

Effectiveness of Facility-Based Group Postpartum and Postabortion Counselling Among Adolescent Girls and Young Women in Southwestern Uganda: A Quasi-Experimental Study

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Purpose: Adolescent pregnancy rates have remained unacceptably high in Uganda, with a minimal decline over 20 years despite several interventions at the school and community levels. This study aimed at piloting and evaluating the effectiveness of facility-based group postpartum and postabortion counselling compared with routine care in increasing same-day uptake of modern contraception among adolescent girls and young women in selected health facilities in Southwestern Uganda.

Methods: We conducted a quasi-experimental study among 393 participants in eight health facilities in four districts in Southwestern Uganda. Participants who were at least six weeks or more postpartum or two weeks postabortion were enrolled in the study between January and March 2024. A pre- and post-health facility visits questionnaire was conducted to assess whether a participant accepted a modern contraceptive method during routine care (control group) or following a group counselling session (intervention group). We conducted a Poisson regression to determine the prevalence ratio for uptake of modern contraception among participants.

Results: A total of 393 participants (195 vs 198) were enrolled in the control (standard of care) and intervention group, respectively. Of these, 64 (16.3%) were younger than 18 years, 208 (52%) were single, 117 (29.8%) had sex younger than 15 years, and 51 (12%) had repeat pregnancies. A total of 108 (55.1%) vs 49 (25.1%) participants had same-day uptake of contraception within the intervention and control groups, respectively, with injectable contraception being the most common method used. Compared with those who received routine care, participants who received group counselling were more likely to accept a contraceptive method (PR=2.24, 95% CI: 1.70–3.00, P<0.001).

Conclusion: The rate of contraception uptake among participants in the intervention group was more than double that of those receiving routine counselling. This is a promising tailored intervention targeting adolescent girls and young women within healthcare settings that may be considered for scale-up in different contexts and further validation in cluster or individual randomized trials.

Keywords: intervention, contraception uptake, adolescents, Uganda

Introduction

Adolescent pregnancy remains a major public health challenge worldwide, particularly in low- and middle-income countries where it contributes substantially to maternal morbidity, neonatal complications, school dropout, and persistent socioeconomic disadvantage.¹⁻³ Sub-Saharan Africa (SSA) continues to bear the highest burden of adolescent childbearing, with an estimated adolescent birth rate of 143 births per 1000 girls aged 15–19 years and a pooled adolescent

pregnancy prevalence of 21.4%.⁴ Uganda remains among the countries with the highest adolescent fertility rates globally, reporting 106 births per 1000 girls aged 15–19 years.⁵ Although modest declines have been observed over the past decade,⁶ progress has been undermined by disruptions associated with the COVID-19 pandemic, during which more than two-thirds of Ugandan districts reported increases in adolescent pregnancies, with some districts experiencing rises exceeding 25%.⁷

Preventing rapid repeat pregnancy among adolescents and young women is a critical strategy for improving maternal, neonatal, and child health outcomes. Globally, approximately 38 million adolescents require contraception, yet only half have access to effective modern contraceptive methods.⁸ Consequently, millions of unintended pregnancies occur annually, with an estimated 3.9 million adolescents undergoing unsafe abortions, resulting in preventable morbidity and mortality.⁹ Repeat adolescent pregnancy, commonly defined as a second or subsequent pregnancy occurring within 12–24 months after a previous birth, is associated with increased risks of adverse obstetric outcomes, school discontinuation, poverty, poor parenting outcomes, and long-term social disadvantage.¹⁰ Across SSA, determinants of repeat pregnancy include limited education, poverty, early marriage, inadequate partner support, low contraceptive use, poor access to adolescent-friendly reproductive health services, and sociocultural barriers to family planning.^{7,10,11}

The immediate postpartum period represents one of the most important opportunities to address the unmet need for contraception because women are already in contact with health services, are highly motivated to avoid another unintended pregnancy, and can initiate effective contraception before discharge. Immediate postpartum family planning has been shown to improve birth spacing, reduce unintended pregnancies, and decrease maternal and infant mortality.^{12,13} However, postpartum contraceptive uptake remains suboptimal across SSA. Systematic reviews estimate that only 37–41% of postpartum women in low-income SSA countries use modern contraception, while adolescents have even lower utilization rates of approximately 25%.^{13–15} In Uganda, immediate postpartum contraceptive uptake has been reported to be as low as 15.4%, highlighting substantial missed opportunities within maternity services.¹⁶

Evidence consistently demonstrates that high-quality postpartum family planning counselling substantially improves contraceptive uptake. A systematic review involving more than 26,000 women from SSA showed that counselling delivered during antenatal, delivery, and postnatal care significantly increased postpartum contraceptive use, particularly when counselling was provided repeatedly across the continuum of maternal care.¹⁷ Randomized trials among adolescents have similarly demonstrated that immediate postpartum counselling can markedly increase uptake of long-acting reversible contraception (LARC), with uptake approaching 74% compared with 43% following conventional counselling.¹⁸ Multi-component interventions combining provider training, standardized counselling tools, method availability, supportive supervision, and integrated service delivery have also demonstrated significant improvements in postpartum contraceptive uptake in several African countries.^{19,20}

Although counselling is recognized as a cornerstone of postpartum family planning, the optimal mode of delivering counselling to adolescent girls and young women remains uncertain. Group counselling offers several potential advantages, including efficient use of limited health workforce resources, peer learning, normalization of contraceptive discussions, and opportunities to address common myths and misconceptions collectively.²¹ However, existing evidence remains inconsistent. While some studies have demonstrated that group-based education significantly increases postpartum contraceptive uptake and LARC use among adolescent mothers,²² others have reported no significant advantage over routine individual counselling.^{23,24} Similarly, peer-based counselling interventions among refugee adolescents in Uganda have significantly improved same-day contraceptive acceptance compared with routine care,²⁵ suggesting that adolescent-centred counselling approaches may be particularly effective when tailored to contextual needs.

Uganda has implemented several national strategies to reduce adolescent pregnancy, including policies promoting adolescent sexual and reproductive health services, prevention of child marriage, and strengthening school- and community-based reproductive health programmes.^{26–29} These initiatives have improved awareness and service utilization in some settings,²⁸ however, contraceptive use among adolescents remains persistently low, with only 9.4% of Ugandan adolescents reported to use modern contraceptives.³⁰ Studies from Uganda further identify inadequate reproductive health knowledge, misconceptions about contraception, limited adolescent-friendly services, and missed opportunities during maternal health-care as major contributors to low postpartum contraceptive uptake.^{30,31} Despite increasing recognition of postpartum family planning as a high-impact intervention, evidence evaluating facility-based group postpartum counselling among adolescent

girls and young women in Uganda remains scarce. Existing African studies have primarily evaluated individual counselling, peer interventions, or broader health-system strengthening packages, leaving an important evidence gap regarding the effectiveness of structured group counselling delivered immediately after childbirth.^{25,32,33}

This study therefore aimed to pilot and assess the effectiveness of facility-based group postpartum and postabortion counselling, compared with routine care, in increasing same-day uptake of modern contraception among adolescent girls and young women in selected health facilities in Southwestern Uganda. Findings from this study will provide context-specific evidence to inform adolescent-friendly postpartum family planning services and guide policy and programmatic efforts to reduce rapid repeat pregnancy and improve maternal and newborn health outcomes in Uganda and similar resource-limited settings.

Methods

Study Design

We conducted a quasi-experimental intervention study.³⁴ In this design, participants were not randomly allocated to the intervention or control groups. Intervention and control services were implemented at separate pre-selected health facilities. Participants in any of these facilities received the services under which the facility was allocated. Consequently, the study evaluated the effectiveness of an intervention under routine programmatic conditions without randomization.

Participants

Eligibility Criteria for the Intervention

Adolescent girls and young women between the ages of 13 and 22 years who were at least 6 weeks postpartum or two weeks postabortion were enrolled in the study between January and March 2024. Adolescent girls and young women with severe medical and psychiatric conditions that could interfere with the consent process were excluded from the study.

Method of Recruitment

Screening for eligibility was done among adolescent girls and young women attending the health facilities as part of routine maternal healthcare services, including postpartum care visits, child immunization clinics, postabortion follow-up, family planning services, and other routine maternal and child health services. Eligible adolescent girls and young women attending these services during the study period were consecutively approached for recruitment. Allocation to any of the study groups (facility-based group counselling versus routine care) was done non-randomly and depended on the health facility offering services to the participant. Adolescent girls and young women within the intervention facilities that declined consent still received the routine care with individualized counselling.

Study Setting

Health facilities with high levels of adolescent pregnancy per district were selected and randomly assigned to a control (standard of care) or intervention group (group counselling). A total of eight health facilities were involved in this study.

The four intervention health facilities included three level IV facilities (HCIV): Rwekubo HCIV and Kabuyanda HCIV in Isingiro district and Mbarara Municipal Council HCIV in Mbarara City, and one health centre III, that is Ndejja HCIII in Rwampara district.

The four control health facilities, including three health facilities that are HCIVs: Ishongororo HCIV in Ibanda and Bwizibwera HCIV in Mbarara district, and Rubaya HCIV in Mbarara, and one health centres III that is, Mwizi HCIII in Rwampara.

Details of the Intervention and Control Groups

Intervention Group – Group Counselling

The intervention consisted of group counselling sessions with participants conducted in health facility. This format was chosen in consultations with adolescents and health care workers (HCWs) during a co creation workshops held during the design of the intervention.

The intervention involved five phases, namely: 1) developing the guide; 2) identifying trainers for training HCWs; 3) training sessions for HCWs; 4) adolescent girls and young women group sessions; and 5) follow-up after 1 month. A detailed description of the phases is provided below.

1) Development of the training guide: The training guide was developed collaboratively by researchers and selected HCWs, including two gynaecologists and two midwives with experience providing maternal health services to adolescents. Guidance documents within the Ministry of Health, Uganda, including group antenatal/group postnatal care and essential maternal and newborn clinical care guidelines,²³ were used to design the content for the training. Table 1 shows the topics in the training guidelines that were covered over a period of two days.

2) Identification of trainers for the intervention and training of HCWs: The trainers included 10 researchers and selected HCWs (midwives) from the health units participating in the intervention study. The selected trainers were trained on adolescent-friendly services and contraception and were provided with a facilitation guide for group sessions with postpartum or postabortion adolescents and young women.

3) Training sessions for the selected trainers or HCWs: At least 16 HCWs were trained for three days on several maternal and child health topics and adolescent health-friendly services at Mbarara University of Science and Technology. The training was divided into three parts and delivered over three days. The trainers' session was a half-day activity designed to prepare and distribute roles and discuss the training objectives with an existing pool of HCWs and trainers specializing in maternal and newborn health, including adolescent health and family planning. Subsequently, the intervention training for health workers was delivered in the following two days. This consisted of two parts; The theory part of the training included topics related to adolescent development and communication, understanding the risks of adolescent pregnancy, contraception (types, mode of action, side effects, and myths), postpartum and postabortion care components, HIV/sexually transmitted infections (STI) prevention, and the management of sexual violence. The skills-based or practical session where participants were shown all the methods of family planning and practiced an intrauterine device (IUD) and implant insertion and removal, as well as procedures for using manual vacuum aspiration (MVA) for postabortion care via uterine and arm models (Table 1).

A pre- and post-test questionnaire to assess trainer knowledge was developed by the research team in alignment with all topics of the training (see Appendix 1). The findings revealed an improvement in scores, with a mean increase from 28.9 to 35.9 (+7 rate of change). The feedback collected from the participants highlighted their appreciation for the training, describing it as “educative”, “rich in content”, “relevant to adolescent care”, “informative”, “easy to implement”, and “clear”. The practical skills sessions were particularly well received.

4) Adolescent girls and young women group sessions: A baseline questionnaire was administered to all enrolled adolescent girls and young women that attended intervention facilities. Six to 12 participants composed each group. In some facilities in rural settings (Rwekubo HCIV and Kabuyanda HCIV), this number sometimes increased to 20 due to the high volume of adolescent girls and young women recruited. This session was delivered by a trained HCW and

Table 1 Sexual and Reproductive Health Topics in the Training Guidelines

Day 1 Topics	Day 2 Topics
1. Adolescent development and communication techniques	1. Group postpartum and postabortion counselling for adolescents
2. Contraceptive methods	2. Skills sessions on contraceptive methods (injectables, implants insertion and removal, intrauterine device (IUD) insertion and removal)
3. Postpartum care	3. Skills session on abortion care (Manual Vacuum Aspiration (MVA) techniques)
4. Prevention of HIV/STIs and sexual violence	
5. Postabortion care	

included various topics, such as adolescent development, contraceptive methods for the prevention of HIV/STIs and sexual violence.

Each session took between 1–2 hours. After counselling, participants were invited to take up a modern contraceptive method. A post-counselling questionnaire was administered to determine whether the participants obtained any modern contraception.

5) Follow-up after one month: A follow-up questionnaire was conducted after one month to evaluate whether participants in the intervention and control groups continued to use the contraceptive method selected (if short term) and assess any side effects experienced by that time.

Intervention facilities also received contraception supplies based on facility specific gaps identified through a needs assessment conducted before distribution. These included manual vacuum aspiration (MVA) kits, sterilisation drums and equipment, gloves and short and long acting hormonal contraceptive methods.

Control Group – Routine Counselling

Participants within the control facilities allocated to the routine individualized counselling completed a baseline questionnaire and received routine care as provided at their health facility. Routine care consisted of the standard postpartum or postabortion counselling provided according to the Ministry of Health guidelines. This typically involved individual counselling delivered by the attending HCW during routine service delivery, including brief information on family planning, available contraceptive methods, postpartum recovery, and referral for contraception where appropriate. Unlike the intervention facilities, care at control facilities did not include structured group counselling, standardized educational materials, peer interaction, refill of contraception stocks by the study or dedicated facilitator training.

A post-counselling questionnaire was administered to determine whether participant selected any modern contraceptive method. No one-month follow-up questionnaire was conducted for the participants in the control facilities.

Data Collection Tools

The baseline, post-counselling, and one-month follow-up questionnaires were developed by the research team using the Uganda Ministry of Health postpartum and postabortion care guidelines, and existing family planning counselling tools. The instruments were reviewed by specialists in obstetrics and gynaecology, public health, adolescent health, and family planning to establish content validity. The questionnaires were piloted among adolescents attending facilities outside the study sites to assess clarity, comprehension, and feasibility before implementation, and appropriate revisions were made. Data collection was conducted by 10 trained research assistants, mostly female (8) who were independent of routine clinical care and had received standardized training on study procedures and questionnaire administration.

Outcomes

The primary outcome of the study was same-day uptake of modern contraception (use of barrier methods such as condoms, or short-term contraception hormonal methods such as pills, injectaplan or long term contraception methods such as implants, Intra Uterine Devices among others) among participants. The willingness to accept any modern contraception was assessed on the same day as the intervention. The secondary outcomes of the study were the type of contraceptive method adopted by the participants, the reason for the refusal of contraception, and one-month retention on opted modern-contraceptive use among the intervention group.

Furthermore, the associations between modern contraception uptake and variables such as type of intervention, age, religion, occupation, marital status, age at first pregnancy, age at sexual debut, knowledge of family planning, previous use of contraceptives, outcome of recent pregnancy, and postnatal care were determined via bivariate and multivariate analyses.

Sample Size

A total of 393 participants (198 in the intervention group and 195 in the control group) were recruited for the study. The sample size was calculated via the following formula: It was used for comparison of proportions within an RCT. The

formula was selected because the primary objective was to compare same-day uptake of modern contraception between two study groups using a superiority framework, despite the absence of individual randomization.

$$n = \frac{(Z\alpha/2 + Z\beta)^2 [P1(1 - P1) + P2(1 - P2)]}{(P1 - P2)^2}$$

Assumptions:

- N – sample size assumes equal-sized groups.
- Power estimate 80%.
- Level of significance (Z=1.96 and standard error of 0.05).
- The minimum difference in the groups assumed is 10%.
- A proportion of 9.4% was used, representing the estimated prevalence of modern contraceptive uptake among adolescents reported in a previous Ugandan study.¹⁷
- We added 4% to the minimum sample size to cater for attrition.

Statistical Analysis

The statistical analysis was performed using Stata version 18.0 (StataCorp LLC, College Station, TX, USA). Descriptive statistics are presented as frequencies and percentages. Additionally, a chi-square test for the variables in Table 2 and Table 3 was performed, and the corresponding p values are reported. For the bivariate and multivariate Poisson regression analyses, the “sandwich” and “lmtest” packages were used. Using the glm function, the prevalence ratios,

Table 2 Sociodemographic and Pregnancy-Related Characteristics of Participants in the Intervention and Control Groups

Characteristics	Categories	n	Routine Counselling	Group Counselling	p value
			N (%)	N (%)	
Age in years	Below 18	64	28 (14.4%)	36 (18.2%)	0.374
	18 and more	329	167 (85.6%)	162 (81.8%)	
Level of education	Primary	273	142 (72.8%)	131 (66.2%)	0.35
	Secondary level and above	101	45 (23.2%)	56 (28.3%)	
	Never attended school	19	8 (4.1%)	11 (5.6%)	
Marital status	Married/living with a partner	185	107 (54.9%)	78 (39.4%)	0.002
	Single	208	88 (45.1%)	120 (60.6%)	
Source of income	My work	162	67 (34.4%)	95 (48%)	0.004
	Partner	126	77 (39.5%)	49 (24.7%)	
	Relatives	105	51 (26.1%)	54 (27.3%)	
Parents alive or not	Both alive	258	141 (72.3%)	117 (60.9%)	0.034
	Both dead	21	11 (5.6%)	10 (5.2%)	
	Single parent alive	108	43 (22.1%)	65 (33.9%)	
Age at sexual debut	15 yrs and below	117	47 (24.1%)	70 (35.4%)	0.020
	Above 15 yrs	274	147 (75.4%)	127 (64.1%)	

(Continued)

Table 2 (Continued).

Characteristics	Categories	n	Routine Counselling	Group Counselling	p value
			N (%)	N (%)	
Knowledge of family planning methods	High (knows 3 topics and above)	195	91 (46.7%)	104 (52.5%)	0.245
	Low (knows less than 3 topics)	198	104 (53.3%)	94 (47.5%)	
Outcome of recent pregnancy	Poor outcome (preterm or abortions)	60	31 (15.9%)	29 (14.6%)	0.730
	Positive outcome (term births)	333	164 (84.1%)	169 (85.4%)	
Planning to have another child	Yes	215	104 (53.3%)	111 (56.1%)	0.397
	No	147	72 (36.9%)	75 (37.9%)	
	Do not know	31	19 (9.7%)	12 (6.1%)	
Antenatal care attendance	Yes	369	190 (97.4%)	179 (96.8%)	0.693
	No	11	5 (2.6%)	6 (3.2%)	
Number of pregnancies	Single pregnancy	341	163 (84.0%)	178 (89.9%)	0.084
	Repeated pregnancy	51	31 (16.0%)	20 (10.1%)	

Table 3 Same-Day Postpartum/Postabortion Uptake of Modern Contraceptive Methods Among the Intervention and Control Groups

Outcome	N	Routine Counselling, n (%)	Group Counselling, n (%)	p value
<i>Same day postpartum/postabortion uptake of modern contraception</i>				<0.001
No	234	146 (74.9)	88 (44.9)	
Yes	157	49 (25.1)	108 (55.1)	
<i>Type of modern contraceptive method chosen same-day postpartum/postabortion</i>				<0.001
Emergency pill	3	0 (0.0)	3 (2.8)	
IUD	8	6 (12.2)	2 (1.9)	
Implant	49	15 (30.6)	34 (31.5)	
Injectable	68	28 (57.1)	40 (37.0)	
Oral contraceptive pill	28	0 (0.0)	28 (25.9)	
Condom	1	0 (0.0)	1 (0.9)	
<i>Reasons for refusal</i>				< 0.001
Do not want to use	39	29 (19.9)	10 (11.4)	
Fear of side effects	64	48 (32.9)	16 (18.2)	
Single and abstaining	44	17 (11.6)	27 (30.7)	

(Continued)

Table 3 (Continued).

Outcome	N	Routine Counselling, n (%)	Group Counselling, n (%)	p value
Puerperium	16	13 (8.9)	3 (3.4)	
Partner does not allow	12	6 (4.1)	6 (6.8)	
Want to get pregnant	9	6 (4.1)	3 (3.4)	
Still thinking to get the method	17	13 (8.9)	4 (4.5)	
Other reasons	33	14 (9.6)	19 (21.6)	

confidence intervals and p values were calculated. If the p value was less than 0.05, it was deemed significant. The prevalence ratio was interpreted based on the p value obtained in the multivariate analysis.

Results

Sociodemographic and Pregnancy-Related Characteristics of the Participants

A total of 195 participants were in the control group, in which the participants received the standard care routine, and 198 participants were in the intervention group (Figure 1). Overall, the two study groups were comparable with respect to most sociodemographic and pregnancy-related characteristics.

Most participants in both groups were aged 18 years or older (85.6% in the routine counselling group vs 81.8% in the intervention group; $p = 0.374$). Similarly, primary education was the most common level of education attained in both groups (72.8% vs 66.2%, respectively), with no statistically significant difference in educational attainment between the groups ($p = 0.350$). No statistically significant differences were observed between the groups regarding knowledge of family planning methods, where approximately half of participants in each group demonstrated high knowledge (52.5% in the intervention group vs 46.7% in the control group; $p = 0.245$). Similarly, the groups were comparable with respect to the outcome of the most recent pregnancy, with approximately 85% of participants in both groups reporting a term birth ($p = 0.730$). There were also no significant differences in future fertility intentions ($p = 0.397$), antenatal care attendance ($p = 0.693$), or number of previous pregnancies ($p = 0.084$), although repeated pregnancy was slightly more common among participants receiving routine counselling (16.0%) than among those in the intervention group (10.1%) (Table 2).

However, significant differences were observed in several baseline characteristics. Participants in the intervention group were more likely to be single than those receiving routine counselling (60.6% vs 45.1%), whereas a greater proportion of participants in the routine counselling group were married or cohabiting (54.9% vs 39.4%; $p = 0.002$). The source of income also differed significantly between groups ($p = 0.004$); adolescents in the intervention group were more likely to rely on their own work as their primary source of income (48.0% vs 34.4%), while those in the routine counselling group more commonly depended on their partners (39.5% vs 24.7%). Parental survival status differed significantly between the two groups ($p = 0.034$). Participants in the routine counselling group were more likely to have both parents alive (72.3% vs 60.9%), whereas adolescents in the intervention group more frequently reported having only one surviving parent (33.9% vs 22.1%). Likewise, participants receiving group counselling were significantly more likely to report an earlier sexual debut (≤ 15 years) than those in the routine counselling group (35.4% vs 24.1%; $p = 0.020$).

Same-Day Modern Contraception Uptake Among the Intervention and Control Groups

Contraception uptake on the same day was noted in both groups. In the intervention group, 55.1% of the participants accepted contraception, whereas 25.1% of those in the control group did. Injectables, followed by implants and oral contraceptive pills, were taken up by the participants in the intervention group. There was a significant difference in the

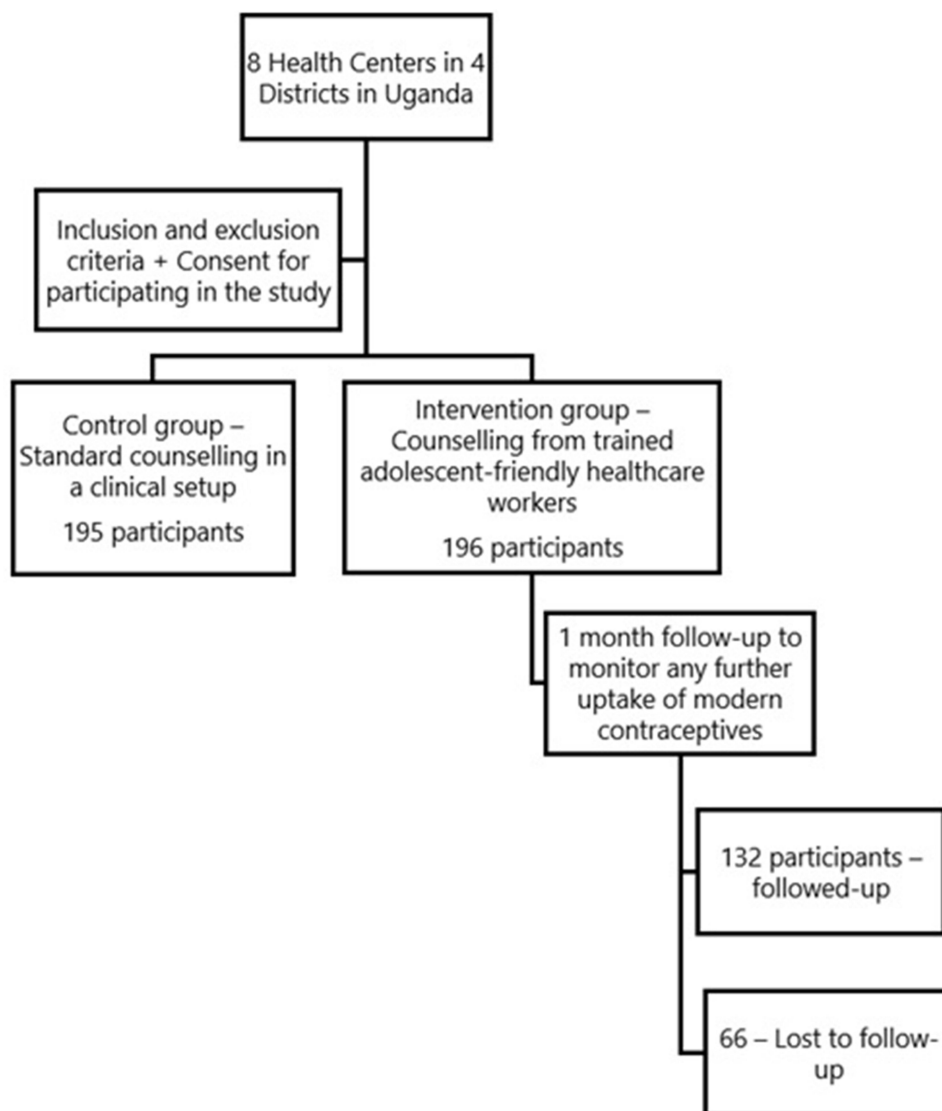


Figure 1 Study profile.

type of contraceptive method chosen between the two groups. Fear of side effects (32.9%) was one of the reasons for refusal of contraception in the control group, whereas in the intervention group, abstinence (30.7%) was the major reason for the refusal of modern contraceptives. Table 3 summarizes the contraception uptake among the groups.

Factors Associated with Same-Day Uptake of Modern Contraception

Bivariate Analysis

Table 4 presents the bivariate analysis of factors associated with same-day uptake of modern contraception. Of all the variables examined, the type of counselling – group vs routine, was the only factor significantly associated with same-day uptake of modern contraception. Participants who received facility-based group counselling had more than twice the prevalence of same-day uptake of modern contraception compared with those who received routine counselling (PR = 2.19, 95% CI: 1.67–2.88; $p < 0.001$).

None of the participants' sociodemographic or pregnancy characteristics were significantly associated with same-day uptake of modern contraception. There was no evidence of an association between contraceptive uptake and age ($p = 0.618$), level of education ($p = 0.740$), marital status ($p = 0.664$), source of income ($p = 0.509$ – 0.749), parental survival status ($p = 0.576$ – 0.692), age at sexual debut ($p = 0.207$), recent pregnancy outcome ($p =$

Table 4 Bivariate Analysis of Factors Independently Associated with Same-Day Postpartum/Postabortion Uptake of Modern Contraceptive Methods

Variable	N	Prevalence Ratio (95% CI)	p value
Type of counselling	391		
Routine counselling		1.0	
Group counselling		2.19 (1.67 to 2.88)	<0.001
Age category	391		
Below 18 years		0.89 (0.63 to 1.27)	0.618
18 years and above		1.0	
Level of education	391		
Never attended school		1.0	
Primary		0.98 (0.57 to 1.69)	0.951
Secondary and above		0.88 (0.49 to 1.58)	0.740
Marital status	391		
Single		1.0	
Married and living with partner		0.93 (0.73 to 1.19)	0.664
Income source	391		
My work		1.0	
Relatives		0.87 (0.63 to 1.20)	0.509
Partner		1.06 (0.81 to 1.39)	0.749
Parents alive	385		
Both alive		1.0	
Both dead		0.86 (0.46 to 1.60)	0.692
Single parent		1.10 (0.85 to 1.44)	0.576
First time having sex	389		
15 years and below		1.0	
Above 15 years		0.85 (0.66 to 1.09)	0.207
Outcome of recent pregnancy	391		
Poor outcome		1.13 (0.68 to 1.86)	0.726
Good outcome (term births)		1.0	
Planning to have another child	391		
Yes		1.15 (0.69 to 1.89)	0.671
No		1.14 (0.68 to 1.90)	0.692
Do not know		1.0	
Knowledge level of family planning	391		
High (knows 3 topics and above)		1.0	
Low (knows less than 3 topics)		0.79 (0.62 to 1.01)	0.147
Number of times pregnant	390		
Single pregnancy		0.92 (0.65 to 1.29)	0.704
Repeated pregnancy		1.0	
Antenatal care attendance			
No	378	1.0	
Yes		1.45 (0.55 to 3.84)	0.525

0.726), future fertility intentions ($p = 0.671$ – 0.692), number of previous pregnancies ($p = 0.704$), or antenatal care attendance ($p = 0.525$). Similarly, although participants with lower family planning knowledge appeared less likely to accept a modern contraceptive method than those with higher knowledge, this association did not reach statistical significance (PR = 0.79, 95% CI: 0.62–1.01; $p = 0.147$).

Multivariable Analysis

Variables with a p -value less than 0.20 in the bivariate analysis, together with selected sociodemographic characteristics, were entered into the multivariable Poisson regression model (Table 5).

Table 5 Multivariable Regression of Factors Independently Associated with Same-Day Postpartum/Postabortion Uptake of Modern Contraceptive Methods

Variable	Prevalence Ratio	p value
Age in years		
Below 18 years	0.87 (0.60–1.30)	0.60
18 years and above	1.0	
Marital status		
Living with partner	1.0	0.53
Single	0.85 (0.60–1.20)	
Income		
My work	1.0	0.65
Relatives	0.90 (0.60–1.30)	
Partner	1.25 (0.90–1.70)	
Parents alive		
Both alive	1.0	0.877
Both dead	0.94 (0.50–1.70)	
Single parent alive	0.99 (0.80–1.30)	
First time having sex		
15 years and below	1.0	0.600
Above 15 years	0.90 (0.70–1.20)	
Type of counselling		
Routine counselling	1.0	<0.001
Intervention	2.24 (1.70–3.00)	
Knowledge level of family planning		
High (knows 3 topics and above)	1.0	0.394
Low (knows less than 3 topics)	0.90 (0.70–1.10)	

After adjustment for potential confounding factors, facility-based group counselling remained the only independent predictor of same-day uptake of modern contraception. Adolescent girls and young women who participated in the group counselling intervention had 2.24 times the prevalence of same-day uptake of modern contraception compared with those who received routine counselling (adjusted PR = 2.24, 95% CI: 1.70–3.00; $p < 0.001$).

None of the remaining variables were independently associated with the outcome after adjustment. Specifically, there were no significant associations between same-day uptake of modern contraception and age category (aPR = 0.87, 95% CI: 0.60–1.30; $p = 0.600$), marital status (aPR = 0.85, 95% CI: 0.60–1.20; $p = 0.530$), source of income (relatives: aPR = 0.90, 95% CI: 0.60–1.30; $p = 0.650$; partner: aPR = 1.25, 95% CI: 0.90–1.70; $p = 0.320$), parental survival status (both dead: aPR = 0.94, 95% CI: 0.50–1.70; $p = 0.877$; single parent alive: aPR = 0.99, 95% CI: 0.80–1.30; $p = 0.954$), age at sexual debut (aPR = 0.90, 95% CI: 0.70–1.20; $p = 0.600$), or family planning knowledge level (aPR = 0.90, 95% CI: 0.70–1.10; $p = 0.394$).

One-Month Retention on the Opted Modern-Contraceptive Use Among the Intervention Group

Among the 198 participants in the intervention group, 132 (66.7%) were successfully followed via phones or through active tracing by village health teams (VHTs). Of them, 73 (55.3%) had opted for a modern contraceptive method during their last visit to the health centre, and 10 (17.5%) intended to take up a contraceptive method during their next visit to the health centre. Most of the follow-up participants (86.7%) were still using the contraceptive method that they had opted for during their last health centre visit. Avoiding pregnancy was the key reason for the continuation of the contraceptive method. A minor portion of the participants (27%) reported side effects. The most reported side effect was heavybleeding, followed by dizziness and loss of body weight. When questioned regarding the likelihood of the chosen contraceptive method being used for the next year, 61 (82.4%) stated that they would most likely continue to use the

chosen contraceptive method. Although 122 (92.4%) of the participants wanted to have more children, 73% wanted to wait for more than two years to become pregnant again, and only 7.4% wanted to become pregnant within one to two years.

Discussion

The primary aim of the study was to pilot and assess the effectiveness of facility-based group counselling compared with routine care in increasing same-day uptake of modern contraception among adolescent girls and young women in selected health facilities in Southwestern Uganda.

We found that the proportion of participants who took up contraception was greater among those who attended group sessions than among those who were allocated to a standard of care routine (55.1% vs 25.1%), indicating that the study intervention was effective. We also found that injectable contraception was the most preferred contraceptive method in both groups, followed by implant and oral contraceptive pills in the intervention group. The main reason for refusal among participants in the control group was concerns about side effects. In contrast, a smaller percentage of participants in the intervention group expressed this concern. This highlights the need for information on modern contraceptive methods in routine standard of care. When the intervention group was followed up for one month, most of them continued to use the opted contraceptive method to avoid pregnancy and understood the importance of healthy intervals between pregnancies. This finding implied that the knowledge received of the intervention was retained by the participants at least in the short-term.

Our findings align with a previous study in Northern Uganda that examined the impact of peer counselling on modern contraceptive acceptance among refugee adolescents.²⁵ The same-day acceptance of modern contraceptives was 55.1% in the intervention group, and injectables were the most preferred contraceptive in both groups in our study, which was similar to the findings of the study among refugee adolescents. The major reason for nonacceptance in the intervention group in the present study was abstinence, followed by fear of side effects and not having a husband or partner temporarily away. This could be attributed to the fact that 61.1% of the participants in the intervention group were single/widowed/divorced/partner temporarily away. On the other hand, in the refugee study, partner prohibition was the major reason for the nonacceptance of contraceptives in the intervention group.²⁵ In the current study, trained adolescent-friendly HCWs performed family planning counselling, and the counselling session took place at the healthcare centre. Adolescents were actively involved in stakeholder discussions during the intervention development phase. In contrast, for the intervention introduced for refugees,²⁵ adolescents were trained via the WHO contraceptive counselling guide. These trained adolescents then conducted peer counselling sessions for other refugee adolescents at community meeting places.

Towango and Kelepile³⁵ reported that factors such as marital status, the wealth index and education level were positively associated with uptake of modern contraceptives among women aged between 15 and 49 years. The authors also reported that women between the ages of 20 and 29 years tend to use modern contraceptives more than adolescents do.³⁵ However, in the current study, only participation in the intervention was positively associated with modern contraceptive use. No other factors demonstrated a significant positive or negative association among adolescents. This could be because there were an equal number of participants with similar characteristics in both groups, and the intervention had a pivotal role in modern contraception uptake.

A significant improvement in modern contraception uptake through adolescent-friendly intervention was observed in this study, indicating that adolescent-friendly family planning services are needed and welcomed by adolescent girls and young women. A study that investigated the prevalence and factors associated with contraceptive service utilization among adolescents in Uganda also reported that the limited availability of adolescent-friendly services contributed to low contraceptive utilization among adolescents.³⁰ An environment that fostered a sense of security, care, and nonjudgment encouraged adolescents to access and utilize family planning services. Furthermore, from the examples above, it can be inferred that the programs that were either peer-reviewed or peer-led were accepted by adolescents. In addition, Chandra Mouli et al explored various barriers to accessing contraceptive services among adolescents and emphasized that the absence of an experienced and skilled workforce was one of the major barriers.⁸ The intervention introduced in this study bridged this gap. One component of the intervention focused on training HCWs to be competent, informed and

empathetic towards adolescents. At the beginning and end of the training, evaluations revealed that the training had a significant effect on HCWs knowledge level.

Strengths of the Study

To our knowledge, this is among the first studies in Uganda and one of the few in sub-Saharan Africa to evaluate a structured facility-based group postpartum/postabortion counselling intervention specifically targeting adolescent girls and young women and measuring same-day uptake of modern contraception under routine public health service delivery conditions. Unlike previous studies that primarily evaluated individual counselling, peer-led interventions, or broader health-system strengthening approaches, our intervention integrated standardized group counselling delivered by trained healthcare providers within existing maternal health services. Consequently, the study provides important implementation evidence on the feasibility and effectiveness of integrating adolescent-friendly group counselling into routine maternity care in resource-limited settings. Additional study strengths included the involvement of adolescents in the intervention development phase, training HCWs to be competent and empathetic, and implementing the intervention in a safe, enclosed, and comfortable space such as a healthcare centre. The proposed intervention's unique feature was leveraging the existing healthcare workforce and enhancing its capabilities through additional training. The training guides for the intervention were in line with the government's postnatal care policies and were designed to be engaging by incorporating games and interactive activities. Additionally, the participants in the intervention group were followed up to observe their contraception uptake behaviour and continuation of the chosen modern contraceptive method.

Limitations of the Study

Despite the adolescents' representation during the intervention development phase, the intervention was mainly delivered by health workers as such was not peer-led. This factor might have discouraged some adolescents from participating in the study, as they feared being judged by HCWs. Since the site chosen for the intervention dissemination was a healthcare centre, adolescents living in hard-accessible areas could have been missed. Same-day acceptance of contraception was recorded, but several adolescents either wanted time to think about a specific contraceptive method or wanted to discuss it with their partners. The time for the decision-making process was not given. We also acknowledge that the absence of individual randomization limits the strength of causal inference and may introduce residual confounding despite multivariable adjustment. Therefore, the reported prevalence ratios and p values demonstrate statistical associations consistent with an intervention effect but should not be interpreted as definitive evidence of causality comparable to that from a randomized controlled trial. Future randomized or cluster-randomized studies will be needed to provide stronger causal evidence. Also, findings having been generated from selected public health facilities in Southwestern Uganda, should be generalized cautiously to other regions, private healthcare settings, or health systems with different organizational characteristics. Finally, there could be chances of recall bias, as the questionnaire used in this study focused on previous pregnancy-related information and sexual activity.

Conclusion

The facility-based group counselling intervention implemented in this study had a positive significant effect on same-day postpartum/postabortion contraception uptake. The follow-up results among participants who received the intervention showed a high-retention rate on the opted modern contraceptives. Key factors driving the intervention's success included updating training guides in line with government policies, training healthcare workers, and hosting stakeholder workshops with adolescent representatives prior to development. Future multicentre cluster-randomized or individually randomized trials, together with longer-term follow-up evaluations, should be undertaken to confirm the effectiveness, sustainability, and scalability of facility-based group counselling among adolescent girls and young women.

Abbreviations

FP, Family Planning; HCIV, Health Centre IV; HCW, Healthcare Workers; HIV/STI, Human Immunodeficiency Virus/ Sexually Transmitted Infection; IUD, Intrauterine device; MRRH, Mbarara Regional Referral Hospital; MUST, Mbarara University of Science and Technology; MVA, Manual vacuum aspiration; TREND, Transparent Reporting of Evaluations

with Nonrandomized Designs; SSA, Sub-Saharan Africa; SRH, Sexual and Reproductive Health; UNFPA, The United Nations Population Fund; VHT, Village Health Team.

Data Sharing Statement

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Ethics Approval and Consent to Participate

The study was performed following the study protocol, the Declaration of Helsinki, and any other applicable national or other regulatory guidelines. Ethical approval was received from the Mbarara University Research Ethics Committee (REF: MUST-2022-656), the Uganda National Council of Science and Technology (REF: HS2972ES), and Ludwig Maximilian University of Munich (LMU) in Germany (Project N: 23-0617). The Ugandan ethics committees accorded a waiver of parental consent for adolescents less than 18 years, as they were considered emancipated minors who were able to provide informed consent on their own. Written informed consent was obtained from the participants after a thorough explanation of the study.

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Author Contributions

CRedit: All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests.

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