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Utilization of Long Acting and Permanent Contraceptive Methods and Associated Factors among Married Childbearing Age Women in Bombe District, Southern Ethiopia

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Abstract

Introduction: Family Planning utilization decreases maternal mortality and morbidity as well as contributes to improvement in infant welfare and community health at large. Long acting and permanent contraceptive methods are the most effective modern contraceptive methods with less than 1% failure rate and cost-effective choices because of the many years of protection. However, they contribute only about 12% of modern contraceptive use in Ethiopia. This study was designed to assess extent of utilization and associated factors of long acting and permanent contraceptive methods among married reproductive age women in Southern Ethiopia.

Methods: Community based cross-sectional study was conducted among married reproductive age women. Multistage sampling was employed to select 622 study participants. Pretested questionnaire was used to interview the participants. The crude and adjusted odds ratios together with their corresponding 95% levels of confidence were computed and interpreted accordingly. Bivariate and multivariate analyses were applied to test predictors by using logistic regression model. The final model fitness was checked by Hosmer and Lemshow's goodness-of-fit statistics. A P-value less than or equal to 0.05 in multivariate analysis was considered to declare a result as statistically significant.

Results: This study had 96.5% response rate. More than half (62%) of married woman in the study district were poorly knowledgeable about long acting and permanent contraceptive methods. Almost all (97.2%) of the participants had at least one pregnancy in their life time. The overall prevalence of long acting and permanent contraceptive methods utilization was 16.3%. Out of this, 82.7% of the women were using implants. Based on the analysis, ages, educational level, knowledge, mass media exposure, having methods choice discussion between partners or health extension workers were found to be important predictors LAPMs utilization.

Conclusion: The overall utilization of long acting and permanent contraceptive methods was low. Efforts to improve LAMPs utilization in the region must strengthen initiatives that promote girls education, train professionals and deploy at grass root level, behavioural change communication, awareness creation among others. It would be good to further study facility related barriers and cultural influences on the use of LAMPs.

Keywords: Long acting and permanent methods; Contraceptives; behavioral change; Southern Ethiopia; Pregnancy

Abbreviations: AOR: Adjusted Odds Ratio; CI: Confidence Interval; FP: Family Planning; Health Extension Workers; IUCD: Intra Uterine Contraceptive Device; LAPMs: Long Acting and Permanent Contraceptive; OR: Odds Ratio

Introduction

Family planning methods utilization is fundamental in the effort to reduce the total fertility rate. According to United Nations Population Fund (UNFPA) 2012, contraceptive use will prevent 218 million unintended pregnancies in developing countries, and, in turn, will avert 55 million unplanned births, 138 million abortions, 25 million miscarriages and 118,000 maternal deaths per year [1]. The utilization of Long Acting and Permanent Contraceptive Methods (LAPMs) can have markedly greater benefits in terms of preventing pregnancy and the associated negative health outcomes.

Worldwide, 661 million women of reproductive age who are married or single and sexually active use modern contraceptives. Of total sub- Saharan Africa's 113 million married women of childbearing age, 21 million (1 in 5) use modern family planning methods of which only 2.7 million use long acting and permanent contraceptives methods [1,2]. It was documented that fertility rate in the Ethiopia is one of the highest in the world but utilization of LAPMs was very low. Several studies conducted in different regions of Ethiopia indicated wide variation from 3% to 37% in prevalence of long acting and permanent contraceptive methods [3-5]. Several factors were found to be associated with utilization of LAPMs such as education, awareness, culture, husbands' preference, fear of side effects, relationship insecurities and economic factors [6-8].

Family Planning methods are classified as short acting, long acting and Permanent methods. Four contraceptive methods are categorized as long acting and permanent contraceptives: intrauterine devices (IUCDs), implants, female sterilization (tubal ligation), and male sterilization (vasectomy) [9]. These methods are useful for couples wishing to space, delay and limit pregnancies [10].

Although LAPMs have major advantages for users and family planning providers they remain underutilized (contribute only about 12% of modern contraceptive use) in Ethiopia. The contraceptive method mix is highly dominated by short acting contraceptive methods (Injectable) which is not compatible with the high proportion of women who desire to limit birth (9%) and space birth (16%) [11,12].

In our study setting there was a study conducted which aimed to determine level of women's intention to LAPMs use; it found that more than one third (38%) of married women were intended to use but the current utilization and its determinants were not assessed [13]. So, the purpose of this study was to assess extent of utilization and associated factors of LAPMs among married reproductive age women in Bombe district, Southern Ethiopia.

Methods

Study setting

Boloso Bombe is located in Southern region Wolaita Zone, 214 kms away from Hawassa (capital of south region) & 54 kms away from Sodo (capital of Wolaita zone). It had a total population of 103960 (M=51252, F=52708) from which 24512 were women of child bearing age (15-49) and 4061 were expected number of pregnant women. The majority of the inhabitants were Protestants (69.27%) of the population reporting that belief, 26.86% practiced Ethiopian Orthodox Christianity, and 1.26% was Catholic [14,15].

Boloso Bombe is classified into two urban and eighteen rural kebeles (the smallest administrative unit in Ethiopia). There were four health centers, seven private clinics and 18 health posts serving the district community. All facilities provide LAPMs except the health posts where implants and short acting contraceptives were available. About 98.8% of district population lives in rural areas and the rest 1.2% lives in urban areas [13,15].

Study design and period

Community based cross-sectional study was conducted in March, 2015.

Source and study population

Our source population were all married reproductive age (15-49) women in the district whereas the study population were married reproductive age women (15-49) who live in the six selected kebeles. All married child bearing age women who were ill and unable to give information at the time data collection were excluded from the study.

Sample size and sampling technique

A single population proportion formula was used to determine the prevalence of LAPMs by taking proportion of long acting and permanent contraceptive methods in Debremarkos, Ethiopia (p=19.5%) other inputs considered were 95% confidence level, design effect of 1.5, and 10% non-response rate; giving a final sample size of 622. And double population proportion formula was used to identify factors associated with it. Using the proportion of common factors of exposed and unexposed of three different studies [16–18], odds ratio of each study, 80% power, and 95% confidence interval three sample sizes were calculated (n=325, 580 and 206).

However, all sample sizes determined by using common factors were less than sample size computed using single population proportion formula (622). Therefore, the largest sample size which was 622 was taken.

Multi-stage sampling technique was employed. Of 20 kebeles in the district, six (one urban and five rural) were randomly selected by using simple random sampling. Then, the sample size (622) was proportionally allocated to each kebele depending on their number of households and finally, systematic random sampling technique was applied to select the households.

The first household was chosen at the center of each kebele by lottery method as starting point. Then, married reproductive age woman who live at every 12th household were interviewed. The data collectors went in the right direction starting from the randomly selected HH until the required sample size for the Kebele was achieved.

In cases of households with more than one eligible respondent, only one respondent was chosen by simple random sampling. If the selected household fulfills the exclusion criteria, next most immediate household was taken. In addition, in cases of closed homes, revisits were made if not available during revisits considered as non-respondent.

Measurements

The outcome variable was long acting and permanent contraceptive methods utilization. Long-acting and permanent methods of contraception (LAPMs): Are modern contraceptive methods that prevent pregnancy for three years or more (Implants, IUCD, male and female sterilizations) [13,18].

Long acting and permanent contraceptives utilization: was measured by the proportion of all married child bearing age women who were using one of long acting and permanent contraceptive methods during survey. A woman considered as utilizing LAPM if she was responded "Yes" for current using of Implants, or IUCD or sterilization during the survey [19,20]. If she responded "No" for using the above mentioned methods during data collection, the study participant was considered as not utilizing LAPM. Concerning the knowledge of long acting and permanent contraceptive methods: Knowledge of the respondents was computed based on number of total correct answers to ten (10) knowledge questions (Annex Question responses were scored as: 1: If correct response and 0: If either incorrect and or don't know response. Then women were ranked as: Poor: If less than average (50%) of correct response and Good: If greater or equal to average (50%) of correct response. Other variables were socio-demographic characteristics, obstetrics characteristics, and family planning service related factors [21].

Data collection instruments and procedures

To collect necessary data, interviewer administered structured questionnaire was prepared. It was adapted from similar studies and modified considering the local situations. The designed questionnaire was translated first into the local language (Wolaitigna) and back translated to English by language experts to ensure its consistency.

Ten unemployed nurses who have ability to read and write local language were selected for data collection. Two degree holder public health professionals were recruited for supervision. They were trained on the data collection and interview techniques for two days. Then, married reproductive age (15-49) women who live in the systematically selected households were interviewed in a convenient, close to home and quiet place.

Data quality management

The two days of training was given for the selected data collectors and supervisors. The training was based on main issues like research ethics, sampling, data collection procedures, and data collection instruments. Then, the questionnaire was pretested by using 32 respondents in similar setting (K/Ambo kebele) which was out of the selected kebeles, one week before the data collection and necessary corrections were made.

The data in each questionnaire was checked for completeness, accuracy, and consistency during data collection. These were assured through direct and daily supervision by the supervisors and investigator. Data coding and cleaning were performed by cross-checking the data for obvious errors and missed values to assure quality.

Data processing and statistical analysis

The collected data was entered in to Epi info version 3.5.1 and exported to SPSS version 20.0 for analysis. By considering Logistic regression assumptions, some of basic prerequisites like meaningful variable coding, checking outliers, multicolinearity tests were done. Descriptive statistics, like percentages and frequencies were done for socio- demographic, socio-economic and reproductive variables. The crude and adjusted odds ratios together with their corresponding 95% levels of confidence were computed and interpreted accordingly.

Bivariate and multivariate analyses were applied to test independent predictors by using logistic regression model. Explanatory variables that result in p-value of less than or equal to 0.01 in bivariate analysis only were included in multivariate analysis model. Then, the selected explanatory variables were added to the final model to assess possible assosation. The final model fitness was checked by Hosmer & Lemshow's goodness-of-fit statistics. A P-value less than or equal to 0.05 in multivariate analysis was considered to declare a result as statistically significant.

Ethical consideration

Before conducting the study, ethical clearance was obtained from the research review committee of Wolaita Sodo University. Permission to conduct the study was secured from relevant quarters. Written informed consent was obtained from each study participants after clear explanation about the purpose of the study. Respondents were informed that they could refuse or discontinue participation at any time they wanted and they also informed that they could ask any unclear issue about the study.

Results

Socio-demographic characteristics

Of the total 622 participants, 600 were included in the analysis, which makes the response rate 96.5%. Three hundred sixteen (62.5%) of the respondents' were between 15-34 years, and the mean age of the participants was 30 (± 7). Of the total respondents, 68% Protestants, religion followers. With regard to marital status of respondents, 85.5% were married. Concerning educational status of participants, fifty five percent (55%) were illiterate (Table 1).

Characteristics	n	Percentage
Place of residence		
Urban	112	18.7
Rural	510	81.3
Age group of participants		
15-34	375	62.5
35-49	225	37.5
Marital status		
Live together with partners	513	85.5
Not live together	87	14.5
Educational status		
Non-literate	330	55.0
Primary	221	36.8
Secondary and above	49	8.2
Husband's education		

Non-literate	197	32.9
Primary	284	47.3
Secondary and above	119	19.8
Radio/TV possession		
No	451	76.3
Yes	142	23.7
Monthly Income (ETB)*		
<500	235	39.2
500-1000	199	33.2
1001-2000	90	15
>2000	76	12.6

Table 1: Socio-demographic characteristics of married reproductive age women, Bombe district, southern Ethiopia, March 2015 n=622.

Knowledge, Program and service related factors

More than half (62%) of married women were poorly knowledgeable about long acting and permanent contraceptive methods. Regarding to distances of health facility with LAPMs services, sixty three percent (63%) of married child bearing age women were spent more than one walking hours to reach the nearest health center (Table 2).

Characteristics	n	%
Knowledge about LAPMs		
Poor	372	62
Good	228	38
Distance to the nearest health center (walking hr)		
<1 hour	222	37
>1 hour	378	63
Discussion with HEWs for FP options(n=330)		
No	122	37
Yes	208	63
FP discussion with partner		
No	326	54.3
Yes	274	45.7
Decision maker of FP		
Jointly	135	22.5
Only husband or wife	465	77.5

Table 2: Knowledge and Family planning service related factors among married reproductive age women, Bombe district, southern Ethiopia, March 2015 n=622.

Obstetrics Characteristics

Almost all (97.2%) of the participants had at least one pregnancy in their life time. Of the total respondents who asked about age of their first pregnancy, 20.2% got pregnant at age less than 18 years.

On the other hand, 32.5% of study subjects married before 18 years of their age and 399 (66.5%) of the women have had greater than or equal to three alive children (Table 3).

Obstetric characteristics	n	%
Age at marriage(n=600)		
<18 years	195	32.5
>=18 years	405	67.5
Age at first pregnancy		
<18 years	118	20.2
>=18 years	465	79.8
Number of pregnancy(n=600)		
No	17	2.8
1-2	226	37.7
>=3	357	59.5
Number of abortion/s(n=583)		
No	522	87
>=1	78	13
Number of live births(n=583)		
No	24	4
1-2	159	26.5
>=3	417	69.5
Number of alive children(n=583)		
No	33	5.5
1-2	168	28
>=3	399	66.5

Table 3: Reproductive characteristics of married child bearing age women in Bombe district, Southern Ethiopia, March 2015 n=622.

Prevalence and reasons of LAPMs utilization

The overall prevalence of long acting and permanent contraceptive methods utilization was 98 (16.3%) [95% CI: 13.3%, 19.25%]. Of this, 81 (82.7%) of the women were using implants followed by IUCD 14 (14.3%), 3(3%) women were sterilized to limit their birth and none of the married woman was mentioned their partners male sterilization use.

The perceived common reasons for the use of LAPMs were, 68(69.4%) to space birth, 13(13.3%) to limit number of child, 10(10.2%) to delay pregnancy and 7(7.1%) others. Out of total study subjects, 83.7% were not using the long acting and permanent methods during survey period.

The major reasons responded for not using LAPMs were, 132(26.4%) lack of enough information, 116(23.1%) using other short acting methods and 81(16.2%) fear of side effects (Figure 1).

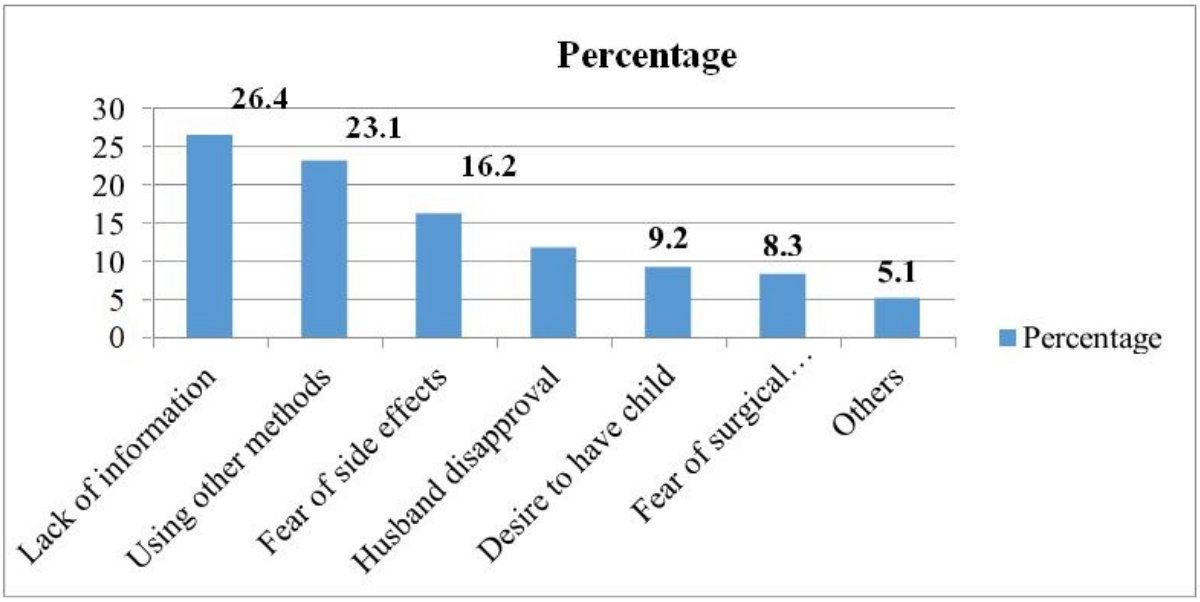

Figure 1: Major reasons why married women were not using LAPMs in Bombe district, Southern Ethiopia, March 2015.

Associated factors of LAPMs utilization

Several socio-demographic, economic, service related and obstetric factors were tested for the presence of association with long acting and permanent methods current utilization. Based on the analysis age, educational level, knowledge, mass media exposure (possessing functional radio/television), having methods choice discussion between partners or health extension workers were found to be important predictors and interpreted accordingly.

The utilization of LAPMs was varied with age range of respondents. For every one year increase in age, the likelihood of having the LAPMs of contraception use was increased.

In other ways, while effects of other variables in the model held constant, participants age from 35-49 were more than three times higher odds to use long acting and permanent contraceptives than women whose age ranges from 15 to 34 (AOR: 3.36, 95% CI:1.65, 6.8).

Similarly, primary and above educated married women were more than three times more likely to utilize LAPMs of contraceptives than those who were not educated (AOR: 3.7, 95% CI: 1.7, 7.9) (Table 4).

Mass media exposure was found to be predictor of current use of long acting and permanent methods after statistically adjusting confounding effects of other variables in the logistic model.

Respondents who have had functional radio and or Television in their house hold were more than four times more likely to use LAPMs than those who have not exposed (AOR: 4.3, 95% CI: 2.1, 8.9, p-value <0.01). Respondents with good knowledge were more than four times higher odds to use long acting and permanent contraceptive methods than their counter parts(AOR:4, 95% CI: 1.8, 8.7, p value<0.01) (Table 4).

Characteristics	LAPMs use		COR(95% CI)	AOR (95% CI)
	Yes(n)	No(n)		
Residence				
Urban	32	80	0.39 (0.24, 0.63)	1.25 (0.51, 3.1)
Rural	66	422	1	1
Age of women				
35-49	61	164	3.4 (2.2, 5.3)	3.36(1.65, 6.8)*
15-34	37	338		
Education of women				
Primary (1-8)/above	79	191	6.7 (3.9,11.4)	3.7 (1.7,7.9)**

No formal education	19	311	1	1
Distance to H/c (walk hrs.)				
>=60 minutes	40	337	1	1
< 60 minutes	57	165	2.84 (1.82,4.42)	2.1(0.98, 4.5)
Have Radio/Television				
Yes	59	69	9.5(5.9,15.3)	4.3(2.1,8.9)*
No	39	433	1	1
Knowledge of LAPMs				
Good	82	146	12.5(7.1 ,21.3)	4(1.8, 8.7)**
Poor	16	356	1	1
Decision maker of FP				
Joint decision	60	75	8.9(5.6, 14.5)	4.23(2.1, 8.5)**
Husband or wife only	38	427	1	1
FP discussions with HEWs				
Yes	73	136	3.7(2.01, 6.83)	2.36(1.06, 5.27)*
No	15	105	1	1
*Significant at p-value<0.05, **Significant at p-value<0.01				

Table 4: Bivariate and multivariate analysis of factors affecting the use of LAPMs among married reproductive age women in Bombe district, Southern Ethiopia, March 2015.

Discussion

Over all prevalence of long acting and permanent contraceptive methods utilization was 16.3% in this study. This result was higher than the finding in Goba town (8.7%), in South East Ethiopia (16). However, it was very low compared to the study in Adgrate town (37.3%), north western Ethiopia (3). This discrepancy could be explained by the difference in the access to information, the quality of services, study settings and time duration.

Based on this study, the most women were using Implant (82.7%). This finding is comparable with other studies in Ethiopia (5,17). This consistency might be related to the fact that the government of Ethiopia has trained the health extension workers (community health workers who undertake health promotion and provide essential curative care at the closet health facility). However, IUCD was less utilized method. This finding is inconsistent as compared to study done in Nigeria where IUCD was the most commonly known and used method [7]. This could be related to fact that the participants of our study were less educated than their counterpart.

In this study, only 3% women of reproductive age had picked sterilization as contraceptive method. The finding is in-line with studies done Ethiopia and Democratic republic of Congo [6,16]. The low utilization of these contraceptives might be related to the fact that sterilization needs qualified, independent and reliable professionals within a well-functioning health system.

In this study, it was found that 69.4% of married women use LAPMs to space and 13.3% to limit births permanently. This was nearly comparable to similar study in Mekele, northern Ethiopia [2]. The current study also indicated that out of total study subjects, 83.7% were not using LAPMs of contraceptives. Their main reasons for not using the methods were lack of information, fear of side effect, fear of surgical procedure and husband's disapproval. This is consistent with a study conducted in, Nigeria [7].

In our study, educational status of women was one of the most important factors positively associated to the LAPMs utilization (AOR: 3.7, 95% CI: 1.7, 7.9). This means that a woman's education influences her contraceptive choice and decision irrespective of her husband's status. This was the same as finding of one study conducted in Nepal [8]. This might be related to the fact that womens' education is the powerful weapon in improving women reproductive health and their intention and use of LAPMs.

Another factor that directly associated with utilization of long acting and permanent contraceptives was age of women. Older aged women have higher odds to use LAPMs than younger counterparts of childbearing age women. Accordingly, women between 35 and 49 years were greater than three times more likely to LAPMs use than women 15-24 years (AOR: 3.36, 95% CI: 1.65, 6.8). This finding is similar to a study done in Debre markos and Jinka, northern and southern Ethiopia respectively [5,6]. This might be related to older womens' more desire to limit or space the number of pregnancy than younger's who had none or few children. However, the finding is inconsistent with another study done in Ethiopia where contraceptive use decline with older age [12]. This inconsistence could be due to longer time gap between the two studies. In the last few years, the government of

Ethiopia has implemented high impact interventions on LAPMs in partner with non-governmental organizations. In this study, women who had good knowledge about LAPMs were four times more likely to practice methods as compared to their counterpart (AOR:4, 95% CI: 1.8, 8.7, p-value<0.01) This result agrees with other study conducted in Ethiopia [12].

The value of involving men in FP discussions has strong influence on methods choice approval and women's FP decisions as indicated by one study conducted in Kampala, Uganda [21]. Comparably, the present research was also showed same (AOR: 4.23, 95%CI: 2.1, 8.5, p value <0.001).This confirms the need for having constructive partner discussions as a way of encouraging contraception uptake.

Moreover, after adjusting for confounding effects of other factors, it was also indicated that women who have had experience in discussing about family planning methods with health extension workers (HEWs) were two times more likely to use LAPMs compared to those women without similar situations (AOR: 2.36, 95%CI: 1.06, 5.27). This finding supports other study conducted in Misha district, Southern Ethiopia [19]. This might be due to the fact that reproductive age women and health extension workers communication on matters pertaining to family planning and other reproductive health services has been an enabling environment for women to disclose and implement their fertility desires and contraceptive needs.

Lastly, according to current study mass media exposure was found to be a strong predictor of current use of long acting and permanent methods (LAPMs). Respondents who have had radio and or Television in their house hold were more than four times more likely to use LAPMs than their counter part (AOR=4.3, 95% CI=2.1, 8.9, p-value <0.01). This might be directly related to family planning advertisements through different media channels.

This study might not determine temporal sequence because of nature of the study design. So, cause and effect relationship is difficult to establish for the factors dealt in the study. Even though major efforts such as pre testing tools, and training data collectors were applied to minimize bias, information bias like recall, interviewer, and social desirability might happen.

Conclusion

The study showed that overall utilization of long acting and permanent contraceptive methods was low. Particularly, a permanent method (sterilization) was almost not practical contraceptive method. Implant was the most used and known method in contrast to others methods. Factors like knowledge of women about LAPMs, older age, educational status of women, joint decision making of contraceptive choice by couples, mass media exposures and discussing with health extension workers (HEWs) about contraceptive options were some of positively associated predictors of long acting and permanent contraceptive methods utilization.

Efforts to improve LAPMs utilization in the region must strengthen initiatives that promote girls education, trained professionals should be deployed at grass root level, behavioural change communication, awareness creation among others. It would be good to further study facility related barriers and cultural influences on the use of LAPMs.

Ethics Approval

Ethical clearance approval was obtained from Wolaita Sodo University ethics committee and permission was obtained from all relevant quarters. Written informed consent was obtained from all participants.

Competing Interests

We declare that there is no competing of interests.

Authors' Contributions

WG conceived, designed and conducted the study, NAA and NM consulted the overall process of the study. All the authors read and approved the final content of the manuscript.

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