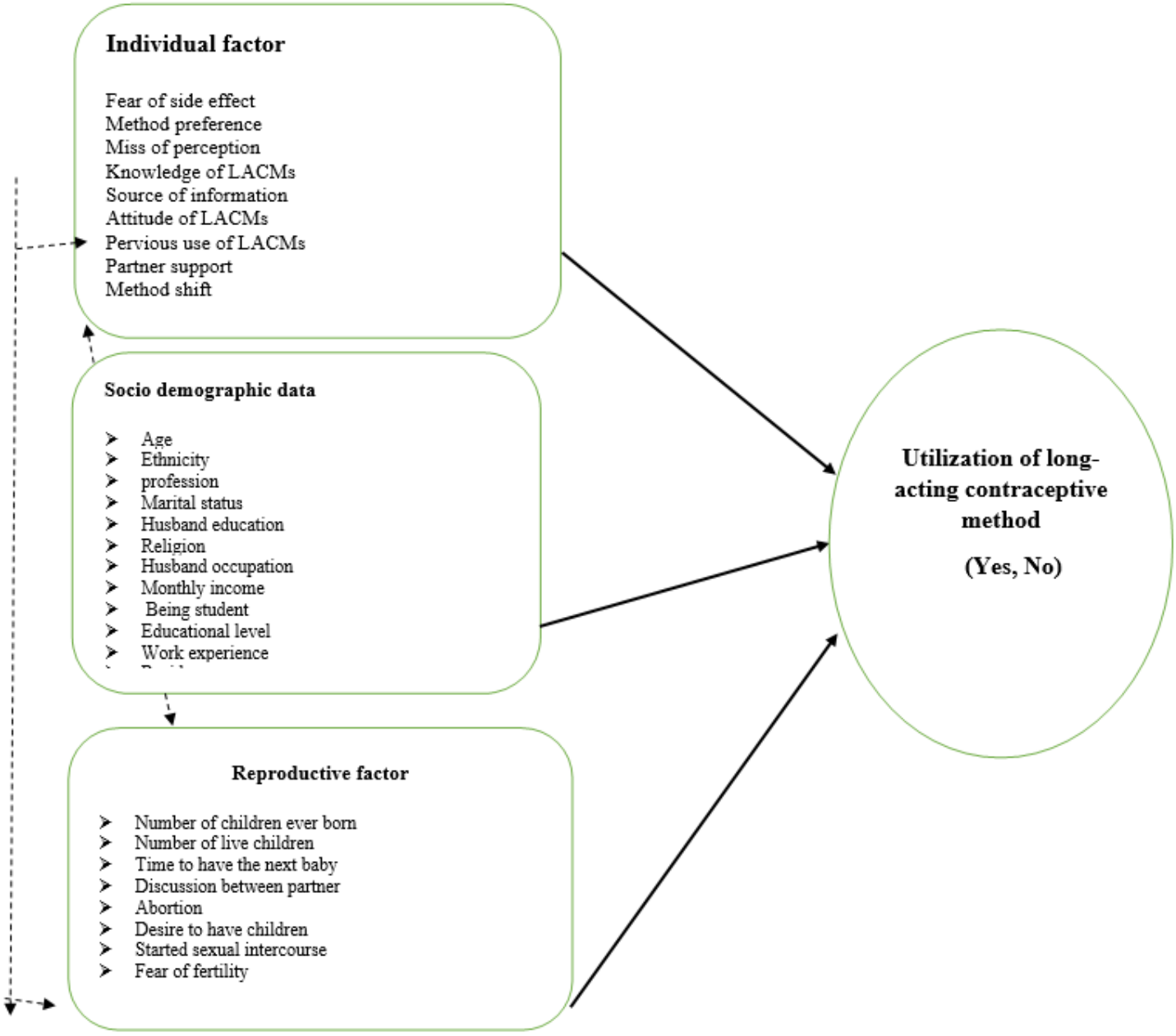

Figure 1

Conceptual Framework adapted from different literatures of factors affecting utilization for long-acting contraceptive methods among female health care providers ,2021

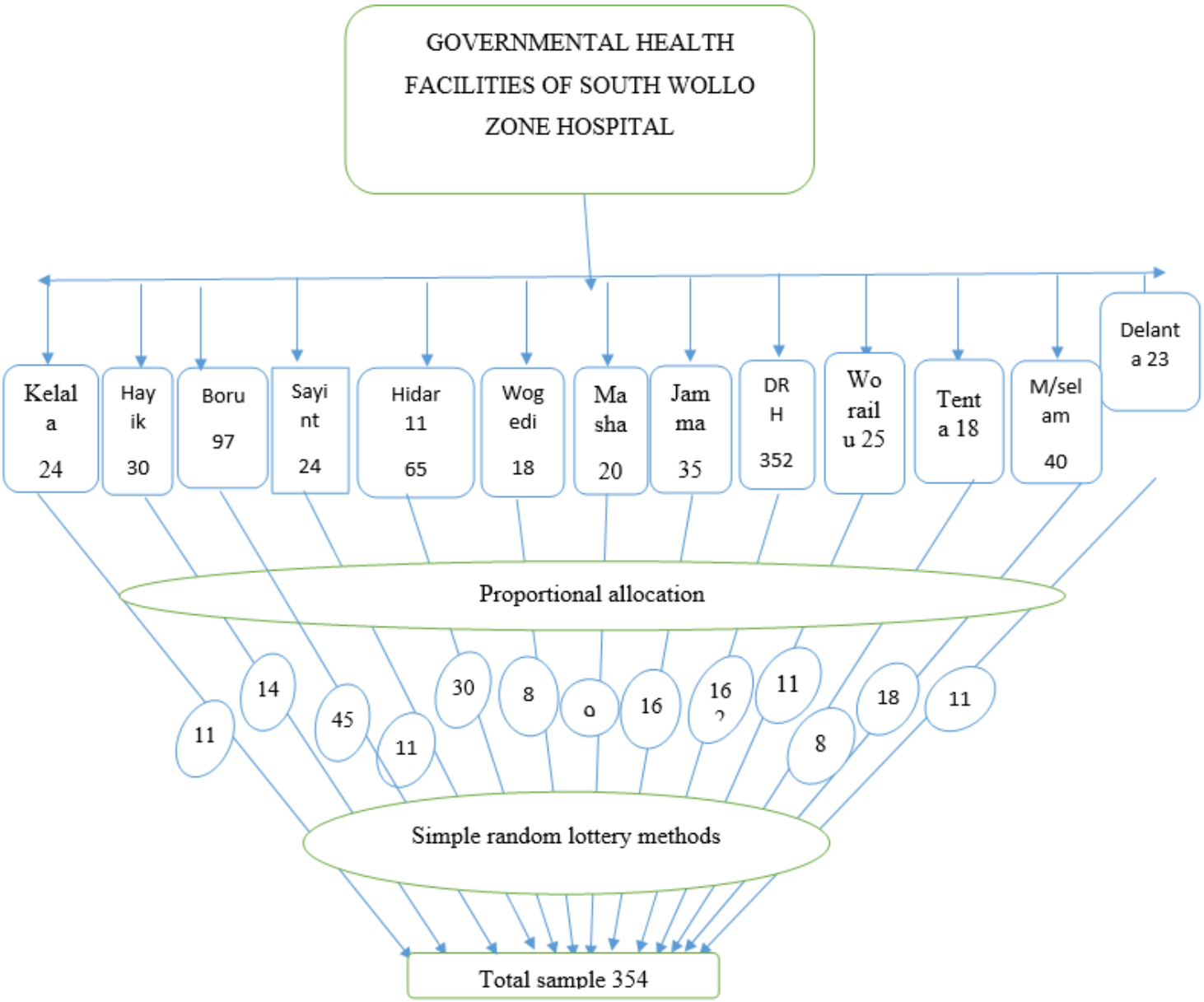

Figure 2

Schematic presentation of sampling procedure for utilization of LARCMs in south Wollo zone hospitals 2021.

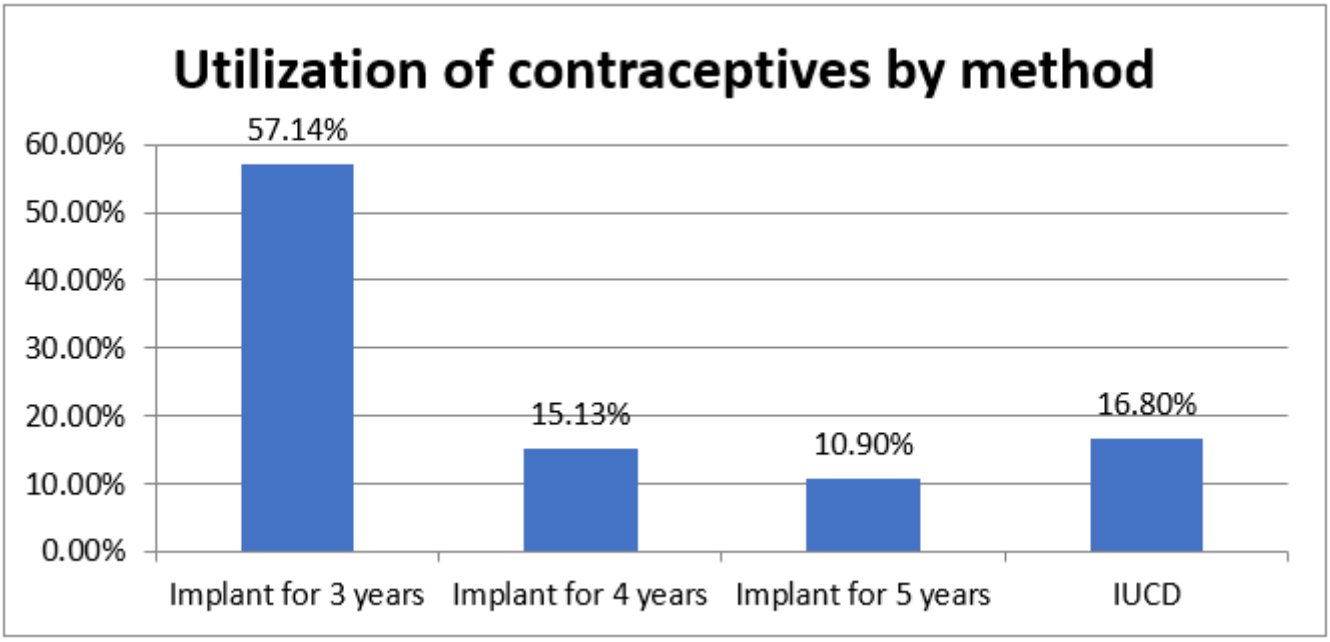

Figure 3

Utilization contraceptives by method in South wollo zone hospitals, 2021