Institute for Reproductive Health
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GrowUp Smart Endline Study Report

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Acronyms

ASRH: Adolescent Sexual and Reproductive Health
FAM: Fertility Awareness based Method
FHI360: Family Health International
GREAT: Gender Roles, Equity, and Transformations
HIV/AIDS: Human Immunodeficiency Virus/Acquired Immuno-Deficiency Syndrome
IT: Information and Technology
IRH: Institute for Reproductive Health
MCCH: Maternal, Child and Community Health Unit
MOH: Ministry of Health
NISR: National Institute for Statistics of Rwanda
RNEC: Rwanda National Ethics Committee
SPSS: Statistical Package for Social Sciences
SRH: Sexual and Reproductive Health
USAID: United States' Agency for International Development
VYA: Very Young Adolescent
WHO: World Health Organization
YSO: Youth Serving Organization
YWCA: Young Women Christian Association

Acknowledgements

The present report was made possible through support and contributions from many people. First and foremost, we thank the Ministry of Health of Rwanda which, through its leadership, has provided unreserved support to GrowUp Smart and authorized this study. We would like to thank the three Youth Serving Organizations (YSOs) which are collaborating with the Georgetown University Institute for Reproductive Health (IRH) on GrowUp Smart, and whose support throughout the preparation and execution of the present study was critical. They are the Hope Foundation, the Rwandan Guides Association (formerly known as AGR), and the Young Women's Christian Association (YWCA). We would also like to express our sincere thanks to all the research participants who shared information with us. The information obtained from them is the cornerstone of this report and all the work done. We would also like to recognize the efforts and commitment of the teams of interviewers as well as Felix Muramutsa, the manager of SMART Consultancy, Kigali and Jean Paul Tulikumwe, the IT Specialist; as they worked hard and accomplished the necessary fieldwork and data storage competently and accurately. We also express our deepest gratitude and thanks to the staff of IRH, in Rwanda and in Washington DC, not only for their continuous support and collaboration throughout this project, but also for having given us an opportunity to work on GrowUp Smart one more time. This is a great project for the next generation of Rwanda and elsewhere, and it has been an honor for us to contribute to the work done.

Background

IRH is dedicated to improving the sexual and reproductive health (SRH) of women, men and youth through a research-to-practice agenda. IRH's emphasis is on increasing access to and use of family planning, increasing fertility awareness through life-stage appropriate interventions, expanding access to fertility awareness-based methods (FAM) of family planning in an informed choice context, and developing scalable interventions to transform gender norms and catalyze the diffusion of social norms that support family planning. Cross-cutting themes in the IRH's work include the diffusion of social norms that support SRH, scale-up of innovations, and incorporating gender perspectives in reproductive health.

Young people (aged 15-24) make up a quarter of the world's population, and 90% of them live in developing countries. Findings in a 2011 WHO report show that the majority of young people become sexually active during adolescence but few use contraceptives for preventing pregnancy. As a result, the consequences of unprotected sex place a heavy burden on youth. The complications related to pregnancy and delivery are leading causes of mortality among girls aged 15-24 (WHO 2011).

Adolescent girls and young women are at much greater risk for HIV infection than male adolescents and young men in the same age cohort. Girl only and girls' empowerment interventions have been the main focus of SRH programs, although there is increasing recognition that boys' behavior affects health outcomes for girls. IRH, in collaboration with partners, proposed to evaluate the effectiveness of a multi-component SRH intervention for very young adolescents (VYAs) aged 10-14 years, and compare outcomes for girls versus boys in Rwanda. Results of this research will contribute to a gap in the literature on SRH interventions designed for VYAs.

Specifically, IRH is collaborating with the Ministry of Health of Rwanda, and its Maternal, Child and Community Health Unit (MCCH), and YSOs under the Expanding Family Planning Access, Availability and Awareness (A3) Project to develop and test GrowUp Smart, a multi-component puberty and fertility awareness intervention for VYAs ages 10-14 years, and their parents in Rwanda.

GrowUp Smart is a continuation of IRH's successful CycleSmart Project that provided puberty and fertility education to VYAs through a kit including CycleBeads®; a calendar; a weekly diary; reusable/washable sanitary napkins; and a country-specific brochure that covers topics such as the menstrual cycle, puberty-related changes, risk of pregnancy, gender norms, and self-care. GrowUp Smart combines previously tested materials including *My Changing Body,* a facilitated group curriculum developed by FHI360; the CycleSmart kit; and activity cards used in northern Uganda in the Gender Roles, Equity, and Transformation (GREAT) Project[1].

[1] The GREAT Project is implemented by IRH in partnership with Save the Children and Pathfinder International. Concerned Parents Association (CPA), Straight Talk Foundation (STF), Ministry of Health (MOH), Ministry of

The GrowUp Smart intervention is an integrated educational and outreach approach that includes puberty educational sessions for VYAs, related educational sessions for their parents, and community engagement activities in the neighborhood and schools to increase attitudes and behaviors that foster gender equality, fertility awareness, improved menstrual management (for girls), and also age-appropriate safety and risk-reduction skills for VYAs.

GrowUp Smart is a three-component intervention: (1) a facilitated curriculum for VYA covering body literacy, fertility-awareness, puberty knowledge, gender-equitable attitudes, menstruation management skills (for girls), interpersonal communication skills, self-care behaviors, and the CycleSmart Kit; (2) two facilitated group sessions for parents of participating VYAs focusing on puberty education and parent-child communication; and, (3) training, materials and support to local YSOs to integrate the GrowUp Smart curriculum and materials into their regular activities with VYA, parents/legal guardians, teachers and school administrators, and community members to catalyze community-level understanding of the needs of adolescents, supportive parent-child communication, and school connectedness.

Three local YSOs implemented the intervention: Hope Foundation; the Guides Association, and YWCA. Program efforts focused on the individual level were weekly educational sessions, take-home activities and the distribution of CycleSmart kits to adolescent girls. At the family level, parents were engaged through two sessions focused on puberty education and parent-child communication. Additionally family members were encouraged to read and discuss take-home materials, including puberty storybooks, a trio of brochures and other worksheets, with their VYAs. Also, YSO facilitators received training and ongoing support to integrate the GrowUp Smart curriculum and materials into their activities with VYAs, teachers and the community.

GrowUp Smart intervention sessions and community activities were implemented in eight districts from October 2014 to June 2015 in two cohorts, with the first cohort running from October through December, 2014, and the second, from March through June, 2015. Prior to each intervention cohort, a baseline evaluation study was conducted, in order to assess the VYAs' and parents' knowledge, attitudes and practices with regard to adolescent sexual and reproductive health (ASRH). A baseline study report which summarized findings from the baseline assessment was submitted in June 2015. The present report describes findings from the endline/post-intervention interviews with youth and parents who had participated in GrowUp Smart sessions. This report also helps to compare baseline/pre-intervention and endline/post-intervention evaluation findings, and to measure the effects of the GrowUp Smart.

Education and Sports, Ministry of Gender, Labour and Social Development, and local authorities are also key partners.

Goals and Objectives of the Evaluation

Main Objective/Goal

The main objective of this study was to evaluate the effectiveness of a multi-component SRH intervention in improving SRH knowledge, attitudes and behaviors of VYAs and their parents.

Specific Objectives

The specific study objectives were:

1) To determine the effectiveness of a multi-component SRH intervention on outcomes for boys versus girls
2) To determine whether or not this program helps girls and boys reflect on the way they see and deal with each other
3) To assess changes among parents in parent-child communication, attitudes and behaviors related to SRH pre and post intervention

Methodology

Study Design

Evaluation of GrowUp Smart used a pre/post-test design, with baseline and post intervention surveys to assess key outcomes. The study did not use a control group. Rather, a sum of 3500 VYA participants in the program, of whom 2000 girls and 1500 boys; and 1000 parents who were selected to participate in GrowUp Smart were included in the baseline assessment. The same participants were then surveyed after the intervention. Administration of the baseline survey preceded the initiation of GrowUp Smart intervention sessions. The post intervention survey took place three months after the intervention activities were completed. The study took place in eight districts across Rwanda and took approximately twelve months to roll out from baseline to completion of endline.

Study population

During both baseline and endline, survey data was collected from the following groups:

- Out of school girls and boys aged 12-14;
- In-school girls and boys aged 10-14; and,
- Parents or legal guardians of VYA participants.

Study sites were purposively selected in eight districts throughout Rwanda, including both urban and rural areas. Implementing partners chose districts in which they had previously worked to ensure a strong relationship with local schools and government officials and

availability of trained youth facilitators. For each district, a list of sectors, the unit of political organization smaller than the district, was developed. To reduce the effects of contamination, only sectors that were not participating in the 12+ Program, another youth intervention supported by the Rwandan Government that focuses on empowering girls ages twelve and up, was included in the list of sectors. Sectors were then selected randomly from this final list using a table of random numbers.

Table 1 shows the study sites by implementing partner, number of districts, and pre-envisaged number of study participants.

Table 1. Implementing Partners, Number of Districts, and pre-envisaged Number of Participants

Organization	Number of Districts	Number of VYAs	Number of parents
YWCA	3	750 girls 600 boys	450 parents
Hope Foundation	2	600 girls 400 boys	200 parents
Guides Association	3	650 girls 500 boys	350 parents
TOTAL	8	3500	1000

Sampling procedure

In order to recruit the pre-estimated number of VYAs and parents in each district/study site, the YSOs identified all primary (6 grades) and nine-year schools, and worked with school headmasters/principals to access school enrollment registers to compile lists of in-school youth. Within each selected school, age-eligible students were randomly selected. A list of the selected students, was developed and kept by each local YSO. This process permitted to recruit the required numbers of youth and parents to take part in the baseline interview process. During the endline interview process, efforts were undertaken to administer interviews to all participants who had been part of the baseline assessment. During both pre- and post-interview process, lead interviewers contacted school principals to explain the purpose of the study and to request permission to recruit students from their schools to participate in the intervention. This was done about a week prior to commencement of data collection.

At baseline, interviewers visited the selected students in their classrooms to explain the study and invite them to participate. Students were given participation cards. When the student was interested in participating in the study, the student circled "yes" on the participation card. When the student did not wish to participate, he/she circled "no".

Interviewers were not in the classroom while students were completing the participation cards to minimize any pressure the students might feel to participate. All participation cards were collected by the teacher responsible for the classroom, and handed to the team leader.

Those students who expressed an interest in participating were asked to provide informed assent by the interviewers. Interviewers then visited the home of each student to explain the purpose of the study to parents/legal guardians and request parental/legal guardian informed consent. Interviewers could also meet the parents/legal guardians at a different place from home, depending on the choice and availability of the parent/legal guardian. After receiving informed assent/consent, the interviewers administered the baseline survey.

During both baseline and endline interviewing processes, interviewers worked very closely with teachers, school administrators, YSOs representatives and district/sector education officials to implement the survey with the least amount of disruption to the regular classroom and school schedules. In most visited schools, school principals assisted the interviewing team by providing a teacher who served as the focal point for this intervention, and who eventually helped in coordinating the recruitment and the interviewing process.

YSOs also worked within their community networks, with local Ministry of Education officials at the district and sector levels, school principals and teachers, and community leaders to identify potential out-of-school youth participants and their parents or legal guardians for the consent and assent process. Specifically, YSOs verified youth out of school status by coordinating with school principals and teachers to verify that certain VYAs who were listed on school enrollment registers in the former school year were no longer attending school. Identified and available out of school VYAs and their parents could then be contacted for the purpose of this study. No further steps were taken for out of school VYAs who could not be reached because they had moved from their areas of residence due to work or other social reasons. Particularly, this happened to be the case during the endline/post-intervention data collection process, when both some in-school and out-of-school youth could not be reached, having changing their residences.

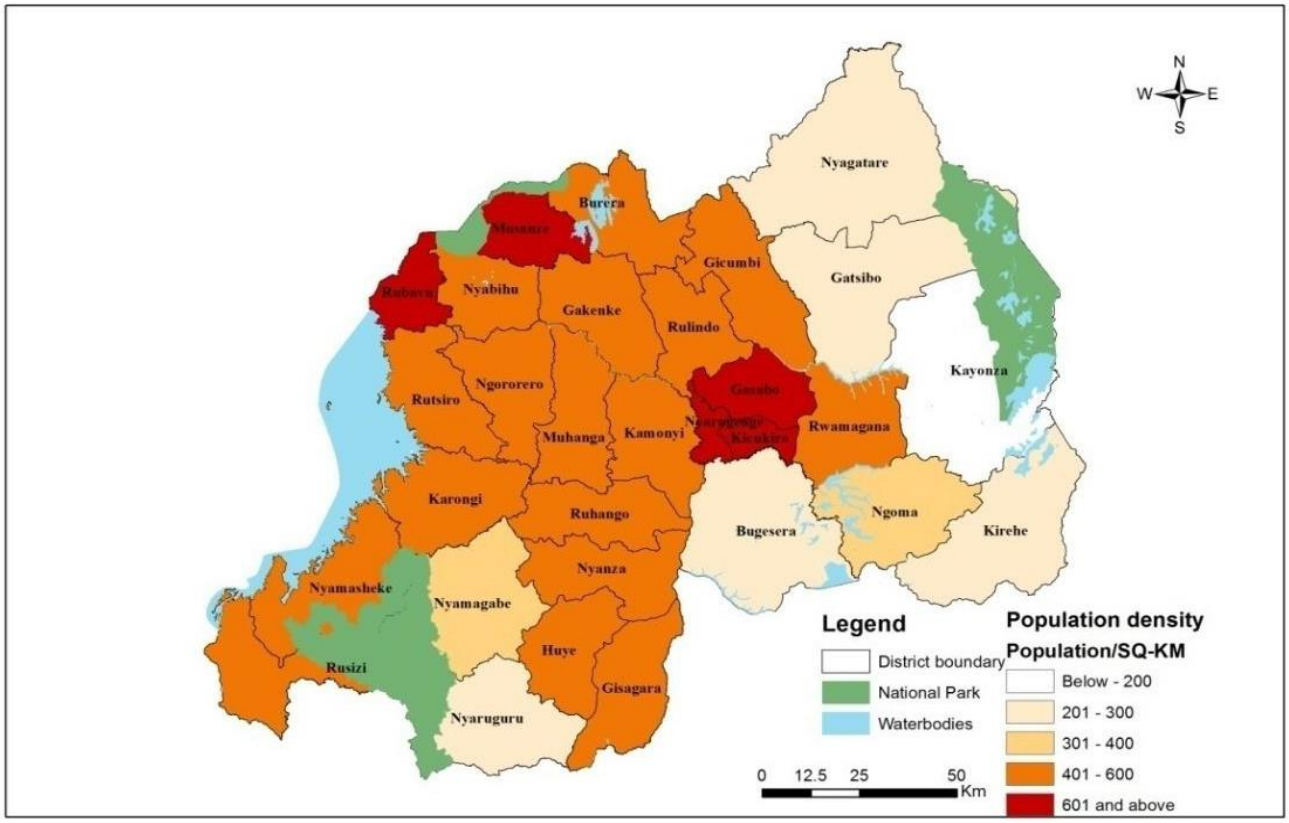
Parents or legal guardians of youth participating in GrowUp Smart were recruited for the intervention group. As children were being recruited during the school visits, a list of parents of youth participants was also generated. Parents were selected for participation using random numbers from the full list of parents of participating VYAs. During home visits, parents provided consent for their child to participate and were also invited to participate in parent sessions. Parents who agreed to participate provided informed consent for their participation as well as the participation of their child. Only parents who had a child participating in GrowUp Smart were invited to participate in the parent sessions. Like the youth, parents who had participated in the baseline assessment were invited for post-intervention/endline interviews. Of note, VYAs and parents who had been interviewed during baseline assessment, but for different reasons could not take part in GrowUp Smart teaching sessions were still invited to participate in endline interviews.

Data Collection

The baseline evaluation survey was conducted in two cohorts. Data collection for Cohort 1 went from 24 September 2014 to 25 October 2014; while for Cohort 2, data collection was conducted between 10 February 2015 and 03 March 2015. Like baseline, endline evaluation surveys were also conducted in two cohorts. Cohort 1 took place from April 21st to May 27th, 2015 and Cohort 2 from August 26th to September 24th 2015.

Male and female interviewers fluent in Kinyarwanda and English, and who had extensive knowledge of the social, cultural and political context of the regions and districts where GrowUp Smart was being implemented, were recruited. The interviewers also had experience doing quantitative and qualitative surveys and most had expertise working with youth. Prior to starting baseline data collection for Cohort 1, a total of 38 data collectors received a three days training facilitated by Smart Consultancy Ltd., a research consultancy agency, and included the participation of Caroline Mukasime, ASRH In-charge/MCCH and focal point for the study. Topics covered during the training included: the purpose and objectives of GrowUp Smart, quantitative research methods, ethical considerations in conducting research with youth, and data collection using handheld devices. Interviewers had practice sessions to familiarize themselves with the instrument and with collecting data on the devices. In addition, a one day refresher training was always organized/conducted before starting each of the three other data collection cohorts, to ensure data collectors were updated on the study's objectives, research methods and ethical considerations pertaining to the research.
During Cohort 1 baseline and endline, interviews with youth and parents were conducted in five selected districts: Kamonyi, Ruhango, Muhanga, Kicukiro and Bugesera. During Cohort 2, interviews were conducted in five districts: Kamonyi, Bugesera, Gakenke, Musanze and Nyabihu. Figure 1 shows a map of Rwanda, with the names of districts and their estimated population density.

Figure 1. Map of Rwanda, per district



Source: 2012 Population and Housing Census, NISR, Rwanda 2012.

All survey administration took place at the participating schools in a public space where auditory and visual privacy was ensured. Interviewers were experienced in obtaining privacy during interviews and knew not to conduct interviews if privacy could not be ensured. Survey administration was conducted in the local language, Kinyarwanda, and responses were recorded using handheld tablets to facilitate data collection, data management and data analysis. Male interviewers interviewed all male respondents, and female interviewers interviewed all female respondents.

Data collectors were directly supervised by a research coordinator hired for this purpose by IRH, with support from IRH's US-based research unit and the IRH Rwanda office. Data collectors were organized into teams of four to eight data collectors depending on the target numbers of participants for each school/area. Each team was managed in the field by a team leader. Team leaders were responsible for overseeing data collection, communicating with the school administrator or teacher who was assisting the data collection process, identifying participants and ensuring privacy during interviews.

At the end of each day of data collection, interviewers submitted their handheld devices to the team leader. The team leaders checked the number of recorded surveys against the reported number of completed surveys and backed up all data on a project laptop that was password protected and encrypted. After backing up the data, and if there

was a reliable internet connection, the team leader transmitted the completed surveys to the secure server via the internet. The team leaders were responsible for the safe keeping and management of the handheld devices each evening while in the field, including recharging batteries for the next day of data collection. Backpacks were provided for the team leaders to safely and securely transport the devices to and from study sites and for storing the devices while in the field. Every precaution was taken to ensure the team leaders kept the devices with them at all times while not being used by data collectors for interviews. Data collectors and team leaders signed IRH's policy regarding use and responsibility of using devices, which states that data collectors are personally responsible for lost, stolen or damaged devices while in their possession.

Baseline and Endline Evaluation Tools

IRH developed two survey instruments in English, one formatted specifically for VYAs and one formatted for parents of VYA participants. The surveys included similar topics on body literacy, puberty knowledge, fertility awareness, SRH knowledge, safety and protective behaviors, gender equitable attitudes, interpersonal communication, menstrual management, and other SRH outcomes. Baseline and endline tools for both VYAs and parents were identical, except for additional questions added on the endline tool to document exposure to GrowUp Smart. Instruments were translated into Kinyarwanda by the research team and back-translated by a third party who was not involved in the original English to Kinyarwanda translation.

Pre-testing

Prior to beginning of data collection, the survey questionnaires was pre-tested in Kicukiro district of Kigali town among 42 VYAs (22 girls and 20 boys) who had similar characteristics with the study participants. For endline questionnaires, in-room pre-testing of tools, during a refresher training with data collectors, was conducted. During the pre-test, trained interviewers used cognitive interviewing to confirm comprehension of the phrasing of the questions and relevance to the VYAs. Changes based on the pre-testing were then integrated before beginning of data collection. The same process was followed to pre-test the parent survey among 10 male and 10 female parents similar to the study participating parents. Based on the results of the pre-testing, the instruments were updated and finalized for data collection.

Data Quality Assurance and Data Management

Handheld devices (Samsung Galaxy Tab 4 with Android OS, v4.4.2, KitKat version) were used for data collection. Survey instruments were programmed onto 38 handheld devices (one for each data collector and eight for back-up) using Open Data Kit (ODK) a free software. Handheld devices used data entry screens with built in skip patterns, acceptable ranges, and codes to ensure a reduction in errors associated with data collection and data entry. IRH hired a local IT specialist who worked closely with the research coordinator to ensure data was properly entered, secured and transmitted into

a secure server for storage. Data was securely transmitted to the Georgetown University share account using a 3G or WIFI internet connection from the field. The share account is password protected and encrypted for secure data transfer. Data was backed up in the field each day of data collection and also in the IRH Kigali office on a password protected, encrypted project computer.

The IT specialist exported survey data into Excel data files which were then imported into SPSS (v.21) for analysis. Data were screened carefully for suspicious data points that appeared to be outliers or have internal logical inconsistencies with responses to other questions. Frequencies were run on all variables in the data set to look for outliers, and crosstabs between variables with a logical relationship were calculated to detect internal consistency in the data.

All data collection and data management was supervised by IRH headquarters senior research staff. In addition, the MCCH unit of the MOH provided supervisory visits to the field during data collection.

Ethical Considerations

Prior to commencing the study, ethical clearance was sought and obtained from Georgetown University's Institutional Review Board and the Rwanda National Ethics Committee (RNEC), the National Institutional Review Board of Rwanda. Researchers respected the privacy and confidentiality of all participants, and made sure informed consent/assent was obtained from all participants. In the case of the adolescents (the legal age of majority in Rwanda is 18), because of their status as minors, they provided informed assent, while their parents or legal guardians provided consent for their participation. Care was taken by data collectors to maintain confidentiality at all times while in the field, not sharing information provided by participants or discussing any of the details of interviews with others. Confidentiality of participants was emphasized during the training of data collectors.

Results

This section presents results from the endline evaluation survey, given that results of the baseline survey were presented in a previous report (June 2015). In this section, comparison of baseline and endline findings will be attempted, and discussion of pertinent findings will be made as appropriate.

Study participants' demographic data

The results of the two endline cohort surveys show that a total number of 3260 VYAs and 951 parents were interviewed during the endline evaluation survey. The mean age for VYAs was 12.4 (+/-1.2) with the youngest being 10 years and the oldest 15 years. The total numbers of participants interviewed at endline are presented in Table 2.

Table 2. The number of interviewed VYAs, per district

District	**Number of recruited VYAs**				
	Female	**Male**	**Total**	**In-school**	**Out-of-school**
Bugesera	188	155	**343**	323	20
Gakenke	211	162	**373**	372	01
Kamonyi	236	213	**449**	429	20
Kicukiro	191	149	**340**	336	04
Muhanga	233	185	**418**	403	15
Musanze	298	176	**474**	456	18
Nyabihu	220	163	**383**	348	35
Ruhango	285	195	**480**	435	45
Total	1862 (57.1%)	1398 (42.9%)	**3260 (100%)**	3102 (95.2%)	158 (4.8%)

The 3260 VYAs interviewed represent 93.2% of the VYAs interviewed at baseline. The majority of interviewed VYAs were girls (57.1%), while boys made up 42.9% of participants. A total of 240 VYAs (of whom 112 girls, 124 boys), or 6.8% of those originally interviewed at baseline, were not interviewed. Of 220 out-of-school VYAs interviewed at baseline, 158 (71.8%) could be located and interviewed at endline; 28.2% were unreachable and were not interviewed. Table 3. Shows the numbers of VYAs who were not interviewed during the endline survey. Reasons for not having been interviewed are also summarized below.

Table 3. Numbers of VYAs who did not participate in endline survey, per district

District	Number of VYAs				
	Female	Male	Total	In-school	Out-of-school
Bugesera	27	16	**43**	28	15
Gakenke	6	0	**6**	3	3
Kamonyi	8	12	**20**	11	9
Kicukiro	11	13	**24**	18	6
Muhanga	15	22	**37**	24	13
Musanze	2	24	**26**	26	0
Nyabihu	30	37	**67**	58	9
Ruhango	13	4	**17**	10	7
Total	**112**	**128**	**240**	**178**	**62**

Responses for failure to interview were difficulties locating out-of-school VYAs, given that many had moved from their home residences to find employment or income generating activities in towns or elsewhere. This was particularly reported in districts of Muhanga and Bugesera where the majority of missing out-of-school youth were found.

Table 4. Reported reasons for VYAs not attending endline survey, per district

District	Reported reasons for VYAs not attending endline survey, per district			
	Total	Reason		
			In-school	Out-of-school
Bugesera	**43**	Drop out from school	13	-
		Changed residence	7	7
		Parental consent not given	1	3
		Sick	1	-
		Not known	6	5
Gakenke	**6**	Changed residence	2	3
		Sick	1	
Kamonyi	**20**	Drop out from school	3	-
		Parental consent not given	2	-
		Changed residence	6	9

Kicukiro	**24**	Changed residence	10	6
		Changed school	8	
		Sick	2	
		Parental consent not given	5	
Muhanga	**37**	Changed residence	6	3
		Drop out from school	5	-
		Sick	1	-
		Parental consent not given	5	4
		Not known	7	6
Musanze	**26**	Changed residence	8	-
		Drop out from school	9	-
		Sick	2	-
		Parental consent not given	7	-
Nyabihu	**67**	Changed residence	8	4
		Changed school	18	-
		Drop out from school	13	-
		Not known	10	4
		Parental consent not given	9	-
		Died	-	1
Ruhango	**17**	Changed residence	-	4
		Drop out from school	6	-
		Not known	2	3
		Sick	2	-
Total	**240**		**178**	**62**

The total number of recruited parents at baseline was 1000. During the endline survey, 951 parents, all of whom had taken part in the baseline survey, were interviewed. This represents 95.1% of parents from baseline survey. Like at baseline, female parents constituted the majority of study participants. The following table shows the number of interviewed parents, per district.

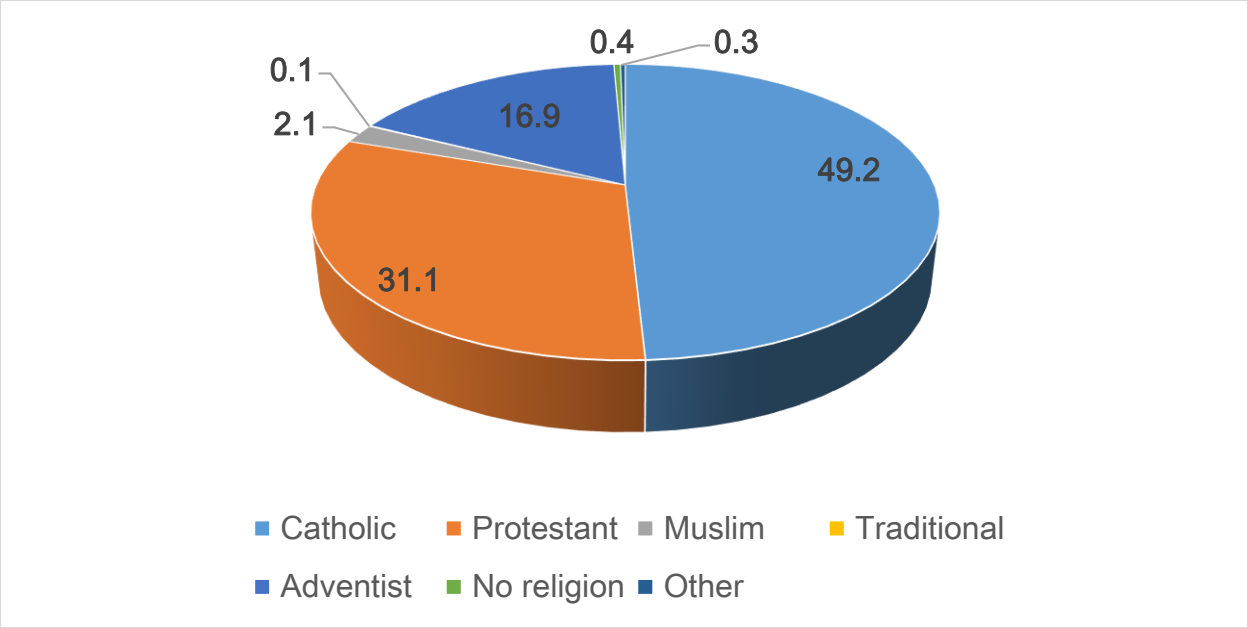
Table 5. The number of interviewed parents, per district

District	Number of interviewed Parents		
	Female	Male	**Total**
Bugesera	73	39	**112**
Gakenke	73	40	**113**
Kamonyi	115	37	**152**
Kicukiro	76	23	**99**
Muhanga	122	16	**138**
Musanze	69	25	**94**
Nyabihu	100	44	**144**
Ruhango	65	34	**99**
Total	693 (72.9%)	258 (27.1%)	**951 (100%)**

Of all parents, the great majority had only one VYA participating in the interview, while 100 (10%) had two children, and six (0.6%) had three children participating in the study.

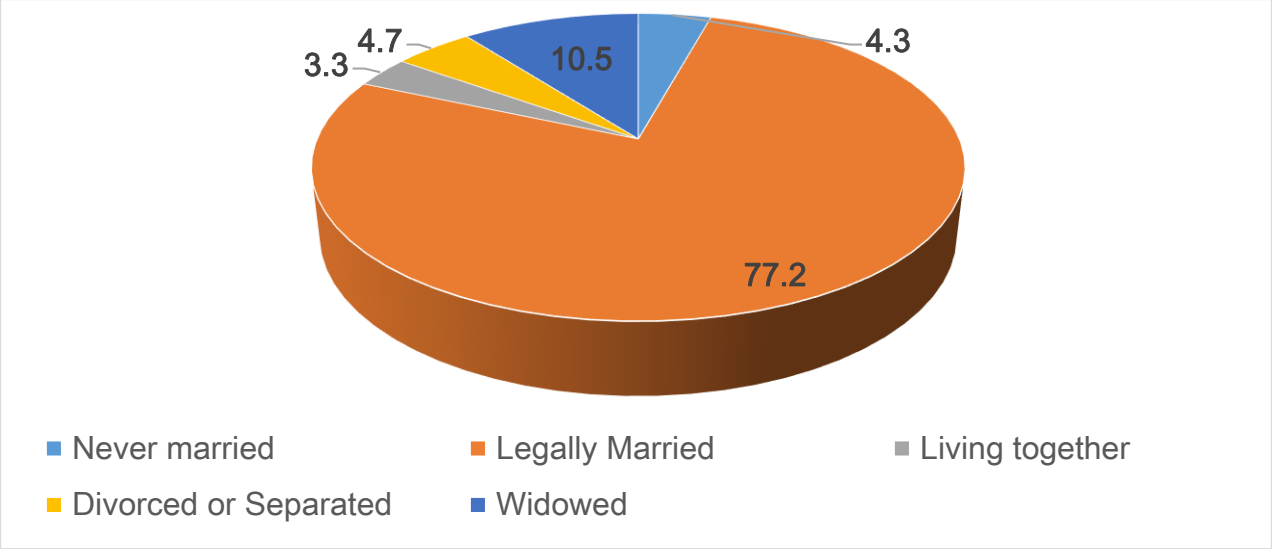
Of interviewed parents, almost half (49.2%) are Catholic, 31.1% Protestant, and 16.9% Adventists. Other religions are less frequently represented.

Figure 2. Parents' religion



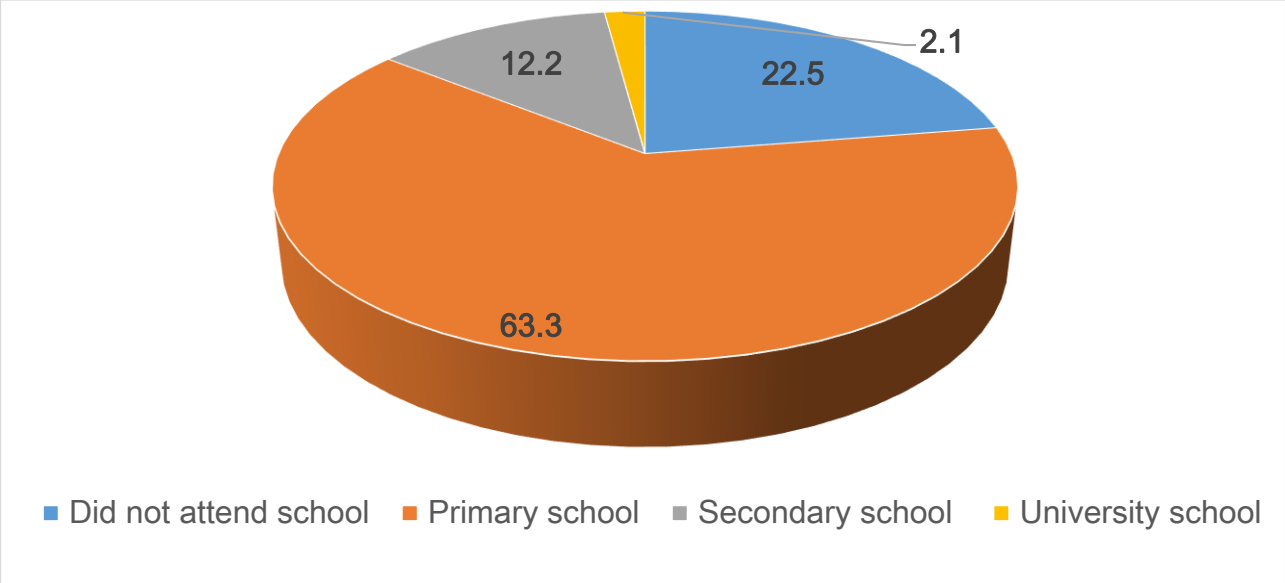
The majority (77.2%) of parents said that they are legally married while 10.5% are widows.

Figure 3. Parents' marital status



Asked about their occupation, the majority (74.5%) of parents said they are farmers, while only 6.9% are governmental employees. The majority of parents (63.3%) had some or completed primary school, 22.5% did not attend school, and a smaller proportion 14.2% attended secondary school or reached higher levels of education.

Figure 4. Patients' level of education



Knowledge about puberty and reproductive health

VYAs and parents were asked about whether they know when the menstrual cycle begins and when it ends. Of all interviewed VYAs, 76.6% VYAs responded correctly that the cycle begins on the first day of bleeding. It is worthy to mention that, of the 21.4% who reported to not know when the cycle begins, the majority (566 of 701; 80.7%) had participated in at least one of the GrowUp Smart interventional sessions (P <0.001). With regard to when the cycle ends, 60.8% of VYAs said that the cycle ends a day before bleeding starts; whereas almost a third (30.5%) reported to not know when the cycle ends. Similarly, as many as 84% (835 of 994) of the later had participated in at least one GrowUp Smart session. Of particular note, the district of Muhanga had the highest numbers of VYAs who reported to not know when the cycle begins (202 of 701) and when it ends (274 of 994).

Compared with the baseline evaluation results, which showed that only 7.7% of interviewed VYAs knew when the menstrual cycle begins, while 91.1% and 96.4% reported not knowing when the cycle begins or ends, respectively, the endline survey results indicate that many interviewed VYAs, most of whom had participated in GrowUp Smart sessions, acquired good knowledge about the menstrual cycle.

As for parents, 74.6% of them responded correctly that the cycle begins on the first day of bleeding; 21.4% reported to not know when the cycle begins. However, unlike VYAs, parents responses regarding when the menstrual cycle ends were poor. Only 22.1% of parents responded correctly that the cycle ends a day before bleeding starts, while 43.6% responded that the cycle ends on the first day that bleeding starts, and 26.1% responded to not know when the cycle ends. The number of parents who responded correctly to these questions increased from 25.6% at baseline to 74.6% at endline (when the cycle starts), and from 11.6% to 22.1% (when the cycle ends).

In the same context, and like during baseline survey, many parents' responses were correct with regard to the occurrence of dampness during the girl's or woman's menstrual cycle and whether anything should be used to dry the dampness. During endline survey, 93.7% parents said the dampness is normal and healthy (80.6% during baseline survey) and 85% said nothing should be used to dry the dampness (70.1% during baseline). During the baseline survey, VYAs responses on these questions suggested a general lack of knowledge about menstrual management and physiological changes associated with it. This was indicated by the fact that only 20.5% (12.4% females, 8.1% males) had said that the dampness is normal and healthy, while 30.3% (16.5% females, 13.7% males) had said that nothing should be used to dry the dampness. During the endline survey, as many as 70.3% (41.6% females, 28.7% males) and 73.9% (43.6% females, 30.3% males) of interviewed VYAs responded correctly to the questions about whether the dampness a girl feels after menstrual bleeding is normal and healthy, and whether anything should be used to dry the dampness, respectively.

Of note indeed, such correct responses on issues related to menstrual cycles were obtained from a study population whom the great majority had not started getting

periods. Only 11.8% of all interviewed youth confirmed having had their first periods. This clearly indicates the great benefit obtained from participating in GrowUp Smart intervention activities and its potential contribution to improving the knowledge, attitudes and practices of puberty related changes, particularly with those concerning menstrual knowledge and management, among VYAs, even during their pre-menstrual time.

During the endline survey, most parents (96.7%) reported that a girl may get pregnant the first time she has sex (this was 93.5% at baseline). As for VYAs, only 53.4% of VYAs (30.8% females, 22.6% males) during baseline survey had agreed with the fact that a girl would get pregnant if she has unprotected sex for the first time. This percent increased to 78.8% (45.8% females, 33.0% males) during endline survey. Both parents and VYAs improved responses to a similar question about the days of the menstrual cycle during which a girl is likely to get pregnant when she has sex without a condom. At baselin, only 32.7% of parents and 10.1% (7.4% females, 2.4% males) of VYAs had answered correctly, but by endline 64.2% of parents and 63.7% (38.7% females, 25.0% males) of VYAs answered correctly that a girl is likely to get pregnant during the days between her periods. Of note, girls were more likely to provide a correct answer to this question, P<0.001.

Responses to additional questions regarding puberty and reproductive health are summarized in Table 6. Overall, results of the endline survey, compared to those from the baseline, indicate that knowledge on puberty and reproductive health improved significantly among VYAs and their parents after GrowUp Smart sessions. As shown in the above table, all questions were correctly answered by a larger proportion of respondents during the endline survey as compared baseline.

Table 6. Study participants' responses on questions related to puberty

Question	Category*	Percent of correct answers at endline	Percent of correct answers at baseline
Is it normal for a girl to have periods that don't come at exactly the same time each month?	VYAs	61.6	31.2
	Parents	91.9	87.3
Is it normal that a boy gets an erection when he sees someone he likes	VYAs	67.8	49
	Parents	90.0	88.2
Do you think that a boy can get a woman or a girl pregnant before he has his first ejaculation?	VYAs	39.9	26.2
	Parents	37.2	34.4
Do you believe that a boy needs to ejaculate every time he has an erection to stay healthy?	VYAs	54.1	51.3
	Parents	23.0	23.6

**Category of responder*

With regard to boys' fertility, while only 17.1% (9.4% females, 7.6% males) VYAs interviewed at baseline knew that a boy is fertile every day from the time he has had his first ejaculation, 56% of those interviewed at endline responded correctly to the same question. Another 41.4% of endline youth respondents that a boy would be fertile only on some days. As for parents, 58.1% had said at baseline that a boy is fertile every day from the time he has his first ejaculation while 75.4% of endline participating parents responded correctly to that question.

When VYAs where asked whether they heard about HIV/AIDS, 70.6% answered yes at baseline, and 88.7% answered yes at endline. Although the number of VYAs who reported having heard of HIV/AIDS increased from baseline to endline survey; it is worth mentioning that, of the remaining 11.3% who reported to not had heard of HIV/AIDS; the great majority (90.2%) affirmed having participated in at least one GrowUp Smart session. In the same context, the number of VYAs who affirmed having heard of condoms increased from 63.4% (29.2% females, 34.2% males) at baseline survey to 83.8% (44.9% females, 38.9% males) at endline survey. Similarly, many (92%) of the 16.2% who reported not having heard of condoms, said that they had taken part of the GrowUp Smart program. Nonetheless, the majority of VYAs agreed that a condom can prevent pregnancy (74.0% at baseline, 89.1% at endline), that not having sex can prevent pregnancy (71.4% at baseline, 85.7% at endline) and that a condom can prevent getting HIV (77.3% at baseline, 88.9% at endline).

Parents' views on puberty and reproductive health of adolescents

Parents were requested to express their knowledge and opinions about different statements and scenarios related to adolescents' puberty and reproductive health. Parents' responses to these questions are displayed in Table 7.

Table 7. Parents' views on puberty and reproductive health of adolescents

Question (N=951)	Percent of correct answers at endline	Percent of correct answers at baseline
It is important for girls to have a place to wash and dry their menstrual pads, cloth, or rags to avoid infection from dirty water or from pads not completely dry before reusing them	99.8	98.5
When girls get their first periods, this means that they can now get pregnant.	96.6	93.5
Boys having their first ejaculation is a normal and healthy part of growing up	98.6	90.9
When boys have their first ejaculation this means that they can now get a girl or a woman pregnant	97.1	90.8

During both baseline and endline surveys, the answers obtained from the great majority of parents were in agreement with the statements and these responses indicate that most interviewed parents have good knowledge of puberty and reproductive health. Most parents also reported correct knowledge of breast development, that it is normal to have some girls developing their breasts at age 12 while other develop them at a later stage. Comparing the results of baseline and endline surveys; it is clear that more parents provide correct responses to statements regarding ASRH, which is attributable to GrowUp Smart.

Parents' views on communicating with VYAs about puberty and SRH

Many parents interviewed during endline survey believed that the people that children would be comfortable talking to about puberty changes are mainly their mothers and their fathers, as well as their aunts to a lesser extent. Of 449 parents who have sons, 389 (86.6%) reported to have talked to their sons during the three months preceding the interview about the physical changes taking place in his body during adolescence (only 28.1% at baseline). Another 59.2% parents had discussed with their sons about someone they like (only 20.8% of parents had done so at baseline). Of the 627 parents who have daughters, 572 (91.2%) had talked with their daughters during the three months preceding interviews about the physical changes taking place in her body during adolescence (this was only 46.7% during baseline survey). Similarly, 70.2% of parents had talked with their daughters about someone they like (only 35.4% had done so at baseline).

A total of 87.4% parents reported to have discussed with their daughters about the benefits of waiting to have sex until she is older (58.8% at baseline); 94.4% told their daughters about not going to a private place with a boy or man, even if he gives her a gift or money (76.3% at baseline); and 90.6% talked with daughters about how to take care of herself during her periods (59.7% at baseline). A total of 80.2% parents reported to have discussed with their sons about the benefits of waiting to have sex until he is older. When parents were asked at endline whether they feel comfortable talking to their sons about sexual and reproductive health, 83.3% said that they are very comfortable (48.3% at baseline). Similarly, 82.1% of parents mentioned feeling comfortable talking about these topics to their daughters (59.9% at baseline). In general, parents interviewed during endline survey attested to having improved communication with their children on topics related to ASRH. They also reported greater comfort communicating about these ASRH topics with their sons and/or daughters, even on issues related to sexuality such as the people that their children may like, the time to have sex and others.

Nevertheless, at endline only 61% parents believed they knew enough about ASRH topics to discuss them with their son and/or daughter. This figure increased greatly from baseline (35.2%), but it suggests that a significant portion of interviewed parents could still benefit from more education sessions and information on how to communicate with their children.

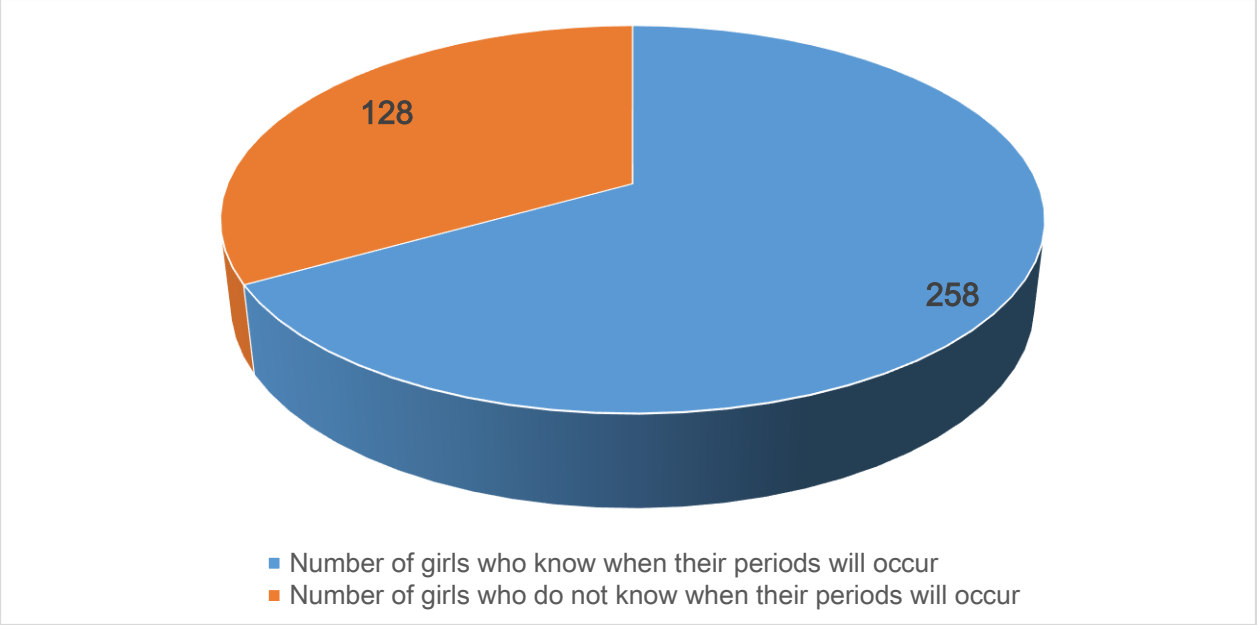
Girls' menstruation management

Of the 1862 girls interviewed at endline, only 386 (20.7%) declared to have started getting their periods. Of the girls who had periods, 190 (49.2%) said that they feel comfortable going to school when they have their periods (21.2% at baseline); whereas 142 (36.7%) said that they do not feel comfortable at all (55.8% at baseline). The remaining had never had periods while at school. Only 12 girls reported missing school because of periods, of

whom 10 had abdominal pain and/or other menstruation symptoms. Of note, 96.5% of the interviewed parents were of the view that girls should attend school even during the time they have their periods. During baseline, 89% of parents had affirmed the same.

With regard to girls' knowledge on when their periods occur, the following figure (5) indicates that the majority of girls 258 (66.8%) know when they will get their periods, while 33.1% do not know. Of note, during baseline survey, only 46.6% had reported knowing when their periods would occur, while 53.3% had reported to not know. Of 258 girls who reported knowing when their periods will occur at endline, 159 (61.6%) said that they use Cyclebeads, while 96 (37.2%) use calendars to count days. At baseline, the majority of respondents (78.1%) used calendars, while only 2.6% used Cyclebeads and 18.5% used the presence of symptoms of menstruation. This increase over a relatively small period of time clearly indicates the potential contribution of Cyclebeads as tool for girls' menstrual management.

Figure 5. Girls' knowledge about when their periods occur



Of the 386 girls who had had their first periods, the vast majority 357 (92.4%) reported having heard of Cyclebeads. Only 29 girls reported knowing nothing about Cyclebeads, half of whom had participated in at least one GrowUp Smart session. Of interviewed parents, 98.4% reported having heard of Cyclebeads (72.5% at baseline). Of those, 59.1% agreed that it is helpful for a girl to use Cyclebeads to keep track of her menstrual cycle and know when to expect her next period; 40.7% disagreed. Curiously, more parents (89.4%) agreed with the statement at baseline than at endline. The reasons as to why more parents disagreed with this post-intervention are worthy of further investigation.

In the same context, while the majority of parents (61.8%) disagreed with the view that using Cyclebeads would encourage girls to start having sex at baseline; more than a half

(55.3%) of parents agreed with this statement at endline. These parents (mostly females) were of the view that using Cyclebeads would encourage girls to have sex. The following table provides more details about parents' views on girls using Cyclebeads.

Table 8. Parents' views on whether using Cyclebeads would encourage girls to start having sex

Parent's views	% Baseline (n=739)			% Endline (n=936)		
	Female	**Male**	**Total**	**Female**	**Male**	**Total**
Agree	23.1	7.0	**30.2**	42.8	12.5	**55.3**
Disagree	42.4	19.5	**61.8**	29.4	14.2	**43.6**
Don't agree or disagree	6.4	1.6	**8.0**	0.7	0.3	**1.1**
Total	71.9	28.1	**100.0**	73.0	27.0	**100.0**

Of the 386 girls who had started their periods at endline, almost all (99.2%) reported using something to soak up the blood (94.4% at baseline). Of those, 59.8% use disposable pads, 30.8% reusable pads, and 8.5% use cloth or rags. In addition, regardless of what they used, 94.5% of girls felt confident that the pads they use will not cause blood to leak or stain their clothes.

A total of 254 of 386 (65.8%) girls reported their mothers to be the principal persons who taught them how to take care of themselves during their periods (59.8% at baseline). Other adult females or sisters and teachers were reported by 18.0% and 6.2% of girls, respectively. As at baseline, no girl reported her father as someone who taught her how to take care of herself during her period. Moreover, of the 219 girls who responded to the question, only a few (9.5%) stated their fathers as people who give them money to buy the pads; most (80.3%) got money from their mothers. About 5% said that they earn money for buying the pads by themselves. At baseline, 64.8% of girls who had periods, reported receiving money for pads from their mothers and 8.8% from their fathers.

As during the baseline survey, this indicates that girls receive support and information about how to take care of themselves mainly from their mothers, and other adult females; but less from their fathers. Moreover, in terms of comparing VYAs responses given during baseline and endline surveys, there is evidence that more girls reported support from their parents or other adults, owing to the change in attitudes of parents/guardians vis-à-vis to the girls' menstrual management.

Hygiene at school

Like during baseline, in-school VYAs were interviewed about the indicators of access to clean toilets, soap and water, and the availability of hygienic products at their schools. All the visited schools during the interviewing period had toilets for students; and about 95% of interviewed youth reported that their schools have toilets.
As shown in the table below, 2891 (93.5%) of the 3093 interviewed in-school VYAs, reported to have toilets for girls, while 200 (6.4%) said that they do not have toilets specific for girls. Of these, 160 (80%) were in-school VYAs originating from Muhanga district.

Table 9. VYAs answers on availability and safety of toilets at school

Question (N=3093)*	Yes (n) (%)	No (n) (%)
Does your school have a toilet for girls only?	2891 (93.5)	202 (6.4)
Does the toilet have a door that can be locked?	3064 (99.1)	29 (0.8)
Do you feel safe going to the toilet?	2992 (96.7)	101 (3.2)
Does the toilet have water for washing your hands?	1469 (47.4)	1624 (52.6)

**Findings from endline survey only*

As shown above, the great majority of interviewed VYA boys and girls said that the toilet doors at their schools can be locked and that they feel safe when they go to the toilets while at school. However, 52.6% of VYAs do not have access to water for washing their hands at their schools. Further analysis indicated that many of the VYAs who reported unavailability of water for washing their hands in the toilets were from Muhanga, Kamonyi, Ruhango and Nyabihu districts. Of the 3093 interviewed girls and boys, 2150 (69.5%) VYAs reported that the toilets at their schools never have soap, 356 (19.5%) said that they have soap sometimes, and 10.6% said that soap is available most of the time. At baseline, 83.8% of youth had never used soap while at school.

Overall, these results are quite similar to findings of the baseline survey, and indicate that accessibility to appropriate hygiene among VYAs at their respective schools across all the visited districts is still a problem. It might also reflect on their personal hygiene, particularly during their menstrual periods. There is hope that the newly established girl's room across all the schools in Rwanda, which is a fully equipped and calm place with water, soap, and napkins, will help young girls to adequately manage their periods at school.

Knowledge and Information about Health Services

VYAs were asked about different types of health services available in their communities. Table 10 shows a summary of VYA responses about availability of health services at endline, and compares this with baseline results.

Table 10. VYAs responses on knowledge about health services

Question/Statement	Percent of VYAs who agreed at baseline (n=3519)	Percent of VYAs who agreed at endline (n=3260)
I know where people can get condoms	1542 (43.8)	2077 (63.7)
I know where people can go to get an HIV test	2345 (66.6)	2695 (82.7)
I know where to go to get information and advice on how to avoid getting pregnant	1740 (49.4)	2416 (74.1)
In my community, young people my age seek information and advice on how to avoid getting pregnant when they need it	1751 (49.8)	2295 (70.4)

I feel comfortable asking an adult for help getting health information or services	2361 (67.1)	2781 (85.3)

As shown in the above table, it is remarkable how much VYA knowledge about how and where to get health information and services increased after GrowUp Smart. Although not presented in this table, VYAs boys consistently knew more than their female counterparts, both at baseline and endline, about where people can get condoms and where people can go to get an HIV test (P<0.001, P<0.001 respectively). However, these findings should be interpreted with some caution since girls may have hesitated to answer because of fear or shame about such culturally sensitive questions. No statistical correlation was observed between the given answers and the respondent's gender for any other questions in the above table.

VYAs views on marriage and relationships

At endline, the majority (90.8%) of VYAs believed that they will get married one day (86.5% at baseline). Of all interviewed VYAs, 85.8% (47.5% females; 38.3% males) said they would use a condom if they ever decide to have sex before they get married; while 7.2% would not. Notably, 5.4% did not intend to have sex before marriage. More than 60% of VYAs reported knowing other boys and girls of their age in their communities who have sex before marriage. Indeed, 14.8% said that this occurs very often, while 58.4% said that it occurs sometimes and 19.3% said that it never occurs. Only 7.5% reported to not know about whether VYAs have sex before marriage.

Compared to baseline responses, when 78.8% (40.8% females, 37.7% males) of VYAs said that they would use a condom if they decide to have sex before getting married, endline responses showed an increase in this planned behavior. This may simply indicate that VYAs became more open to discussing ASRH and sexual relationships, but it may also mean they better understand the role of condoms through participation in GrowUp Smart.

Communicating about menstruation, body changes and feelings

Interviewed VYAs were asked to report on whether they had talked with any adult about physical changes of adolescence in their bodies during the three months prior to the interview. While 73.1% of VYAs interviewed at baseline reported that they had not talked to anyone about such things, only 36.2% (16.3% females; 19.9% males) of those interviewed at endline gave the same response. In both surveys, boys more often reported not talking with any adult (p<0.001). At baseline, 13.1% of VYAs reported having talked with their mothers, while only 2 (0.1%) had talked with their fathers. At endline, 31.5% (of whom girls were the majority: 25.2% girls, 6.3% boys), had talked to their mothers, 7.0% had talked to their brothers or sisters, and 5.6% to their fathers. Another 2.5% had talked to their teachers.

VYAs were less likely to discuss a girl or boy they like with an adult. At endline, a full 73.9% (40% girls; 33.9% boys) of VYAs had not talked with any adult about this (71.7% at baseline). Only 9.3% of VYAs had talked to their mothers, 5.5% to other non-relatives and 4.7% to other adults/elder brothers or sisters. Only 1.8% had talked to their fathers. Taken altogether, this indicates that the majority of VYAs certainly benefited from the GrowUp Smart intervention more by helping them to become open to discuss body changes with other members of community; but less by being open to discuss their romantic or sexual relationships with other people. The following table summarizes VYAs responses on their feelings and support they receive with regard to menstruation management and body changes.

Table 11. VYAs responses on menstruation, body changes and feelings

Question/Statement	**Percent of VYAs who agree at baseline (n= 3519)**	**Percent of VYAs who agree at endline (n= 3260)**
I feel comfortable talking with adults about the physical changes in my body during adolescence	2094 (59.5)	2735(83.9)
I feel comfortable talking with adults about romantic relationships	1612 (45.8)	2098 (64.4)
I feel confident in asking for help with school work when I need it*	3065 (93.0)	3008 (96.9%)
I feel confident in asking for help with my chores when I need it	3286 (93.4)	3168 (97.2)
I feel confident in asking for help with managing my period when I need it**	1454 (73.4)	1733 (93.0)

**For in-school VYAs only (n= 3293, 3102)* ***for girls only (n= 1979, 1862)*

Taken altogether, this indicates that the majority of VYAs certainly benefited from the GrowUp Smart intervention more by helping them to become open to discuss body changes with other members of community; but less by being open to discuss their romantic or sexual relationships with other people. It is clear from the table that VYAs are more comfortable talking about the physical changes of adolescence and romantic relationships, as well as asking for help/advice on how to manage their periods (girls only). As many as 64.7% of interviewed girls during endline had talked to someone about how to take care of themselves during their periods in the three months prior to the interview. Compared to the percent at baseline (28.3%), this is a significant change in attitudes and practices.

Quite similarly, while only 19.3% of boys interviewed at baseline had talked to someone about how to manage ejaculations when they started having wet dreams, during the three months prior to the interview; the number of boys who sought advice at endline was equal to 47.4%. Though not a big number, the difference from baseline to endline is big and probably conferred by the GrowUp Smart intervention.

During endline survey, 63.6% (50.4% females, 13.2% males) of all VYAs, of whom most were females (88.2% of the participating girls), reported to have female friends they trust and with whom they can talk about feelings and personal matters. Another 47.4% (8% females, 39.4% males), of whom the great majority were boys (91.8% of the boys), reported to have male friends they trust and with whom they can talk about feelings and personal matters.

VYAs responses on what they believe girls and boys are like

Table 12 compares the number and percent of VYAs who agreed with the statements about what girls and boys are like.

Table 12. VYAs responses on what they believe girls and boys are like

Question/Statement	Percent of VYAs who agree at baseline (N: 3519)	Percent of VYAs who agree at endline (N= 3260)
Boys as well as girls should be equally responsible for doing household chores	2336 (66.4)	2756 (84.5)
If a family does not have enough money for all of their children to go to school, they should send the boys instead of the girls	804 (22.8)	457 (14.0)
A girl can study and prepare to do any job a boy can do	2432 (69.1)	2720 (83.4)
Boys should have more free time than girls	1037 (29.5)	680 (20.9)
It is more important for a girl to help at home and learn household activities than to spend time studying	905 (25.7)	797 (24.4)
A family should not allow their sons to do housework because that is girls'/women's work	1053 (29.9)	714 (21.9)

In general, the majority of interviewed boys and girls believe in the equality of both girls and boys in terms of having access to education and doing home chores. These attitudes improved slightly after participation in GrowUp Smart. However, as at baseline, a notable portion of VYAs still believe that boys should be privileged over girls. In fact, for some statements, the numbers observed at baseline are comparable to those observed at endline. A total of 25.7% VYAs at baseline and 24.4% at endline said that it is more important for a girl to help at home and learn household activities than to spend time studying. Nevertheless, 83.3% of boys and 71.3% of girls reported having helped their sisters/brothers with household chores during the week that preceded the endline survey.

Study participants' views on teasing

Table 13 describes VYA views and answers on questions about teasing. It provides a comparative picture of the baseline versus endline surveys.

Table 13. VYAs views on teasing

Question/Statement	Percent of VYAs who agreed at baseline (n= 3519)	Percent of VYAs who agreed at endline (n= 3260)
Teasing girls is an appropriate way boys show girls that they like them	1209 (34.4)	1256 (38.5)
Boys who do not tease girls will be made fun of by other boys	1748 (49.7)	1708 (52.4)
Girls should be flattered when boys tease girls	1591 (45.2)	1529 (46.9)
I am confident that I can tell a boy or a girl to stop teasing someone	2962 (84.2)	2993 (91.8)
I feel able to tell a boy to stop doing something that makes me feel uncomfortable*	1598 (80.7)	1628 (87.4)

**For girls only* (n=1979, *1862)*

As at baseline, many VYAs at endline believed that boys who do not tease girls would be made fun of by other boys, and that girls should be flattered when boys tease them. However, more than half of girls and boys disagreed with the statement that teasing is an appropriate way for boys to show girls that they like them. Moreover, the majority (84.2% at baseline, and 91.8% at endline) of respondents said they would be confident telling a boy or a girl to stop teasing someone, which indicates that they see this as an inappropriate behavior.

Indeed, during endline survey, VYAs indicated that it happens, in their respective communities, that girls are touched on the breasts or buttocks by boys without their permission. This was mentioned to happen 'very often' by 14.2%, and 'sometimes' by 53.9%. A total of 36.1% of interviewed boys and girls reported to have seen a boy touching a girl on the breasts or buttocks without her permission in the month prior to interview. Of those who observed this, only 30.7% did something to stop such action. Similarly, 33% of VYAs reported that boys get touched to their private parts without their permission as well. About 40 boys, representing 2.8% reported to have been touched on their private parts without their permission. This clearly indicates that teasing girls is a very common habit/practice among the interviewed youth in Rwanda, and that most of them are not yet well-equipped with attitudes to stop such an action when it happens to peers. Thus ASRH related interventions must address the issue of sexual harassment/abuse of all kinds, particularly among VYAs.

Parent responses about whether teasing girls is an appropriate way for boys to show that they like them were quite similar to VYAs answers at endline; only 46.8% disagreed with this statement, while 49.3% were in agreement with it. Of note, 59.1% parents had disagreed during baseline. Also, almost half (49.7%) of parents interviewed at baseline believed that girls should feel flattered that boys tease them. At endline, 57.9% still agreed with this statement, while only 35.1% disagreed. Overall, parent responses vis-à-vis teasing VYAs are not different from the youth's and did not significantly change from baseline to endline. This therefore suggests that both parents and VYAs need more information on attitudes and practices related to gender roles and VYA relationships.

VYAs views on staying safe and healthy

The following table shows VYA responses on the questions concerning safety and health. It compares VYAs responses at baseline and endline surveys.

Table 14. VYAs views on staying safe and healthy

Question/Statement	Percent of VYAs who agreed at baseline (n= 3519)	Percent of VYAs who agreed at endline (n= 3260)
A girl should not go to a private place with a boy or man even if he offers her gifts or money	2248 (63.9)	2721 (83.5)
Using alcohol or drugs leads to bad or unhealthy decisions	2757 (78.3)	2923 (89.7)
If a girl or boy ever feels pressured or unsafe, they should tell a trusted adult about it	3230 (91.8)	3198 (98.1)
Girls should walk in a group or with a trusted family member but not alone at night time	3096 (88.0)	3116 (95.6)
I feel confident in asking for help when I get harassed on the street	3047 (86.6)	3064 (94.0)

As shown in the table, the majority of youth respondents agreed with the stated principles of staying safe and healthy. Compared to baseline survey, there were many more VYAs respondents agreeing with the statements related to staying safe and healthy. The observed responses suggest improved knowledge of principles of safety and health among VYAs.

Parents' attitudes on puberty and reproductive health of adolescents

Parents were requested to give their views on different statements related to their attitudes on SRH of VYAs. In Table 15, parent responses are represented in percentages, which compare baseline and endline responses.

Table 15. Parents' attitudes on puberty and reproductive health

Question/Statement	Percent of parents who agreed at baseline (n= 1020)	Percent of parents who agreed at endline (n= 951)
If a family does not have enough money for all of their children to go to school, they should send the boys instead of the girls	81 (7.9)	62 (6.5)
A family should not allow their sons to do housework because that is girls'/women's work	89 (8.7)	46 (4.8)
Parents should wait to talk to their sons about ejaculation until after it has happened	294 (28.8)	145 (15.2)
It is important for parents to provide support for their daughter to buy menstrual supplies	1004 (98.4)	940 (98.8)
I would support my son in any job he would like to pursue in the future even if it is not a job men typically do	880 (86.3)	885 (93.1)
I would support my daughter in any job she would like to pursue in the future even if it is not a job women typically do** (n=627)	558 (87.5)	582 (92.8)
Parents should wait to talk to their children about sex until they ask	308 (30.2)	226 (23.8)
I plan to talk to my son about where to get protection to avoid pregnancy and HIV* (n=449)	461 (96.0)	443 (98.7)
I plan to talk to my daughter about where to get protection to avoid pregnancy and HIV** (n=627)	608 (95.3)	621 (99.0)

** Only for parents who have got sons* ***only for parents who have got daughters*

Parents' responses to the statements show that they have supportive attitudes towards their sons and daughters as they grow up; particularly so after GrowUp Smart. In fact, parents' answers at endline, as shown in the above table, indicate improvement of their attitudes on puberty and reproductive health of their children. Nevertheless, 23.8% of interviewed parents still believe that it is good to wait to talk to children about sex until they ask about it. Although, this number of parents is lower than those who believed so during baseline (30.2%), it indicates that about a quarter of interviewed parents are still not ready to discuss sexuality with their children. This may be related to cultural beliefs of Rwandan parents of considering sexuality as a taboo topic or to the fact that this topic was not fully discussed in GrowUp Smart parent sessions, either due to time restraints or limitations of GrowUp Smart facilitators. YSOs may need additional training so as to equip them with approaches to undertake such in-depth discussions with parents.

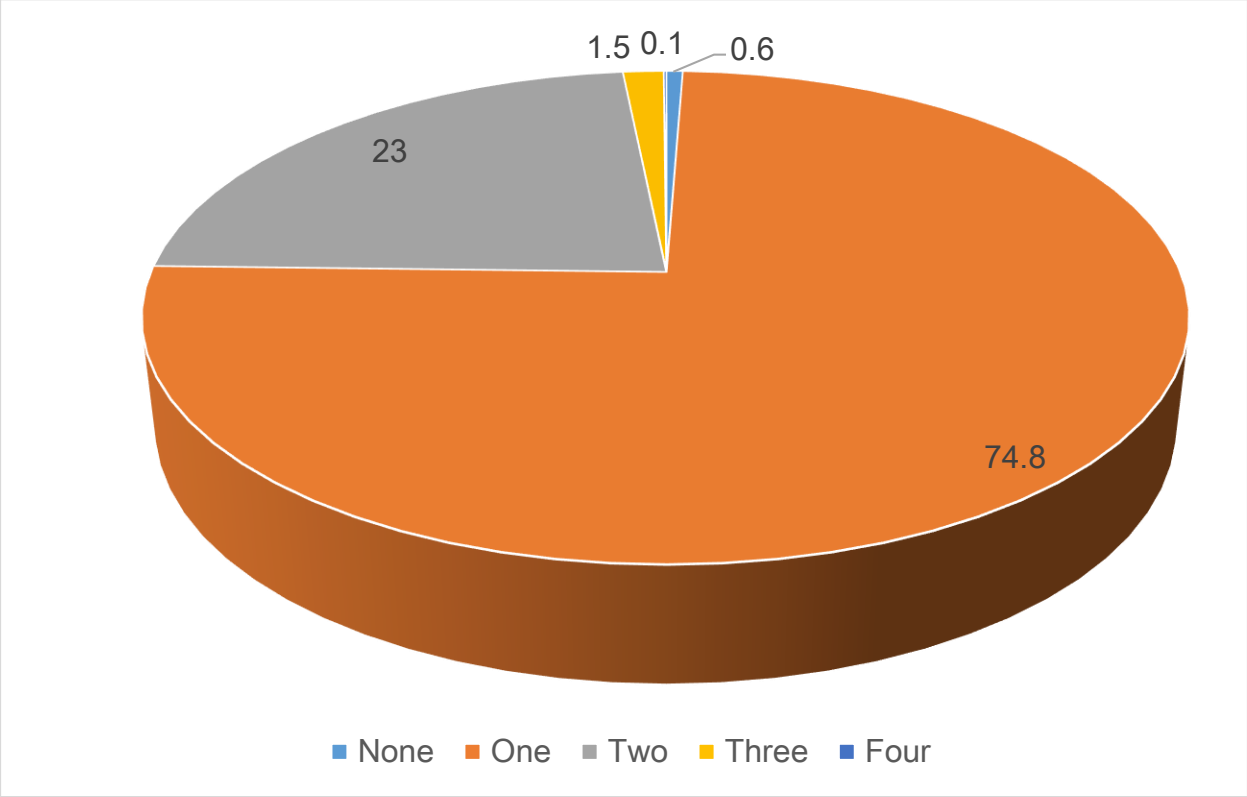
Exposure to the GrowUp Smart Intervention

At endline, VYAs and parents were asked questions related to their participation in GrowUp Smart.

Of 3260 VYAs interviewed at endline, 3000 (92%) participated in the GrowUp Smart program. VYAs of Kicukiro and Muhanga constituted the majority of those who did not attend GrowUp Smart sessions (132 of 260, 50.7%). Of VYAs who participated in GrowUp Smart, 67.3% had attended all nine pre-envisaged youth learning sessions, while 13.9% attended eight sessions. The majority of VYAs (64.6%) had no other sibling participating in GrowUp Smart, while 27.5% had one siblings participating. A total of 64.2% (36.6% females, 27.6% males) of VYAs reported that their parents were also taking part in GrowUp Smart sessions; 35.5% of VYAs did not have parents participating.

Of parents, 891 out of a total of 951 (93.6%) participated in both parents' sessions. Of these, 94.9% attended the two sessions, while 5.1% attended to one session only. Of the 60 parents (6.3%) who did not take part in GrowUp Smart sessions, half reside in Kicukiro (16) and Muhanga (14) districts, while the other half was shared in the remaining districts. All parents interviewed at endline from Ruhango had taken part in GrowUp Smart. The majority of participating parents (74.8%) had one child participating in GrowUp Smart youth sessions, 23% had two children participating. Figure 6 below shows the percent of parents by number of children participating in GrowUp Smart. Of note, six parents (four females and two males) did not have any child participating in GrowUp Smart. Four of these were from Bugesera, one from Kicukiro and one from Ruhango.

Figure 6. Parents' answers on number of children participating in GrowUp Smart



When VYAs were asked the sessions which they liked most, 27.5% cited "*Talking about Puberty*", 27.1% "*How We Are Changing*", and 24% "*Let's Be CycleSmart*". Many girls liked "*Let's Be CycleSmart*" and "*Our Hygiene, Ourselves and Each Other*" most, while boys liked "*How we are changing*" most (P<0.001). There was no statistical difference between liked sessions and the school status (in- versus out-of-school status). Sessions that VYAs liked the least included "*Let's Be CycleSmart*" (20.6%, mostly mentioned by boys), "*Female and Male Fertility*" (17.2%), "*Curiosity and Concerns*" (14.3%), and "*Talking about Feelings, Fertility and the Future*" (10.5%). Despite its popularity, 29.8% of interviewed VYAs said "*Let's Be CycleSmart*" contained the most difficult information to understand. For others (15.1%) the most difficult information concerned "*Female and Male Fertility*". However, for 27.9% of VYAs, no session or information was difficult to understand.

When parents were asked which session they liked most, 50.4% mentioned the first one which talked about "*Welcome and GrowUp Smart*"; the remaining parents (49.6%) preferred the second session on "*Talking about GrowUp Smart Experiences*". As for the most difficult information to understand, 38.3% mentioned "*Cyclebeads and Female Fertility*", 17.6% mentioned "*Changes of Puberty*", and 9.4% mentioned "*Circles of Sexuality*". "*Being a Man, Being a Woman*" appears

to be the information that was most easily picked up by attending parents. Although "Changes of Puberty" was mentioned by some parents as the most difficult information to understand, as many as 41.6% reported it as the most helpful information. "*Cyclebeads and Female Fertility*" (22.0%), "*Parents Perspectives Game: Gender roles, safety and well-being*" (11.7%) and "*Supportive Protective Behaviors*" (7.8%) were the other sessions also mentioned as the most helpful information. Overall, the great majority (99.3%) of parents who attended GrowUp Smart sessions said that the program was very helpful.

As for VYAs, 95.4% considered GrowUp Smart as a very helpful program, while 4.4% reported it as a little helpful. In addition, 89.3% (52.9% girls, 36.5% boys) of VYAs reported talking to their parents/guardians about some topics that had been discussed during GrowUp Smart sessions. Statistical analysis demonstrated that boys and out-of-school children communicated less with their parents/guardians than girls and in-school children ($p<0.001$, 0.001 respectively). With regard to talking with trusted adults about GrowUp Smart sessions, 77.7% of VYAs said it was very easy to talk to their parents/guardians, 14.5% that it was somewhat easy, 5.0% that it was difficult, and 2.7% that it would be very difficult. A total of 45% of VYAs had actually discussed content from GrowUp Smart sessions with parents or trusted adults. The 320 VYAs who did not do so said it was because their parents/guardians had been too busy (43.7%) or because it would have been embarrassing (14.6%).

In the end, interviewed VYAs and parents were also asked whether they had participated in the community cerebration activities at the end of GrowUp Smart. Responses showed that 91.1% of VYAs and 82.4% of parents had participated.

Conclusions

The GrowUp Smart study was conducted in order to evaluate the effectiveness of a multi-component SRH intervention in improving SRH knowledge, attitudes and behaviors of VYAs and their parents. Its first phase (baseline survey) permitted the team to assess the state of knowledge, attitudes and practices of parents and VYAs with regard to puberty, reproductive health and sexuality of the VYAs within their respective communities prior to the GrowUp Smart intervention. The endline/post-intervention phase of the study permitted the team to measure the effects of the GrowUp Smart intervention by determining its effectiveness and changes on VYAs knowledge, attitudes and behaviors as well as their parents. This, through comparing pre-intervention against post-intervention responses from interviewed VYAs and parents, most of whom had participated in the GrowUp Smart program.

The first and foremost finding after endline survey, is that participation in the GrowUp Smart intervention as well as in the endline interview process were attended by the great majority of VYAs and parents recruited in the baseline. This indicates overall VYAs' and parents' interest in the GrowUp Smart program. Additionally, results of the endline survey, compared to those from the baseline, indicate that knowledge on puberty and reproductive health improved among VYAs, and their parents three months after the GrowUp Smart intervention. This was particularly shown by the fact that most interview questions were correctly answered by a larger number of respondents during the endline survey, demonstrating the benefits of the GrowUp Smart intervention among interviewed youth and parents. Furthermore, improved knowledge and attitudes were also noted on topics related to menstrual management; and most importantly, such knowledge could be demonstrated by VYAs who had not had their first periods.

On another note, findings from the endline survey indicate overall improvement on parent-child communication on different ASRH related topics. Nonetheless, reported findings suggest that one third of parents would benefit from more information on how to establish adequate parent-child communication on sexuality and other such topics previously considered taboo in Rwanda. Survey responses for parents and VYAs showed that both were more comfortable discussing body changes of puberty; ask for help with menstrual management and ejaculation; and discussing safety and health; but less open to discussing emotional changes, particularly those related to romantic feelings, sexuality and sexual relationships.

Parent and VYA responses on teasing and gender roles indicate the need to discuss such topics further and stress the need for more information on attitudes and practices related to gender roles. This could be explored by governmental institutions, local Non-Governmental Organizations such as YSOs, and even the community through well-established parental gatherings also known as "the evenings for parents" and other similar ones.

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Appendices

1. GrowUp Smart Endline Survey for Youth
2. GrowUp Smart Endline Survey for Parents