

ORIGINAL RESEARCH ARTICLE

Family Planning Providers' Experiences and Perceptions of Long-Acting Reversible Contraception in Lilongwe, Malawi

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Abstract

Less than 2% of Malawian women use long-acting reversible contraception (LARC). We describe experiences of Malawian family planning providers, focusing on LARC. We conducted a mixed-methods study using questionnaires and focus group discussions with providers in Lilongwe. Data were analyzed separately and triangulated. Most (58%) participants saw over 30 patients daily. Only 19% had ever inserted IUC. Qualitative data were complementary; participants noted that LARC provision was important, though hindered by lack of experienced providers, work burden, and low demand. Future efforts to improve LARC access in Lilongwe must address both supply and demand-side barriers. (*Afr J Reprod Health* 2016; 20[2]: 62-71).

Keywords: Family planning, long-acting reversible contraception, Malawi.

Résumé

Moins de 2% des femmes malawiennes utilisent la contraception de longue durée d'action réversible (CLDR). Nous décrivons les expériences des prestataires de planification familiale malawienne, en nous concentrant sur CLDR. Nous avons effectué une étude des méthodes mixtes à l'aide des questionnaires et des discussions de groupes cibles avec les fournisseurs à Lilongwe. Les données ont été analysées séparément et ont été triangulées. La plupart (58%) des participants ont vu plus de 30 patientes par jour. Seulement 19% avaient déjà inséré DIU. Les données qualitatives étaient complémentaires; les participants ont noté que la provision de la CLDR était importante, quoique entravée par le manque de fournisseurs expérimentés, la charge de travail, et la faible demande. Les futurs efforts pour améliorer l'accès à la CLDR à Lilongwe doit s'occuper des deux barrières de côté de l'offre et de la demande. (*Afr J Reprod Health* 2016; 20[2]: 62-71).

Mots-clés: planification familiale, contraception de longue durée d'action réversible, Malawi.

Introduction

Malawi has a maternal mortality ratio of 460 maternal deaths per 100,000 live births, one of the highest in the world¹. An estimated 39% of pregnancies are unintended, and 26% of women have an unmet need for contraception. Despite high unintended pregnancy rates, less than 2% of Malawian women use Intrauterine Contraception (IUC) or the subdermal implant, the two most effective forms of reversible contraception, which are collectively known as Long-Acting Reversible Contraception (LARC). Both LARC methods have a typical use failure rate of less than 1%².

The injectable contraceptive is the most commonly-used family planning method among Malawian women, despite a typical use failure rate of 6%^{2,3}. Its pervasiveness seems to be driven largely by demand. However, potential supply-related factors, such as availability of family planning commodities and provider bias, have yet to be described in this setting⁴.

The perspective of providers is gaining attention as a means to evaluate and increase the quality of family planning services. Few studies have documented the experiences and opinions of providers, who play a "gatekeeper" role in the translation of family planning policies to service

provision⁵. Providers in Ghana have rationalized restricting contraceptive access for younger women and women of lower parity by citing client safety and morals⁶. Even less is understood of providers' perceptions of LARC. In Morocco, El Salvador, and Kenya, IUC was an underutilized contraceptive method due to the increased amount of time and equipment required for insertion^{7,8,9}. Such negative attitudes underscore a need to thoroughly describe providers' experiences with LARC.

The prevailing bias of contraceptive method uptake in Malawi towards short-term methods highlights a need to better understand realities of family planning service provision. Providers can be useful in addressing low LARC prevalence in the background of unacceptably high rates of unintended pregnancy and maternal mortality¹⁰. Therefore, we conducted a cross-sectional mixed-methods study of family planning providers in Lilongwe to describe their experiences with contraceptive method availability, counseling practices, and perceptions of modern contraceptive methods, with a focus on LARC.

Materials and Methods

We chose to perform a mixed-methods cross-sectional study with concurrent triangulation in which the qualitative component of the study was dominant. This mixed methods study design allowed us to use quantitative methodology to support and validate the challenges and practices discussed in a focus group setting. The qualitative data provided a deeper explanation of the clinical realities noted in the quantitative findings.

Data were collected from providers of family planning services in Lilongwe District. Quantitative data were collected through interviewer-administered questionnaires and qualitative data through focus group discussions. We surveyed up to five family planning providers from 12 health centers in Lilongwe. Seven clinics were initially identified for selection because previously collected family planning data in 2012 revealed they were placing few or no implants or IUDs. We then chose seven additional clinics that had previously been known to be placing implants and IUDs for comparison. We later discovered that two of the

latter clinics were no longer providing family planning services at the time of the study and were thus excluded. All clinical officers, nurses, clinic aides, counselors, and physicians who participated in providing family planning services at the identified clinics were eligible for participation. Survey participants were invited to participate in focus group discussions at a later date. Three focus group discussions with 7-10 participants each were conducted. Saturation of qualitative data collection was expected within 20-40 total participants based on previously piloted focus group discussions.

A member of the research team administered each questionnaire after obtaining informed consent. Interviews were conducted in English, and lasted approximately thirty minutes. The questionnaire was adapted from a previously piloted study of family planning providers in Malawi and included providers' demographic information, as well as characteristics of the clinic, including staffing, client numbers, and services. We also asked providers about prescribing practices and history of LARC training. Identifying information was not recorded on the questionnaires, which were stored in a locked office.

Focus group discussions were held on three later dates. Providers who had completed the quantitative questionnaires were asked if they were interested and available to participate in a focus group discussion, and if so, they were invited to participate in one of the scheduled discussions. Informed consent was obtained from each provider for both the questionnaire and the discussion. The discussion was audio-recorded with participants' permission. A moderator used a structured interview guide to facilitate discussion, while a second member of the research team took notes. Discussions were conducted in English with occasional Chichewa immediately interpreted by the moderator who was fluent in English and Chichewa. Participants' names were not used and were instead assigned numbers. Recordings were later transcribed.

The focus group discussion focused on three predetermined domains: 1) Providers' practice environment; 2) Providers' perceptions of family planning attitudes in the communities that they serve; 3) Providers attitudes towards LARC and

potential strategies to improve utilization of LARC.

Measurements

The questionnaires assessed the availability of specific family planning methods at the clinic, and for each method available, the frequency of stock-outs and outside referral of clients for procedures. We also assessed providers' family planning prescribing practices and preferences, history of implant and IUD insertion training and interest in further training. The focus group discussions elaborated on providers' clinical realities in providing family planning, providers' perceptions of different contraceptive methods, and perceptions of long-acting reversible contraception.

Data analysis

Questionnaires were entered into an Excel database and analyzed using Stata, and later checked by a second member of the research team. To assess prescribing practices and accessibility of family planning services, we performed descriptive statistics, including proportions, means, and medians.

The textual data were first read for content and emerging themes identified. Codes were created based on identified themes and independently assigned to sections of text by two members of the research team. We then identified principle sub-themes within each code that reflected finer distinctions. Matrices and tables were constructed to categorize and display the data and search for relationships among themes¹¹.

Following analysis of the questionnaires and focus group discussions, the two researchers triangulated the findings from the quantitative and qualitative data by assessing results for convergence, complementarity, or dissonance. Findings related to each method were compared to identify meta-themes that were consistent across both studies¹².

Ethical approval was obtained by both the University of North Carolina-Chapel Hill Institutional Review Board and the Malawian National Health Sciences Research Committee.

Results

Individual provider questionnaires

Provider characteristics

A total of 37 providers were interviewed. The majority (81%) was nurses, and almost half had at least 10 years of experience in health care (Table 1).

Table 1. Provider Characteristics (N=37)

	N	%
Gender		
Male	13	(35%)
Female	24	(65%)
Age		
20-29	12	(32%)
30-39	14	(38%)
≥40	11	(30%)
Type of provider		
Clinical officer	1	(3%)
Medical assistant	4	(11%)
Registered nurse	7	(19%)
Nurse midwife technician	23	(62%)
Counselor	2	(5%)
Average daily number of family planning patients seen by provider		
0-19	4	(11%)
20-29	11	(31%)
30-49	14	(39%)
≥50	7	(19%)
Average time provider spends with each patient		
0-5 minutes	13	(35%)
10-20 minutes	21	(57%)
Over 20 minutes	3	(8%)

The majority (58%) of providers reported seeing over 30 patients per day, and most (57%) reported spending between 10 and 20 minutes on average per patient.

Counseling practices and popular methods among clients

The most common family planning methods counseled by providers in the past month were injectables, condoms, and oral contraceptives (Table 2). The most popular methods noted by providers were injectables (100%), oral contraceptives (84%), and condoms (49%) and implants (49%)(Table 3).

Table 2. Contraceptive Methods Counseled by Provider to Patients in Last Month (N=37)

Contraceptive method	All women	HIV-infected women	Women <20
Condoms			
Yes	31 (84%)	29 (78%)	29 (78%)
No	3 (8%)	5 (14%)	5 (14%)
Not applicable*	3 (8%)	3 (8%)	3 (8%)
OCP			
Yes	29 (78%)	22 (60%)	23 (62%)
No	5 (14%)	12 (32%)	11 (30%)
Not applicable	3 (8%)	3 (8%)	3 (8%)
Injection			
Yes	32 (87%)	27 (73%)	27 (73%)
No	2 (5%)	7 (19%)	7 (19%)
Not applicable	3 (8%)	3 (8%)	3 (8%)
Implant			
Yes	27 (73%)	20 (54%)	13 (35%)
No	7 (19%)	14 (38%)	21 (57%)
Not applicable	3 (8%)	3 (8%)	3 (8%)
IUC			
Yes	15 (41%)	12 (32%)	5 (14%)
No	19 (51%)	22 (60%)	29 (78%)
Not applicable	3 (8%)	3 (8%)	3 (8%)
BTL			
Yes	26 (70%)	20 (54%)	0 (0%)
No	8 (22%)	14 (38%)	34 (92%)
Not applicable	3 (8%)	3 (8%)	3 (8%)
EC			
Yes	22 (60%)	13 (35%)	19 (51%)
No	12 (32%)	21 (57%)	15 (41%)
Not applicable	3 (8%)	3 (8%)	3 (8%)

*Provider was on leave or assigned to a different ward during the past month.

OCP=oral contraceptive pills; IUC=intrauterine contraception; BTL=bilateral tubal ligation; EC=emergency contraception

Providers' experience and interest in LARC insertion training

Just over half of the providers (51%) had been trained to insert the implant compared with 30% for IUC (Table 4). Of the 11 providers trained to insert IUC, only 5 (46%) had actually inserted an IUC during their training, and 4 (36%) had never inserted an IUC. All 19 providers trained in implant insertions had inserted at least one implant. Nearly all were interested in receiving LARC insertion training.

Providers' reports of clinic resources

When providing clinic-level information, many providers from the same clinics reported discrepant

information regarding services (data are not shown). The majority reported that their clinic did not offer IUC or female sterilization services and instead referred clients to a mobile family planning clinic of a local NGO or another Ministry of Health facility. Implants were offered at most clinics. All short-term methods were offered at all clinics. Stock-outs were most common for injectables, emergency contraception, and pregnancy tests.

Focus Group Discussions

Three focus group discussions were held with 25 providers. Four main domains were elaborated throughout the discussions.

Providers' practice environment

Participants frequently alluded to the overburdened state of health care facilities as the main challenge to offering services. Providers are often expected to manage several different types of patients in a day due to understaffing. In smaller clinics, as few as two providers may attend to hundreds of antenatal, pediatric, and laboring patients. Overwhelming numbers of clients and understaffing lead to reduced time for individual counseling and increased dependence on group family planning education.

"You can have 3 in labor—3 patients in labor ward, antenatal is waiting for you—family planning is waiting for you—and you are all alone.....This workload is a problem."
Female nurse, 53 years

Lack of resources, such as equipment for sterilization, and frequent stock-outs of methods, is a chronic problem for many clinics. As a result, patients who travel long distances for continuation of their chosen short-acting method and may be faced with the unavailability of their method of choice.

"We ask the client if she can choose another method temporarily...and we give the method. Probably we give the oral [pills], with condoms, as we are waiting for Depo-Provera."
Female nurse, 31 years

Table 3: Provider Responses to the Question “What are the Three Most Common Methods of Family Planning Used by your Patients?” (N=37)

	All women		HIV-infected women		Women under 20	
	N	%	N	%	N	%
Condoms						
Yes	18	(49%)	32	(87%)	34	(92%)
No	19	(51%)	5	(14%)	3	(8%)
OCP						
Yes	31	(84%)	19	(51%)	23	(62%)
No	6	(16%)	18	(49%)	14	(38%)
Injection						
Yes	37	(100%)	34	(92%)	33	(89%)
No	0	(0%)	3	(8%)	4	(11%)
Implant						
Yes	18	(49%)	11	(30%)	6	(16%)
No	19	(51%)	26	(70%)	31	(84%)
IUC						
Yes	0	(0%)	0	(0%)	0	(0%)
No	37	(100%)	37	(100%)	37	(100%)
BTL						
Yes	7	(19%)	12	(32%)	0	(0%)
No	30	(81%)	25	(68%)	37	(100%)
EC						
Yes	0	(0%)	0	(0%)	5	(14%)
No	37	(100%)	37	(100%)	32	(87%)

OCP=oral contraceptive pills; IUC=intrauterine contraception; BTL=bilateral tubal ligation; EC=emergency contraception

All methods are presented through group counseling prior to individual counseling, in which the patient is given additional information on her chosen method. There was a general consensus that the role of family planning providers is to present all contraceptive options, rather than recommend any one method over another.

“We are not there to recommend ourselves—no. Unless there is a problem”

Female nurse, 60 years

Providers were asked whether counseling was different for special populations such as HIV-infected women and women less than 20 years. While providers did not alter the methods presented to HIV-infected patients, most stressed dual method use with condoms, and several emphasized long-term and permanent methods. Four providers felt it would be undesirable for an HIV-infected woman to have another child.

“On HIV-positive clients we emphasize dual protection...also we need to discuss about their reproductive goals

because if they have enough children, it is better that they should not get another pregnancy with their status.”

Female nurse, 30 years

Providers’ perceptions of family planning attitudes in their communities

Family planning clients were often influenced by community peers, which often resulted in patients’ decision to use the injectable. The overwhelming popularity of the injectable is due to its familiarity, its discrete nature in cases where the partner is unsupportive of family planning, and that it is a “forgettable method.”

“It’s the method that is commonly available in most of the clinics, no? Yeah, and most of the women they are already convinced at home by their friends that Depo is the best method. So....they go for the Depo.”

Female nurse, 29 years

Providers alluded to myths in the community regarding contraceptive methods, particularly LARC.

Table 4: Individual Provider Training in the Implant and IUC (N=37)

	Implant		IUC	
	N	%	N	%
Trained to insert				
Yes	19	(51%)	11	(30%)
No	18	(49%)	26	(70%)
Interested in receiving training	N=18		N=26	
Yes	17	(94%)	25	(96%)
No	1	(6%)	1	(4%)
Number of trainings attended	N=19		N=11	
1	19	(100%)	9	(82%)
≥2	0	(0%)	2	(18%)
Interested in refresher training				
Yes	18	(95%)	11	(100%)
No	1	(5%)	0	(0%)
Number inserted during training				
0	1	(5%)	5	(46%)
1-9	6	(32%)	2	(18%)
≥10	12	(63%)	4	(36%)
Number inserted in lifetime				
0	0	(0%)	4	(36%)
1-9	2	(5%)	2	(18%)
10-49	7	(19%)	3	(27%)
≥50	10	(76%)	2	(18%)

IUC=intrauterine contraception

Myths included adverse effects of contraceptives on future pregnancies and sex life, and migration of the implant and IUC inside the body following insertion. Some women were concerned hormonal methods would cause cancer due to side effects of abnormal bleeding. Fear of lower abdominal pain and discomfort during sex was commonly cited as reasons for low interest in IUC. Providers found these misconceptions to be troublesome as patients' family planning decision-making is often influenced by community beliefs.

"Clients rarely choose the [IUC], because.....they just have some fears about the method...Like some say it moves from where it is inserted up maybe—in the abdomen...maybe that

when they are having time with their husband the husband feels the threads on the IUC, which is not true."

Male nurse, 33 years

Provider attitudes and practices regarding LARC

Participants had generally positive perceptions of LARC. Almost all providers felt the implant or IUC was the ideal method. Only one provider felt that the injectable was the best method. Providers recognized LARC has having the potential to reduce future clinic work burden. A specific benefit cited regarding IUC was that it contains no hormones. Providers tended to see implants as more appropriate for child spacing compared to IUC, given its shorter duration of efficacy. They also recognized a lack of emphasis on LARC during counseling sessions and low motivation by providers to take time to perform LARC insertions.

"I like inserting Implanon...Jadelle because if I insert that Jadelle, this client is served....for 5 years or 3 years without coming back. So I prefer Implanon and Jadelle, than Depo. Because it will reduce the workload."

Female nurse, 53 years

Providers had some concerns about LARC safety and drug interactions. Several cited concerns for risk of perforation and infection with IUC, especially in young women and women with multiple sexual partners, respectively. Two providers cited concerns of interactions between implants and ARVs, one of whom recalled that two of her clients had become pregnant while using the implant.

"I would not allow them to insert IUC on a primigravid. There are dangers of perforating. It's not safe."

Female nurse, 60 years

None of the providers had ever heard of immediate postpartum IUC insertion, and many cited concerns regarding infection and perforation. They also added that clients may wrongly attribute pain following delivery to IUC. Only one provider was amenable to immediate postpartum IUC.

"As for me, I feel that it is not good, because at that time the woman has just

delivered, maybe she is still having some pain....Maybe there can be some problems. So it's better to wait for, maybe, 6 weeks. I don't know."

Male medical assistant, 41 years

Most clinics lack necessary resources and competent providers for LARC insertion. Most discussants had not been trained to insert both methods. Providers trained in IUC insertion often did not feel competent due to shortage of clients. Even competent LARC providers faced barriers to maintaining skills due to work burden, assignment to separate wards, and lack of sterilized instruments.

The combination of work burden and few LARC-trained staff has led to referral of LARC insertions to mobile family planning clinics offered by a private reproductive health organization, which visit district health centers monthly to perform tubal ligations and LARC insertions. Some providers noted that at times, due to overwhelming numbers of patients, some women are sent home. As mobile family planning clinics tend to prioritize sterilizations, those desiring LARC are most affected.

"I don't feel comfortable to insert IUC. So...I don't...emphasize on the IUC...I have been trained, but I have just observed once—I have never inserted it. So, I....just tell them to wait for [the private health organization]."

Female nurse, 29 years

Strategies to increase LARC uptake

Providers offered a combination of performance-based incentives and general, non-monetary strategies to promote LARC. There was a consensus on the need to train more providers in LARC and ensure supervision following training. Participants felt that increasing the number of competent LARC providers would decrease facilities' reliance on mobile family planning clinics.

In addition to increasing the availability of LARC at health centers, providers cited the need to sensitize the community and address misconceptions concerning LARC. LARC is a relatively new method in most health facilities. Many providers felt that clients would be more

likely to choose LARC if these methods were properly emphasized during counseling.

"After counseling many people like the method. At the health center where I worked before, most of the people were coming for Depo. But after time and counseling, many people came for implants.... even IUC."

Female nurse, 32 years

While providers generally had a favorable view of performance-based incentives to encourage LARC insertion, they had differing opinions as to the type of incentive and to whom benefits should be directed. Some felt the incentives should target LARC providers themselves, while others feared causing tension among clinic staff. There was also discussion as to whether the incentives should be purely monetary, or consist of purchases of supplies necessary for the clinic.

"I feel it can be good to give to the clinic. Because if I say I'm inserting an IUC, or I'm inserting an implant, it's not only me who is doing the work....there's someone who is assisting me....So it's teamwork."

Female nurse, 53 years

While most providers felt that performance-based incentives would increase LARC provision, opinions varied as to how long the incentives should be in place, and whether changes would be sustained following withdrawal of incentives. Most providers felt that client demand generated by community sensitization would lead to a sustained increase in LARC insertions that would outlive the duration of incentives. Providers also offered several ideas unrelated to performance-based incentives to address barriers to LARC provision. One provider emphasized the need to optimize scheduling to ensure that trained LARC providers are always available, or enabling coverage for LARC providers assigned to other wards. Another provider suggested a certificate of appreciation for health centers meeting established LARC targets to motivate staff.

"I think it should be arranged at that facility that on a daily basis, there has to be a provider for each and every

method....there should be an arrangement for them to be found in the family planning clinic to be providing the services."

Female nurse, 42 years

Findings derived from the focus group discussions were complementary to the quantitative data. Three meta-themes were identified which were consistent throughout the focus groups and individual interviews: provider work burden, community biases towards family planning methods, and LARC training and competency.

Discussion

Numerous challenges to family planning service provision exist in Lilongwe. Our quantitative results reveal high workload, inconsistent supply, and insufficient resources for LARC insertion. The injectable remains the most commonly requested family planning method. While providers had a favorable perception of LARC, few felt competent to provide it. Quantitative results were complemented by the focus group discussions, in which work burden and the popularity of the injectable were recurring themes. Lack of experienced LARC providers as a result of low patient demand, high work burden and lack of equipment, have resulted in reliance on outside referrals for LARC insertion. These findings suggest that both supply and demand-side issues lead to low LARC utilization in Malawi.

The limitations alluded to by providers have been previously described in resource-limited settings¹³. In Uganda, family planning providers perceived the quality of their care to be limited by systemic problems, such as limited supplies, workload, and training¹⁴. Nurse midwives in India cited problems with reimbursement, facility resources, poor training and supervision, transportation, bureaucratic obstacles, and scheduling¹⁵. In Lilongwe, work burden has contributed to lack of emphasis on LARC counseling. Providers also noted that many clients, convinced by peers, arrive to the clinic having already decided on the injectable.

The historical popularity of the injectable seems to have impeded LARC uptake, which

continues to be plagued by misconceptions. The prevailing misconceptions concerning LARC have been previously cited in Malawi and other parts of the world where popular understanding of anatomy is low^{16,17}. Many Malawian women also hold a traditional belief that bodily pain can render a woman barren, which may exacerbate concerns of pain and IUC¹⁸. Our providers reported that patients often mistook menstrual irregularities for cancer, which was previously reported as the top concern regarding hormonal contraception among Ghanaian women¹⁷. Demand for LARC in Malawi may be increased by more effective counseling targeting these misconceptions, as has been demonstrated elsewhere in the region¹⁹.

Providers had very favorable attitudes towards LARC, though many cited low motivation among colleagues. Positive features of LARC included its forgettable nature, lack of hormonal side effects of IUC, and potential to decrease future workload. In Kenya, changes in providers' family planning counseling and prescription policies to place more emphasis on LARC resulted in fewer clients returning in the short-term for refill visits²⁰. However, we do not know how our providers' reported enthusiasm for LARC translates to actual counseling and clinical practices.

Despite favorable attitudes, providers acknowledged concerns of IUC safety. Concern with infectious risks associated with IUC has also been reported by South African providers²¹. Nearly all providers had a negative perception of immediate postpartum IUC insertion. As the WHO Medical Eligibility Criteria has assigned a Category I recommendation for immediate postpartum IUC, its lack of acceptability among providers is noteworthy. Access to effective postpartum family planning is a critical strategy to address unintended pregnancy and short inter-pregnancy intervals²².

The discrepancy between trained and active LARC providers was due to a combination of insufficient community demand, lack of emphasis on LARC counseling, insufficient equipment, and lack of practical experience. Among providers trained in LARC, several had never inserted an IUC. Insufficient expertise in method insertion due to inadequate training are well-established concerns for procedurally demanding contraceptive

methods²³. In El Salvador and Kenya, providers cited a cycle of infrequent insertion leading to low levels of self-confidence in ability^{8,9}. In addition to limiting practice opportunities for providers, the referral of LARC insertions to mobile family planning clinics presents a challenge for clients who travel long distances to the clinic.

Providers held mixed views as to the types and effectiveness of performance-based incentives to increase LARC provision at government health centers. In private clinics and other countries where providers are paid per service, providers are often reimbursed at higher rates for LARC to account for the increased time required for insertion. Our participants were hesitant to introduce direct incentives for providers due to potential tension among health facility staff. Many African countries are now turning to pay-for-performance services. Health care workers in Tanzania reported similar skepticism in rewarding health workers in isolation, and cited the need to improve the equipment and situation at facilities before implementing pay-for-performance activities²⁴. They additionally noted concerns of sacrifices in quality for quantity, as well as the potential for forgery, which were not mentioned by our participants. While our providers generally felt that performance-based incentives would increase LARC uptake, they also saw some of the challenges faced by clinics as opportunities to increase LARC provision. Suggestions included strategic scheduling of LARC providers and incentivizing LARC insertions with the procurement of necessary supplies for the facility.

As attitudes towards LARC were self-reported in a group setting, we may have encountered social desirability bias during focus group discussions. This could have inflated positive perceptions of LARC. Recall bias may have also affected responses of individual questionnaires. We did not assess clients' experiences of the quality of family planning services, which can impact LARC uptake²⁵. Nonetheless, the lack of active LARC providers and heavy work burden described in the questionnaires were consistent with the focus group discussions.

In conclusion, family planning providers in Lilongwe face chronic challenges of work burden and resource constraints. Providers view LARC as an important family planning method, and recognize

its potential to decrease future workload. However, the persistent popularity of the injectable and misconceptions surrounding LARC have impeded providers' ability to acquire and maintain LARC insertion skills. Improved counseling on the positive attributes of LARC may increase demand, as has been the case in other settings^{19,26}. Performance-based incentives may help to increase LARC provision, however careful consideration must be taken as to the type of incentive, to whom it is directed, and that it does not lead to coercion of clients if providers feel that they need to meet certain targets. Future efforts to meet contraceptive need in Malawi should address both supply and demand-related barriers to LARC uptake with the ultimate goal of achieving a more balanced contraceptive method mix.

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Contribution of Authors

ES, VC, and JT developed the study concept and study design. TM, MO, CC, and ES performed data collection. TM, MO, GH, and JT performed data analysis and interpretation. TM, MO, JT, and MH performed manuscript preparation and revisions. All authors approved the final manuscript.

References

1. WHO, UNICEF, UNFPA, The World Bank, and the

- United Nations Population Division. Trends in Maternal Mortality: 1990 to 2010. Geneva, World Health Organization, 2012.
2. National Statistical Office. Malawi Demographic and Health Survey. Zomba, Malawi and Calverton, Maryland, USA: National Statistical Office;2011.
 3. Trussell J. Contraceptive failure in the United States. *Contraception* 2011; 1(83): 397-404.
 4. Sullivan TM, Bertrand JT, Rice J, Shelton JD. Skewed contraceptive method mix: why it happens, why it matters. *Journal Biosoc Sci* 2006; 38(4): 501-521.
 5. Shelton J. The provider perspective: human after all. *Int Fam Plan Perspect* 2001; 27(3): 152-153, 161.
 6. Stanback JaT-B, K.A. Why do family planning providers restrict access to services? An examination in Ghana. *Int Fam Plan Perspect*. 2001; 27(1): 37-41.
 7. Hajji N LA. Etude qualitative sur le dispositif intrauterin au Maroc. Rabat, Morocco: Royaume du Maroc, Ministère de la Santé Publique, Direction de la Population, Programme de Planification Familiale; 1996.
 8. Johson L, Katz, K., Janowitz, B. Determining reasons for low IUD use in El Salvador. Research Triangle Park: Family Health International; 2000.
 9. Stanback J, Omondi-Odhiambo, Omudo D. Final report. Why has IUD use slowed in Kenya? Part A. Qualitative assessment of IUD service delivery in Kenya. Research Triangle Park: Family Health International; 1995.
 10. Winner B, Peipert JF, Zhao Q, et al. Effectiveness of long-acting reversible contraception. *N Engl J Med* 2012; 366(21): 1998-2007.
 11. Ulin PR, Robinson, E. T., Tolley, E. E. *Qualitative Methods in Public Health: A Field Guide for Applied Research*. San Francisco, CA: Family Health International; 2005.
 12. O' Cathain A, Murphy E, Nicholl J. Three techniques for integrating data in mixed methods studies. *BMJ* 2010; 341: c4587.
World Health Organization. The World Health Report 2006 - working together for health. Geneva, Switzerland;2006.
 13. Mugisha JF, Reynolds H. Provider perspectives on barriers to family planning quality in Uganda: a qualitative study. *J Fam Plann Reprod Health Care* 2008; 34(1): 37-41.
 14. Khan M.E. GRB. Quality of family planning services from provider's perspective: Observations from a qualitative study in Sitapur District, Uttar Pradesh. New Delhi: Population Council; 1995.
 15. Michie L, Cameron ST. Improving the uptake of long acting reversible contraception: a review. *Minerva Ginecol* 2013; 65(3): 241-252.
 16. Hindin MJ, McGough LJ, Adanu RM. Misperceptions, misinformation and myths about modern contraceptive use in Ghana. *J Fam Plann Reprod Health Care* 2014; 40(1): 30-35.
 17. Chipeta EK, Chimwaza W, Kalilani-Phiri L. Contraceptive knowledge, beliefs and attitudes in rural Malawi: misinformation, misbeliefs and misperceptions. *Malawi Med J* 2010; 22(2): 38-41.
 18. Hubacher D, Olawo A, Manduku C, Kiarie J. Factors associated with uptake of subdermal contraceptive implants in a young Kenyan population. *Contraception* 2011; 84(4): 413-417.
 19. Mutemwa R, Mayhew S, Colombini M, Busza J, Kivunaga J, Ndwiga C. Experiences of health care providers with integrated HIV and reproductive health services in Kenya: a qualitative study. *BMC Health Serv Res* 2013; 13: 18.
 20. van Zijl S, Morrioni C, van der Spuy ZM. A survey to assess knowledge and acceptability of the intrauterine device in the Family Planning Services in Cape Town, South Africa. *J Fam Plann Reprod Health Care* 2010; 36(2): 73-78.
 21. World Health Organization. Medical eligibility criteria for contraceptive use, fourth edition. Geneva, Switzerland; 2009b.
 22. Weisberg E, Fraser IS, Goss S. The decline in popularity of the intrauterine device. A survey of general practitioner attitudes and practices in New South Wales. *Med J Aust* 1994; 160(1): 19-21.
 23. Chimhutu V, Lindkvist I, Lange S. When incentives work too well: locally implemented pay for performance (P4P) and adverse sanctions towards home birth in Tanzania - a qualitative study. *BMC Health Serv Res* 2014; 14: 23.
 24. Hong R, Montana L, Mishra V. Family planning services quality as a determinant of use of IUD in Egypt. *BMC Health Serv Res*. 2006; 6: 79.
 25. Khu NH, Vwalika B, Karita E, et al. Fertility goal-based counseling increases contraceptive implant and IUD use in HIV-discordant couples in Rwanda and Zambia. *Contraception* 2013; 88(1): 74-82.