

Effect of a multi-pronged program on FP use and intention to use: A three-phase evaluation of RISE program in Uganda

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Effect of a multi-pronged program on FP use and intention to use: A three-phase evaluation of RISE program in Uganda

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Abstract

Introduction: Family planning aligned non-governmental organizations more commonly evaluate their performance as a routine part of their work than as research output. This paper evaluates the effect of a 5-year semi-nationwide FP program run by an NGO with a focus on use of and intention to use FP.

Methods: Cross-sectional baseline, midline, and endline surveys were carried out to monitor and assess progress on implementing a 5-year FP program. Key outcome indicators in this analysis are the current use of any method, the use of the modern FP method, and the intention to use a method in the next 6 months. Absolute percent differences are used to measure change which is further analysed using weighted multivariable mixed effects models.

Results

The use of any contraceptives among married women increased by 2.7% while the use of modern contraceptives reduced by 0.2% but the changes were not statistically significant. The prevalence of the use of long-acting reversible contraceptives among married women reduced by 1.8%.

There was a 5.7 % increase in the use of short-term methods. The intention to use FP in the next 6 months reduced by absolute 5.0% among men and 5.4% among women and these changes were significant at 5% level.

Conclusion: There was an increase in FP use in hard-to-reach or low-level service utilization areas in the country. Thus, the RISE consortium achieved its long-term goal of increasing access to FP services especially in the hard-to-reach setting.

Key Words: Contraceptive prevalence, Intention to use, Monitoring and Evaluation, Modified Poisson regression, LARC, STM.

Introduction

The Sustainable Development Goals (SDG) target 3.7 calls on countries to ensure universal access to sexual and reproductive health (SRHR) care services that include family planning (FP) by 2030[1]. Evidence shows that achievement of this goal facilitates progress on other goals like a reduction in the risk of maternal and newborn deaths (targets 3.1-3.2) caused due to unintended pregnancies [2-4]. Many countries have made progress on access to FP services but fall short of the 2030 target as evidenced by the worldwide contraceptive prevalence rate increase of only 2.1% (55%-57.1%) for a period from 2000 to 2019[5]. The slow progress in FP uptake has prompted several non-government organization (NGO) programs to supplement government efforts. Evaluation of such programs provides the evidence necessary for designing effective programs, however, few of the program evaluations carried out are published in peer-reviewed journals.

Worldwide, evaluation of FP programs produces varying levels of success depending on the mode of intervention, target group, and other factors. An endline evaluation of the Partnering to Save Lives (PSL) program that focused on maternal and child health (MCH) activities among garment factory female workers in Cambodia between 2014 to 2017 found that FP use increased by 14.6% AV(Absolute value) from baseline (10.6%) to endline (25.2%)[6]. A community-based MCH program in Aringa region of Tanzania between 2015-2020 managed to increase FP use among women of reproductive age by 31% AV in one district and 24% AV in another[7]. An evaluation of the “In Their Hands” (ITH) program that worked on SRHR for adolescents (15-18 years) in Kenya from 2018 to 2020 found that the use of modern methods (other than condoms) increased only by 0.8% AV from 35.4% at baseline to 36.2% at endline and the difference was not statistically significant[8].

Uganda has an estimated population of 46.2 million[9] in an area of 235,880 sq. km with a population growth of 3.0%[10] and 78% of the population is under 35 years. This places the country among those with the youngest and fastest-growing population in the world[11]. It has an unmet need for modern family planning (FP) of 34% with an unintended pregnancy rate of 46%

[12]. Unsafe abortions are responsible for 40% [13] of admissions for emergency obstetric care and contribute 8% [14] of maternal deaths. Increased access to and use of modern contraceptive methods [2, 3] will change this status quo. Other benefits of the use of FP include improved socioeconomic status and general welfare at an individual level. The barriers to using contraception in the country include fear of side effects, infrequent sex, financial incapability, ignorance about methods, and partner opposition towards contraception [2, 4]. Among women with an unmet need for contraception, the largest proportion is poor and less educated [2].

In the 15-year inter-survey period of 2001-2016, the country made improvements in maternal health with a 35.9% reduction in maternal mortality ratio (MMR) from 524 to 336 per 100,000 live births followed by a sharp decline of 44% to 189 live births per 100,000 between 2017 and 2022, which is still far behind the 2030 SDG target of 70 live births per 100,000 [15, 16]. The high MMR in the period 2015-2018 and low level of FP uptake prompted a consortium of partners led by Marie Stopes International (MSI) to respond to a call for funding posted by the Foreign, Commonwealth Development Office (FCDO) which was by then known as the Department for International Development (DFID). A program named Reducing High Fertility Rates and improving sexual reproductive health outcomes in Uganda (RISE) was born out of the successful bid and it focused on raising uptake of FP through increased awareness, access to and utilization of high-quality FP services, as well as strengthening the capacity of the public and private sectors to provide such services in Uganda. Implementation began in November 2018 and ended in January 2024. The program promoted equity in FP services with targets that included adolescent and young girls (AGYW) and people with disabilities (PWD), and further supported outreaches in hard-to-reach (HTR) areas that could not attract skilled workforce or where the community was poorest and least likely to access services in private health facilities [17]. Equity in FP refers to equal/fair opportunity to access quality FP services regardless of social, economic and geographic background [18]. Some of the hard-to-reach areas in the country include the Northeastern region of Karamoja and the Northwestern region of West Nile.

Besides the lead institution (MSI), the RISE consortium included the Ministry of Health (MoH), Family Health International (FHI 360), Population Media Centre (PMC), Reach A Hand Uganda (RAHU), Partners in Population Development African Region Office (PPD ARO), Options Consultative services (OPTIONS) and Makerere University School of Public Health (MakSPH)

[19]. MSI provided the overall leadership and FP services. FHI 360 provided leadership on Social and Behavioural Change Communication (SBCC) strategies and interventions, including participatory action media studies to inform the design of the RISE communication strategy. PMC delivered Edutainment through radio dramas designed to address deeply entrenched beliefs and behaviours at the community level, but their activities ended in February 2022. RAHU delivered youth-centered demand generation and FP SBCC interventions in targeted regions to ensure improved access to services among young people. PPD ARO supported policy advocacy and national-level accountability by working on coordination and social accountability at the regional and national levels. OPTIONS directly contributed to improving advocacy for an enabling SRH/FP environment. This paper evaluates the performance of the program in the five years of implementation using the data at baseline (August 2019), midline (April 2021), and endline (March 2023). It mainly focuses on the uptake of family planning and intention to use.

Methods

All three rounds of surveys used the same methodology and targeted the same study areas. The study areas, which were also the preselected RISE implementation areas, covered seven (7) of the ten (10) statistical regions of Uganda as defined in the 2011 Uganda Demographic and Health Survey (UDHS).

A randomly selected and representative sample of enumeration areas (EAs) was drawn with support from the Uganda Bureau of Statistics (UBOS) before the baseline survey. A three-stage cluster and stratified sampling methodology was applied in sample selection. The three stages were the enumeration area, household, and an eligible household member, while the strata were the seven selected regions. A random sample of households was drawn per EA from which one eligible participant, a woman of reproductive age (15-49 years) or a man aged (15-54 years) was randomly selected and interviewed.

The total sample sizes were 2596, 2943, and 2902 respondents for baseline, midline, and endline surveys, respectively. Each of the sample sizes was computed using a formula in a paper by Chow, 2008[20] and World Bank [21] and it took into consideration time and resource constraints. The inputs into the formula included the minimum detectable effect size (MDES), the probability of the event of interest which we took to be “intention to use FP”, and the design effect to cater for

clustering effect and non-response at the individual and household level. The non-response at baseline was estimated from the related previous studies while for midline and endline the rate from earlier rounds of survey were used. Changes in the values of indicators are expressed in the form of absolute values (AV) or percentage points (PP). More details on sample computation and general methods are in a published paper from the baseline survey[22]. Mixed effected modified Poisson regression (MPR) was applied in establishing factors associated with the key outcomes of interest. MPR has the advantage of producing prevalence ratios that are easier to interpret and more suited for high prevalence of outcome events[23].

In this paper, two categories of FP methods, namely long-acting reversible contraception (LARC) and short-term contraceptive methods (STM) are used in analysis to get more implementation-relevant evidence. LARC methods include the non-hormonal copper coil (the intrauterine device-IUD), the hormonal coil (the Intrauterine system-IUS), the contraceptive injection (the Depo-Provera), and the hormonal implant. STM includes pills, condoms, and emergency contraception.

Limitations

Reporting bias due to social desirability is usually a challenge in cross-sectional studies with self-report outcomes or exposures. This challenge was minimized through the recruitment of experienced Research Assistants who were trained in conducting interviews and eliciting responses with minimal biases. Secondly, there are exogenous factors in play during implementation. The RISE program was not the sole provider of FP services and thus it was not in full control of the coverage, nature and quality of all FP services in the study area. This paper does not incorporate information on services outside the RISE program. Thirdly, the design of the intervention was such that some activities would only be carried in particular areas and for limited time. An example is the FP radio communication in English and Luganda conducted by PMC, one of the partners in the RISE consortium, which covered only a few of the study regions and ended in 2022. Fourthly, 5 years of operation of the RISE consortium may not be enough for behavioural change for some communities as evidence shows this may take even longer[24, 25]. Despite all these limitations, there was a need for an end of program evaluation.

Declarations

Human Ethics approval and consent to participate

The ethical clearance for this research protocol was obtained from the Makerere University School of Public Health Research Ethics Committee (MakSPHREC), the Uganda National Council of Science and Technology (UNCST) [26], and Marie Stopes International's Ethics Review Committees. The study adhered to the ethical principles of the declaration of Helsinki for research involving human subjects[27].

All participants provided written informed consent to participate in the study. This was after explaining the nature, purpose, and potential risks of the study. The consent form complied with the national and international standards and thus included a text that showed the respondent was free to decline the interview or stop anytime during the interview. For those aged 17 or under informed consent to participate was obtained from their parents or legal guardians.

Consent for publication

This paper does not include any individual data. Therefore, the request for consent for publication is not applicable.

Availability of data and materials

The dataset is provided as a supplementary file to this paper submission. The questionnaire is provided too.

Competing interests

There are no competing interests from any of the authors.

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Authors' Contribution

NMT: Conceptualization, design, data collection, data analysis, writing-original draft

FM: Conceptualization, Design, data collection, data analysis writing

CN: Conceptualization, Design, data collection, writing

AM: Conceptualization, Design, data collection, writing

AL: Conceptualization, Design, data collection, writing

RS: Conceptualization, Design, Data collection, Data management & analysis, writing

RT: Reviewed of conceptualization, design and draft write up

AG: Reviewed of conceptualization, design and draft write up

CS: Reviewed presentations and general write up

PD: Reviewed of conceptualization, design and draft write up

Results

Distribution of respondents by background characteristics

Table 1 shows the distribution of the study participants by background characteristics at baseline, midline and endline. The intention of the table is to show overall patterns and changes over time in the main sample. The analysis that follows examines use and intention to use FP in different subgroups of the participants and table 1 cannot be repeated for the subgroups.

The distribution of male respondents by age, marital status, residence, or region, did not significantly vary by round of survey while the distribution by education, wealth quintile, occupation, and disability status differed. Among women, it is the distribution by age, marital status, residence, level of education, and region that did not change by round of survey. However, wealth quintile, occupation, and disability status varied significantly.

Table 1: Background characteristics of all men and all women at baseline, midline, and endline

Characteristics	Men				Women			
	Baseline 2019 (%)	Midline 2021 (%)	Endline 2023 (%)	Ch-Sq. test	Baseline 2019 (%)	Midline 2021 (%)	Endline 2023 (%)	Ch-Sq. test
No of Respondents	1250	1416	1403		1,346	1527	1499	
Age (years)								
15-19	16.8	16.2	13.4		14.9	15.1	13.7	
20-24	16.2	17.0	17.3		22.9	23.2	21.4	
25-29	18.5	15.4	17.6		21.2	20.0	20.6	
30-34	15.1	16.4	16.6		14.8	15.0	14.7	
35-39	10.7	11.7	11.8		12.1	10.5	14.3	
40-44	9.7	10.0	9.5		7.0	9.2	9.3	
45-49	7.4	7.8	8.3		7.2	7.1	6.0	p>0.05
50-54	5.7	5.6	5.6	p>0.05				
Marital status								
Never Married	27.2	28.9	26.1		15.3	13.7	13.6	

Married/Living with Partner	68.0	65.5	68.6	p>0.05	74.6	74.2	76.1	p>0.05
Divorced/Widow	4.8	5.7	5.3		10.1	12.1	10.3	
Residence								
Urban	20.2	19.8	19.7	p>0.05	20.1	21.3	20.7	p>0.05
Rural	79.8	80.2	80.3		79.9	78.7	79.3	
Level of Education								
None	11.9	11.0	8.3	p=0.01	20.1	17.5	16.3	p>0.05
Primary	54.6	51.9	53.7		53.0	54.6	54.7	
Secondary	29.4	33.0	32.8		24.6	25.3	26.6	
Tertiary	4.0	4.1	5.2		2.4	2.6	2.4	
Region								
Central 1	15.0	16.1	15.8	p>0.05	16.1	17.2	17.0	p>0.05
Central 2	15.0	15.6	14.2		14.6	14.0	14.8	
Eastern	19.3	19.4	17.9		18.0	18.5	17.7	
East Central	12.2	13.7	15.9		14.6	14.0	13.4	
Karamoja	11.5	10.5	11.8		11.7	10.5	12.3	
Western	17.2	16.6	16.1		16.9	16.8	16.5	
West Nile	9.8	8.2	8.3		8.3	8.9	8.3	
Wealth Quintile								
Lowest	34.6	31.5	29.7	p<0.001	33.1	32.5	30.5	P<0.001
Second Lowest	13.8	17.6	15.4		11.4	19.5	24.6	
Middle	17.6	26.9	15.2		20.3	23.6	18.4	
Second highest	30.4	19.6	34.0		26.5	16.5	20.4	
Highest	3.6	4.4	5.8		8.7	7.8	6.1	
Employment								
Unemployed	3.5	5.6	5.5	p=0.03	19.5	15.5	16.8	P=0.04
Student	11.4	12.1	9.9		6.2	6.0	5.3	
Employed	84.4	82.4	84.7		74.1	78.5	77.9	
Disability status								
No difficulty in any domains	76.2	82.0	79.5	p=0.001	68.1	76.9	85.1	P<0.001
Difficulty in at least one domain	23.8	18.0	20.5		31.9	23.1	14.9	
Total 15-49	94.3	94.4	94.4		100.0		100.0	
50-54								
Total 15-54	100.0		100		100.0		100	

Use of Family Planning

A modest increase in the use of any FP method, though not significant at 5% level, was observed among married women, from baseline (44.6%) to end line (47.3%) (Table 2). The increase among married women was more evident for age 30+ years (4.8% - 9.7%), urban residents (3.6%), uneducated (9.0%), Karamoja region (26.1%), middle wealth quintile (11.8%) or with a reported

disability (9.3%). However, a decline was most evident among women with tertiary education (-40.2%), western region (-9.0), and in higher (-5.9%) or highest (-17.2%) wealth quintiles.

The overall contraceptive prevalence rate (mCPR) among married women did not significantly change over the 5-year RISE implementation period (35%-37.5%) Figure 1. However substantial increases over the 5-year period were observed among women aged 45-49 (7.3%), East-central (7.7%) and Karamoja (9.2%) regions, and middle wealth quintile (10.7%), while decline were observed among women with secondary (-7.6%) and tertiary education level (-40.2%), and in higher (-9.1%), and highest wealth quintiles (-19.7%) (figures 1-2).

Table 2: Percent of currently married women aged 15-49 using any method by background characteristics at baseline, midline, and end line of RISE program.

Background Characteristics	Baseline (%)	Midline (%)	End line. (%)	Absolute % difference	
				M-B (Δ)	E-B (Δ)
Overall	44.6	45.5	47.3	0.9	2.7
Age					
15-19	28.5	30.7	30.8	2.2	2.3
20-24	42.7	40.8	43.3	-1.9	0.6
25-29	48.4	54.0	47.8	5.6	-0.6
30-34	53.5	43.5	59.6	-10.0	6.1
35-39	50.9	52.7	55.8	1.8	4.9
40-44	35.1	52.1	39.9	17.0*	4.8
45-49	31.0	33.6	40.7	2.6	9.7
Residence					
Urban	46.6	47.7	50.2	1.1	3.6
Rural	43.9	44.7	46.3	0.8	2.4
Level of Education					
None	29.0	35.7	38.0	6.7	9.0\$
Primary	42.8	45.4	47.9	2.6	5.1\$
Secondary	54.6	51.3	50.7	-3.3	-3.9
Tertiary ^a	86.1	35.3	45.9	50.8***	-40.2**
Region					
Central 1	48.4	46.7	51.7	-1.7	3.3
Central 2	49.4	56.1	47.5	6.7	-1.9
Eastern	48.6	49.7	55.8	1.1	7.2
East Central	47.8	50.9	51.7	3.1	3.9
Karamoja	12.3	18.7	27.6	6.4	15.3\$
Western	46.8	47.3	42.8	0.5	-4
West Nile	27.1	20.9	32.9	-6.2	5.8
Wealth Index					

Lowest	34.4	39.4	44.0	5.0	9.6*
Lower	42.0	45.1	46.7	3.1	4.7
Middle	40.5	44.7	52.3	4.2	11.8*
Higher	54.4	52.7	48.5	-1.7	-5.9
Highest	57.7	49.7	40.5	-8.0	-17.2*
Occupation†					
Unemployed	43.6	42.4	44.5	-1.2	0.9
Employed	44.8	46.0	48.0	1.2	3.2
Disability status					
No difficulty in any domains	46.0	44.3	46.8	-1.7	0.8
Difficulty in at least one domain	41.4	49.4	50.6	8.0*	9.2\$

†Married students were too few and thus were left out ^aCaution: This is a small sample size **Bold** refers to positive change * $p < 0.05$
** $p < 0.01$ Δ Absolute change = difference in % values. \$ $p < 0.10$

Figure 1: Use of modern FP among married women by region across the three rounds of surveys

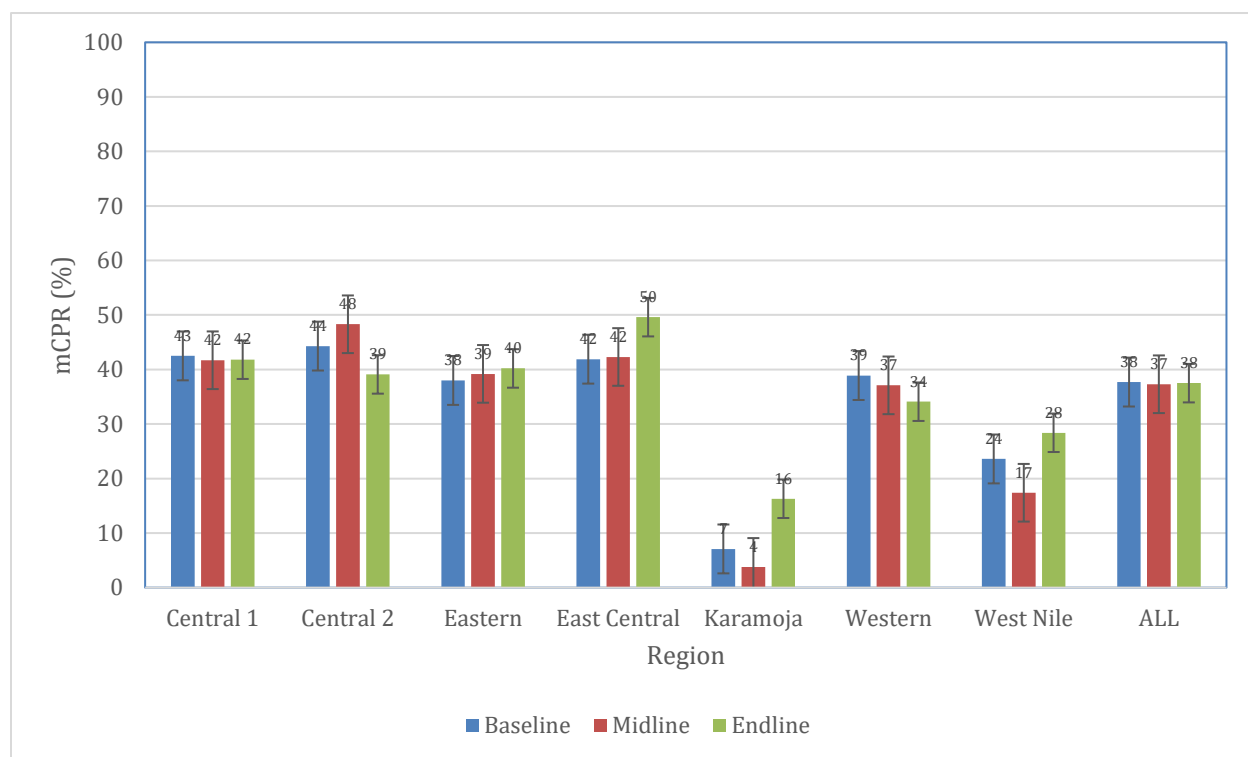


Figure 2: Modern FP use among married women by socio-economic characteristics of the respondents and year of survey

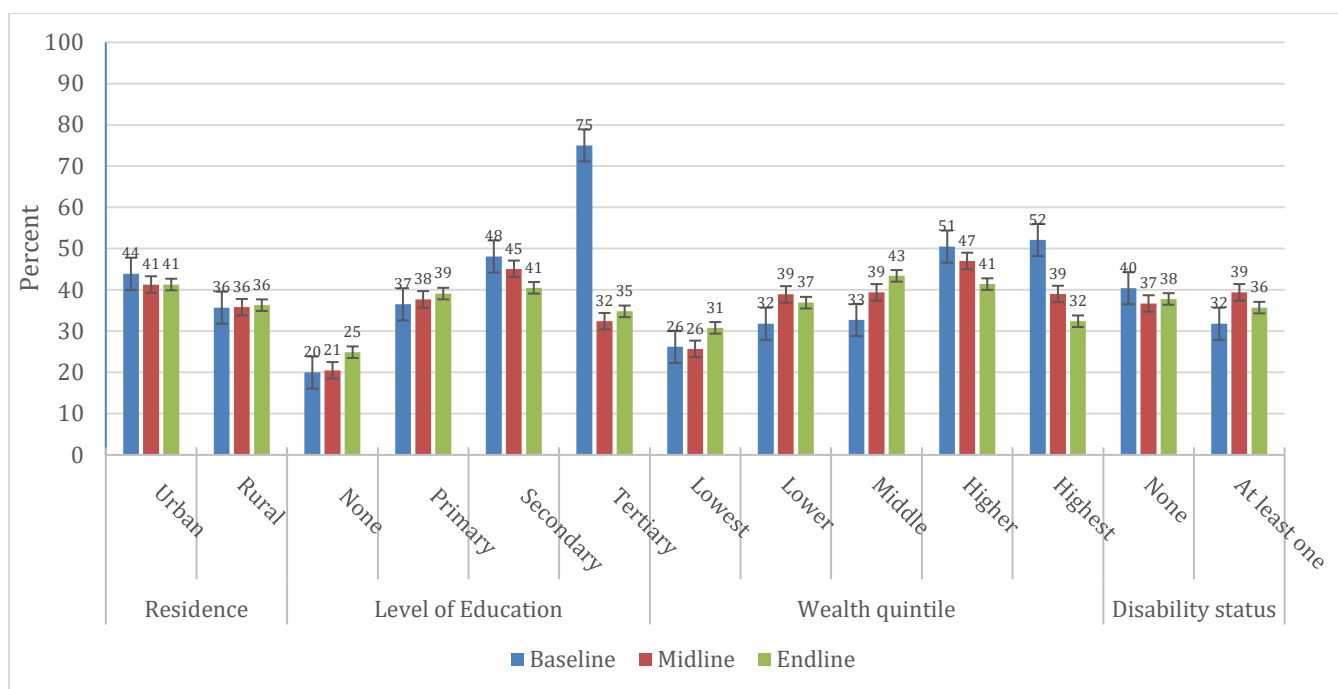


Figure 3 summarizes contraceptive use by FP method. There was a noticeable increase in the use of depo Provera (7.5% points), Short Term Methods (STM) (5.7% points) and Sayana (3.9% points). For the LARC, implants, IUD, pills and Male condom methods, the level of use either declined or was stagnant. Data on other forms of STM contraception like diaphragm, contraceptive ring, cervical cap, contraceptive patch, foam, jellies, and foaming tablets was not collected. Further analysis showed that categories of married women that had a remarkable increase in the use of LARC over the survey periods were residents of Eastern Central (6.6%) and Karamoja (5.8%) regions and those in the middle wealth quintile (6.4%). Increase in STM use was more pronounced among those aged 30-34 (12.0%) and 35-39 (15.8%), residents of rural areas (7.3%), the uneducated (7.6%) or those who have attained primary education (9.7%), residents of regions of East Central (8.0%) and Western (13.3%), and those in lowest (11.9%) and lower wealth quintiles (7.8%).

Figure 3: Modern FP use among married women aged 15-49 by type across the three rounds of surveys.

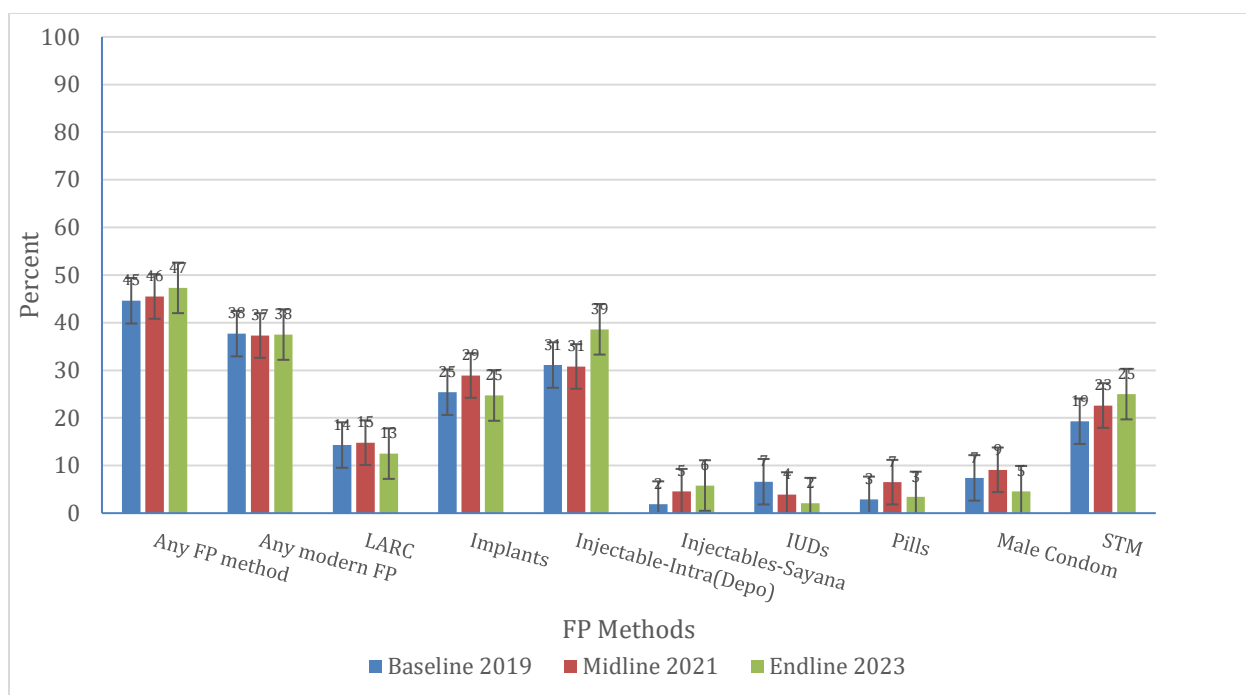


Table 3 shows current modern contraceptive use among married men by background characteristics. Overall, modern contraceptive use among married men increased by 4.2 percentage points over the 5-year period and this was significant at 5% level. Categories of married men where the increase was most evident include those aged 15-19 (11.7%), residents of eastern (20.5%) and East Central (12.9%) regions, higher (8.5%) and highest (9.8%) wealth quintile. Those categories where a decline was most noticeable include the unemployed (-33%) and residents of West Nile (-13.8%).

Table 3: Current use of modern contraception among currently married men by background characteristics at baseline, midline, and end line

Background Characteristics	Baseline (%)	Midline (%)	End line. (%)	M-B (%Δ)	E-B (%Δ)
Overall	36.8	40.7	41.0	3.9\$	4.2**
Age					
15-19	7.4	41.4	19.1	34	11.7
20-24	26.4	27.2	34.8	0.8	8.4
25-29	39.0	41.1	41.6	2.1	2.6
30-34	40.4	45.1	46.5	4.7	6.1
35-39	48.6	42.8	44.4	-5.8	-4.2
40-44	32.7	49.4	40.3	16.7*	7.6

	45-49	33.6	41.3	39.4	7.7	5.8
	50-54	26.7	32.3	36.1	5.6	9.4
Residence						
	Urban	42.4	39.6	44.1	-2.8	1.7
	Rural	35.1	41.1	40.16	6.0\$	5.1\$
Level of Education						
	None	19.4	14.2	15.0	-5.2	-4.4
	Primary	34.2	41.5	42.0	7.3*	7.8*
	Secondary	45.8	48.4	41.7	2.6	-4.1
	Tertiary	48.9	33.7	48.7	-15.2	-0.2
Region						
	Central 1	38.3	44.9	36.8	6.6	-1.5
	Central 2	37.7	35.9	47.4	-1.8	9.7
	Eastern	40.9	43.9	61.4	3.0	20.5***
	East Central	29.0	45.0	41.9	16.0**	12.9*
	Karamoja	17.3	10.8	17.5	-6.5	0.2
	Western	40.7	45.4	41.4	4.7	0.7
	West Nile	36.3	18.1	22.5	-18.2**	-13.8*
Wealth Index						
	Lowest	29.3	30.7	24.5	1.4	-4.8
	Lower	32.6	36.2	39.9	3.6	7.3
	Middle	42.2	42.8	45.9	0.6	3.7
	Higher	42.9	53.1	51.4	10.2*	8.5
	Highest	34.9	54.8	44.7	19.9	9.8
Occupation						
	Unemployed	56.4	31.1	23.0	-25.3	-33.4*
	Student	--	--	47.6	--	--
	Employed	36.5	41.0	41.8	4.5\$	5.3
Disability status						
	No difficulty in any domains	35.2	41.6	41.1	6.4**	5.9
	Difficulty in at least one domain	41.5	37.5	40.8	-4	-0.7

\$ p<0.10 *p<0.05 ** p<0.01 *** p<0.001 - too few

Intention to use Family Planning

Intention to use FP was assessed among those who had never used FP by asking how likely they would start using modern family planning in the next 6 months or after pregnancy. Overall, the intention to use FP reduced from 41% to 36% among men and from 41% to 35% among women over the entire program life(Figure 4). The reduction was significant at 5% level.

There was a remarkable increase in intention to use FP among men aged 45-49 (5.4%), separated/widowed (10.8%), eastern region (6.4%), highest wealth quintile (11.3%), and those without children (15.8%) (Table 4). The most evident decline occurred in the 30-34 years age group (-16.7%), amongst those with no formal education (-22.3%), those with tertiary education (-15.9%), and men with no children (-15.8%).

Among women, the increase in intention to use was observed among the 40-44 age group (6.5%) and 45-49 age group (8.8%), those with tertiary education (20.6%), and Central 2 region

(15.1%), while reductions were in adolescent women (15-19) (-17.6%), those with no formal education (11.0%), Central 1 region (-10.5%), Western region (15.4%) and second lowest quintile (-24.2%) (Table 4).

Figure 4: Intention to use FP among all men and women who had never used FP by round of survey.

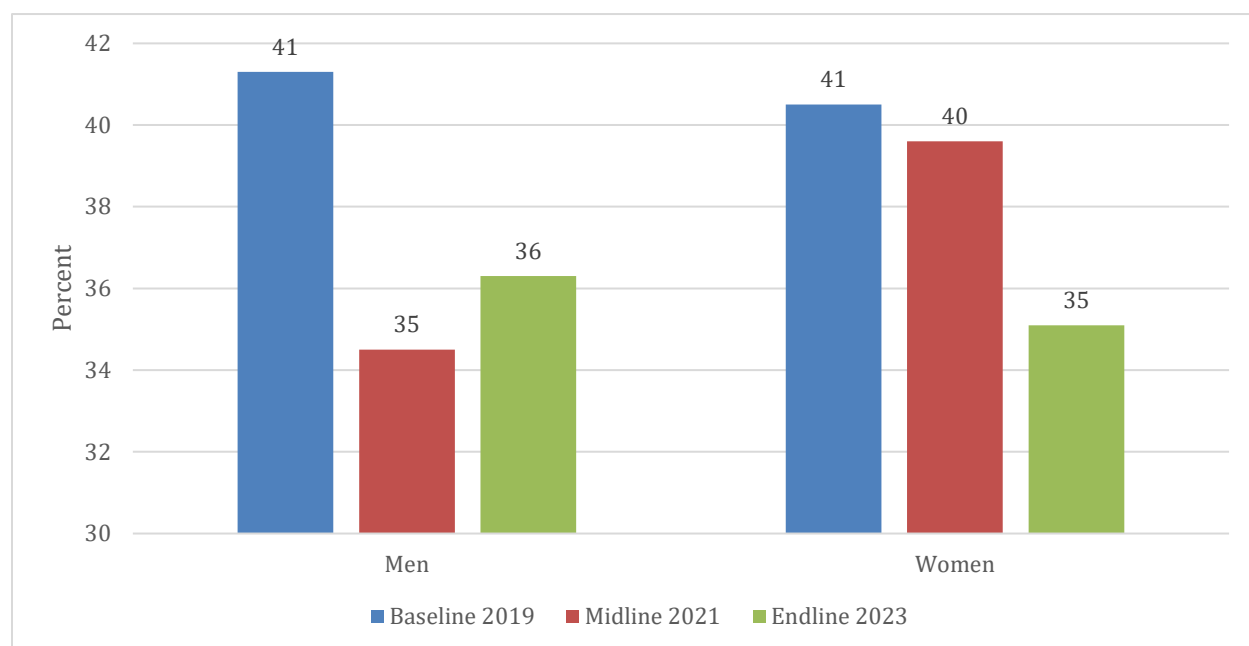


Table 4: Intention to use by different characteristics of all men and all women at baseline, midline, and end line.

The proportion of all men and women who had never used FP but intended to use FP methods in the next 6 months.

Background Characteristics	Men			Women		
	Baseline 2019 (%)	End line 2023 (%)	E-B (%Δ)	Baseline 2019 (%)	End line 2023 (%)	E-B (%Δ)
All	41.3	36.3	-5.0*	40.5	35.1	-5.4*
Age						
15-19	29.7	24.9	-4.8	39.0	21.4	-17.6***
20-24	51.8	44.9	-6.9	51.3	47.7	-3.6
25-29	42.3	43.6	1.3	55.7	49.0	-6.7
30-34	54.9	38.2	-16.7	40.4	38.0	-2.4
35-39	44.6	46.3	1.7*	40.3	30.3	-10.0
40-44	47.4	34.0	-13.4	14.5	21.0	6.5
45-49	28.1	33.5	5.4	7.5	16.3	8.8
50-54	27.9	9.7	-18.2*	--	--	
Marital status						
Single	31.2	25.6	-5.6	30.1	21.6	-8.5

Married/Cohabiting	48.2	43.3	-4.9	46.5	40.1	-6.4*
Widowed/divorced/separated	27.9	38.7	10.8	24.3	26.0	1.7
Residence						
Urban	33.4	31.5	-1.9	38.9	35.8	-3.1
Rural	43.5	38.0	-5.5\$	41.1	34.9	-6.2*
Level of Education						
None	35.5	13.2	-22.3*	25.5	14.5	-11.0*
Primary	43.2	39.1	-4.1	46.0	38.4	-7.6*
Secondary	38.4	36.7	-1.7	41.8	38.1	-3.7
Tertiary	47.7	31.8	-15.9	7.0	27.6	20.6
Region						
Central1	34.9	34.3	-0.6	45.4	34.9	-10.5*
Central2	46.6	40.1	-6.5	31.3	46.4	15.1*
Eastern	35.5	41.9	6.4	51.7	52.1	0.4
East Central	48.3	37.8	-10.5	53.3	41.0	-12.3
Karamoja	32.7	12.6	-20.1*	12.6	4.9	-7.7
Western	36.8	36.6	-0.2	39.9	24.5	-15.4**
West Nile	59.7	36.5	-23.2**	33.3	29.6	-3.7
Wealth Quintile						
Lowest	42.4	34.6	-7.8	31.0	30.2	-0.8
Second	50.7	44.0	-6.7	58.7	34.7	-24.0***
Middle	40.4	40.9	0.5	44.2	42.7	-1.5
Second Highest	39.5	35.3	-4.2	40.1	35.6	-4.5
Highest	13.9	25.2	11.3	37.1	31.9	-5.2
Occupation						
Unemployed	22.4	20.6	-1.8	46.5	36.4	-10.1\$
Student	28.2	22.5	-5.7	32.1	7.9	-24.2***
Employed	45.0	40.3	-4.7	40.1	37.9	-2.2
Disability status						
No difficulty in any domains	41.2	34.4	-6.8*	40.2	35.4	-4.8
Difficulty in at least one domain	41.6	42.3	0.7	41.2	33.3	-7.9
Number of living children						
0	45.8	30.0	-15.8*	29.9	27.6	-2.3
1	53.3	58.0	4.7	47.6	50.7	3.1
2	49.1	43.0	-6.1	47.7	44.9	-2.8
3	43.3	37.6	-5.7	54.7	39.5	-15.2
4+	43.5	36.9	-6.6	34.1	33.5	-0.6
No response	27.2	27.3	0.1	34.6	14.4	-20.2

* Few respondents **Bold** refers to positive changes \$ p<0.10 *p<0.05 ** p<0.01 *** p<0.001

Mixed effects Weighted Multivariable analysis for change in use of FP methods from baseline to end line - Modified Poisson regression.

Table 5 shows the results of weighted mixed effects modified Poisson regression models for contraceptive use and intention to use contraception among married women. The significance of the change from baseline is shown by the exponential of the coefficient of the round of the survey which is given in terms of prevalence rate ratios.

The results show that for the current use of any FP methods and intention to use there was a positive change from baseline but this was not statistically significant in both unadjusted and multivariate models.

Table 5: Change in contraceptive use, and intention to use among currently married women after controlling for other several factors.

Factors	Any Contraceptive use PRR (95%CI)	Intention to use FP in next 6 months. PRR (95%CI)
Model 1:		
<i>Year</i>		
2019 (Baseline)	1.0	1.0
2021 (Midline)	1.01 (0.920-1.12)	0.98 (0.91-1.07)
2023 (Endline)	1.06 (0.94-1.19)	1.05 (0.97-1.15)
Variation across enumeration areas [var(se)]	0.05(0.02)*	0.014(0.005)***
Model 2:		
2019 (Baseline)	1.0	1.0
2021 (Midline)	1.04 (0.93-1.16)	0.99 (0.92-1.07)
2023 (Endline)	1.06 (0.93-1.25)	1.05 (0.96-1.15)
Age group (15-24/25-34/35+)	p=0.07	**
Residence (Urban/Rural)	p=0.07	p=0.40
Level of Education (None/primary/Secondary/tertiary)	***	p=0.49
Region (Central1, central 2, Eastern, East Central, Karamoja, Western, West Nile)	***	***
Disability status (disabled vs not disabled)	p=0.62	P=0.62
Occupation (employed vs (unemployed)	p=0.48	p=0.36
Wealth quintile (lowest/lower/middle/higher/highest)	p=0.42	p=0.91
Number of children (0/1/2/3/4+)	***	***
Variation across enumeration areas [var(se)]	0.0061(0.0069)	0.0028(0.0029)

NB: Wald's test has been used to test the significance of the covariate variables *p<0.05 ** p<0.01 *** p<0.001

Discussion

This paper has assessed progress in FP use and intention to use among men and women in the reproductive age group in targeted regions of Uganda where a consortium of service providers operated for 5 years. Over the period of implementation, there were changes in terms of wealth status, occupation, and disability status. Overall, the use of any contraceptives among married women increased while the use of modern contraceptives (CPR) slightly reduced. The

prevalence of use of LARC among married women reduced. Categories of women that had a remarkable increase in use of LARC over the survey periods were residents of Eastern Central and Karamoja regions, those in the middle wealth quintile. There was an increase in the use of short-term Methods (STM). Categories of married women that had a remarkable increase in use of STM were those aged 30-34 and 35-39, residents of rural areas, the uneducated or those who have attained primary education, resident in regions of East Central and Western, and those in lowest and lower wealth quintile. For those who never used FP, the intention to use FP in the next 6 months reduced significantly. .

Changes in background characteristics like wealth quintile, occupation, and disability status over the years may be explained by ongoing government programs and the COVID-19 effects. Studies have shown the economies of several countries including Uganda faced high unemployment, and reduced wealth[28].

The higher level of use of any method of FP compared to modern FP can be explained by the increased use of traditional methods of family planning in several countries in Sub-Saharan Africa [29]. The increased use of FP in West Nile, Karamoja, and among people in low wealth quintile and uneducated/low education level is a positive outcome of a deliberate effort of the RISE consortium to raise FP uptake in these high-priority areas or categories. People in these categories have had low FP use for quite some time [16, 30]. Studies with a focus on reducing inequity in access to FP have registered similar successes. An example is the four-year Tupange project in Kenya which targeted the urban poor and raised their FP uptake by 20.1% and 21.5% points for the poorest and poor wealth quintiles respectively [31]. Lower contraceptive use among the most educated and those in high wealth quintile may be explained by a desire to have children after a lengthy pursuit of education or business attainment [32].

Changes in the use of LARC and STM methods over the 5-year period cannot be fully explained in this paper but the effect of FP intervention methods depends on several factors like target group, specific details of the intervention, mode of administering the intervention, and measurement of change in use. A nine-month intervention using nurses in health facilities to distribute LARC methods in Ethiopia raised uptake by 72.3%[33] while a community intervention program for two years in Myanmar could only raise the use of implants (LARC) from 0.6% to 3.7% and Pills (STM) from 7.2% to 10.8% [34]. Another example is the Tupange project in Kenya which raised the uptake of LARC methods in the urban poor by 6.5% points for implants and 2.1% points for IUDs[31]. Nevertheless, the substantial increase in some LARC

methods in our study like implants (7.5% points) and a general rise in STM use (6% points) shows a fair level of success for the intervention.

Like other indicators of FP use, “intention to use” depends on many factors some of which have been raised above. Other studies have shown an increase after a community intervention. An example is a six-year comprehensive FP program (2009–2015) in 4 cities in Nigeria under the Nigerian Urban Reproductive Health Initiative (NURHI) that raised intention to use by a range of 7.5%-10.2% points[35]. However, the consistent reduction in the level of intention to use in different categories of the population in RISE program area needs further research. For example, there is a need for review of findings in other studies to see whether there is consistency and a qualitative study to establish possible explanation for the reduction.

The decline or stagnation in use/intention to use FP in some subgroups of the study population may further be explained by the limitations already highlighted. They include exogenous factors and design of the intervention, and COVID19- which was associated with slowed service delivery across multiple sectors.

Conclusion

There was an increase in FP use in hard-to-reach and previously low-level service utilization areas in the country. This is a contribution towards reaching the usually marginalized population and was key objective of the RISE program. Further research is needed to explain observed stagnation or slow improvement on some indicators since the effect of such an intervention depends on many factors some of which are not incorporated in this study.

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Role of the funder

The sponsoring organization provided funding but was not involved in the technical work of the study.

Data sharing

The data used for this study can be accessed upon request and the processing of the request may involve the sponsors of the RISE program. Due to privacy and confidentiality some data may be restricted.

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