BARRIERS TO UTILIZATION OF LONG ACTING REVERSIBLE AND PERMANENT CONTRACEPTIVE METHODS IN ETHIOPIA: SYSTEMATIC REVIEW

Abebaw Gebeyehu[1], Mengistu Asnake[2], Yohannes Dibaba[3], Tesfaye Setegn[4], Meaza Yirga[5], Alula M. Teklu[6], Gurmessa Tura[7]

[1]University of Gondar, College of Health Sciences, Institute of Public Health; Gondar Ethiopia

[2]Pathfinder Ethiopia, Addis Ababa, Ethiopia

[3]IPAS, Addis Ababa, Ethiopia

[4]Bahir Dar University, College of Medicine and Health Sciences, School of Public Health, Reproductive Health Department, Bahir Dar Ethiopia [5]FHI360, Addis Ababa, Ethiopia

[6]St. Paul's Hospital Millennium Medical College, Addis Ababa, Ethiopia

[7]Jimma Universities, College of Health Sciences, Population and Family Health Department, Jimma Ethiopia

ABSTRACT

BACKGROUND

Globally the use of Long-Acting Reversible and Permanent Methods (LARPMs) has been recommended as the first-line, highly effective options for pregnancy prevention. They have greater efficacy than short acting contraceptive methods and are associated with lower rates of unwanted pregnancy. Ethiopia has made significant progress in family planning (FP); however, one fourth of married women still have unmet need for FP and nearly three-fourth of family planning users depend on short acting injectable contraceptives. The aim of this study was to review existing researches to identify barriers to long acting reversible and permanent contraceptive use in emerging regions of Ethiopia.

METHOD:

Published and unpublished literatures were searched using major search engines and different search terms related to the topic. Literature search was carried out from March to May 2016. Six selection criteria were prepared to summarize the findings using PRISMA protocol. A checklist of eight-item quality assessment criteria was used to rate the quality of studies independently by two investigators, and the third investigator cross checked and decided on agreements. The studies were critically appraised, and thematic analysis was used to synthesize the data.

RESULTS:

Using the screening criteria, 69 eligible full-text articles and reports were reviewed; of which 34 articles and 8 policy/strategy documents were considered for data synthesis. The review has included policy related, individual, socio-cultural and health facility related barriers/factors affecting LARPMs use in emerging regions. Lack of strategies to reach the mobile population of emerging regions, facility readiness to provide LARPMs and quality of care were major policy and health care factors contributing for the low utilization of LARPMs. Low knowledge of LARPMs, health concerns, fear of side effects, and lower education were among individual level barriers identified through the review. Moreover, the review showed that men's (partner's) objection, desire for more children (especially by the male partner), absence of male involvement, lack of women's decision-making power and lack of discussion with partners were gender related barriers.

CONCLUSION:

The regional disparity in LARPM use, particularly in emerging regions, requires targeted policy and strategic direction to address the prevailing inequality in family planning use and method mix. To improve the utilization of LARPMs, efforts should be made to address the key demand and supply side barriers. More context specific research evidences should be generated to understand barriers that are specific to these regions.

(Ethiopian Journal of Reproductive Health 2018; 10; 3: 1-24)

INTRODUCTION

Globally the use of long-acting reversible and permanent contraceptive methods (LARPMs) have been recommended as highly effective options for pregnancy prevention[1]. But in developing countries-apart from preventing pregnancy, satisfying the demand for family planning and development are major issues[2-4]. Long-acting reversible and permanent contraception (LARPMs) have greater efficacy than short acting methods and are associated with lower rates of unwanted pregnancy. However, overall use of LARPMs among reproductive age population is low both in developed and developing nations[5].

In Africa, women's inconsistent fertility desires and contraceptive use behaviors reflect barriers to family planning (FP) use and high unmet need[6-8]. In some studies, more that 65% of postpartum women had unmet need for LARPMs of contraception[9]. The overwhelming problem of unmet need in low and middle-income countries (LMICs) requires effective policy intervention backed up by effective methods[2,10] based on rights-based, equity and quality principles[2]. Although much of the women use family planning to limit birth than to space[3,7], and overall improvements of contraceptive coverage[11,12], the regional trend in Africa showed unacceptably low use of long acting family planning methods[11,12].

Ethiopia has made significant progress in family planning coverage. It managed to nearly triple the contraceptive prevalence rate (CPR) over the past 10 years (from 15% in 2005 to 42% in 2014)[13]. Ethiopia has showed its commitment to achieve 55% contraceptive prevalence by the year 2020[14]. The national demand for family planning is 53.9% (25.3% unmet and 28.6 met need)[15]. However, the government clearly outlined that there are critical bottlenecks to address the inequities and inequalities of family planning use among emerging regions[13]. The relatively low uptake of long-acting reversible methods across the globe was attributed to clients' lack of knowledge, dependence on the provider for information, and provider's bias for permanent contraception[16-20].

In Ethiopia, the most preferred method in the past 15-years was injectable contraceptive method (Depo-Provera). The uptake of Depo-Provera has increased by more than ten-fold in the time period. But LARMPs has shown very limited increment. Therefore, identifying the barriers to LARPMs of contraception from available data and research is an urgent and crucial for appropriate implementation and to design effective family planning strategy in the years to come. Hence, the aim of this study was to review existing researches to identify the barriers for LARPMs of FP in Ethiopia with emphasis on emerging regions.

METHODS AND PROCEDURES

Data extraction from published and unpublished research works: Published and unpublished literatures (including policies, strategies/guidelines, reports and unpublished thesis works) were searched using search engines, including endnotes, Google scholar, HINARI and others from the common websites, such as: Pub Med and Ethiopian journals (Ethiopian journal of health development, Ethiopian Journal of Health Sciences and Ethiopian journal of reproductive health). Search terms such as "long acting methods AND Ethiopia", "long acting and permanent methods AND Ethiopia", "long acting methods AND Emerging regions of Ethiopia", "barriers of long acting methods AND Ethiopia", "short acting vs long acting methods AND Ethiopia", and "challenges of long acting methods" were utilized. Literature search was conducted from March to May 2016. Studies conducted in Ethiopia from 2000 to 2016 on married women/men population with objectives of assessing contraceptive use (short acting, long acting reversible and permanent contraceptives), family planning service access and facility readiness were included. Research articles with any kind of study designs (both qualitative and quantitative) and those published in English language were included.

A literature review matrix (as indicated in additional File 1) was prepared in Excel spreadsheet. Articles were reviewed; relevant information was extracted from identified literatures and summarized using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)protocol(Figure 1). The studies were critically appraised, and findings were synthesized systematically using the literature review matrix. A quality assessment criterion (with eight items) were used to rate the quality of studies/research

articles by two investigators independently, and a third investigator was used as tiebreaker (Table 1). The review team had cross-checked and decided on agreements.

Data extraction from policy documents: Policy /strategic documents such as the Ethiopian health policy, population policy, Health Sector Transformation Plan (HSTP), the revised RH strategy, FP service guideline, Adolescent and Youth Reproductive Health (AYRH) strategy, Maternal and Neonatal Health (MNH) road map were reviewed and content gaps related to long acting reversible and permanent contraceptive methods were summarized (Table 1) and factors related to quality, equity, and region specific needs were identified from these policy/strategic documents.

In this review, initially a total of 531 source documents (19 policy/strategy documents and 512 articles (including unpublished thesis works)) were identified. At the screening step (reading the abstracts and scanning documents), a total of 210 documents were screened and considered relevant for the objective of this review. Using the screening criteria, 69 eligible full-text articles/reports and 8 policy/strategy documents were selected. Finally, after reading the full text of articles and policy/strategy documents thoroughly, 34 articles, 8 policy/ strategy documents were included (Figure 1).

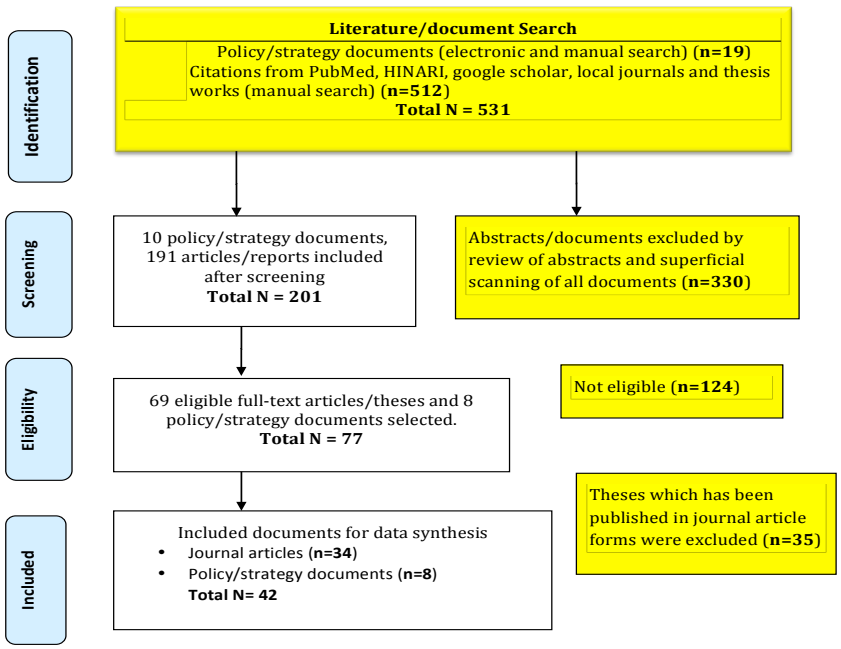

Figure 1: Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram of the systematic review

METHODOLOGICAL QUALITY ASSESSMENT

After identifying and including 34 research articles in this systematic review, a scientific research quality assessment criteria with eight items; 1) Explicit study objectives, 2) Adequate sample size, 3) Representative sample, 4) Clear inclusion and exclusion criteria, 5) Reliable and valid measurements, 6) Response rate reported and losses given, 7) Adequate description of data, 8) Appropriate statistical analyses and interpretation of findings were used to rate the quality of the studies independently by two investigators, then the third investigator cross-checked and decided on agreements. Differences were also discussed and consensus was reached. Scores were given as: 1 for a "yes" answer and 0 for a "no" answer, for a possible maximum score of 8 points (Table 1).

RESULTS

Barriers of LARPMs use – Review of quantitative and qualitative studies

The studies included in the systematic review showed diverging results on the prevalence of long acting and permanent family planning use in Ethiopia, ranging from 9.2%[3] to 37.8%[21]. A cross-sectional study conducted in Shashemene, southern Ethiopia, showed that long acting and permanent methods accounted for 28.4% of contraceptive use[22]. The prevalence of long acting and reversible family planning from different studies was also documented as; 19.9% in Wukro[21], 37.8% in Kilteawlaelo[21], 20% in western Ethiopia[23], 36.7% in Durame (with unmet need; 27.9%) [24], 26% in East Harerge[25], 19.5% in Debre Markos[26], 9.2% in Debre-Tabor[3] and 12.3% in Mekelle town[21,27,228]. In the other studies, documented in Wolayta Zone, 38% of women had the intention to use LARPMs[29]. Fifty two percent (51.9%) of women in Wolayta Zone[29] and 53.6% of women in Mekelle town had negative attitude towards the use of LARPMs[28].

Women do have different reasons and perceptions towards long acting family planning. A study conducted in Bahir Dar showed that 35.6% women perceived that LARPMs can cause health problems such as: cancer (24.7%)[30], infertility (16.7%)[30], implant cause irregular menstrual bleeding (49.2%) and believed IUD limit women from doing heavy work (20.6%) and 38.9% women believed that LARPMs should be used only for women who do not want more children[31]. A study conducted in Addis Ababa health facilities showed that 32%[31] of women were against the use of long acting contraception and 27.5% of women had reported partners opposition against the use of LARPMs[31].Research evidences showed barriers affecting the use of LARPMs have been documented at individual, household, health care and community levels[9,32,33]. These barriers affecting long acting reversible and permanent contraceptive methods use were broadly categorized as demand side barriers (including individual level barriers, gender/relational barriers and socio-cultural barriers) and supply side barriers (including; provider related barriers, facility related barriers, policy related barriers (Figure 2) and summarized as follows.
Different studies have documented that lower educational status of women[22],

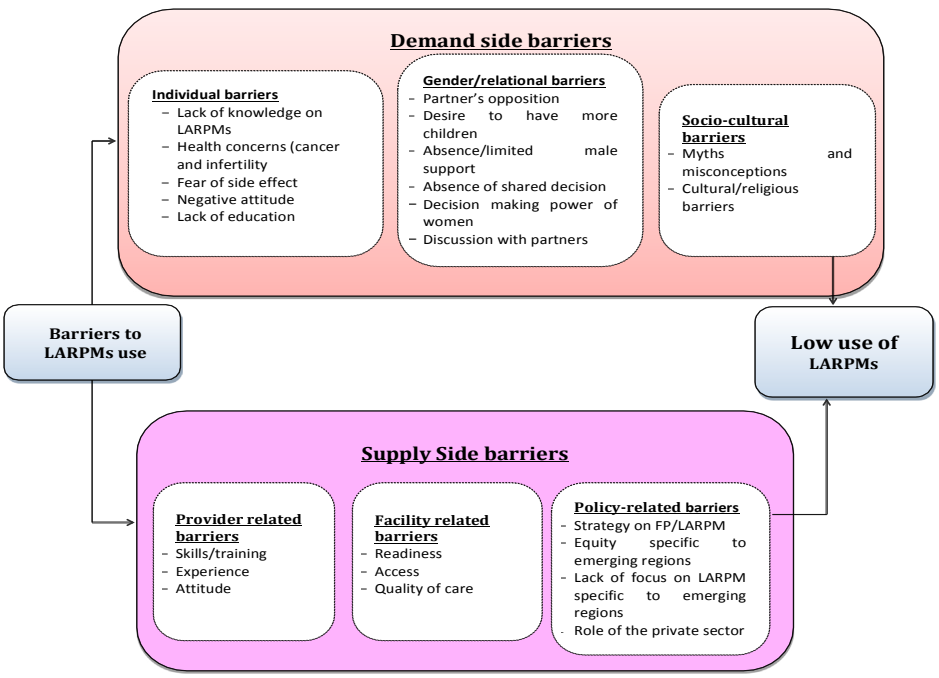

Figure 2. Summary of barriers affecting LARPMs use in emerging regions of EthiopiaIndividual level barriers

previous negative experience[24] and lack of knowledge[34-36] are important barriers to long acting reversible and permanent contraceptive use. Apart from the lack of knowledge, studies also indicated that women do have health concerns (perceiving that LAFP causes cancer and infertility)[30,37,328] and negative attitude towards the use of LARC[228,35,36,39], which could be described as a barrier to use LARC. Fear of immediate side effect associated with contraception use is also a barrier[8]. On the other hand, better educational status of women[21,23,24,29,36,40,41], shared fertility decision[22], higher number of live births[3,9,42,43], exposure to media and discussion with health care provider (counseling) have been documented as facilitator for long acting and reversible contraceptive (LARC) use.

Gender/relational barriers: Studies showed that gender and/or relational factors have detrimental effect on family planning use[44]. Lack of agreement between a woman and her husband on contraceptive use is also one of the barriers[45]. Similarly, this systematic review showed that, partners' objection against the use of LAC[31,43,46], absence/limited male support/ shared decision[3,22,47], limited women's decision making power[48] and lack of discussion with partners[22] were gender related barriers to LARC use. In our review, couples desire to have more children were reasons for early discontinuation of long acting family planning[22,31,37,49].

Socio-cultural barriers: Socio-cultural variables such as myths and misconceptions[50-52], culture of the society and religion[17,53,54] have been documented to affect family planning use in general. Similarly, the review showed that myths[29,37,43], religious/cultural misconceptions[8,25,29,55] were identified as barriers to modern contraceptive use. The demand and supply side barriers affecting the select representative sample and difficulty to generalize the findings. The lack of clear or wrong inclusion and exclusion criteria were the third major quality related problems of the selected articles (Table 1).

use of LARPMs in Ethiopia has been summari zed as figure (Additional file 1 and Figure 2).

The quality appraisal on included articles showed that the quality of the selected articles varied substantially. It ranges from aggregate quality score of 3 to the highest maximum quality score of 8. The most common limitation of the research articles was failure to report and indicate mechanisms to address bias due to non-response or information bias. Hence, most studies lack detail report or considerations about the response rate and losses. The second common problem was inability to

use of LARPMs in Ethiopia has been summari zed as figure (Additional file 1 and Figure 2).

The quality appraisal on included articles showed that the quality of the selected articles varied substantially. It ranges from aggregate quality score of 3 to the highest maximum quality score of 8. The most common limitation of the research articles was failure to report and indicate mechanisms to address bias due to non-response or information bias. Hence, most studies lack detail report or considerations about the response rate and losses.

The second common problem was inability to

Table 1. Quality assessment results of the selected and included articles, 2016

SN	Selected articles (Authors, years)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Total
1	Asnake M., E. G. Henry, et al. (2013)	Y	Y	N	Y	Y	N	Y	Y	6
2	Joti, K. K. (2014)	Y	Y	Y	Y	Y	N	N	Y	6
3	Demesse Y, et.al 2014	Y	Y	N	N	Y	N	Y	Y	5
4	Gelaw, B. et.al (2014)	Y	Y	N	N	Y	N	Y	Y	5
5	Gebrekidan, K. (2008)	Y	Y	Y	Y	Y	Y	Y	Y	8
6	Jemberie A. et al. (2014)	Y	Y	Y	Y	Y	N	Y	Y	7
7	Abdi, T. et.al. (2009)	Y	Y	Y	Y	Y	Y	Y	Y	8
8	Tesfaye, F. (2007)	Y	N	N	Y	Y	Y	Y	Y	6
9	Megabiaw, B. (2012)	Y	N	Y	Y	Y	N	Y	N	5
10	Dubiwak, R. et al. (2014)	Y	Y	Y	Y	Y	Y	N	Y	7

11	Haile, A. et al. (2012)	Y	N	N	N	N	Y	Y	Y	4
12	Bulto, G. A., T. A. Zewdie, et al. (2014)	Y	Y	Y	Y	Y	N	Y	Y	7
13	Walelegn M, et.al 2014	N	Y	Y	Y	Y	N	Y	Y	6
14	Takele, A., G. Degu., et al. (2012)	Y	Y	Y	Y	Y	Y	Y	Y	8
15	Gelagay A. A., D. N. Koye, et al. (2015)	Y	Y	N	Y	Y	N	Y	Y	6
16	Yalew, S. A., B. M. Zeleke, et al. (2015)	Y	Y	N	Y	Y	N	Y	Y	6
17	Earsido A, Gebeyehu A. et al. (2015)	Y	Y	Y	Y	N	Y	Y	Y	7
18	Melka A. S., T. Tekelab, et al. (2015)	Y	Y	Y	Y	Y	Y	Y	Y	8
19	Tamrie Y. E., E. G. Hanna, et al. (2015)	Y	Y	Y	Y	Y	Y	Y	Y	8
20	Birhane, K., S. Hagos, et al. (2015)	Y	Y	Y	Y	Y	Y	Y	Y	8
21	Mengistu M. and M. Wubegzier. (2014)	Y	Y	Y	Y	Y	Y	Y	Y	8
22	Alemayehu, M., T. Belachew., et al. (2012)	Y	Y	Y	N	Y	Y	Y	Y	7
23	Mengistu, A., W. Lakachew, et al. (2006)	Y	N	N	Y	Y	N	Y	Y	5
24	Gebremariam A. et al. (2014)	Y	Y	Y	Y	Y	N	Y	Y	7
25	Alemu WG. Et al. (2014)	Y	Y	Y	Y	Y	Y	Y	Y	8
26	Gebremariam, A. et al. (2014)	Y	Y	N	N	N	N	N	Y	3
27	Mulatu K. et.al (2014)	Y	Y	Y	Y	Y	N	Y	Y	7
28	Mekonnen, G., F. Enquselassie, et al. (2014)	Y	Y	Y	Y	Y	N	Y	Y	7
29	Alemayehu M., A. Kalayu, et al. (2015)	Y	Y	Y	Y	Y	N	Y	Y	7
30	Tsedeke, T., D. Wakgari., et al. (2006)	Y	Y	Y	Y	N	Y	N	Y	6
31	Mota, K., S. Reddy, et al. (2015)	Y	Y	Y	Y	Y	Y	Y	Y	8
32	Desalegn, M. (2014)	Y	Y	Y	Y	Y	Y	Y	Y	8
33	Asegidew, W. et al (2014)	Y	Y	Y	Y	Y	Y	Y	Y	8
34	Negatu, B. et al (2014)	Y	Y	Y	Y	Y	Y	Y	Y	8

NOTE

1. Q1=Explicit study objectives
2. Q2=Adequate sample size
3. Q3=Representative sample
4. Q4=Clear inclusion and exclusion criteria
5. Q5=Reliable and valid measurements
6. Q6=Response rate reported and losses given
7. Q7=Adequate description of data
8. Q8=Appropriate statistical analyses and interpretation of findings
9. Y = Yes, fulfilled
10. N = No, not fulfilled

THE LARPMS POLICY GAP: FINDINGS FORM POLICY AND STRATEGY DOCUMENT REVIEW

The Ethiopian Government is a signatory of several international conventions/ charters and declarations, including those arising from the 1987 Safe Motherhood Initiative[56]; the 1994 ICPD[57] and the 1995 Fourth World Conference for Women[58]. The Ethiopian constitution in its Article 35:9 clearly stipulates that women do have the right to be protected from harm arising from pregnancy and childbirth. Similarly, the constitution has guaranteed every woman to have access to family planning education, information and capacity so that to safeguard their health[59].

Ensuring the provision of equitable, comprehensive and integrated primary health care through decentralized health promotion and disease prevention interventions have been the major emphases specified under the Ethiopian health policy. The national health policy has also given due consideration to maternal and child health deserve; particularly family health and population planning to be addressed through intersectoral collaboration[60].

To ensure optimal family health and planned population dynamics, decentralizing services, enriching the concept and intensifying the practice of family planning are the critical recommendation made by the national health policy[60].

Similarly, the Ethiopian population policy (1993) pointed out that there has been limited family planning service delivery both in scope and diversity. Hence, this policy designed steps to be taken to expand coverage and provide greater choice of methods to users by: expanding the diversity and coverage of family planning service delivery through clinic and community based outreach services; encouraging and supporting the participation of non-governmental organizations in the delivery of population and family planning related services; and creating conditions that will permit users the widest possible choice of contraceptives by diversifying the method mix available in the country[61].

Moreover, to enhance FP utilization, other strategic documents have emphasized on the integration and linkage of FP services with other RH services. As a part of women empowerment commitment, the government of Ethiopia also has developed Women's Policy, revised the Family Law, the Criminal Law and the family planning guidelines. Accordingly, the issue of family planning is emphasized in the recent several strategic documents of FMOH including the previous Health Sector Development Plans (HSDPs) and the current Health Sector Transformation Plan (HSTP), and the revised RH strategy for the 2016-2020[14,61,62].

Fertility and family planning is one of the six priority areas identified under the reproductive health umbrella of the National Reproductive Health Strategy of Ethiopia[63]. The strategy includes the need to create acceptance and demand for FP, with special emphasis to different populations segments vulnerable by geographic dispersion, age, marital status, gender, and wealth. The revised National Reproductive Health Strategy of the FMOH gives due emphasis to family planning. It has clearly put that the goal of family planning is to reduce unwanted pregnancies and enable individuals to achieve their desired family size[64].

In the previous national reproductive health strategy (2006-2015)[63] and other policy and strategic documents mentioned above, no clear reference is given on Long Acting Reversible and Permanent Contraceptive Methods (LARPMs). In addition, a clear priority and target is not set in the document related to emerging regions where access to quality FP services and utilization is the lowest compared to the other regions of the country. Cognizant of this, the revised RH strategy (2016-2020), gives due emphasis to focuses on the LACs by setting clear targets, to increase the proportion of long acting reversible and permanent contraceptive methods to 50% (Implants 33%, IUCD 7%, female sterilization 7% and male sterilization 3%) from the total method mix. In addition, an annual 2% CPR increment rate for the developing regional states is indicated[64].

The policy/strategy documents have included clear statements about the importance of expanding family planning program considering its contribution for population dynamics, health and women empowerment. However, the documents did not indicate implementation strategies to address the most disadvantaged regions (emerging regions) specially to expand LARPMs. Similarly, the core equity indicators of the health sector transformation plan (HSTP) (2015-2020), did not include FP indicators (Table 2).

Table 2. Summary of main findings from policy/strategic documents

Policy document	Main finding	Comment
ICPD, Cairo program of Action	The Ethiopian Government signed ICPD declarations and Cairo program of action	Gives the basic ground and initiation for FP program
Ethiopian Constitution Article 35:9	Women have the rights to be protected from harm arising from pregnancy and childbirth and in order to safeguard their health; women have the right of access to family planning education, information and capacity	Supports FP (sufficient ground to support LARPMs practice (Family law developed). Not specific to LARPMs

National Health Policy	Comprehensive and integrated primary health care in a decentralized and equitable fashion. It emphasizes the concept and intensifying the practice of family planning for optimal family health and planned population dynamics	Has supportive ground for FP program and equity. No details about type methods (FP guidelines developed)
HSTP (2015-2020)	Has planned to reduce TFR to 3.0 by 2020. Increase CPR to 55% by 2020. Reduce unmet need to 10%. It emphasizes equity.	The core equity indicators of this document did not include FP indicators. No details about LARPMs. No specific plan for emerging regions
Ethiopian population policy	Emphasized steps to be taken to expand coverage and afford greater choice of methods to users (reduce TFR 6.4 to 4.4). Permit users the widest possible choice of contraceptives by diversifying the method mix available in the country	Strong support of method choice. Regional specific interventions were not included.
National Reproductive Health Strategy (2016-2020)	Has a clear target, to increase the proportion of long acting reversible and permanent contraceptive methods to 50% (Implants 33%, IUCD 7%, female sterilization 7% and male sterilization 3%) from the total method mix. In addition, annual 2% CPR increment rate for the developing regional states is indicated.	Strong support for FP and LAMs and considers geographic variation No specific implementation strategies (modalities) were indicated

DISCUSSION

Over the past 25 years, Ethiopia has been adopting and following up on its international commitments. Based on the international promises, it has been implementing a series of policies and national strategies aimed at creating the required circumstances for all Ethiopians to have access to basic social services, as well as ensuring women's human, economic, and political rights and their full participation in the development process[61]. The federal constitution, health-related policies, and strategies in Ethiopia cover all major grounds to offer all necessary provisions, creating an enabling environment to maintain the population dynamics in the interest of sustainable development goals[14,59,61,62,64]. Therefore, to achieve family health and population related national and international goals, family planning program has been given due attention[14,62]. However, with all these efforts this review identified both policy/strategy gaps and implementation challenges (especially in the emerging regions of Ethiopia; which is the focus area of this systematic review) to expand family planning utilization in Ethiopia.

In this systematic review, although there are very few studies in emerging regions, the barriers for LARPMs use have been summarized as; the demand side factors (including individual factors/barriers, gender/relational factors and socio-cultural factors) and supply side factors (including the policy/strategy gap, health facility and provider related factors. Although, there has been interest to expand family planning services in general and utilization of LARPMs in particular, the reviewed policy/strategy documents had limitations in stating clear strategies on how to address emerging regions and how the LARPMs can be accessible in all parts of the country. It is clearly evidenced that the policy/strategic documents have gaps to clearly indicate specific focuses on how to increase LARPMs use in the emerging regions and unable to define applicable implementation modalities. This might have contributed for the significant difference in the performance of emerging regions to increase LARPMs utilization. Non-contextual and non-

focused policies/strategies for the emerging regions might in-turn have contributed to facility readiness, access and quality of care, provider's skill or attitudinal factors for low LARPMs use in emerging regions.

Although there are no studies conducted on LARPMs in emerging regions, the life style (nomadic and pastoralist way of life) and geographic barriers, access to health facilities are still major concern and determinants for LARPMs use; unlike the other non-emerging regions in Ethiopia. Apart from the general truth that method availability, absence of trained/experienced health professionals and capacity of the health facilities affects LARPMs use, it is clear that physical barriers/ geography, population characteristics, cultural/normative, religious and behavioral factors could contribute for low utilization of LARPMs use in these regions. These might have been due to the fact that policies/strategic documents did not include context specific strategies to address low LARPMs utilization in the emerging regions. In addition, providers' choice, inadequate counseling, method stocking out and poor service integration due to shortage/lack of skilled service providers and female health extension workers could be factors for low utilization of LARPMs which would have been addressed by region specific strategies.

Regarding the demand side factors, the reviewed evidences revealed that individual level factors including lack of knowledge (awareness) on LARPMs, health concerns like cancer and infertility, fear of side effects, negative attitude towards LARPMs, and lack of education to understand written documents or use of technology about LARPMs were identified as very important barriers. Gender/ relational barriers are mainly arising from the male gender dominance observed in the country. The reviewed documents indicated that partner's opposition, desire to have more children (especially the male partner), absence/limited male support, absence of shared decision, lack of women's decision-making power/low women status and lack of discussion with partners were barriers related to gender. The problem is even worse in the emerging regions of Ethiopia.

The other demand side barriers identified were the socio-cultural factors. Some of the myths and misconceptions are learned in the community. Studies revealed that the society in many places of Ethiopia believe that LARPMs can cause infertility and other health problems. Additionally, the tradition of pronatalist thinking and religious believes are contributing for the non-use of contraceptives, especially LARPMs. These believes contribute for non-use because of the fact that users can be stigmatized or they may develop guilt feeling if they have used. Therefore, they may not have psychological readiness to use or may interrupt early if they are using LAMs. This problem is common across different parts of Ethiopia and even higher in the emerging regions. Based on findings in this review, summary of the barriers is presented in Figure 2.

LIMITATIONS

Most of the findings were extracted from studies conducted in other parts of the country (not context specific). The available evidences are based on cross-sectional studies including gray literature with methodological shortcomings. Since the purpose of this systematic review was to understand the major barriers of LARPMs use in emerging regions of Ethiopia, it did not focus only on high quality articles which optimally used available evidence. The effects size/strength of association of identified barriers was not included. Therefore, development of strategic documents using the identified barriers should be used carefully. Hence, it is highly recommended to conduct a study using mixed methodology (both quantitative and qualitative involving facility and community based designs).

CONCLUSIONS

This systematic review indicated that there is high paucity of evidences on use of LARPMs of contraception in emerging regions. However, the review has identified both supply and demand side barriers responsible for the low utilization of LARPMS in Ethiopia which would logically be true for the emerging regions too. The reviewed policy/strategy documents did not have details about LARPMs in general and for emerging regions in particular. And there is no strategic document that indicates specific intervention modality to expand LARPMs in emerging regions. The demand side factors include variety of barriers related with individual level barriers, gender/ relational barriers and socio-cultural barriers.

Majority of the supply side factors affecting LARPMs utilization including policy/strategy related gaps, facility and provider related factors including; facility readiness, access and quality of care, provider skill and caring attitude, which could have been solved by regional/context specific strategies designed for emerging regions.

RECOMMENDATIONS

In increasing access and utilization of LARPMs, the inclusion of clear and direct strategies in all the policy and strategic documents will help program implementers in giving due emphasis and priority in addressing the very high unmet need for the specific family planning methods and services in general and for LARPMs in particular. Explicit reflection of the disparity in emerging regions and providing targeted policy and strategic direction for the emerging regions is crucial. Such policy and strategic directions will help the country in achieving its ambitious development goals and addressing the prevailing inequity and inequality in family planning use and method mix.

No intervention could be effective without considering both supply side and demand side barriers. Therefore, specific intervention strategies are required to address each of the identified barriers. Then, the interventions should be integrated and mix of intervention modalities should be designed to address the barriers. Interventions should also involve establishing mobile clinics, provision of supplies, training of providers, demand generation activities, including awareness creation through mass media/other appropriate methods and by health extension workers and enhancing male involvement at the community level are recommended.

Finally, Evidence generation followed by knowledge translation specifically to emerging regions is critical and should be given emphasis. Therefore, a close look at the barriers in emerging regions through collection of primary data is highly recommended to generate context specific evidences. Designing facility and community linked study using quantitative and qualitative approaches as well as intervention studies are worthwhile.

DECLARATIONS

Ethical approval and consent

CONSENT FOR PUBLICATION

All authors have consented for publication.

Availability of data and material

All the data related to this article and its conclusion has been available as tables and figures.

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

AG MA, YD, TS, MY, AMT, and GT developed the original research and selected the eligible studies. AG, MA, TS, YD and AMT designed the research design and conducted data extraction and document consolidation. AG, MA, YD, TS, AMT and GT conducted the analysis. AG, YD, TS and GT conducted the methodological quality assessment of articles. TS drafted the manuscript. All author critically reviewed the manuscript. All authors read and approved the final manuscript.

ACKNOWLEDGEMENT

Authors would like to thank Federal Ministry of Health for its technical support. We would like to extend our gratitude to Universities and partner organizations for their involvement and facilitation.

CORRESPONDING AUTHOR: Alula M. Teklu
St. Paul's Hospital Millennium Medical College,
Ethiopia Addis Ababa
Email: ateklu72@gmail.com

REFERENCES

1. Fontenot HB. and Fantasia HC., Long-Acting Reversible Contraception for Adolescents. Nurs Womens Health, 2015 Jun-Jul. 19(3): p. 253-9.
2. Osotimehin, B., Family planning as a critical component of sustainable global development. Glob Health Action, 2015. 8: p. 29978.
3. Yalew, S.A., B.M. Zeleke, and A.S. Teferra, Demand for long acting contraceptive methods and associated factors among family planning service users, Northwest Ethiopia: a health facility based cross sectional study. BMC Res Notes, 2015. 8: p. 29.
4. Moreland S. and S. Talbird, Achieving the Millennium Development Goals: the contribution of fulfilling the unmet need for family planning, Washington, D.C., Futures Group, POLICY Project,. 2006: p. 76.
5. Lotke PS, Increasing Use of Long-Acting Reversible Contraception to Decrease Unplanned Pregnancy. Obstet Gynecol Clin North Am, 2015 Dec 42(4): p. 557-67.
6. Speizer I. S. and P. Lance., Fertility desires, family planning use and pregnancy experience: longitudinal examination of urban areas in three African countries. BMC Pregnancy and Childbirth 2015. 15(294).
7. Beguy, D. and B. Mberu, Patterns of fertility preferences and contraceptive behaviour over time: change and continuities among the urban poor in Nairobi, Kenya. Cult Health Sex, 2015. 17(9): p. 1074-89.
8. Dubiwak, R. and A. Seme, Contraceptive method choice and use by married women of reproductive age in two Districts of East Harerge. Ethiop Med J, 2014. 52(1): p. 27-35.
9. Zerden ML., et al., Barriers to Receiving Long-acting Reversible Contraception in the Postpartum Period. Womens Health Issues, 2015. 25(6): p. 616-21.
10. Barros, A.J.D., et al., Estimating family planning coverage from contraceptive prevalence using national household surveys. 2015, 2015. 8.
11. Ugaz J. I., M. Chatterji, and et al., Regional trends in the use of short-acting and long-acting contraception accessed through the private and public sectors. International Journal of Gynecology & Obstetrics 2015. 130(Suppl. 3): p. E3-E7.
12. Burke, A., M. T. Mbizvo, and et al., Advancing Family Planning: Research Papers Selected from the Third International Conference on Family Planning, Addis Ababa, Ethiopia, 12-15 November 2013. . International Journal of Gynecology & Obstetrics, 2015. 130: p. E1-E68.
13. USAID/Africa Bureau, Three Successful Sub-Saharan Africa, Family Planning Programs:Lessons for Meeting the MDGs, 2012.
14. Federal Democratic Republic of Ethiopia. and Ministry of Health (MoH). Health Sector Transformation Plan, 2015 - 2020. October 2015.
15. Central Statistical Agency (CSA)Ethiopia., Ethiopia Demographic and Health Survey 2011. , 2012, CSA and ORC Macro: Addis Ababa, Ethiopia and Calverton, Maryland, USA.
16. Long-Acting Reversible Contraceptives: An Important Focus at the 2016 International Conference on Family Planning. Glob Health Sci Pract, 2016. 18(4): p. 16-00241.
17. Davidson, A.S., et al., Is LARC for Everyone? A Qualitative Study of Sociocultural Perceptions of Family Planning and Contraception Among Refugees in Ethiopia. Matern Child Health J, 2016. 20: p. 20.

18. Ferreira, J.M., et al., The Use of Long Acting Reversible Contraceptives and the Relationship between Discontinuation Rates due to Menopause and to Female and Male Sterilizations. Rev Bras Ginecol Obstet, 2016. 38(5): p. 210-7.

19. Mesfin, Y.M. and K.T. Kibret, Practice and Intention to use long acting and permanent contraceptive methods among married women in Ethiopia: Systematic meta-analysis. Reprod Health, 2016. 13(1): p. 016-0194.

20. Shantha Kumari, S., Permanent Sterilisation to Long-Acting Reversible Contraception: Is a Paradigm Shift Necessary? J Obstet Gynaecol India, 2016. 66(3): p. 149-53.

21. Alemayehu M., A. Kalayu, and et al., Rural women are more likely to use long acting contraceptive in Tigray region, Northern Ethiopia: a comparative community-based cross sectional study. BMC Womens Health, 2015. 15(71).

22. Mulatu, K., Assessment of men's involvement in long acting and permanent contraceptive use among currently married men aged 20-64 years, in Mizan-aman district, south western Ethiopia, in School of Graduate Studies 2014, Addis Ababa University.

23. Melka A. S., T. Tekelab, and et al., Determinants of long acting and permanent contraceptive methods utilization among married women of reproductive age groups in western Ethiopia. Pan Afr Med J 2015. 21(246).

24. Tamrie Y. E., E. G. Hanna, and e. al., Determinants of long acting reversible contraception method use among mothers in extended postpartum period, Durame Town, Southern Ethiopia. Health 2015. 7(10): p. 1315-1326.

25. R., D. and A. Seme., Contraceptive method choice and use by married women of reproductive age in two Districts of East Harerge. Ethiop Med J, 2014. 52(1): p. 27-35.

26. Bulto, G.A., T. A. Zewdie, and et al., Demand for long acting and permanent contraceptive methods and associated factors among married women of reproductive age group in Debre Markos Town, North West Ethiopia. BMC Womens Health, 2014. 14(1): p. 46.

27. Alemayehu, M., A. Kalayu, and et al., BMC Womens Health, 2015. 15(71).

28. Alemayehu, M., T. Belachew., and et al., Factors associated with utilization of long acting and permanent contraceptive methods among married women of reproductive age in Mekelle town. BMC Pregnancy Childbirth, 2012. 12(6).

29. Mengistu M. and M. Wubegzier., Factors affecting women's intention to use long acting and permanent contraceptive methods in Wolaita zone, Southern Ethiopia. BMC Women's Health 2014. 14(109).

30. Alemu WG. and et.al., Intention, Experience and Associated Factors of Contraceptive Method Shift to Long Acting Family Planning among Family Planning User Women in Bahir Dar, Amhara Region, Northwest Ethiopia, in College of Medicinea and Health Sciences, School of Public Health 2014, Bahir Dar University: Bahir Dar, Unpublished.

31. Negatu, B., Utilization of Long Acting Contraceptive among Reproductive age women in Addis Ababa Public health Centers, in Schoo of Graduate Studies2014, Addis Ababa University.

32. Dasari M., et al., Barriers to Long-Acting Reversible Contraceptive Uptake Among Homeless Young Women. J Pediatr Adolesc Gynecol. , 2016. 29(2): p. 104-10.

33. Hall KS., et al., "I don't know enough to feel comfortable using them:" Women's knowledge of and perceived barriers to long-acting reversible contraceptives on a college campus. Contraception, 2016 7824(15).

34. Abdi, T., Assessment of the prevalence and factors influencing the utilization of long acting

and permanent contraceptive method in Butajira town, Gurage zone,SNNPR, Ethiopia, in Gender and Reproductive Health (Annotated Bibliography 2000-2009 p42)2009.

35. Desalegn, M., Utilization of long acting and permanent contraceptive method and associated factors among married women in Adama town, Oromia region, central Ethiopia: community based cross sectional study in School of Graduate Studies 2014, Addis Ababa University.

36. Jemberie A. and et al., Assessment of the level of Knowledge and attitude towards vasectomy among married men in Dangila town, Ethiopia, in College of Medicine and Health Sciens2014, Bahir Dar University: Unpublished.

37. Asegidew, W., Utilization of long acting and permanent family planning methods among women of reproductive age group in DebreBirhan Town, North Shewa Ethiopia in School of graduate studies2014, Addis Ababa University.

38. Gebremariam, A. and A. Addissie, Knowledge and perception on long acting and permanent contraceptive methods in adigrat town, tigray, northern ethiopia: a qualitative study. Int J Family Med, 2014. 878639(10): p. 21.

39. Alemayehu, M., T. Belachew., and et al., Factors associated with utilization of long acting and permanent contraceptive methods among married women of reproductive age in Mekelle town. BMC Pregnancy Childbirth, 2012 12(6).

40. Gelagay A. A., D. N. Koye, and et al., Demand for long acting contraceptive methods among married HIV positive women attending care at public health facilities at Bahir Dar City, Northwest Ethiopia. Reprod Health 2015. 12(76).

41. Asnake M., E. G. Henry, and et al., Addressing unmet need for long-acting family planning in Ethiopia: uptake of single-rod progestogen contraceptive implants (Implanon) and characteristics of users. Int J Gynaecol Obstet : , 2013. 123 (Suppl 1): p. e29-32.

42. Gelaw, B., Assessment of magnitude and factors affecting intention of women living with HIV to use long acting and permanent family planning methods in Addis Ababa city government public hospitals, Addis Ababa, Ethiopia., in School of Graduate Studies2014, Addis Ababa University.

43. Tesfaye, F., Assessment of the Training-Based Long-Term Family Planning Service Delivery Program in Four Regions of Ethiopia, 2007, Pathfinder International- Ethiopia.

44. Bawah, A.A., et al., Women's fears and men's anxieties: the impact of family planning on gender relations in northern Ghana. Stud Fam Plann, 1999. 30(1): p. 54-66.

45. Kamau, R.K., et al., Barriers to contraceptive use in Kenya. East Afr Med J, 1996. 73(10): p. 651-9.

46. Tsedeke, T., D. Wakgari., and et al., The role of men in contraceptive use and fertility preference in Hossana Town, southern Ethiopia. Ethiopian Journal of Health Development, 2006. 20(3): p. 152-159.

47. Gebremariam A. and A. Addissie., Intention to use long acting and permanent contraceptive methods and factors affecting it among married women in Adigrat town. Reprod Health 2014 11(1): p. 24.

48. Belay, A.D., et al., Married women's decision making power on family planning use and associated factors in Mizan-Aman, South Ethiopia: a cross sectional study. BMC Womens Health, 2016. 16(12).

49. Birhane, K., S. Hagos, and M. Fantahun, Early discontinuation of implanon and its associated factors among women who ever used implanon in Ofla District, Tigray, Northern Ethiopia. International Journal of Pharma Sciences and Research, 2015. 6(3): p. 544-551.

50. Hauck, B. and D. Costescu, Barriers and Misperceptions Limiting Widespread Use of

Intrauterine Contraception Among Canadian Women. J Obstet Gynaecol Can, 2015. 37(7): p. 606-16.

51. Buhling, K.J., et al., Understanding the barriers and myths limiting the use of intrauterine contraception in nulliparous women: results of a survey of European/Canadian healthcare providers. Eur J Obstet Gynecol Reprod Biol, 2014. 183: p. 146-54.
52. Hindin, M.J., L.J. McGough, and R.M. Adanu, Misperceptions, misinformation and myths about modern contraceptive use in Ghana. J Fam Plann Reprod Health Care, 2014. 40(1): p. 30-5.
53. Hill, N.J., M. Siwatu, and A.K. Robinson, "My religion picked my birth control": the influence of religion on contraceptive use. J Relig Health, 2014. 53(3): p. 825-33.
54. Erlenwein, J., et al., Attitude toward, acceptance of and knowledge about female sterilization as a method of contraception. Eur J Obstet Gynecol Reprod Biol, 2015. 185: p. 83-7.
55. Joti, K.K., Assessment of factors influencing utilization of long acting and permanent contraceptive methods among married women (18-49 years) of reproductive age in Ambo town, Oromia region, Ethiopia in School of Graduate Studies 2014, Addis Abba University
56. Ann M. Stars, Safe Motherhood initiatives: 20 years and counting. The Lancet, 30 September 2006. 368(9542): p. 1130-1132.
57. UNFPA. International Conference on Population and Development (ICPD) Program of Action 1994. New York: United Nations Population Fund.
58. United Nations (UN). Report of the Fourth World Conference on Women, 4-15 September 1995, United Nations: Beijing.
59. Federal Democratic Republic of Ethiopia (FDRE). Constitution of the Federal Democratic Republic of Ethiopia, 1994: Addis Ababa, Ethiopia.
60. Ministry of Health (MOH). Health Policy for the Transitional Government of Ethiopia, 1993: Addis Ababa, Ethiopia.
61. Federal Democratic Republic of Ethiopia (FDRE). National Population Policy of Ethiopia, O.o.t.P. Minister, Editor April 1993: Addis Ababa, Ethiopia.
62. Federal Democratic Republic of Ethiopia. and Ministry of Health., Health Sector Development Plan IV: 2010 - 2014, October 2010.
63. Federal Ministry of Health (MOH). National Reproductive Health Strategy 2006-2015, 2006: Addis Ababa, Ethiopia.
64. Federal Democratic Republic of Ethiopia (FDRE) and Ministry of Health (MOH). National Reproductive Health Strategy (2016 - 2020) (Revised_Draft), 2015.

Additional file

Additional file_1. Characteristics and major findings of the reviewed articles, 2016

Reference (Authors, years)	Title	Objectives	Study type/ Design or Program document	Sample size and study population or Population covered	Main findings related to FP	Findings related to barriers of LARPM	Study area (Place)
Asnake M., E. G. Henry, et al. (2013)[36]	Addressing unmet need for long-acting family planning in Ethiopia: uptake of single-rod progestogen contraceptive implants (Implanon) and characteristics of users.	To describe women who accept single-rod progestogen contraceptive implants	Comparative study based on Demographic and Health Survey (DHS) data	5973 Women who accepted Implanon during training events in 4 regions	Implanon acceptors were younger and had more years of education and fewer children Almost one-quarter (22.9%) of all participants had never used contraception before	Implanon acceptors were less likely than non-acceptors to be using contraception (70.8% vs 77.3%; P < 0.05) Women who accepted Implanon were younger but more educated than women with unmet need for contraception in the 2005 DHS.	4 regions in Ethiopia
Joti, K. K. (2014) [51]	Assessment of factors influencing utilization of long acting and permanent contraceptive methods among married women (18-49 ears) of reproductive age in Ambo town, Oromia region, Ethiopia	To assess factors influencing utilization of long acting and permanent contraceptive methods and associated factors	A descriptive cross-sectional community-based study	384 married women	Overall prevalence of LARPMs wa 65.6% (i.e. 57% implants users, 6.2% female sterilization and 0.3% male sterilization users) Thirty four (34%) of respondents never practiced LAMPs and had negative attitude towards practicing of LARPMs	Income (high) (AOR = 3.6, 95% CI of (1.494, 8.741) and religion (Orthodox) (AOR = 4.715, 95% CI of (1.026, 21.67) are predictors of the LARPM	Ambo town, Oromia region
Demesse Y, and et.al 2014[52]	Assessment of long acting and permanent contraceptive methods utilization and associated factors among female antiretroviral therapy attendees in Gondar town, North west Ethiopia, 2014	To determine long acting and permanent contraceptive methods utilization and associated factors	Institution based cross-sectional study	468 non-pregnant HIV positive women (15–49years)	85.0% women were using some modern form of contraception Current utilization rate of LARPMs (alone or with condom) was 24.1%	Knowledge of women [AOR=2.59, 95% CI [1.04, 6.45], being ever pregnant since the commencement of ART [AOR= 2.68, 95%CI [1.21, 5.93] and discussion about family planning with health care provider [AOR=2.69, 95% CI [1.18, 6.15] were factors of using LARPMs.	Gondar town, Amhara region
Gelaw, B. et.al (2014) [37]	Assessment of magnitude and factors affecting intention of women living with HIV to use long acting and permanent family planning methods in Addis Ababa city government public hospitals, Addis Ababa, Ethiopia.	To assess the magnitude and factors affecting intention to shift to LARPMs by women who are on Anti-Retroviral Therapy	Facility based cross sectional survey	633 HIV positive women	Thirty eight (38.5%) of women had intention to shift to LARPMs Knowledge of respondents on LARPMs was 95%.	Women's level of education AOR= [1.59, 95 % CI: 1.07, 2.36], their level of knowledge about LARPMs [1.68, 95% CI: 1.09,2.60] and attitude of women towards LARPMs [1.66, 95% CI: 1.18-2.34] were factors associated (positively) with intention of HIV positive women to shift to LARPMs Parity of women: one to two children [0.22, 95%:0.12, 0.39] and three to five children [0.12, 95% CI: 0.06, 0.24] were found to be significant associated (negatively) with intention of women to shift to LARPMs.	Addis Ababa public health hospitals

Gebrekidan, K. (2008)[53]	Assessment of status of long acting and Permanent family planning services In town, Tigray Regional State	To assess the status of long acting and permanent family planning services provision	Cross-sectional descriptive study	422 Family Planning clients and 10 health care providers were interviewed 481 client-health care provider interactions were observed	The method mix showed; injectable (92.9%) and pills (7.1%). Among total users, 73.9% were for spacing and 23.5% were using contraception limiting. 20.4%, 6.1%, 4%) and 2% of new clients were informed about implants, IUCD, and female and male sterilization respectively. Of the 10 health care providers, six had received training in counseling and providing implants within the last five years. Four of the providers did not feel that they had knowledge and skills necessary to do LARPM services	Four facilities were stock out of pills while five facilities were stocked out of implants in last six months.	Six health service delivery points in Tigray region
Jemberie A. and et al. (2014)[31]	Assessment of the level of Knowledge and attitude towards vasectomy among married men in Dangla town, Ethiopia,	To determine the level of knowledge and attitude towards vasectomy; To identify factors associated with knowledge and attitude towards vasectomy as a family planning method	Community based cross sectional study	872	52.5% know vasectomy for FP 94.6% reported that their religion is against vasectomy as FP where 80.2% reported that they will not be volunteer to use it 68.6% have negative attitude for vasectomy	Educational status is directly associated with higher knowledge and positive attitude on vasectomy	Dangla town, Amhara Region Ethiopia,
Abdi, T. et.al. (2009)[54]	Assessment of the prevalence and factors influencing the utilization of long acting and permanent contraceptive method in Butajira town, Gurage zone, SNNPR, Ethiopia	To assess the prevalence and factors influencing the utilization of long acting (Implant, and IUCD) and permanent (male sterilization and female sterilization) contraceptive methods	Cross sectional community based study	600 women of reproductive age groups and 24 FGD discussants	Among the LARPMs, implant is known by most of the participant 20.5% and the least known is male sterilization 8.1%. Greater than half, (65.8%) of the participants have intention/plan to use LARPMs. It is showed that, there was low knowledge and a relatively high (fair) level use of LARPMs in Butajira town.	Low knowledge /awareness on LARPMs (25%) in Butajira town	Butajira town, SNNPR
Tesfaye, F. (2007) [38]	Assessment of the Training-Based Long-Term Family Planning Service Delivery Program in Four Regions of Ethiopia; Formative Evaluation	To assess the acceptability and utilization of long-term FP methods in the focus regions, and to identify challenges encountered and lessons learned through the program.	Client interview Key informant interview Current (includes both quantitative and qualitative methods of data collection)	640 current Norplant users 12 Health facilities with targeted intervention	Nearly all of the clients were using Norplant implants. About 65% of the clients intend to continue using the method for the recommended five years, while the rest expressed intention to terminate the method before the five years. 640	About 40% of the clients reported experiencing method related body changes or side effects such as menstrual irregularities, pain and numbness in the arm, headache, dizziness, or loss of weight	Pathfinder supported areas in Amhara, Oromia, SNNP and Tigray regions
Megabiaw, B. (2012) [55]	Awareness and utilization of modern contraceptives among street women in North-West Ethiopia.	To assess awareness, practice and associated factors of modern contraceptives among street women	A cross-sectional study	204 street women	Majority (90.7%) had ever heard about modern contraceptives. Nearly half (47.1%) had ever used and a third (34.3%) were current users. Three quarter of the current users (74.3%) were using injectable while 10% were on long acting or permanent methods	[The study did not report factors associated with LARCMs]	Gondar and Bahir Dar cities

Dubiwak, R., A. Seme (2014)[8]	Contraceptive method choice and use by married women of reproductive age in two Districts of East Harerge.	To assess factors influencing contraceptive method choice and use among married women of reproductive age in rural Districts of East Harerge Zone of Oromia Region.	community-based cross-sectional	473 married women of reproductive age	Three-fourth (74%) of women were short-term contraceptive method users while only 26% were long-term contraceptive method users.	Duration of family planning use, reasons for contraceptive use and provider's choice of the method were positively associated with long-term contraceptive use in the study area. Qualitative finding also showed that religious and cultural perceptions about contraceptives and societal values have negatively influenced contraceptive use.	Two rural districts of East Harerge Zone
Haile, A., M. Fantahun. (2012) [56]	Demand for long acting and permanent contraceptive methods and associated factors among family planning service users, Batu town, Central Ethiopia	To assess demand for long acting and permanent contraceptive methods and associated factors among women aged 18-49 years	A facility based cross-sectional study	398 women aged 18-49 years old	Thirteen (3%) were using long acting and permanent contraceptive methods and 89 (22.4%) wanted no more child in the future making the total demand of long acting and permanent contraceptive methods 24.4%.	Factors significantly associated with demand for LAMPs include: Age, number of children (parity), the provider ask about reproductive intention, and the provider explained side effects of selected method Significant number of clients, 33.2% encountered myths and misconceptions about LARPMs, particularly about IUDs and implants	Batu town, Central Ethiopia
Bulto, G. A., T. A. Zewdie, et al. (2014)[21]	Demand for long acting and permanent contraceptive methods and associated factors among married women of reproductive age group in Debre Markos Town, North West Ethiopia.	To assess demand for long acting and permanent contraceptive methods and associated factors among married women of reproductive age group in Debre Markos town	Community based cross sectional study	519 married women of reproductive age group	323 (62.2%) of participants were using modern contraceptive methods in which 101 (19.5%) were using long acting and permanent contraceptive methods (LARPMs). Of the total respondents, 171 (32.9%) had unmet need for LARPMs. The total demand for LARPMs was 272 (52.4%) of which 37.1% were satisfied and 62.9% unsatisfied demand.	Being in the older age group (40-44 years) [AOR = 2.8; 95% CI:1.12, 9.55], desire to have a child after 2 years [AOR=6.4; 95%CI: 3.04,13.47], not ever heard of modern FP [AOR = 5.73; 95% CI:1.26, 25.91], not ever using of modern FP [AOR = 1.89; 95% CI:1.01, 3.55] and having no spousal discussion in the last six months [AOR = 1.642, 95% CI: 1.049, 2.57) were some of the factors significantly associated with demand for LARPMs.	Debre Markos town, Amhara Regional State, North West Ethiopia

Walelegn M, et.al (2014)[57]	Demand for long acting and permanent contraceptive methods and associated factors among female antiretroviral treatment attendees in Addis Ababa, Ethiopia	To assess the demand for long acting and permanent contraceptive method and factors associate with it	Facility based cross sectional	421 women	The total demand for LARPMs among HIV positive women on ART was 60.2% (95% CI 55-65) which was 14% for met need and 46.2% unmet need.	Factors associated with demand for LARPMS include: Number of live children (AOR 0.188 95% CI 0.074-0.476) ;Disclosure of HIV status to family members (AOR 0.400 95% CI 0.227-0.750) Predictors of unmet need include: Number of live children (AOR 0.100 95% CI 0.032-0.311);Marital status (AOR 0.405 95% CI 0.169-0.968;Disclosure of HIV status to family members (AOR 0.339 95% CI.182-0.631);Satisfaction with cost of method (AOR 0.438 95% CI 0.221-0.867)	Addis Ababa in three of the public hospitals.
Takele, A., G. Degu., et al. (2012)[58]	Demand for long acting and permanent methods of contraceptives and factors for non-use among married women of Goba Town, Bale Zone, South East Ethiopia	To determine the utilization of long acting and permanent contraception and its associated factors among married women	Cross sectional community based study	734 married women of reproductive age	The demand for Long Acting and Permanent Methods (LARPMs) of contraception was 18.1%. Utilization of LARPMs in the town was 64 (8.7%) and the unmet need for LARPMs was 69 (9.4%). 636 (86.6%) women do have information on LARPMs through different media	The use of LARPMs was significantly associated with ever use of modern contraceptive AOR [17.43, 95% CI: 9.19, 33.03], number of times discussions made on methods AOR [4.6, 95% CI: 1.72, 12.17] and main decider of using methods AOR [2.2, 95% CI: 1.03, 4.65].	Goba Town, Bale Zone, South East Ethiopia.
Gelagay A. A., D. N. Koye, et al. (2015)[35]	Demand for long acting contraceptive methods among married HIV positive women attending care at public health facilities at Bahir Dar City, Northwest Ethiopia.	To assess demand for long acting contraceptive methods and associated factors among married reproductive age women attending care at Antiretroviral treatment (ART) clinics	Institution-based cross-sectional study	654 ART clients	The demand for long acting contraceptive methods was 36.7 % (95 % CI: 33.2 %, 40.6 %).	Being urban resident [AOR = 3.05, 95 % CI: 1.34, 6.89], attending elementary level education [AOR = 2.31, 95 % CI: 1.34, 3.99], number of live births [AOR = 3.86, 95 % CI: 1.62, 9.20], desire to have more children with in two years [AOR = 5.68, 95 % CI: 3.05, 11.58] and women's experience of contraceptive use[AOR = 6.35, 95 % CI: 4.09, 9.87] were factors associated with demand for LARPMs Myths about LARPMs were common in the community and are major barriers for the promotion and utilization of LARPMs	Bahir Dar city

Yalew SA., B. M. Zeleke, et al. (2015)[3]	Demand for long acting contraceptive methods and associated factors among family planning service users, Northwest Ethiopia: a health facility based cross sectional study	To assess demand for long acting contraceptives and associated factors among family planning users in Debre-Tabor Town, Northwest Ethiopia	Facility based crosssectional study	487 current family planning users	Demand for long acting contraceptives was 17%. Only 9.2% of the women were using long acting contraceptive methods (met need). About 7.8% of women were using short acting methods while they actually want to use long acting methods (unmet need).	Demand for LACMs was positively associated with being a daily laborer (AOR = 3.87, 95% CI = [1.06, 14.20]), being a student (AOR = 2.64, 95% CI = [1.27, 5.47]), no future birth intensions (AOR = 2.17, 95% CI = [1.12, 4.23]), having five or more children (AOR = 1.67, 95% CI = [1.58, 4.83]), deciding together with husbands for using the methods (AOR = 2.73, 95% CI = [1.40, 5.32]) and often having discussion with husband (AOR = 3.89, 95% CI = [1.98, 7.65]). Poor client handling during the service uptake was negatively associated with demand for LACMs (AOR = 0.42, 95% CI = [0.24, 0.74]).	Debre-Tabor Town, Northwest Ethiopia
Earsido A, Gebeyehu A, Kisi T (2015)[59]	Determinants of Long Acting and Permanent Contraceptive Methods Utilization among Married Women in Hossana Town, Southern Ethiopia: A Case - Control Study	To assess the determinants of Long Acting and Permanent Contraceptive Methods Utilization among Married Women in Hossana Town	Community based unmatched case control study	420 (140 cases and 280 controls)	Twenty eight percent (28.3%) of cases and 26.1% of controls mentioned mass media (TV/radio) as their source of information. For 37% of cases and 34.4% of controls, health extension worker were source of information for modern contraceptives. The method mix among cases; Implants (79 %), IUD (12.3%), female sterilization (8.7%) Method mix among controls; injectable (87.3%), pills (12%). Out of the total controls 59% had intention to use LARPM. Nearly, 80% of cases and 72% of controls decided to use contraceptives with their husbands involvement	Women with moderate [AOR=13.9, 95% CI: 6.16, 31.56]and good level [AOR=8.74, 95% CI: 3.78, 20.2] of knowledge, discussion about modern contraceptives with their partners [AOR=3, 95%CI: 1.37, 7.11], intention to give birth in the future [AOR=0.5, 95% CI: 0.25,0.98], source of modern contraceptives from non-governmental health facilities [AOR=7.4 95% CI: 2.62, 20.8] and women who had 3-4 children [AOR = 0.42 95% CI: 0.20, 0.90] were determinant factors of LARPM utilization.	Hossana Town, Southern Ethiopia

Melka A. S., T. Tekelab, et al. (2015)[18]	Determinants of long acting and permanent contraceptive methods utilization among married women of reproductive age groups in western Ethiopia	To understand the determinant factors of long acting and permanent contraceptive methods use among married women of reproductive age in Western Ethiopia	Community based cross-sectional study	1003 married women of reproductive age	Use of long acting and permanent contraceptive methods in this study was found to be 20%.	Women's education(AOR=1.72, 95%CI=1.02-3.05), women's occupation (AOR=2.01, 95% CI=1.11-3.58), number of live children (AOR=2.42, 95% CI: 1.46-4.02), joint fertility related decision (AOR=6.11, 95% CI: 2.29-16.30), having radio/ TV (AOR=2.31, 95% CI: 1.40-3.80), and discussion with health care provider about long acting and permanent contraceptive methods (AOR=13.72, 95% CI: 8.37-22.47) were factor associated with long acting and permanent contraceptive methods use	Western Ethiopia
Tamrie Y. E., E. G. Hanna, et al. (2015)[60]	Determinants of long acting reversible contraception method use among mothers in extended postpartum period, Durame Town, Southern Ethiopia	To assess the determinants of long acting reversible contraception method use among mothers in extended postpartum period	Community based cross sectional study	460 women in extended postpartum period	Prevalence of LARCM use among mothers during their extended postpartum period was 36.7% (95%CI: 32.2, 41.0). Unmet family planning need of mothers in the extended postpartum period was 27.9%.	Attending formal education (AOR 4.09 95%CI: 1.68, 9.58), pervious experiences of using LARC (AOR 7.84 95% CI: 3.78, 16.23), receiving counseling on LARC during delivery (AOR 3.29 95% CI: 1.53, 7.03) and receiving counseling service on LARC during immediate postpartum period (AOR 4.55 95% CI: 1.94, 10.66) were factors affecting LARC use.	Durame Town, Southern Ethiopia
Birhane, K., S. Hagos, et al. (2015)[44]	Early Discontinuation Rate of Implanon and its Associated Factors among Women who ever used Implanon in 2012/2013 in Ofla woreda, Tigray, Northern Ethiopia, 2014	To determine early discontinuation rate of Implanon and to identify its associated factors	Community based cross sectional study	224 women who ever used Implanon	Mean duration of Implanon use was 6.6±2.8 months The overall early Implanon discontinuation was 16%	Health concerns, fear of side effects and desire to have more children were the main reasons for early discontinuation of Implanon	Ofla Woreda of Tigray region
Mengistu M, M. Wubegzier (2014) [24]	Factors affecting women's intention to use long acting and permanent contraceptive methods in Wolaita zone, Southern Ethiopia	To explores the association between women's awareness, attitude and barriers with their intention to use LARPMs among users of short term methods	Mixed method cross sectional study	416 Women who were using short acting contraceptive methods 12 in-depth interviews family planning providers and women	Thirty eight percent (38%) of women had the intention to use LARPMs while nearly half of them had a negative attitude to use such methods Two-third of study participants had myths and misconceptions about short acting contraceptive methods	Women's positive attitude (AOR=2.47; 95% CI: 1.48-4.11) having myths/ misconception. Women who had no myths and misconceptions on LARPMs (AOR=1.71; 95% CI: 1.08-2.72) and educational status (secondary (AOR=2.10; 95% CI: 1.11-3.98)and higher level of education(AOR= 2. 80; 95% CI: 1.15-6.77) were factors associated with intention to use LARPMs	Wolaita zone, Southern Ethiopia

Alemayehu, M., T. Belachew., et al. (2012)[34]	Factors associated with utilization of long acting and permanent contraceptive methods among married women of reproductive age in Mekelle town	To assess factors associated with utilization of long acting and permanent contraceptive methods (LARPM) among married women of reproductive age group in Mekelle town	Cross sectional survey	390 married (15-49 Years) women Two FGDs (one with women and 1 with men)	The overall prevalence of LARPMs use was 12.3% (with 0.0% method mix for permanent methods) Sixty four percent of married women heard about LARPMs. More than half (53.6%) of the married women had negative attitude towards LARPMs use. Use of another contraceptive method is frequently mentioned (93.3%) reason for not using LARPMs Ninety percent (90%) users know modern family planning where (73.9%) users got information on family planning from the community-based reproductive health (CBRH) workers Fifty two percent (52%) have undergone voluntary surgical contraception (5% vasectomy), Norplant (39.0%) and IUD (8.7%).	Women's knowledge on LAROMs (AOR = 7.9, 95% CI of (3.1, 18.3), number of previous pregnancies (>2) (AOR = 2.7, 95% CI of (1.4, 5.1) were factors associated with use of LARPMs.	Mekelle town, Tigray region, north Ethiopia.
Mengistu, A., W. Lakachew, et al. (2006)[61]	Improving the range of contraceptive choices in rural Ethiopia	To examine the pattern of family planning method mix overtime, impact of combining strategies, such as community and facility based approaches, in improving access to family planning services and choices.	Cross sectional, study	218 family planning clients	Almost 81% of the clients using long-term and permanent methods were in the age group of 25-44 years. Limiting family size (45.9%), spacing (27.5%), and side effects of the previous method (12.4%) were the major reasons mentioned for the use of current methods	The study was descriptive and could not report factors related to LARPMs use	Tehuledere Woreda, South Wollo Zone, Amhara Regional State
Gebremariam A. A. Addissie. (2014)[42]	Intention to use long acting and permanent contraceptive methods and factors affecting it among married women in Adigrat town	To assess intention to use long acting and permanent contraceptive methods (LARPMs) and identifying associated factors among currently married women in Adigrat town	community based cross sectional study	594 married women	The prevalence of intention to use LAPMs was 48.4% (95% CI = 44.1, 52.7) here, 152(58.9%) had intention to use LAPMs within the next one year. The most preferred LARPMs was implants 184(71.3%), followed by IUCD 62(24.0%). Fear of side effect (34.5%) and fear of infertility after use (21.1%) and religious or cultural reasons(1.5%) were the main reasons low intention to use LAPMs Similarly, participants in the focus group discussion have expressed their concern on the return of fertility after using implants or IUCD as well as insertion and removal procedures	Intention to use LARPMs was higher among women who knew at least one of LARPMs (AOR =4.7, 95% CI = 1.58, 14.01) and women who do not want to have birth within the next 2 years (AOR = 1.9, 95% CI = 1.22, 3.13). Perceived poor support from their husbands (AOR = 0.2, 95% CI = 0.09, 0.45) and perceived harmful effect of LARPMs for the womb (AOR = 0.24, 95% CI =0.14, 0.41) were identified as protective factors for intention to use LARPMs.	Adigrat town, Tigray, Northern Ethiopia

Alemu WG. and et.al. (2014)[25]	Intention, Experience and Associated Factors of Contraceptive Method Shift to Long Acting Family Planning among Family Planning User Women in Bahir Dar, Amhara Region, Northwest Ethiopia.	To determine experience of contraceptive users, method shift and associated factors among women who had method shift to long acting family planning methods in the last three years	Facility based cross sectional study	810	Ninety two percent (92.4%) have knowledge on LAFPM Thirty five percent (35.6%) women perceived that LAFPMs can cause health problems such as: cancer (24.7%), infertility (16.7%) Current method mix; implant (14.5%), Jadelle (4.1%) and IUCD (1.7%) Intention to method shift to implanon (58.4%), to jadelle (28.3%) and to IUCD (23%) Spacing is the mostly frequently reported reason for method shift (41.1%)	Service related factor are detrimental for LAFP use Information about LAFP has better outcome on LAFPMs use (COR = 5.7, 95% CI: 2.0, 16.0).	Bahir Dar, Amhara Region, Ethiopia
Gebremariam, A. and A. Addissie (2014)[33]	Knowledge and perception on long acting and permanent contraceptive methods in Adigrat town, Tigray, northern Ethiopia	To assess the knowledge and perception on long acting and permanent contraceptives of married women and men in Northern Ethiopia	Qualitative method	Four focus group discussions with married women and men Six in-depth interviews with family planning providers	Participants' knowledge on long acting and permanent contraceptives is limited to recognizing the name of the methods. Most of the participants are not able to identify permanent methods as a method of contraception. They lack basic information on how these methods work and how they can use it	Women had fears and rumors about each of these methods. Women prefer methods which do not require any procedure. Family planning providers stated as they have weakness on counseling of all contraceptive choices	Adigrat town, Tigray, northern Ethiopia
Mulatu K. et.al 2014 [17]	Men's Involvement in Long Acting and Permanent Contraceptive Use in Mizan-Aman District Southwestern Ethiopia: A Community Based Cross-Sectional Study	To assess the role of men in long acting and permanent contraceptive use among currently married men aged 20-64 years in Mizan-Aman District, South Western Ethiopia.	Community Based Cross-Sectional Study	521 men	Only 11.5 % of the respondent's wives used long acting and permanent contraceptive. In this study, none of the men used permanent methods. Method mix for current use showed that; implant 51(85%), IUCD 9(15 %) and female or male sterilization 0(0%). More than half 281 (54 %) of men approved the use of LARPMs. Reasons for disapproval for use of LARPMs; religious prohibition 118(49.2%); need for more child 66 (27.5 %), 55 (22.9 %), fear of side effect 25 (10.4 %), and health problems and culture 22 (9.2 %).	Discussions between couples about long acting and permanent contraceptive in the last 12 months (AOR=4: 95 % CI.1.9. 8.2) and desired number of children (AOR=3.1: 95 % CI.1.-9.2), accompanying wives to health facilities to discuss about family planning with health providers (AOR=2.7: 95 % CI. 1.3-5.6), and supporting the use of long acting and permanent contraceptive (AOR=4.5: 95 % CI. 1.6-12.5) were significantly associated long acting and permanent contraceptive use.	Mizan-Aman District, South Western Ethiopia.
Mekonnen, G., F. Enquselassie, et al. (2014)[62]	Prevalence and factors affecting use of long acting and permanent contraceptive methods in Jinka town, Southern Ethiopia: a cross sectional study	To assess prevalence and associated factors of long acting and permanent contraceptive methods in jinka town, southern Ethiopia	Community based cross sectional	800 child bearing age women 32 purposively selected focus group discussants	The prevalence of long acting and permanent contraceptive method was 7.3%. Three fourth (76.1%) of the women ever heard about implants with 50% method-mix. Almost two third of women had intention to use long acting and permanent methods.	Knowledge of contraceptive and age of women have significant association with the use of long acting and permanent contraceptive methods	Jinka town, southern Ethiopia.

Alemayehu M., A. Kalayu, et al. (2015)[16]	Rural women are more likely to use long acting contraceptive in Tigray region, Northern Ethiopia: a comparative community-based cross sectional study.	Comparing and identifying factors related to the utilization of long acting contraceptive in urban versus rural settings of Ethiopia	Comparative community-based cross sectional	1035 married women	The proportion of long acting contraceptive use among urban setting was 19.9% Vs 37.8% in rural district. Implanon was the most commonly used contraceptive in districts, urban (75%) and rural (94 %).	No or limited support from male partners was an obstacle to using long acting contraceptive method [AOR = 0.24, 95 of CI: 0.13, 0.44]. Educational status and the partner's permission to use contraception could influence the utilization of long acting contraceptives.	Tigray region, Northern Ethiopia
Tsedeke, T., D. Wakgari., et al. (2006)[41]	The role of men in contraceptive use and fertility preference in Hossana Town, southern Ethiopia.	To assess the role of men in contraceptive use and fertility preference among currently married men	Community-based cross-sectional survey	773 currently married men (20-64 years)	Sixty percent of (60.3%) participants want more children. About 91% of the respondents were familiar with at least one of the family planning methods. The most commonly known methods includes; pill (79.4%), injection (78.5%), male condom (65.6%), Norplant (42%), and IUD (30.5%). Forty eight percent (48%) of respondents reported that their wife is currently using contraceptives Injection was the most commonly used method (58%), followed by the pill (27.5%).	The main reasons for not using contraceptives include; a desire to have more children (32%), husband opposition (23.2%), and fear of side effects (15%).	Hossana town, southern Ethiopia
Mota, K., S. Reddy, et al. (2015)[63]	Unmet need of long-acting and permanent family planning methods among women in the reproductive age group in Shashemene town, Oromia region,	To assess factors associated with unmet need of Long Acting and Permanent Methods of contraception among women in the reproductive age group (15-49)	Facility based cross sectional study	382 women (15-49 years)	Utilization of Long Acting and Permanent Methods (LARPMs) was found to be 28.4%. Seventy one percent (71.6%) used short acting methods and from these current short acting users, 127(41.5%) desired to use LARPMs The prevalence of unmet need of LARPMs was 122(33.3%).	Educational status of women (< secondary level) AOR [3.8, 95 % CI: 2.9, 7.6; P <0.001]; lack of discussion between partners AOR [2.9, 95 % CI: 1.8, 9.6; P = .01]; lack of proper counseling for women AOR [5.3, 95 % CI: 1.7, 11.2; P = 0.04]; and women's occupation as a housewife AOR [4.7, 95 % CI: 3.1, 11.3; P = 0.02] were factors associated with unmet need of LAMPs	Shashemene town of West Arsi zone, Oromia Region
Desalegn, M. (2014)[30]	Utilization of long acting and permanent contraceptive method and associated factors among married women in Adama town, Oromia region, central Ethiopia: community based cross sectional study	To assess Level of utilization of long acting and permanent contraceptive methods and associated factors	Community based cross sectional survey	530 married women	Eight seven percent (87%) of the respondents knew long acting and permanent contraceptive methods Fifty five percent (55%) had positive attitude LAFPM The prevalence of long acting and permanent contraceptive use was 20.9%; fear of side effect (63.5%) was the reason for non-use	Knowledge of women (AOR=5.26, 95% CI=1.90-14.69) and positive attitude about the method (AOR=3.25, 95% CI=1.60-6.58) were factors associated with current use long acting and permanent contraceptive method.	Adama town, Oromia region

Asegidew, W. et.al (2014)[32]	Utilization of long acting and permanent family planning methods among women of reproductive age group in Debre-Birhan Town, North Shewa Ethiopia 2014	To assess the utilization of long acting and permanent family planning methods and associated factors among women of age group 18-49 years in Debre-Birhan town, North Shewa Zone, Amhara region, Ethiopia	Community-based cross sectional study	507 women (18-49 years)	More than half of women had negative attitude towards LARPMs use.	Acceptance of the women to use, attitudes of women towards LARPMs, satisfaction of women with any family planning service provided and women age were major independent predictors for the utilization of LARPMs. Common myth and misconception about LARPMs including: IUCD and implants affect the daily activities by preventing free movement interfere with sexual intercourse and desire and particularly IUCD causes cancer and infertility were barriers to the utilization of LARPMs in the community.	Debre Birhan Town, Amhara region
Negatu, B. et.al (2014)[26]	Utilization of Long Acting Contraceptive among Reproductive age women in Addis Ababa Public health Centers	To assess the utilization of long acting contraceptive	Facility based cross sectional study	447 women (15-49 years)	Ninety nine percent (98.9%) of women were aware of LAFPMs Twenty four percent (23.9%) were using LACM. In this study, 32% of women do not support use of LAC due to husbands/partners opposition (27.5%), beliefs that implant cause irregular menstrual bleeding (49.2%), believe that IUD limit women from doing heavy work (20.6%) and believes that LAC should be used only by women who do not want more children (38.9%).	Attitude of clients, previous use of long acting contraceptive, desire to have no children in the future and discussion with partners about long acting contraceptives were factors associated with long acting contraceptives use	Addis Ababa public health clinics