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Providing long-acting and permanent contraceptives through outreach in rural Uganda

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Authors and acknowledgements
Marie Stopes International

Acronyms

CHW	Community health worker
DHS	Demographic and Health Survey
IUD	Intrauterine device
LAPM	Long-acting and permanent method
MSI	Marie Stopes International
MSU	Marie Stopes Uganda
QTA	Quality Technical Assistance
SRH	Sexual and reproductive health

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Executive summary

In many sub-Saharan African countries there is a large unmet need for family planning, and this is often more acute in rural and remote settings. The region has seen a focus on delivery of short term family planning methods; however, long-acting and permanent methods of contraception (LAPM), such as intrauterine devices (IUD), implants and tubal ligations (TL), have high levels of effectiveness and user satisfaction.[1] [2] In Uganda, for instance, 41% of married women have an unmet need for family planning and in 2006 only 3% were using an LAPM.[3] In order to improve women's health and enable individuals to achieve the family size they want, it is vital that low contraceptive access and limited choices for family planning methods in the region are addressed.

Marie Stopes International (MSI) employs a mobile outreach model to increase the availability of LAPMs among women living in rural and hard to reach areas. Marie Stopes Uganda (MSU) delivers LAPMs through outreach in all of the country's districts. In 2010, when this study was undertaken, MSU provided a total of 37,062 tubal ligations, 42,498 implants and 20,323 IUDs. The majority of these (87%) were delivered by the outreach service.

While expanding the availability of family planning methods is important, it is equally important to maintain quality and to ensure that services are safe and meet the expectations of clients. To inform and improve family planning services, we undertook a prospective cohort evaluation of LAPM provision in two MSU mobile outreach sites.

Between February and April 2010, 1,384 women receiving tubal ligation procedures, IUDs and implants were recruited in to the study. Participants were interviewed about any side effects they experienced and their severity. Clients were also asked about their level of satisfaction with the service and about decisions to have IUDs or implants removed. The interviews took place on the day of the procedure and then again 15 and 90 days later.

The majority of women accessing LAPMs were married or cohabiting (93%) and over half (56%) had five or more children. Most women had low educational attainment; only 9% had reached secondary or tertiary level; 89% were either housewives or farmers and 96% were living below the national poverty line. The majority of tubal ligation clients (62%) were aged between 31 and 40 years, 43% of IUD clients and 38% of implant clients were aged between 21 and 30.

The main reasons that women gave for adopting LAPMs were child spacing (53%), not wanting children (23%) and completed families (13%). A higher percentage of tubal ligation clients reported completed families (30%) than IUD and implant clients (7% and 3%, respectively).

All side effects reported on the day of procedure were categorised by clients as mild events that required no medical intervention and no complications were recorded. On day 15, the majority of side effects reported were considered to be mild or moderate, however 7% (n=32) of tubal ligation clients, 3% (n=11) of IUD and 1% (n=4) of implant clients reported severe side effects (requiring medical intervention). Of these women, 33 reported frequent pain and 14 reported minor complications such as bleeding, poor healing and discharge. There were no reports of major complications. The majority (96%) of clients reporting severe side effects were able to access medical care.

The incidence of side effects and complications observed in this study are largely in line with published literature. Minor levels of pain are an expected side effect of tubal ligation, IUD and implant insertion and in this study, pain was the most commonly reported side effect following every type of procedure. The average time it took women to resume normal activities was seven days for tubal ligation clients, two days for IUD and four days for implant clients.

After 90 days, approximately 5% of IUD clients and 3% of implant clients had had their contraceptive method removed, these proportions are slightly higher than those observed in similar studies carried out by MSI in Ethiopia and Sierra Leone.[4] The most common reason was method-related (discomfort or pain). A further 5% of IUD users reported that the IUD had been expelled. This is in-line with prevalence of IUD expulsion in published studies.[5 6] Nearly all clients reported high levels of satisfaction with all aspects of the service (irrespective of the LAPM chosen), and 96% said they would recommend the procedure to other women.

This study shows that LAPMs can be provided safely and effectively in rural and hard to reach areas of Uganda using mobile outreach programmes. In the selected cohort, no major complications were reported. Side effects were generally mild or moderate and the majority of clients were willing to recommend the service to other women. Furthermore, women reported high levels of satisfaction with all areas of service provision for all types of LAPM. Through this service, MSU is also fulfilling its objectives in reaching hard to reach and under-served women in rural settings.

It is recommended that family planning programmes consider the provision of LAPMs via outreach as a method of expanding contraceptive access in rural areas; however outcomes and side effects should be monitored to ensure procedures are safe and acceptable to women. The following recommendations are made to MSU:

- continue to monitor the clinical outcomes of LAPM clients attending outreach clinics
- strengthen counselling to increase client awareness of expected and unexpected side-effects of LAPM
- improve follow-up services to ensure women's concerns, are addressed as they arise
- work with women to address reasons for dissatisfaction with services and improve service quality
- build networks with other providers to enable issues such as complications and side effects to be monitored and addressed effectively.

1. Introduction

There is a large unmet need for reproductive health and family planning services in sub-Saharan Africa. This need is particularly high in rural areas where healthcare facilities are often scarce, difficult to access or are unable to meet the needs of clients due to shortages of staff or resources.[7] Over the past 30 years, contraceptive provision in the region has focused mainly on short term methods, such as condoms and contraceptive pills. It is now recognised that increasing access to quality services for long-acting and permanent methods (LAPMs) such as intrauterine devices (IUD), implants and tubal ligation is pivotal to widening women's contraceptive choices.

IUDs and implants have a proven record of long-term effectiveness, convenience, cost-effectiveness and high user satisfaction. Tubal ligation is a safe and effective permanent method for women who have completed their families or for individuals who do not wish to have children.[1,2] In sub-Saharan Africa, family planning uptake is often motivated by women's desire to limit the number of births. However, evidence from the region suggests a wide discrepancy between the proportion of women who do not want any more children and the proportion using an LAPM. This implies a significant unmet need for LAPMs such as IUDs or tubal ligation.[8]

Each year, Marie Stopes International (MSI) provides millions of LAPMs for family planning purposes. In 2010, for example, MSI delivered 575,465 tubal ligation procedures, 316,825 implants and 1,047,389 IUDs to women living in 37 countries.[9] LAPMs are particularly suitable for use in rural areas because they do not require continual resupply, have lower discontinuation rates than short acting methods and therefore help to reduce demands on the healthcare system. Despite this, LAPMs are only available in urban health facilities in many countries.[8]

BOX 1: The family planning context in Uganda

Uganda has one of the highest fertility rates in the world, with 6.7 births per woman of reproductive age (15-49 years).[3] The fertility rate is highest in rural areas, where more than 80% of Ugandans live and where access to health services is poor. Use of contraception is low across the country and 41% of currently married women have an unmet need for family planning. Despite the advantages of using LAPMs, the availability and use of these methods are low in Uganda. Demographic and Health Survey (DHS) figures from 2006 indicate that around 10% of married women use injectables but only 3% use any form of LAPM (see Table 1). There is considerable inequality in access to family planning in Uganda. Studies show that wealth related inequalities in the met need for family planning have increased between the DHS 2000-01 and DHS 2006 surveys for both birth spacing and birth limiting.[17]

MSI uses a mobile outreach model to provide affordable (or free), high quality LAPM services to women living in rural and hard to reach areas. Sensitisation and demand-generation are conducted in advance of outreach visits, often with assistance from community health workers. In most MSI programmes the mobile outreach teams make use of existing public health clinics or hospitals but in some cases they use other facilities such as schools. Where no facilities are available, outreach teams work from a tent or a van. The frequency with which outreach teams return to certain locations, as well as the duration of each visit, depends on the level of demand.

TABLE 1: Current use of family planning among women of reproductive age in Uganda (DHS 2006) [3]

Method	Unmarried sexually active	Currently married	All women
Any method	54.0%	23.7%	19.6%
Any modern method	46.9%	17.9%	15.4%
Female sterilisation	0.6%	2.4%	1.7%
Male sterilisation	-	0.1%	0.1%
IUD	0.2%	0.2%	0.1%
Implant	-	0.3%	0.3%
Pill	6.1%	2.9%	2.3%
Injectable	13.4%	10.2%	7.7%
Condom	26.7%	1.7%	3.2%
Traditional or folk method	7.1%	5.8%	4.1%
Not currently using	46.0%	76.3%	80.4%

The general MSI mobile outreach team is comprised of five individuals: two nurses, a sexual and reproductive health counsellor, one healthcare assistant and one driver / nurse aid, but this varies by country. MSI outreach programmes are expected to implement high quality clinical standards and rigorous follow-up systems that allow women to access medical advice post-procedure. According to MSI clinical standards, women should be given appropriate pre and post procedure counselling on how to deal with side effects, when to come back for a follow-up visit, and where and how to seek medical advice when needed.

MSI outreach programmes provide the full range of contraceptive methods. In many cases, the government partner where outreach is taking place already offers short term methods and therefore MSI complements this service provision by focusing on unavailable methods (usually LAPMs). In 2010, 73% of LAPMs provided by MSI were delivered via outreach services.

Marie Stopes Uganda

MSI first established Marie Stopes Uganda (MSU) as a local entity providing family planning services in 1990. In a context of significant unmet need for family planning and low LAPM usage (see Box 1), MSU provides sexual and reproductive health (SRH) services via outreach in all of the country's districts. The outreach programme follows a clinical service delivery team approach whereby MSU provides reproductive health and family planning services at government facilities, often in collaboration with personnel from the Ministry of Health. Community mobilisers work with women and men in the outreach catchment areas to inform them about the outreach site and its activities. In 2010, when this study was undertaken, MSU provided a total of 37,062 tubal ligations, 42,498 implants, and 20,323 IUD procedures; 87% of these were delivered via the outreach programme.

While expanding contraceptive access is important, it is equally important to maintain quality and to ensure that services are safe and meet the expectations of clients. MSI has a number of tools through which service quality is routinely monitored. These include the Quality Technical Assistance (QTA), where programmes are assessed against standard indicators of quality of service, and exit interviews which collect information about client experiences and satisfaction. In 2010, MSI conducted a more in-depth service evaluation among women receiving tubal ligation procedures, IUDs and implants via outreach clinics in Uganda. The evaluation measured the prevalence of side effects and complications, health seeking behaviours, discontinuation of IUDs and implants, as well as client's acceptability and satisfaction with mobile outreach services.


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Study aims and objectives

The ultimate aim of this service evaluation was to gain an understanding of the safety of LAPM delivery via outreach services. This information can help to improve the quality of services for women living in poor and rural settings by strengthening relevant programmatic areas, for example counselling messages or follow-up mechanisms.

More specifically, we conducted a prospective cohort study with the following objectives:

- to evaluate the prevalence of side effects (and the severity of any side effects) associated with LAPMs (tubal ligations, IUDs and implants) offered in MSU's mobile outreach services
- to assess the three month discontinuation rates associated with IUDs and implants when delivered via outreach services
- to explore health seeking behaviours post-procedure, acceptability and levels of satisfaction among LAPM clients in Uganda who had attended mobile outreach clinics.

2. Methods

2.1 Study design, setting and participants

We conducted a prospective cohort study among women who received tubal ligation, IUD or implant procedures between 10th February and 30th April 2010 at two MSU mobile outreach sites. The sites were located in Mbale and Arua, in eastern and north-western Uganda, respectively.

Women who met the following criteria were eligible for inclusion in the study:

- aged 15-49 years
- received tubal ligation, implant or IUD via outreach services during the study period
- willing to return to the outreach sites for follow up visits
- willing to give verbal informed consent.

2.2 Sampling method

At the time of the study, a total of 12 mobile outreach teams were operating in Uganda. The Mbale and Arua teams were purposively selected on account of having the highest service numbers for tubal ligations, IUDs and implants during 2009. Based on the number of clients served in previous years, we anticipated recruiting enough women over a 30 day period so that we could stratify the results by LAPM chosen (approximately 450 women per LAPM).

2.3 Survey instrument and data collection

On the day of the procedure, we collected socio-demographic data on the women, information about immediate side effects, complications and client satisfaction. All the women involved in the study were asked to return on day 15 post-procedure for a follow-up interview. At this visit, the interviewer collected information about side effects and complications, health-seeking behaviour, resumption of normal activities and satisfaction. Women receiving either an IUD or implant were also asked to return on day 90 when information was collected about method discontinuation.

The service evaluation recorded immediate side effects, on the day of the procedure, and delayed side effects 15 days later. All side effects were categorised according to their severity. Minor and major complications were later identified from the severe side effects recorded.

As the study was conducted at outreach locations, medical personnel were not available to assess side effects at follow-up interviews. Study participants were therefore counselled on how to rate the severity of their side effects (as described in Box 2) by the medical personnel on day one (the baseline visit). Participants were also instructed to seek care at MSU affiliated government or private health facilities if they believed their side effects were severe.

2.4 Data analysis

Data was summarised using descriptive statistical methods. We calculated the proportion of clients that were lost to follow up by day 15 and by day 90 for IUD and implant clients. Socio-demographic details of participants are presented followed by data on prior contraceptive use, reasons for choosing LAPMs, side effects (and severity), health seeking behaviours, acceptability, satisfaction and discontinuation of IUDs and implants by the end of the study period (day 90). Data analysis was conducted using STATA 12 (College Station, TX, USA, 2011).

BOX 2: Side effect severity level

Level 1: Mild
The client experiences rare level of discomfort that does not require any medical intervention.

Level 2: Moderate
The client experiences some level of discomfort that only requires resting or minimum level of medical intervention such as taking pain relief medication.

Level 3: Severe
The client experiences frequent level of discomfort that requires attention from medical personnel to conduct a medical intervention.

3. Findings

3.1 Study location and cohort profile

In this study, the majority of procedures were delivered in rural locations. Tubal ligations were performed by medical doctors, while IUDs and implants were most commonly inserted by an MSU nurse or midwife (88.5% and 85.3% of procedures, respectively).

Of the 1,834 clients who attended outreach services and were eligible to participate in the study, 1,384 subsequently enrolled in the study, while 450 declined to participate (Figure 1). Among the 1,384 study participants, 32.8% (n=454) women received tubal ligation, 33.2% (n=460) had IUD insertions and 34.0% (n=470) received implants. At day 15, 88.4% (n=1,224) of clients returned for follow-up interviews (447 tubal ligation clients, 423 IUD clients and 354 implant clients). Loss to follow up at day 15 was greater among women who had received implants (24.7%) than those who had received tubal ligation or IUD (1.5% and 8.0%, respectively). On day 90, 82.4% (n=379) of IUD clients and 71.9% (n=338) of implant clients attended a follow up visit (see Figure 1).

3.2 Socio-demographic characteristics

The median age of clients was 35 years for tubal ligation clients, 27 years for IUD clients and 25 years for implant clients. The vast majority of clients (92.8%) were either married or cohabiting and 56.4% of clients had five or more children (see Table 2). Women receiving tubal ligations had more children (95.4% had >5 children) than women receiving either IUDs or implants (44.8% and 30.0%, respectively). A large proportion of women had never attended school, or had only primary school education (89.2%); and the majority of women were either housewives or farmers (89.2%). Most (96.0%) women reported that their daily household income was below 5,000 Ugandan Shillings (~US $2.4 in 2010). The majority of clients were either Protestant (41.1%) or Catholic (49.3%) and 8.6% were either Muslim or of other religions (Table 2).

FIGURE 1: Cohort profile

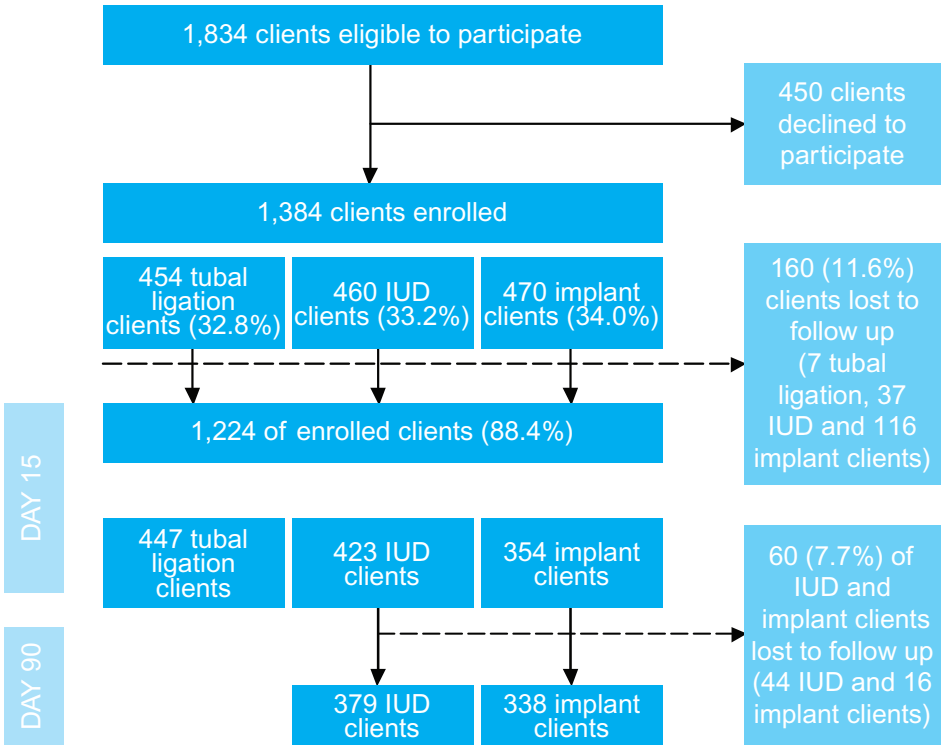


TABLE 2: Client socio-demographic characteristics by LAPM adopted

Socio-demographic factor	Tubal ligation clients (n=454) % (n)	IUD clients (n=460) % (n)	Implant clients (n=470) % (n)	All clients (n=1,384) % (n)
Age+				
20 or under	1.5 (7)	9.6 (44)	16.8 (79)	9.4 (130)
21-30	28.4 (129)	42.6 (196)	38.1 (179)	36.4 (504)
31-40	62.1 (282)	15.4 (71)	10.4 (49)	29.0 (402)
41 or over	7.3 (33)	2.6 (12)	0.9 (4)	3.5 (49)
Marital status				
Single / engaged	0.9 (4)	1.5 (7)	1.1 (5)	1.2 (16)
Married / cohabiting	95.4 (433)	92.0 (423)	91.1 (428)	92.8 (1,284)
Separated / divorced / widowed	3.7 (17)	6.1 (28)	6.8 (32)	5.6 (77)
Number of children (ever born)				
< 5 children	4.6 (21)	54.6 (251)	68.9 (324)	43.1 (596)
≥ 5 children	95.4 (433)	44.8 (206)	30.0 (141)	56.4 (780)
Education level				
Never attended school	42.3 (192)	40.4 (186)	29.6 (139)	37.4 (517)
Primary	52.9 (240)	47.0 (216)	55.5 (261)	51.8 (717)
Secondary / tertiary	4.6 (21)	9.6 (44)	13.0 (61)	9.1 (126)
Occupation				
Housework / farmer	97.8 (444)	86.5 (398)	83.6 (393)	89.2 (1,235)
Other / businesswoman / formal employment	2.0 (9)	12.6 (58)	14.5 (68)	9.8 (135)
Daily household income (self-reported)				
Below 5,000 Ugandan Shillings	98.2 (446)	95.0 (437)	94.7 (445)	96.0 (1,328)
Above 5,000 Ugandan Shillings	1.8 (8)	3.9 (18)	4.3 (20)	3.3 (46)
Religion				
Muslim	6.0 (27)	2.8 (13)	3.4 (16)	4.0 (56)
Protestant	48.0 (218)	40.0 (184)	35.5 (167)	41.1 (569)
Catholic	35.7 (162)	53.9 (248)	57.9 (272)	49.3 (682)
Other	9.5 (43)	2.6 (12)	1.7 (8)	4.6 (63)

+High proportion of missing data for this variable (tubal ligation 0.7%, IUD 29.8%, implant 33.8%: overall 21.6%)

3.3 Prior contraceptive use

About 40% (n=546) of women were not using a contraceptive method before joining the study (30.6% of tubal ligation clients, 45.4% of IUD clients and 42.1% of implant clients), a further 9.2% (n=127) were using traditional methods: withdrawal or periodic abstinence (see Table 3). Prior to adopting an LAPM at the MSU mobile outreach programme, the most commonly used contraceptive methods were injection (30.6%), implants (12.3%) and periodic abstinence (8.8%).

3.4 Source of information on MSU outreach services and reason for LAPM use

A high proportion of women learnt about MSU outreach services through facility based health workers or community health workers (55.1% and 37.2%, respectively), (see Figure 2). A lower proportion of women learnt about MSU outreach services through the radio, satisfied users of outreach services and other sources.

The main reasons cited by women for adopting LAPMs were child spacing (53.4%), not wanting children (23.0%) and completed families (13.3%), (see Figure 3). A higher proportion of women opting for tubal ligation services indicated that they had completed their family (30.0% of women) compared to those who chose IUDs or implants (7.0% and 3.4%, respectively). The majority of women who opted for an IUD or implant reported that they chose the methods for child spacing (72.4% and 85.5% respectively).

TABLE 3: Use of contraceptives prior to adopting an LAPM

		Adopted LAPM			
		Tubal ligation (n=454) % (n)	IUD (n=460) % (n)	Implant (n=470) % (n)	All clients (n=1,384) % (n)
Previous method used	None	30.6 (139)	45.4 (209)	42.1 (198)	39.5 (546)
	Contraceptive pill	2.9 (13)	4.3 (20)	4.3 (20)	3.8 (53)
	Condom	0.4 (2)	0.2 (1)	1.3 (6)	0.7 (9)
	Injection	32.2 (146)	29.6 (136)	30.2 (142)	30.6 (424)
	IUD	0.4 (2)	0.2 (1)	0.6 (3)	0.4 (6)
	Implant	17.4 (79)	9.3 (43)	10.2 (48)	12.3 (170)
	Emergency contraception	2.0 (9)	1.7 (8)	2.8 (13)	2.2 (30)
	Withdrawal	0.4 (2)	0.2 (1)	0.4 (2)	0.4 (5)
	Periodic abstinence	13.0 (59)	7.2 (33)	6.4 (30)	8.8 (122)

FIGURE 2: Source of information on MSU outreach services

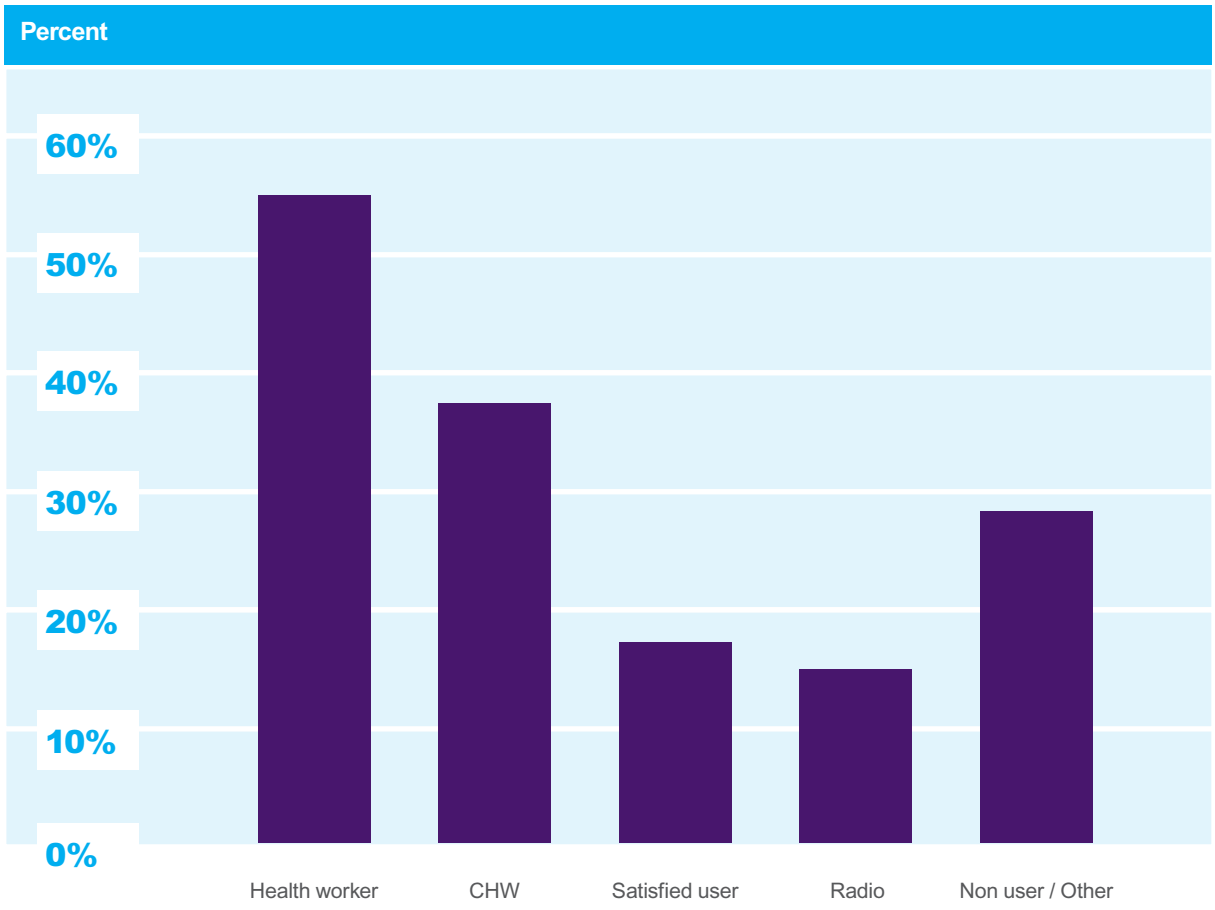
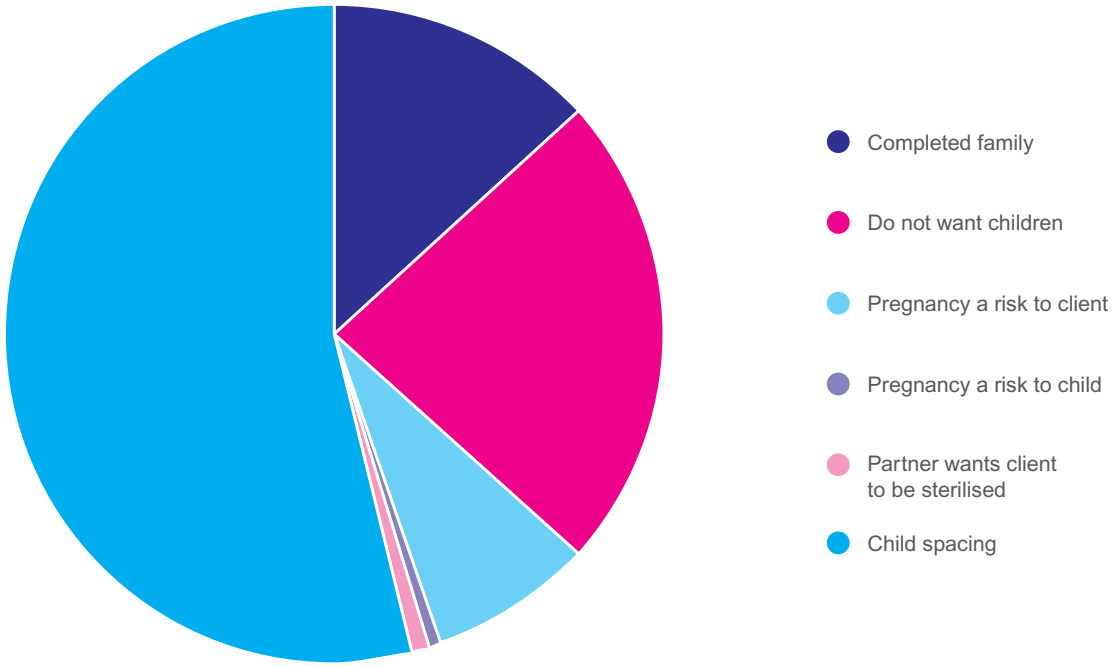


FIGURE 3: Reasons cited by clients for adopting LAPM (% of women)*



**This figure combines reasons for choosing all three methods (tubal ligation, implants and IUD)*

3.5 Side effects and care seeking behaviour

3.5.1 Severity of side effects and incidence of minor complications

On the day of the procedure, all of the side effects reported were categorised by clients as mild events that required no medical intervention. No moderate or severe events were either reported by the women or observed by the medical personnel.

On day 15, the majority of the reported side effects were considered by the client to be mild or moderate. A total of 47 women reported severe side effects, defined as a frequent level of discomfort that requires attention from medical personnel to conduct a medical intervention. Of these women, 33 reported frequent pain and 14 reported minor complications. A break down by method is as follows: among tubal ligation clients, 7.2% (n=32) reported severe side effects, 5.8% (n=26) experienced frequent pain and the remaining 1.3% (n=6) experienced minor complications. The rates were lower among IUD clients: 2.6% (n=11) reported severe side effects, 0.7% (n=3) experienced frequent pain and 1.9% (n=8) experienced minor complications. Of the 1.1% (n=4) implant clients who reported severe side effects, all recorded experiencing frequent pain.

Clients were also asked about the tolerability of their side effects: 91.1% of tubal ligation clients, 96.1% of IUD and 96.2% of implant clients described the side effects experienced on day 15 as tolerable, very tolerable or causing no discomfort.

3.5.2 Types of side effects

Day of procedure

Women were asked about the types of side effects that they experienced following the procedure; they were able to give multiple answers. Pain was the most commonly reported side effect following every type of procedure and, in the case of implants, the only side effect reported. No complications were recorded on the day of procedure.

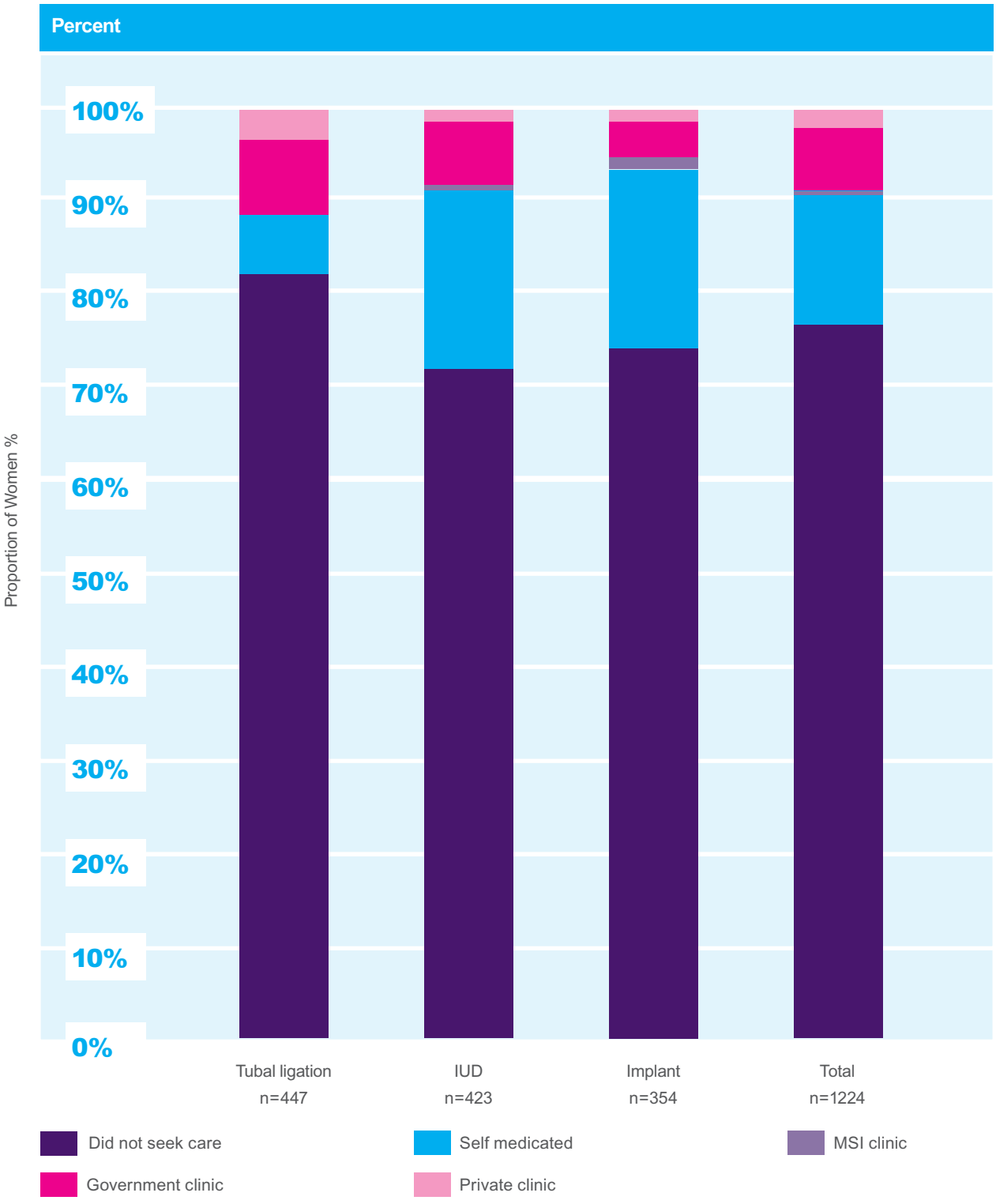
- Tubal ligations (n=454): The most commonly reported side effects by the women immediately post procedure were pain around the wound (92.3%; n=419) and bleeding (66.1%; n=300). Additionally, 9.3% (n=42) of women reported feeling anxious and sweating, 0.6% (n=3) had abdominal pain and 0.9% (n=4) had chills and fever.
- IUD (n=460): The most common side effect reported immediately following insertion of the IUD was pain (69.6%; n=320). Four women (0.9%) also reported chills and feeling feverish.
- Implant (n=470): The majority of women (79.4%; n=373) reported pain around the area where the implant was inserted. No other side effects were reported.

Day 15 post-procedure

Details were obtained on the types of side effects women were experiencing at day 15. Again, women could list multiple side effects and as on the day of procedure, pain was reported most frequently. Minor complications were experienced by six (1.3%) tubal ligation clients and eight (1.9%) IUD clients. There were no minor complications among implant clients and no clients experienced major complications.

- Tubal ligations (n=447): The most commonly reported side effects were pain around the wound (68.7%; n=307), abdominal pain (41.8%; n=187) and bleeding (15.0%; n=67). Of the 32 (7.2%) women who reported severe side effects, 16 had abdominal pain and 10 individuals described pain around the wound. The remaining six women reported minor complications: four experienced bleeding and two noticed poor healing or suspected a burst suture. The majority of these women (93.7%; n=30) were able to seek medical care.
- IUD (n=423): Pain (34.8%; n=147), discharge (30.0%; n=127) and bleeding (28.8%; n=122) were the most commonly reported side effects up to day 15 after IUD insertion. A total of 11 (2.6%) women reported having severe side effects. Of these, three described having pain and eight had minor complications: four experienced bleeding and four had discharge. All of these individuals were able to seek care.
- Implant (n=354): The most commonly reported side effect occurring up to day 15 after the procedure was pain around the insertion area (61.9%; n=219). There were four cases where the women reported the side effect as being severe, with one woman experiencing swelling and three experiencing pain. All four individuals were able to receive care and no women experienced complications.

FIGURE 4: Health seeking behaviour among women up to day 15 after LAPM procedure



3.5.3 Health seeking behaviour by day 15

At the day 15 follow up interview, women were asked if they had sought medical attention or self medicated in response to any of the side effects they had experienced (mild, moderate or severe).

- Tubal ligations (n=447): The majority of women (81.4%) did not seek medical attention by day 15 after the tubal ligation (Figure 4). A small proportion of women self-medicated (6.7%), others sought medical help from either a private (2.9%) or government clinic (8.3%). Of the 50 women who sought medical help from a clinic, 46 received some sort of medical intervention.

- Implant (n=354): The majority of women (71.2%) did not seek medical attention by day 15 after the procedure. A small proportion of women (7.1%) sought care from an MSU, government or private clinic, others (17.8%) self medicated.

- IUD (n=423): The majority of women did not seek medical attention by day 15 after the procedure (70.9%). Just less than one fifth of women self medicated (18.4%), while 9.2% of women sought care from an MSU, government or private clinic.

3.6 IUD and implant discontinuation by day 90 post procedure

When asked about removal or expulsion on the day 90 follow-up visit, 90% of IUD users and 97.4% of implant users were still using the method.

Among IUD clients who attended the follow-up interview on day 90, 10.0% (n=38) had discontinued their IUD (see Figure 5). Of these 38 individuals, 44.7% (n=17) reported that their IUD had been expelled while the remaining women had had their IUD removed. The majority of women had the removal performed at a government clinic (71.4% n=15), others opted to have the procedure at a private clinic or MSU clinic. Of the 21 women who had their IUD removed by day 90, 12 reported discomfort or pain as the reason for removal, five stated that the removal was not their decision and two wanted to become pregnant.

Of the 338 implant clients who attended the follow-up interview on day 90, nine had removed their implant. Eight of the women had the removal performed at a government clinic. Seven women reported that discomfort or pain was the reason for removal. One woman stated that the removal was not her decision and one wanted to become pregnant.

3.7 Client acceptability, satisfaction and recovery time

On the day of the procedure, 94% - 98% of clients reported that they were satisfied with the following aspects of service provision: customer service, counselling, surgical procedure, pain management and recovery (see Table 4).

The majority of women (88.7%) reported being very satisfied with the whole process at day 15. This figure was higher for tubal ligation (97.1%) and IUD (92.9%) clients than for implants (73.2%). Overall, only 0.6% of women reported being either very dissatisfied or somewhat dissatisfied with the process. A high proportion of women (96.0%) reported that they would recommend the procedure to other women; this proportion was consistent across methods.

By day 15, 85.3% of implant clients reported that they felt extremely well and 13.6% that they felt fairly well. These proportions were similar among IUD clients: 81.3% and 17.5% feeling extremely well and fairly well respectively. The proportion of tubal ligation clients feeling extremely well at day 15 was lower at 59.3% but a higher proportion, 37.4%, reported that they felt fairly well.

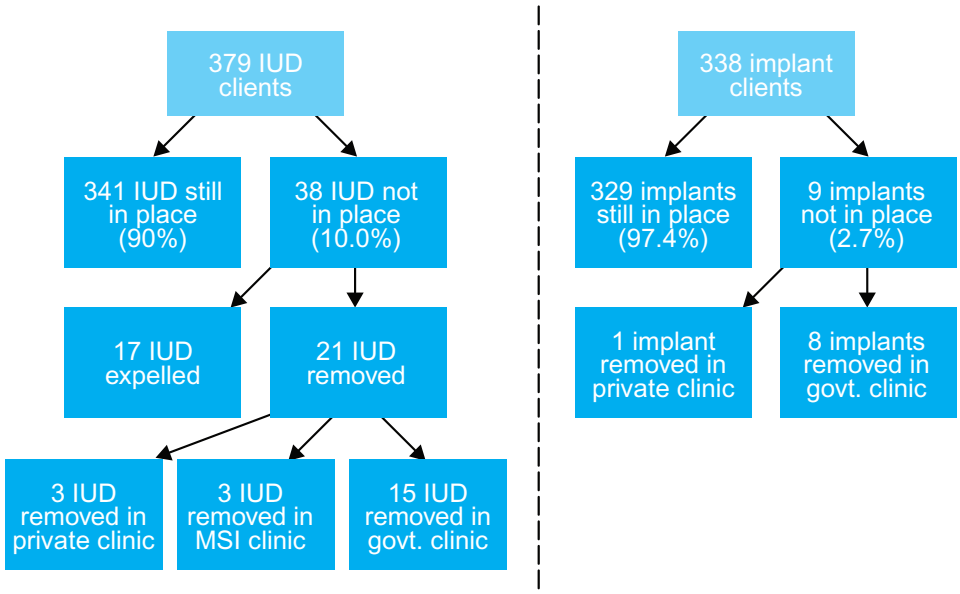
Tubal ligation clients reported that they returned to work a median of seven days after their procedure and resumed sexual activity after a median of nine days. On average, the return to normal activities was more rapid among IUD and implant clients than tubal ligation clients. IUD clients took a median of two days to return to work and implant clients took four days. Women reported that they resumed sexual activity after a median of six days for IUD clients and five days for implant clients.[i]

i This is in line with advice during counselling that the implant can take up to five days to be fully effective.

TABLE 4: Proportion of clients who reported that they were satisfied or very satisfied with aspects of service provision on the day of procedure

	Tubal ligation clients (n=454) % (n)	IUD clients (n=460) % (n)	Implant clients (n=470) % (n)
Customer service	443 (97.6)	446 (97.0)	442 (94.0)
Counselling	445 (98.0)	446 (97.0)	443 (94.3)
Surgical procedure	438 (96.5)	445 (96.7)	442 (94.0)
Pain management	435 (95.8)	29.6 (136)	442 (94.0)
Recovery	435 (95.8)	-	-

FIGURE 5: Flowchart indicating IUD and implant discontinuation by day 90 among study cohort



4. Discussion and recommendations

4.1 Discussion

This study demonstrates that LAPMs can be provided safely and effectively in rural areas using MSU's mobile outreach model with low levels of minor complications and discontinuation. Furthermore, the results indicate that outreach services in Uganda are meeting the aim of providing LAPMs to under-served populations. In this sample, the majority of services were delivered to women living in rural areas with self-reported household incomes below the national average and low educational attainment. Prior to receiving LAPMs via outreach services, 40% of women were not using a contraceptive method. The remainder of the women switched method on this occasion, demonstrating the importance of expanding contraceptive choices for women in hard to reach areas.

The observed incidence of side effects and complications in this study are largely in line with the published literature. Side effects experienced by women following insertion of an IUD or implant were generally mild or moderate and tolerable with 2.6% (n=11) of IUD clients and 1.1% (n=4) of implant clients experiencing severe side effects at day 15 and 1.9% (n=8) of IUD clients experiencing minor complications. According to the literature, complications during IUD insertion, such as cervical laceration or uterine perforation are rare.[5 10] However, most women experience some minor side effects following IUD insertion, such as changes in menstrual bleeding and pain. A study carried out in 2009 found that 9% of the 1,947 participants experienced serious pain in the first nine weeks of IUD use.[11]

Complications from hormonal implants are uncommon, but may include infection at the insertion site (3-7% of insertions), expulsion (extremely rare) and difficult removal.[12] Changes in bleeding patterns are relatively common following implant insertion and other side effects may include headaches, abdominal pain and weight changes.[13]

Studies have shown that tubal ligation is generally associated with low levels of minor complications (1-4%), such as wound infections and small haematoma, which can be resolved easily and rapidly.[14] For example, a review of twelve Kenyan studies in 1997 found 0.7% of the 12,000 clients experienced major complications and 3.4% experienced minor complications.[15] In the current study, 1.3% of tubal ligation clients reported minor complications at the day 15 follow up interview and a further 5.8% experienced frequent pain.

In the published literature, the proportion of women experiencing expulsion of an IUD ranges from less than 1% to 10% annually, although it is reported that most of these occur within the first three months.[5 6] In the current study, 4.5% of women reported that their IUD had been expelled by day 90. There is evidence to suggest that correct insertion technique can reduce the rate of expulsion.[5]

A relatively small proportion of women had their IUDs and implants removed by day 90. Figures are comparable to the results of a previous MSI outreach evaluation, which found prevalence of discontinuation by three months of 0.4% and 0.7% for implants in Ethiopia and Sierra Leone respectively, and 4.6% for IUDs in Sierra Leone.[4] An analysis of 14 DHS surveys from 1993 to 2008 found a median of 13.2% of women discontinued IUD use by 12 months. This ranged from 9.6% in Turkey to 37.3% in Bangladesh.[16] In this study, women who had their IUD or implant removed generally did so due to discomfort and pain.

It may be possible to reduce discontinuation by strengthening counselling so that women are aware of expected side effects and are informed that these should dissipate over time. Expected side effects should be clearly distinguished from those that are unexpected and serious and require women to seek care. Qualitative research could also be conducted to explore myths surrounding LAPMs and campaigns developed to try to dispel these myths and increase uptake and continuation. High client satisfaction ratings among all methods and a willingness of women to recommend services to others are encouraging. Furthermore, women resumed normal activities within a relatively short period following the LAPM procedure.

This study has several limitations. First side effects, severity of side effects and IUD expulsion were not medically verified which may have led to over-reporting. Secondly, the follow-up period was relatively short; therefore we were unable to obtain a comprehensive picture of longer term side effects, such as changes in menstrual bleeding, which may only emerge over time, or of discontinuation behaviours over the longer term. Due to the small sample size it was not possible to assess the characteristics of women who discontinued versus those who continued. Lastly, measures of satisfaction and acceptability used in the study are likely to suffer from courtesy bias, whereby women tend to give answers that they think the interviewer wants to hear, rather than what they really feel.

The study does, however, demonstrate the safety and effectiveness of providing tubal ligation, IUDs and implants through mobile outreach services and the importance of continuing to use this service model to provide expanded contraceptive access and choices for the poor and women living in rural areas. By providing LAPMs in rural, hard to reach areas, MSU significantly contributes to the improvement of Uganda's overall sexual and reproductive health. This evaluation has also helped to highlight areas for programme strengthening and further research.

4.2 Recommendations

It is recommended that family planning programmes consider the provision of LAPMs via outreach as a method of expanding contraceptive access in rural areas; however, outcomes and side effect should be monitored to ensure procedures are safe and acceptable to women. The following recommendations are made to MSU:

- continue to monitor the clinical outcomes of LAPM clients attending outreach clinics
- strengthen counselling to increase client awareness of expected and unexpected side-effects of LAPMs
- improve follow-up services to ensure women's concerns, are addressed as they arise
- work with women to address reasons for dissatisfaction with services and improve service quality
- build networks with other providers to enable issues such as complications and side effects to be monitored and addressed effectively.

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