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Health facility capacities for providing adolescent sexual and reproductive health services in Southwestern Uganda

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Abstract

Background: Provision of adolescent-friendly Health services (AFHS) at lower primary health care centres (PHCs) is a core strategy for improving access and health outcomes of adolescents. In this study we assessed the health facility-based prevalence of repeat adolescent pregnancies and the capacity of PHCs (Health centres (HC) level III and IV) to provide AFHS in Uganda.

Methods: We conducted a cross-sectional study between April and May 2023 involving 43 healthcare facilities (33 HC III and 10 HC IV) across 4 districts in Southwestern Uganda. Using pretested structured questionnaires, we interviewed the health facility in-charges or their delegates. We extracted the 6-month information from registers on: number of repeat adolescent pregnancies, post-abortion, and post-natal adolescents attending each facility. With a checklist, we assessed the availability of family planning materials/services and other medical equipment. Descriptive statistics were generated.

Results: Adolescent contributed 4.9%, 16.3% and 14.8% of all repeat pregnancy, post-abortion and post-natal consultations documented at all PHCs. We noted a low perinatal care staffing with the majority of HC IIIs lacking adolescent peer educators (n=34; 79%), and counsellors (n=26; 60.5%). The need for training in the provision of adolescent-friendly services, post-natal or post-abortion care in adolescents (>90%) was high. PHCs were inadequately supplied with equipment for post-abortion care and IUD insertion. Female and male sterilization and emergency contraception were less offered. Health workers were willing to give family planning to previously pregnant adolescents (90.7%), without parental consent (65.2%), but did not support contraceptive administration to adolescents who had formerly been pregnant in fear of promoting sexual promiscuity (41.9%). A quarter of the PHCs had a dedicated clinic for adolescents and had a day in the week for adolescent services.

Conclusions: This study reveals major gaps in adolescent perinatal care in Southwestern Uganda, including limited peer educators, inadequate post-abortion care, and poor healthcare worker training. Strengthening services requires interactive, peer-based training and addressing staffing shortages through peer educators and community health workers. Equipping Health Centre IIIs to

deliver comprehensive, adolescent-friendly care is essential to improving access and closing these critical service gaps.

Key words: Adolescent pregnancy, Perinatal care, Family planning, Health service capacity, Repeat pregnancy.

Background

Adolescent pregnancy is a prevalent global phenomenon, presenting significant health, social, and economic challenges for individuals, families, and communities. Despite the global decline of the adolescent birth rate (ABR) from 64.5 births per 1000 women (15–19 years) in 2000 to 41.3 births per 1000 women in 2021, adolescent pregnancy remains a major public health challenge in Sub-Saharan Africa. The Sub-Saharan Africa ABR was a staggering 99.4 births per 1000 women (15–19 years), translating to over 1.2 million births in 2022 ¹. Uganda does not only have the second youngest population in the world with a median age of 16.1 years ², but it is also among the countries with the highest ABR estimated at 296 births per 1000 adolescent women ¹.

Adolescent pregnancy is strongly linked to adverse medical and social outcomes for both the mother and the newborn. Such pregnancies are prone to an array of maternal complications including eclampsia and preeclampsia, preterm premature rupture of membranes, maternal anemia, and maternal mortality ^{3–6}. In Uganda, adolescent maternal mortality contributes 17.2% to overall maternal mortality ⁷. Newborns from these pregnancies are higher at risk of spontaneous prematurity leading to acute respiratory, immunologic, gastrointestinal, central nervous system, vision, and hearing problems and long-term motor, cognitive, and behavioral growth issues ^{3,8–10}. Adolescent mothers encounter various challenges including psychosocial issues, inadequate adolescent-friendly services at health facilities, insufficient birth preparedness, and social consequences like diminished standing within the household and community, stigma, abuse from family, peers and partners, and early/forced marriage ^{4,11}. These socio-economic consequences impact a young

woman's progression into adulthood, affecting her well-being, educational and financial prospects,¹¹ and are often associated with the occurrence of repeat pregnancies¹²⁻¹⁴.

Repeat pregnancy, defined as a subsequent pregnancy, or multiple pregnancies, occurring within 12 to 24 months following a previous pregnancy¹³, is associated with heightened physiological and behavioral health risks such as pregnancy complications, psychological distress, and economic dependence stemming from the inability to complete education among adolescent girls and young women¹⁴. The 2022 Uganda demographic and health survey indicated that, 22% adolescents between 15-19 years had non first births less than 7 months after a preceding birth and 22.5% had a non-first birth 18-23 months after a preceding birth^{15, 14,16,12,17,16}. A study by Amongin et al., 2020 indicated that following a first birth at less than 18 years, more than half of the women reported a repeat adolescent birth with no decline observed in 30 years in Uganda¹⁶. Hindin et al., 2016 suggested that interventions, such as contraception provisions, that take advantage of adolescents already at the site of health services (post-natal or post-abortion) have the potential to significantly reduce the occurrence of repeat pregnancy¹⁷. Maternal health care for adolescents, however, is complex and involves addressing a range of psychosocial issues and requiring attention to both the developmental needs of the adolescent mother, newborn, and medical problems related to the pregnancy¹⁸. In Uganda, Maternal, Newborn and Child Health (MNCH) services are guided by the National Minimum Health Care Package which includes a set of essential services provided for free through Public Health Centers (PHCs). It is expected that Health Center (HC) IVs and District Hospitals provide 24-hour outpatient, inpatient, and surgical services including Comprehensive Emergency Obstetric and Newborn Care (CEmONC). Health Center IIIs provide 24-hour outpatient and inpatient care for a target population of 20,000 including Basic Emergency Obstetric Care (BEmONC) augmented by laboratory support. Health Center IIs provide basic curative and preventive services 8 hours a day to a target population of 5,000. They provide BEmONC including antenatal, normal delivery, and postnatal services. Village Health Teams, the lowest level of the Health system, serve as a Health Center I (HC I) with community selected providers.

They provide antenatal attendance follow-up, danger sign recognition, referrals, and birth/death recording¹⁹.

Nonetheless, adolescent utilization of maternity services in Uganda and the rest of Sub-Saharan Africa, faces significant challenges, contributing to inadequate access to essential healthcare during pregnancy¹⁸. Research has shown that globally, access to, and utilization of fundamental maternal healthcare services for adolescent mothers remains insufficient in countries with the highest rates of adolescent childbirth²⁰. The challenges impeding access to and utilization of maternity services among adolescents include long distances to healthcare facilities, financial constraints, stigma, and negative attitudes from both health workers and the community²¹. Parents and caregivers often lack awareness of available antenatal care services, exacerbating the struggles faced by pregnant adolescents who also lack social and financial support²². Furthermore, discrimination and privacy concerns hinder adolescent access to maternal health services, particularly for unmarried individuals, who face additional discriminatory challenges during antenatal appointments²³. Unmet expectations regarding healthcare services, coupled with impolite and judgmental attitudes from service providers, further impede adolescent mothers' access to essential care²⁴.

These challenges indicate the need for maternal newborn and child health service centres to have the capacity to address the unique needs of adolescent mothers to mitigate the broader socio-cultural and economic barriers to health equity^{23,25}. Following a broader project to prevent repeat adolescent pregnancy in rural Southwestern Uganda through exploring the underlying risk factors and piloting a targeted adolescent-friendly and age-appropriate intervention, this paper presents findings from data generated to assess the extent of repeat pregnancy, post-abortion and post-natal consultations, capacity of health facilities, and healthcare workers' attitudes towards offering perinatal care to adolescents at health facilities across 4 districts in Southwestern Uganda.

Methods

Study design and setting

We conducted a cross-sectional descriptive health facility-based study between 27/04/2023 and 30/05/2023 that employed quantitative data collection methods.

We included all lower-level health units (Health centre III/IV levels) within the Mbarara, Isingiro, Ibanda, and Rwampara districts in this study. Uganda's health system is a tier-based system divided into seven levels with the lowest point of care being at the village level. However, physically, a health centre II (HC II) is the lowest unit and is located at a parish level. These units have different staffing and capacity in terms of service provision. Patients are normally referred along the tier system depending on the complexity of their condition. As part of their services, HC III/IV levels are expected to offer post-natal/post-abortion services and family planning services.

Study population and sample size

We enrolled and interviewed key informants who were mainly health facility in-charges or department heads at each of the 43 public health facilities (health centre III/IV levels or hospital levels) in the four districts. Each health facility was represented by one respondent thus a sample size of 43 participants. Table 1

Table 1. Distribution of health facilities across the 4 districts included in the study.

Data collection

We conducted face-to-face quantitative interviews using structured questionnaire (see Additional file 1). Trained research assistants administered pre-tested and structured questionnaires to facility in-charges or Maternal Child Health department heads to ascertain the information on; 1) Health facilities' coverage and accessibility, 2) Adolescent SRH-related services offered at health facilities, 3) Human resource capacity for adolescent SRH services, 4) Health care workers' (HCWs) training status on post-natal and post-abortion care, 5) Equipment capacity in relation to post-natal and post-abortion care, 6) Availability of

family planning commodities at health facilities, 7) Availability of SRH-related health information management systems, and, 8) HCWs' attitudes towards provision of family planning services for adolescents. One HCW was interviewed per facility.

Also, checklists were used to collect data from the health centres we visited about the number extent of repeat pregnancy, post-abortion and post-natal consultations recorded in the most recent 6 months. The research assistants collected this information by directly tallying patient register entries to count the number patients.

Statistical methods

All data were entered directly into a database designed using an online Kobocollect database Software by the research assistants during data collection. The database was installed on the tablets but also on smart phones. Research assistants were given rights to enter data but not to delete any saved record. The data manager remotely monitored the data entry and gave weekly feedback to the research assistants regarding the quality of the data and missing data was addressed through researchers verifying with the source health Facilities.

The validated dataset was then imported into STATA software version 14.0 for analysis (Stata Corp, College Station, TX, USA). Descriptive statistical analysis was done to analyze the participants' characteristics, health facility capacity and HCW's attitudes towards provision of family planning services for adolescents which were reported in the form of means with their standard deviations or median with their interquartile ranges for continuous variables, ranges, and frequencies with their percentages for categorical variables. These were presented as tables or graphs.

Ethical statement

This study followed the tenets of the Declaration of Helsinki. It was approved by the Mbarara University Research Ethics Committee (Ref MUST 2022/656). Permission was sought from the District Health Offices

and Chief Administrative Officers to access and collect data from the health facilities. Then, written informed consent was obtained from the health facility and department heads before enrolment to participate in the study and data collection.

Results

Study profile

We conducted a cross-sectional study between April and May 2023 involving 43 healthcare facilities across 4 districts in Southwestern Uganda. Of the 43 included facilities, 33 and 10 were health centre III and IV respectively. The distribution of health facilities enrolled in the study was as follows: Mbarara (10 HC III, 2 HC IV), Rwampara (2 HC III, 2 HC IV), Isingiro (14 HC III, 4 HC IV) and Ibanda (7 HC III, 2 HC IV) districts. Table 1

Respondent's characteristics

A total of 43 respondents were included in this survey with one respondent representing each health facility. The 43 survey respondents were predominantly females (72.7% vs 80.0% in HC III and IV respectively, $p=1.0$) and either in-charges (45.5% vs 44.4% in HC III and IV respectively) or heads of department (54.6% vs 55.6% in HC III and IV respectively), $p=1.0$.

Extent of repeat pregnancy, post-abortion and post-natal consultations

Figure 1 shows the total contribution of adolescents to the overall monthly number of post-natal, post-abortion and repeat pregnancy consultations among 43 health facilities. Of the total 4194 mothers consulting monthly at the 43 health facilities, on average, 204 (4.9%), 402 (14.8%) and 20 (16.3%) are repeat pregnancies, post-natal and post-abortion adolescent mothers' consultations registered in the 43 health facilities per month. Of the 43 health facilities, only 24 had atleast one recorded case of post abortion adolescent. (Figure 1)

Figure 1. Total contribution of adolescents to the overall monthly number of post-natal, post-abortion and repeat pregnancy consultations among 43 health facilities

Overall, the 43 included health facilities (irrespective of the HC level and districts), had a mean number of adolescent consultations per month ranging as follows: 0.0-48.0 versus 0.0-4.7 versus 1.0-30.5 for post-natal, post-abortion and repeat pregnancies respectively. This signifies a great variation in the distribution of adolescent consultation across health facilities and districts regarding post-natal, post-abortion and repeat pregnancy care. Regarding repeat pregnancies, across all included districts, the mean monthly adolescent consultations ranged between 1.0-16.0 for HC III facilities and 2.3-30.5 for HC IVs. This wide range demonstrates an important variation between and within the same HCs levels. The overlap in the ranges of adolescent repeat pregnancy consultations also point to the comparable patient burden between these two health facility levels, that would require a comparable capacity to be able to provide effective SRH services to adolescents, see Table 2.

Table 2. Average monthly number of adolescent consultations for post-natal, post-abortion and repeat pregnancies across districts and health facility levels.

Health facility capacity to provide adolescent SRH services

In this section, we divide health facility capacity into 7 parts: 1) Health facilities' coverage and accessibility, 2) Adolescent SRH-related services offered at health facilities, 3) Human resource capacity for adolescent SRH services, 4) Health Care Workers' training status on post-natal and post-abortion care, 5) Equipment capacity, 6) Availability of Family Planning commodities at health facilities, 7) Available SRH-related Health Information Management systems.

Health facilities' coverage and accessibility

Irrespective of the health facility level, the median population covered by each health facility was 19,993 (IQR: 11,000-27,600). HC III and IV facilities had a median population coverage of 18,814 (IQR: 10,890-26,312) and 22,317 (IQR: 18,894-41,427) respectively, $p=0.2317$.

Overall, majority of health facilities had all weather road access (67.4%), atleast hydro-electric or solar power supply and availability of good phone network connectivity (>95%). HCIII and HCIV level facilities

did not differ significantly in respect to their road accessibility, electric power sources and available mobile phone networks with $p>0.05$. Table 3

Table 3. Health facilities' population coverage and accessibility

Adolescent SRH-related services offered at health facilities

All 43 health facilities had post-natal and post-abortion care services. About half of the HC IV facilities had a dedicated clinic for Adolescents and had a day in the week for adolescent services as compared to 18% of HC III facilities. The major partners in supporting FP services are government, Marie-stops International and Reproductive health Uganda. Table 4

Table 4. Health facilities offering Adolescent SRH-related services

Human resource capacity for adolescent SRH services

We inquired from the respondents on the availability of specific human resource that would be core for ensuring consistent provision of SRH services to adolescents at HC III and IV levels. Figure 2 shows the available staff cadre for adolescent SRH service delivery at the 43 assessed health facilities. Overall, majority of HC III and IV facilities had: Enrolled Nurse, Enrolled Midwife, Laboratory Officer, Clinical Officer, and Voluntary Health Teams also known as a Linkage Facilitator/Community Healthcare worker (CHW). Specific to HC IV facilities, all had a medical officer, with 80% of them also having an Anesthetic officer. More specific to adolescent SRH service delivery, we noted a low availability of key personnel that is, 33% HC IIIs versus 60% HC IVs and 18% HC IIIs versus 30% HC IVs having atleast one counsellor and Adolescent Peer Educator respectively. In as much as Obstetricians and Gynecologists are not meant to be part of the PHCs (HCIII and HCIV), their presence in 10% of the HCIVs is because of doctors' academic advancement as Obstetricians and Gynecologists although not employed as so at these Health Facilities. Figure 2

Figure 2. Percentage of Health Facilities with specific staff cadre for adolescent SRH service delivery.

Health care workers' training status on post-natal and post-abortion care

Overall, 83.7% health facilities reported that their staff had not received training on post-natal and post-abortion care in the recent past 6 months, with more HCIII level facilities reporting such refresher trainings than HCIV level facilities. ($p < 0.05$). The majority of health facilities (95.4%) reported the need for staff training regarding provision of postnatal or post abortion care in adolescents. There was a great reported need for HCWs training on: Provision of adolescent friendly services; Post abortion care; post-natal care; Family planning (FP) counselling for adolescents; Provision of FP services with focus on short term modern methods; and long-term modern methods (IUD or Implants). Table 5

Table 5. Health facilities with Training needs for healthcare workers in post-natal and post-abortion

Equipment capacity

In this section, we present the findings on the availability of SRH service-related equipment and family planning commodities at HCIII and HCIV level facilities. Table 6

HCIII level facilities: These had a low availability of equipment for post-abortion care, with only 39.4% of Health facilities having a dilatation and curettage set. Also, 60% had implant insertion and removal kits. Although, equipment for IUD insertion or removal was available in most health facilities ($\geq 94\%$). Most of these sets were incomplete, lacking the Single tooth tenaculum and Uterine sound which are available in only 30.3% and 54.6% of the facilities respectively. Majority had a good supply of Sundries, but almost one-third lacked Macintosh (69.7%), and 84.9% had an Autoclave.

HC IV level facilities: These had inadequate equipment for female and male sterilization, with 40% having bilateral tubal ligation (BTL) set and 20% with vasectomy set. However, all had equipment for IUD insertion or removal, Sundries, and autoclave. Majority had implant insertion and removal kits (90%).

Availability of family planning commodities at health facilities: Overall, the most commonly offered family planning options at both HCIII and HCIVs according to category are: oral contraceptive pills, especially COCs (83.7%), Injectables, specifically Sayana in two-thirds of health facilities (67.4%), male condoms (90.7%), intra-uterine device (88.4%), implants like Sinoplant (100%) and Jadelle (79.1%). Implanone was more offered at HCIV facilities (70%) as compared to just a third of HCIII facilities (33.3%). Majority of health facilities (HCIII and IVs) offer counselling on other natural methods to mothers.

Table 6

Table 6. Number of Health Facilities with different SRH service-related equipment

A low number of health facilities (both HCIIIs and HCIVs) offered the following contraceptive methods: Female condoms (37.2%), vasectomy (9.3%), Depo-Provera (23.3%) and bilateral tubal ligation (27.9%). Emergency contraception is offered in about half of health facilities (53.5%). Table 7

Table 7. Number of Health Facilities offering different family planning options and services

Available SRH-related health information management systems (HIMS)

Almost all HC III and IV facilities have and routinely document information on post-natal and FP services in registers. Overall, the availability of post-abortion registers is minimal in both HCIII (18.2%) and HCIV facilities (40%). HMIS tools are used by all HC III and IV (100%), but with less use of the District Health Information System (DHIS) at HCIII level (69.7%). In majority of health facilities, routinely collected data is majorly used for service improvement at a weekly or monthly level, that is 81.8% vs 70% in HC III and HC IV respectively. Table 8

Table 8. Health facilities with SRH-related health information management systems

Healthcare workers' attitudes towards provision of FP services for adolescents

In this section, we report attitudes of the health facility In-charges or their delegates who were HCWs themselves towards provision of FP services for adolescents. They had favorable attitudes to: 1) Healthcare providers providing contraceptive services for formerly pregnant adolescents seeking care at health facilities (90.7%), 2) providing post pregnancy FP to adolescents without need for parental consent (65.2%).

However, HCWs were not in support of providing contraceptives to adolescents who had formerly been pregnant in fear of promoting sexual promiscuity (41.9%) and a third of HCWs held the view that long term contraceptives had side effects and were unsafe for use among adolescents (37.3%). Figure 3.

Figure 3. Healthcare workers' attitudes towards provision of family planning services to adolescents.

Discussion

This study assessed the extent of repeat pregnancy consultations, capacity of health facilities, and healthcare workers' attitudes towards offering perinatal care to adolescents at health facilities across 4 districts in Southwestern Uganda. Overall, 4.9% of all adolescent consultations were due to repeat pregnancies, with the mean monthly adolescent consultations ranging between 1.0-16.0 for HC III facilities and 2.3-30.5 for HC IVs thus suggesting an important variation between HC III and HC IV levels and within the same HCs levels. We noted a low perinatal care staffing with the majority of HC IIIs lacking adolescent peer educators (n=34; 79%), and counsellors (n=26; 60.5%). PHCs were inadequately supplied with equipment for post-abortion care and IUD insertion. Although, equipment for IUD insertion or removal was available in many health facilities ($\geq 94\%$). Most of these sets were incomplete, lacking the Single tooth tenaculum and Uterine sound which are available in only 30.3% (HC III) and 54.6% (HC IV) of the facilities. Long term Family planning methods (Female and male sterilization) and emergency contraception were less offered. The need for training in the provision of adolescent-friendly services, post-natal or post-abortion care in adolescents ($>90\%$) was high. Minimal use of post abortion registers in both HCIII (18.2%) and HCIV facilities (40%). Health workers were willing to give family planning to previously pregnant adolescents (90.7%), without parental consent (65.2%), but did not support contraceptive administration to adolescents who had formerly been pregnant in fear of promoting sexual promiscuity (41.9%).

Extent of adolescent repeat pregnancy consultations at primary health care centres.

This study reported that 4.9% of adolescent pregnancy related consultations were repeat pregnancy consultations at 43 HC III and IVs in Southwestern Uganda. This is lower than the 30.81% reported in

Soroti, east Uganda²⁶ and the 12.84% reported across 31 countries in sub-Saharan Africa. These differences in the reported prevalence can be explained by the fact that these studies captured community prevalence of repeat adolescent pregnancies as opposed to our study that focused on adolescents consulting at selected health facilities. The low reporting could also be due to the fact the adolescents with repeat pregnancy may underreport or not even come to health facilities for care. Additionally, due to the stigma related to the illegality of Induced abortion in Uganda except to save the life of a pregnant mother and to preserve her physical and mental health^{27,28}, we anticipate that most pregnant adolescents may be seeking care in private clinics or Traditional Birth Attendants and not coming to the public health facilities. Feelings of being discriminated against and disrespected by health workers, and lack of privacy when receiving health services have previously been reported as major barriers that hinder pregnant adolescents in Uganda to access maternal health services²⁹. This could explain the low prevalence in our study.

Health facility capacity towards offering perinatal care to adolescents

This study noted a low perinatal care staffing specific for adolescents with the majority of HC IIIs lacking adolescent peer educators (79%), and counsellors (60.5%). A similar study of health facilities in Wakiso district observed that only 13% of the health facilities had peer education and counselling programs³⁰. Despite not being a formal unit of the Ugandan healthcare system, the Ministry of Health, in the 2012 Adolescent Health Policy Guidelines and Service Standards urges the use of peer education and counseling³¹. The absence of peer education and counselling programs at health facilities significantly affects their capacity to provide relevant and adolescent friendly maternal health services as peer educators have been shown to successfully improve access to, and knowledge of maternal health services for adolescents^{32,33}. Muhumuza et al, 2024, reported that only 45.8% of HCIVs in Ankole region provide Comprehensive Emergency Obstetric and Newborn Care and contend with insufficient staffing, a poor work environment, inadequate training, and a staff recruitment structure that does not reflect the expanded role of HCIV facilities and consequently affects the optimal provision reproductive maternal, newborn, child and adolescent health services³⁴. Generally, this gap in staffing has been noted in several studies across sub-

Saharan Africa as a significant barrier to utilization and capacity of health facilities to provide adolescent maternal health services ^{35–37}. In a systematic review to assess maternal health service utilization of adolescent women in sub-Saharan Africa, Mekonnen et al, 2019 noted a lack of teenage friendly services, resulting in adolescent women attending adult-oriented services that do not provide adequate privacy, time or specific training in teenage pregnancy to health care providers³⁵. In a study by Govender et al, 2020, some healthcare providers expressed their concern that healthcare services were not specific to the needs of pregnant adolescents and adolescent mothers that are significantly different from pregnant adults ³⁸.

Our study also revealed that long term Family planning methods and emergency contraception were less offered. This could be linked to the health facilities' inadequate supply of equipment for long-term family planning methods and observations that the available equipment was not well taken care of. We noted that although, equipment for IUD insertion or removal was available in many health facilities ($\geq 94\%$), most of these sets were incomplete lacking the single tooth tenaculum and Uterine sound which are available in only 30.3% HC IIIs and 54.6% HC IVs of the facilities. Other studies in Uganda have also noted gaps in the availability of essential infrastructure, equipment, supplies and drugs for maternal and neonatal care at health centers ^{39–42}. In a study of health centers in Wakiso, Uganda, Bukenya et al reported that only 29% and 22% of the health facilities reported sufficient supplies and equipment respectively that are necessary for providing services that meet the needs of young people³⁰. In contrast to our finding that emergency contraception was less offered at the selected health facilities, Atuhaire et al noted that majority of adolescents are aware of emergency contraception and traditional methods such as abstinence, lactational amenorrhea, and coitus interruptus ⁴³, as such, they were more likely to utilize short term and emergency contraceptive as opposed to long term contraceptive and family planning methods.

Also, our study showed that Health Facilities were inadequately supplied with equipment for post-abortion care and IUD insertion. This finding is coherent with findings from a study to assess the preparedness of health facilities in Eastern and Southern Africa to provide post-abortion care; in which Juma et al reported that lack of equipment, and unavailability of certain commodities and supplies for post-abortion care (PAC)

was a major hinderance to facilities' capacity to provide PAC in Kenya, Nigeria and Burkina Faso⁴⁴. Izugbara et al also noted that some of the key barriers to the provision of PAC services in Sub-Saharan Africa (SSA) are nonavailability of medications, stock-outs, lack of basic supplies, obsolete and deteriorating equipment, and lack of adequate facility space⁴⁵.

We also noted that only 19% and 17% of the health workers had received professional improvement training on post-natal care and post-abortion care within the last 1-2 years. This low level of continuing professional education reflected the perceived need (> 90%) of health workers for training on provision of adolescent friendly services and post-abortion care for adolescents. Training for healthcare providers to provide adolescent friendly services greatly improves the capacity of staff to provide these adolescent services. A study of the intervention in Nigeria comprising of training and supportive supervision, noted that most healthcare providers started recognizing the rights of adolescents to obtain contraceptive services and no longer denied them access to contraceptive services, became friendlier and were no longer harsh in their interactions with adolescents.⁴⁶ Training in provision of adolescent friendly services influences self-efficacy; the health workers belief in his or her capacity to provide adolescent friendly services. Jonas et al, 2016 noted that self-efficacy has a strong and positive association with the intentions to provide both Maternal Child Health and Family Planning, to adolescents in South Africa⁴⁷. Jonas et al, 2017 also noted that healthcare workers with more education and those who had received continuing education on adolescent sexuality and reproduction showed a tendency towards more youth- friendly attitudes and were in support of contraceptive use among adolescents⁴⁸

Health worker attitudes to provision of adolescent SRH services

Although our study reports willingness among HCWs towards giving Family planning (FP) to previously pregnant adolescents (90.7%), without parental consent (65.2%), but a significant proportion did not support contraceptive administration to adolescents who had formerly been pregnant in fear of promoting sexual promiscuity (41.9%). This finding is consistent with findings from a study in Ethiopia that pointed

out health care workers' strong objections to provision of SRH services including safe abortion and contraception to adolescents based on the credence that SRH services would cause adolescents to be promiscuous, since they must abstain from any sexual activities before marriage⁴⁹. The unwillingness and discomfort with provision of SRH and maternal health services to unmarried adolescents because of health workers' personal beliefs and attitudes has been observed in other studies across sub-Saharan Africa as a major barrier to the provision of contraceptives and other SRH services to adolescents^{48,50}. In a study to explore the experiences of unmarried adolescents with reproductive and maternal services in Nigeria and Uganda, Onukwugha et al, 2022 noted that some HCWs were judgemental and unwilling to provide contraceptives to adolescents and would go as far as insisting on receiving parental consent or inform the adolescents' parents of their children's visit to get SRH services⁵¹.

At the southwestern regional referral hospital in Uganda, Miller et al., 2022 reported significant discomfort of health care workers in Uganda to provide contraception and safe sex counseling to unmarried adolescents⁵². In Northern Uganda, studies have revealed similar challenges in health facility capacity to provide SRH services to adolescents, citing judgmental attitudes and unwillingness of healthcare providers⁵³ and staff training inadequacies. In central Uganda, Bukenya et al., 2017 noted that 82% of the facilities in Wakiso provided restricted family planning services to young people and 73% of the facilities mentioned that there is an age limit below which they cannot offer family planning services to young people for all methods without spousal or parental approval. Bukenya et al., 2017 also noted that none of the involved health facilities had guidelines or policy documents for adolescent reproductive and maternal health services³⁰. Similarly, in a private health facility in Kampala, central Uganda, 73.8% adolescents complained of lack of privacy when receiving SRH services, and 79% reported that health workers segregated them from receiving reproductive health services because they were "young to have sexual intercourse"⁵⁴. Vulnerable adolescent populations such as refugees and the urban poor in Uganda have reported heightened difficulties in accessing SRH services from health facilities^{55,56}. Arnott et al., 2022 noted that adolescents in a refugee setting in Northern Uganda also reported disrespect or abuse by health

care workers while accessing antenatal care (ANC) and delivery services as well as lack of access to culturally and gender acceptable contraceptive counselling and quality goods and services, HIV/STI counselling and treatment and accessible delivery services for persons with disabilities⁵⁶.

The observed need for training, negative attitudes and unwillingness of healthcare providers to provide SRH services to adolescents, regardless of the type of health facility, across the different regions of Uganda demonstrates a broader challenge for adolescent SRH that goes beyond the bounds of regional and socio-cultural differences. This wide-spread discrimination against adolescents in access to SRH services in Uganda is in disregard of standard 2 of the Uganda adolescent health policy guidelines that aims at adolescents accessing satisfactory sexual and reproductive health services that include preventive, promotional, curative and rehabilitative services that are appropriate to their needs³¹. The ignorance of the guidelines is an encumbrance to efforts to curb negative SRH outcomes including repeat pregnancies and unsafe abortions among adolescents.

Improving health facility capacity for adolescent SRH services

In this study, the majority of health facilities (95.4%) echoed the need for staff training regarding provision of adolescent friendly services including post abortion care, post-natal care, and family planning counselling for adolescents. Studies have indicated the effectiveness of trainings in improving performance^{57,58} and attitudes^{59,60} of healthcare workers for adolescent SRH service provision. While health worker training for adolescent SRH services has been widely emphasized and implemented globally, including across Uganda⁵⁸, evidence suggests that certain types of trainings do not substantially or sustainably improve the competencies or attitudes of health workers^{58,61}, which could explain the continued need for adolescent SRH training. Denno et al., 2020 emphasized the sustainable effectiveness of participatory, interactive training methodologies that could employ collaborative learning, and the need for refresher trainings, detailed job aids and supervision to improve capacity to provide adolescent SRH services⁵⁸.

Additionally, the shortage of peer educators, counsellors, and community health workers, especially in low level facilities, is as evident in our study as in other studies assessing adolescent SRH service provision at health facilities in Uganda⁶². Evidence has indicated that community health workers, peer educators and counsellors play a crucial role in improving access and utilization of SRH services for adolescents in Uganda. Tumusiime et al., 2025, presents a shared view of stakeholders indicating the need for all categories of health workers to deliver SRH services to adolescents, and its potential to resolve the staffing challenges within health care facilities⁶³.

Strength of study

Our study provides viable evidence of the perinatal care gaps within the public Health facilities that could be leveraged as a basis for health service improvement initiatives of key stakeholders and government. These include the gap in staffing, equipment, staff training and negative attitudes pertaining to contraceptive administration to formerly pregnant adolescents.

Limitations

The findings of our study can be generalized only to public health centres III and IV in Southwestern Uganda and not district and regional referral hospitals since they were not included despite the perinatal adolescent services they offer. The percentages of adolescent consultations due to repeat pregnancies, abortion or need for postnatal care reported in this study should not in any way be interpreted as prevalence values since data collection was restricted at health facilities thus excluding community-based adolescents that could have sought care from other sources including private clinics.

Conclusions and recommendations

This study highlights significant gaps in adolescent perinatal care in Southwestern Uganda, particularly a lack of peer educators and counselors, limited post-abortion care services and equipment, and inadequate training among healthcare workers. These deficiencies hinder the delivery of effective, adolescent-friendly perinatal services in the region.

To improve outcomes, the study emphasizes the importance of strengthening adolescent perinatal care through participatory and interactive training methods. Such training should include peer learning components that promote practical, hands-on application of skills, enhancing healthcare workers' ability to respond effectively to adolescent needs.

A key strategy involves addressing staffing shortages by integrating peer educators, counselors, and community health workers into the care system. Their involvement would not only fill human resource gaps but also make perinatal services more accessible and acceptable to adolescents, who may feel more comfortable engaging with peers or community-based providers.

Moreover, ensuring that Health Centre IIIs are properly equipped to provide comprehensive, adolescent-friendly perinatal care is crucial. This includes the availability of essential equipment and supplies for post-abortion care, as well as infrastructure that supports privacy, confidentiality, and respectful care.

By addressing these core issues—training, staffing, and equipment—the health system in Southwestern Uganda can become more responsive to the specific needs of adolescent mothers. Enhancing the capacity of both personnel and facilities will ultimately improve the quality, reach, and effectiveness of perinatal care for this vulnerable population. Additionally, community-based surveys are needed to establish the true prevalence of repeat pregnancies in South-Western Uganda.

List of abbreviations

Health care worker (HCW); Sexual Reproductive Health (SRH); Post-Abortion Care (PAC); Health Centre III (HC III); Health Centre IV (HCIV); District Health Information System (DHIS); Urinary tract infection (UTI); Intra-uterine device (IUD); Basic Emergency Obstetric Care (BEmONC); Public Health Centers (PHCs).

Declarations

Ethics approval and consent to participate

Ethical clearance was received from the Mbarara university of science and technology-Research ethics committee (Ref MUST 2022/656) prior to commencement of study activities. Written informed consent of eligible HCWs was obtained prior to enrolment into the study.

Consent for Publication

Not applicable

Availability of data and materials

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

Competing interest

The authors declare that they have no competing interests

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Authors' Contributions

OI, EK, VNN, DA conceived the study, and participated in its design and coordination, DA, OI, EK, VNN, DA, CB, SN, RA participated in the study implementation. DA, OI, EK, VNN, EFM, performed the statistical analysis and contributed to drafting the manuscript. DA, EFM & EK drafted the manuscript, and all authors read and approved the final manuscript prior to submission.

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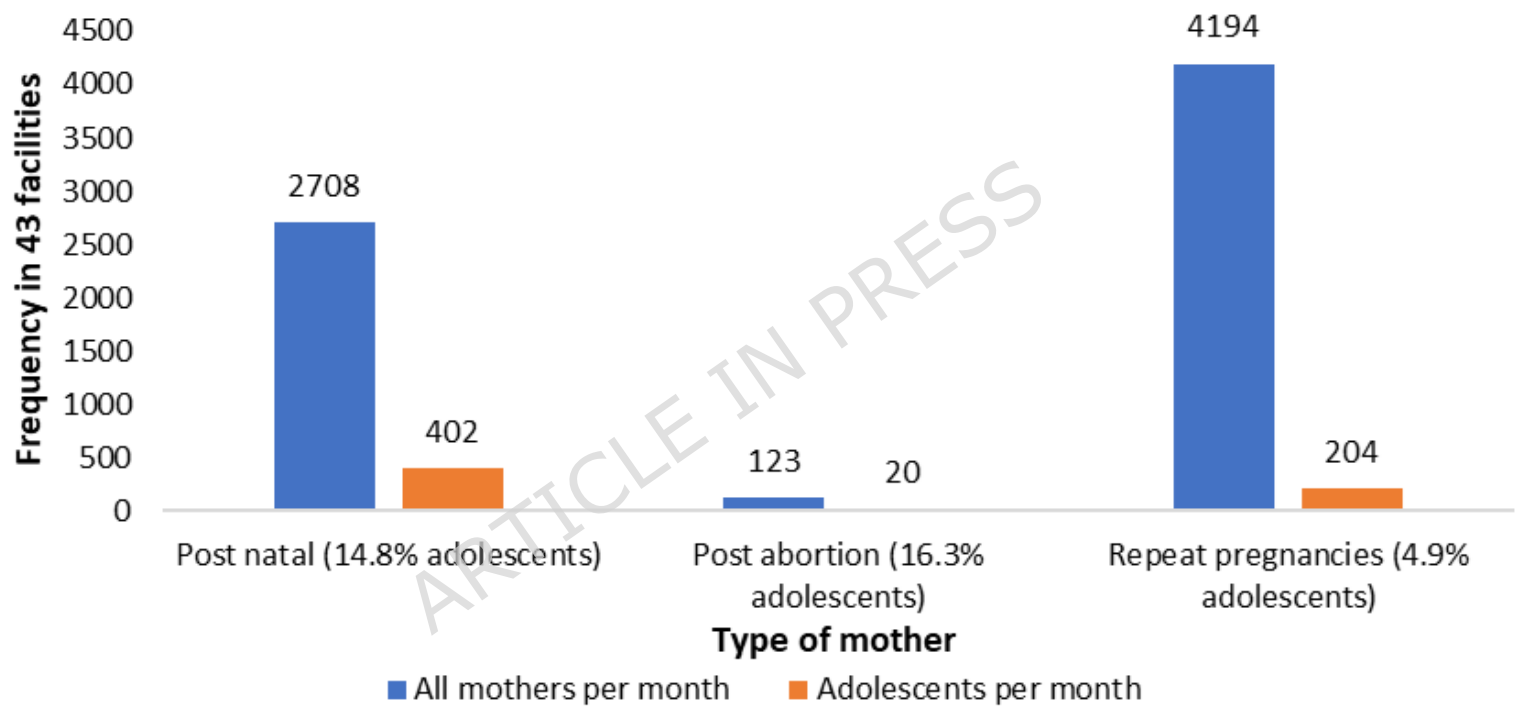
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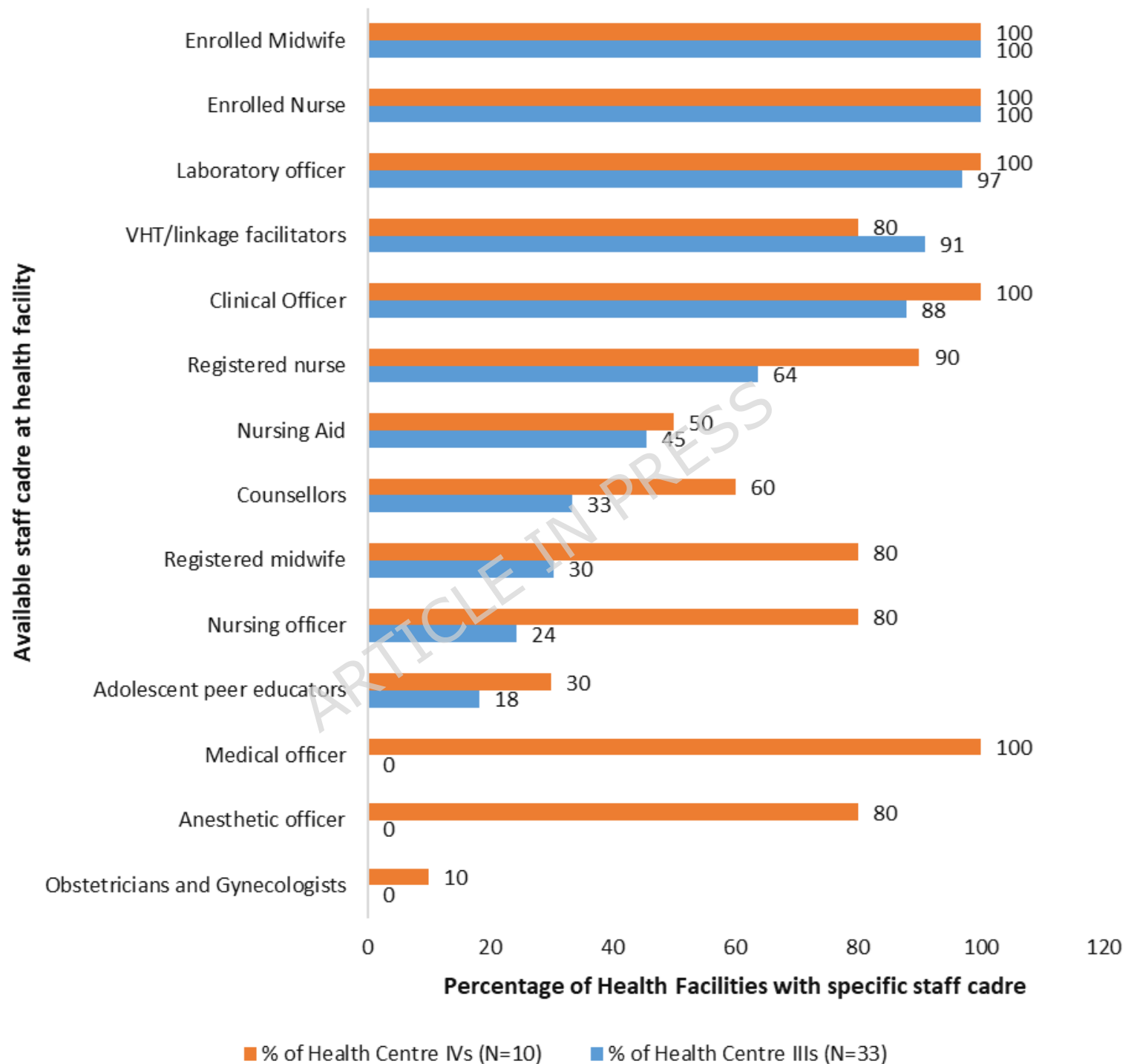
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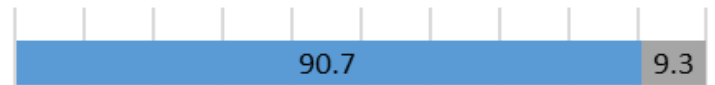
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Healthcare Workers' attitudes

Healthcare providers should provide contraceptive services for formerly pregnant adolescents seeking care at health facilities.



Previously pregnant adolescents do not require parental consent before contraceptives are provided.



Long term contraception has minimal side effects and safe to use among adolescent clients.



Providing contraceptives to adolescents who have been formerly pregnant promotes sexual promiscuity.



It is better to tell sexually active unmarried adolescents to abstain from sex when they ask for contraceptives rather than give them contraceptives when they request for it



Unmarried adolescents should not be provided with contraceptives because the culture does not support premarital sex



0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Percent

■ Agree ■ Not sure ■ Disagree

Table 1. Distribution of enrolled health facilities by district

District	Health facility level	Districts			
		Ibanda	Isingiro	Mbarara	Rwampara
Number of health facilities enrolled (N=43)	HC III	7	14	10	2
	HCIV	2	4	2	2
	Total	9	18	12	4

Source: District health records

Table 2. Average monthly number of adolescent consultations for post-natal, post-abortion and repeat pregnancies across districts and health facility levels.

District	Health Centre level	Number of Health facilities enrolled	Post-natal adolescent consultations		Post-abortion adolescent consultations		Repeat adolescent pregnancy consultations	
			Aggregated mean number per month	Range	Aggregated mean number per month	Range	Aggregated mean number per month	Range
Ibanda	Total	9	7.5	0.0-21.3	0.3	0.0-1.2	6.0	1.2-16.0
	HC IIIs	7	3.8	0.0-10.3	0.1	0.0-0.3	6.3	1.2-16.0
	HC IVs	2	20.5	19.7-21.3	0.9	0.7-1.2	4.8	3.2-6.3
Isingiro	Total	18	10.0	1.3-48.0	0.8	0.0-4.7	2.4	1.0-4.0
	HC IIIs	14	7.5	1.3-25.0	0.4	0.0-1.8	2.1	1.0-3.7
	HC IVs	4	18.5	5.0-48.0	2.2	0.7-4.7	3.2	1.7-4.0
Mbarara	Total	12	9.4	0.3-30.7	0.1	0.0-0.3	5.0	1.0-20.2
	HC IIIs	10	8.1	0.3-30.7	0.1	0.0-0.3	3.0	1.0-5.8
	HC IVs	2	15.7	10.5-20.8	0.3	0.2-0.3	15.1	10.0-20.2
Rwampara	Total	4	10.5	2.7-22.3	0.2	0.0-0.3	11.5	2.3-30.5
	HC IIIs	2	5.3	2.7-8.0	0.3	0.2-0.3	6.6	4.3-8.8
	HC IVs	2	15.8	9.2-22.3	0.1	0.0-0.2	16.4	2.3-30.5

HC: Health Centre

Table 3. Health facilities' population coverage and accessibility

Characteristics	Overall, for all health levels n (%)	Health facility level		
		HCIH n (%)	HCIV n (%)	P value
Road access to the health facility				0.128
Not all weather	14 (32.6)	13 (39.4)	1 (10.0)	
All weather	29 (67.4)	20 (60.6)	9 (90.0)	
Main type of electricity supply at health facility				0.165
Solar	8 (18.6)	8 (24.4)	0 (0.0)	
Hydro	35 (81.4)	25 (75.8)	10 (100.0)	
Mobile phone network at Health facility				
Airtel	41 (95.3)	31 (93.9)	10 (100.0)	1.000
MTN	42 (98.0)	32 (97.0)	10 (100.0)	1.000
UTL	12 (27.9)	9 (27.3)	3 (30.0)	1.000

**p values based on Two-sample Wilcoxon rank-sum (Mann-Whitney) test.

Table 4. Health facilities offering Adolescent SRH-related services

Health facility characteristic	Overall, for all health facility levels n (%)	Health facility level		
		HCIH n (%)	HCIV n (%)	P Value
Presence of a dedicated clinic for Adolescents	11 (25.6)	6 (18.2)	5 (50.0)	0.092
Having a day in the week for adolescent services	10 (23.3)	6 (18.2)	4 (40.0)	0.206
Presence of a post-abortion services	41 (95.3)	31 (93.9)	10 (100.0)	1.000
Other Non-governmental Organizations supporting FP services	15 (34.9)	9 (27.3)	6 (60.0)	0.006
Reproductive health Uganda	38 (88.4)	29 (87.9)	9 (90.0)	0.672
Marie-stopess International	12 (27.9)	10 (30.3)	2 (20.0)	0.421
Other				

Table 5. Health facilities with Training needs for healthcare workers in post-natal and post-abortion care

Variable	Overall, for all health facility levels n (%)	HCIH n (%)	HCIV n (%)	P Value
Staff received refresher training on postnatal care within recent 6 months	7 (16.3)	3 (9.1)	4 (40.0)	0.040
Staff received refresher training on postnatal care within recent 1-2 years ago	19 (44.2)	11 (33.3)	8 (80.0)	0.012
Staff received refresher training on post-abortion care within recent 6 months	7 (16.3)	4 (12.1)	3 (30.0)	0.192
Staff received refresher training on post-abortion care within recent 1-2 years ago	17 (39.5)	10 (30.3)	7 (70.0)	0.031
Training needs for the health care workers with regard to provision of postnatal or post abortion care for adolescents.	41 (95.4)	31 (93.9)	10 (100.0)	0.585
Trainings perceived as most needed by the health care workers regarding provision of postnatal or post abortion care for adolescents.				
Provision of adolescent friendly services	42 (97.7)	33 (100.0)	9 (90.0)	0.233
Post abortion care	42 (97.7)	32 (97.0)	10 (100.0)	0.767
Postnatal care	39 (90.7)	30 (90.9)	9 (90.0)	0.668
Family planning (FP) counseling for adolescents	36 (83.7)	26 (78.8)	10 (100.0)	0.133
Provision of FP services with focus on short term modern methods	28 (65.1)	20 (60.6)	8 (80.0)	0.231
Long term modern methods (IUD or Implants)	41 (95.4)	32 (97.0)	9 (90.0)	0.415

Others	25 (58.1)	18 (54.6)	7 (70.0)	0.312
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Table 6. Number of Health Facilities with different SRH service-related equipment

Equipment type	Overall, for all health facility levels n (%)	Availability by health facility level		
		HCIII, n (%)	HCIV, n (%)	p value
Surgical methods				
Bilateral tubal ligation kit	4 (9.3)	0 (0.0)	4 (40.0)	0.002
Vasectomy kit	2 (4.7)	0 (0.0)	2 (20.0)	0.050
Dilatation and curettage set	22 (51.2)	13 (39.4)	9 (90.0)	0.006
Equipment for IUD insertion or removal				
Vaginal speculum	42 (97.7)	32 (97.0)	10 (100.0)	0.767
Single-tooth tenaculum	20 (46.5)	10 (30.3)	10 (100.0)	<0.001
Pair of Scissors	41 (95.4)	31 (94.0)	10 (100.0)	0.585
Gal pot	42 (97.7)	32 (97.0)	10 (100.0)	0.767
Sponge holding forceps	43 (100.0)	33 (100.0)	10 (100.0)	
Uterine sound	28 (65.1)	18 (54.6)	10 (100.0)	0.007
Kidney dish	43 (100.0)	33 (100.0)	10 (100.0)	
Implant insertion and removal kit				
Curved Mosquito forcep	28 (65.1)	19 (57.6)	9 (90.0)	0.061
Straight Mosquito forcep	29 (67.4)	20 (60.6)	9 (90.0)	0.084
Availability of Sundries e. g gloves, antiseptics				
Surgical gloves	40 (93.0)	31 (93.9)	9 (90.0)	0.558
Disposable gloves	37 (86.1)	28 (85.0)	9 (90.0)	0.571
Cotton	41 (95.4)	32 (97.0)	9 (90.0)	0.415
Antiseptics (hibitane/iodine)	38 (88.4)	28 (84.9)	10 (100.0)	0.247
Gauze	37 (86.1)	27 (81.8)	10 (100.0)	0.182

Disinfectants (e.g Jik, alcohol)	40 (93.0)	31 (94.0)	9 (90.0)	0.558
Plaster/strapping	38 (88.37)	29 (87.9)	9 (90.0)	0.672
Blade (size 11)	34 (79.1)	26 (78.8)	8 (80.0)	0.655
Lignocaine	42 (97.7)	33 (100.0)	9 (90.0)	0.233
Water for injection	41 (95.4)	32 (97.0)	9 (90.0)	0.415
Syringes (5ml)	39 (90.7)	30 (90.9)	9 (90.0)	0.668
Macintosh	32 (74.4)	23 (69.7)	9 (90.0)	0.195
Equipment for sterilization e.g				
Autoclave	38 (88.4)	28 (84.9)	10 (100.0)	0.247
Other	18 (45.0)	16 (51.6)	2 (22.2)	0.118

Table 7. Number of Health Facilities offering different family planning options and services

Family planning options offered at Health facility	Overall, for all health facility levels n (%)	Health facility level		
		HCIII n (%)	HCIV n (%)	p value
Oral contraceptive pills				
COCs	36 (83.7)	26 (78.8)	10 (100.0)	0.133
POPs	22 (51.2)	17 (51.5)	5 (50.0)	0.608
Injectable contraception				
Depo Provera	10 (23.3)	6 (18.2)	4 (40.0)	0.157
Sayana	29 (67.4)	23 (69.7)	6 (60.0)	0.416
Emergency contraception	23 (53.5)	19 (57.6)	4 (40.0)	0.269
Condoms				
Male condoms	39 (90.7)	30 (90.9)	9 (90.0)	0.668
Female condoms	16 (37.2)	12 (36.4)	4 (40.0)	0.558
Vasectomy	4 (9.3)	2 (6.1)	2 (20.0)	0.226
Bilateral Tubal ligation	12 (27.9)	5 (15.2)	7 (70.0)	0.002
Intrauterine Device	38 (88.4)	28 (84.85)	10 (100.0)	0.247
Implants				
Implanone	18 (41.2)	11 (33.3)	7 (70.0)	0.046
Jadelle	34 (79.1)	26 (78.8)	8 (80.0)	0.655
Sinoplant	43 (100.0)	33 (100.0)	10 (100.0)	
Other	39 (100.0)	30 (100.0)	9 (100.0)	
Counselling on other natural methods				
Lactation amenorrhea	43 (100.0)	33 (100.0)	10 (100.0)	

Abstinence	41 (95.4)	31 (93.9)	10 (100.0)	0.585
Withdrawal	35 (81.4)	26 (78.8)	9 (90.0)	0.390
Rhythm methods or moon beads	29 (67.4)	21 (63.6)	8 (80.0)	0.287
Calender method	36 (83.7)	27 (81.8)	9 (90.0)	0.476
Others (e.g. Bathal body temperature, Billings, Mucus membrane)	9 (20.9)	6 (18.2)	3 (30.0)	0.345

Table 8. Available SRH-related health information management systems

Health information-related processes	Overall, for all health facility levels N=43, n (%)	Health facility level		
		HCIII, N=33, n (%)	HCIV, N=10, n (%)	p value
Available information systems				
HMIS (tools)	43 (100.0)	33 (100.0)	10 (100.0)	NA
DHIS 2 (database)	33 (76.7)	23 (69.7)	10 (100.0)	0.084
Postnatal care register	43 (100.0)	33 (100.0)	10 (100.0)	NA
Post abortion care register	10 (23.3)	6 (18.2)	4 (40.0)	0.206
Family planning register	42 (97.7)	32 (97.0)	10 (100.0)	1.000
Indicators /data captured routinely in the registers				
Postnatal care services	43 (100.0)	33 (100.0)	10 (100.0)	NA
Post abortion care services	38 (88.4)	28 (84.9)	10 (100.0)	0.320
Family planning services	43 (100.0)	33 (100.0)	10 (100.0)	
Frequency of use of routine data collected for service improvement				0.694
Weekly	8 (18.6)	6 (18.2)	2 (20.0)	
Monthly	26 (60.5)	21 (63.6)	5 (50.0)	
Quarterly	9 (20.9)	6 (18.2)	3 (30.0)	