

# Adolescent sexual and reproductive health needs in Uganda

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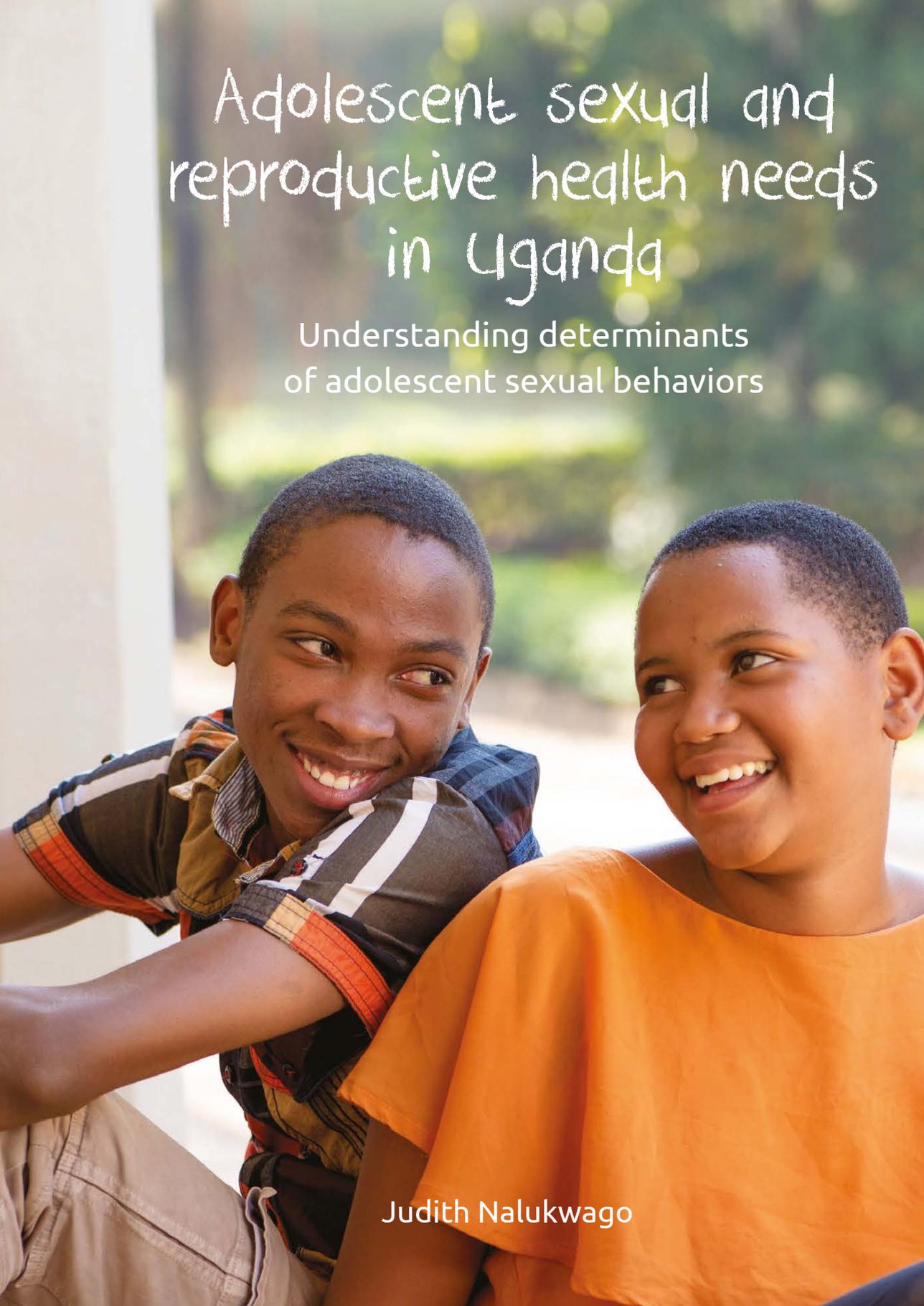
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# Adolescent sexual and reproductive health needs in Uganda

Understanding determinants  
of adolescent sexual behaviors

Judith Nalukwago

## **Credits**

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# **Adolescent sexual and reproductive health needs in Uganda**

## **Understanding determinants of adolescent sexual behaviors**

Thesis

To obtain the degree of Doctor at the Maastricht University under authority of the  
Rector Magnificus Prof. dr. Rianne Letschert.

In accordance with the decision of the Board of Deans

To be defended in public on Thursday, 14<sup>th</sup> March, 2019 at 12:00 hours

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## **Disclaimer**

The material presented in this thesis does not in any way reflect the views of USAID and FHI 360. The author ensured to accurately present the information as at the time of going to press, but this should not be misconstrued to be a complete analysis of the topics or subjects discussed herein.

# Dedication

I dedicate this work to all deserving individuals who strive towards and are passionate about making a difference in adolescent health, well-being, and development.

To my dear parents, Lawrence M. Ssengero and Rose Nyakatura Ssengero for believing in me and giving their all for my success.

And to my siblings, Cherry, Lillian, Daniel, Nicholas, and Paul for your encouragement, moral and spiritual support in this endeavor.

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# Chapter 1

## General Introduction

## **Adolescent sexual and reproductive health in the global context**

Today's generation of adolescents is the largest in history in terms of size, as nearly half of the global population is less than 25 years old (Bearinger, Sieving, Ferguson, & Sharma, 2007). Studies show that there are more than one billion adolescents aged 10–19 years, of whom 70% live in developing countries (Hindin & Fatusi, 2009; WHO, 2011; Blum & Nelson-Mmari, 2004). Globally, the growing number of adolescents has led to the increased debate and recognition that for years the unique health needs associated with adolescence have been limitedly understood for program development (WHO, 2017). Adolescents are a critical target population with regard to influencing global public health outcomes (WHO, 2011). As such, investment in adolescent health brings a triple dividend of benefits for adolescents now, for their future adult lives, and for the next generation, through creating healthier and more sustainable societies (WHO, 2017; Bearinger et al., 2007). Although there is growing concern among development practitioners and researchers to improve adolescent health and to respond more effectively to adolescents' needs, many adolescents continue to face health challenges.

In sub-Saharan Africa, many adolescent girls and boys aged 15–19 years continue to face health challenges related to HIV/AIDS, teenage pregnancies, and limited access to sexual and reproductive health (SRH) services. Adolescent girls and young women aged 15–24 years are at high risk of HIV infection, accounting for 20% of new HIV infections globally in 2015 (UNAIDS, 2016). Similarly, in sub-Saharan Africa, adolescent girls and young women accounted for 25% of new HIV infections. Regarding teenage pregnancy, every year, an estimated 21 million girls aged 15–19 years and 2 million girls aged under 15 years become pregnant in developing countries (Darroch, Singh & Weissman, 2016-a; Darroch, Woog, Bankole & Ashford, 2016-b). This is not without consequences as adolescent pregnancy remains a major contributor to maternal and child mortality and to intergenerational cycles of ill-health and poverty (WHO, 2011).

Pregnancy and childbirth complications are the leading cause of death among 15–19-year-old girls globally, with low and middle-income countries accounting for 99% of global maternal deaths of women ages 15–49 years (WHO, 2017). And yet, in sub-Saharan Africa, very small proportions of unmarried, sexually experienced girls aged 15–19 years used modern contraceptive methods at most recent sex – for example, 4% in Benin, 10.7% in Kenya, 12.4% in Mali, 5.2% in Zimbabwe, and 43% in Uganda (Bearinger et al., 2007; UBOS, 2018). In countries with higher HIV prevalence, the gender imbalance is more pronounced. Harmful gender norms and

inequalities, insufficient access to education and sexual and reproductive health services, poverty, food insecurity, and violence, are at the root of the increased HIV and teenage pregnancy risk of young women and adolescent girls (UNAIDS, 2016; WHO, 2017; Klugman et al., 2014).

## **Adolescent sexual and reproductive health Uganda's context**

Uganda is no exception regarding the intricacy of understanding adolescent sexual and reproductive health needs. The country has recorded alarming adolescent health statistics related to HIV and teenage pregnancy which contribute to poor health outcomes. Among adolescent girls aged 15-19 years, 19% have had a live birth, 10% of girls and 17% of boys reported to have had sexual intercourse by age 15, and an HIV prevalence of 1.8% was recorded among adolescent girls and 0.4% among boys (UBOS, 2018). The use of condoms among adolescents is still relatively low in Uganda, where 43% of girls and 55% of boys reported using a condom at high risk sex (UBOS, 2018). While many studies indicate high knowledge on condoms, little is known about the consistent and correct use of condoms among teenage girls (UBOS, 2018; Amoran, 2012). Studies found widespread resistance to the use of condoms in stable and long-term relationships because of their association with lack of trust and illicit sex (Maharaj & Cleland, 2005; Pulerwitz, Gortmaker, & DeJong, 2000). A young man's self-esteem, his ability to speak openly to a girl, and his cultural make-up, were found to influence his readiness to use a condom (Centerwall & Laack, 2008).

Multiple concurrent partnerships are on the rise among adolescents in Uganda. In 2016, 2.2% of girls and 6.6% of boys reported having two or more partners in the past 12 months preceding the survey, as compared to 2011 where 1.5% of girls and 5.4% of boys reported the same (UBOS, 2018; UBOS, 2012). Adolescents often have multiple sequential partners because many of their relationships are short term (Georges, Thomas, & Bignami Simona, 2014). Adolescents who have several sexual partners are at increased risk of contracting STIs, including HIV and teenage pregnancy, especially when they engage in unprotected sex. Therefore, given the scanty literature on the problem of multiple concurrent partnerships among adolescents in Uganda as compared to other sexual behaviors, there is still a lot to gain with regard to understanding this behavior. Furthermore, the unmet need for contraception among adolescents is high. Despite high sexual activity among adolescent girls in Uganda, contraceptive uptake is still low with only 43% sexually active unmarried adolescent girls, and 22% married adolescent girls using a contraceptive method (UBOS, 2018). The low contraceptive uptake is linked to negative perceptions on contraceptive use among adolescents, partners and parents

(Hardee et al., 2014; MacPhail, Pettifor, Pascoe, & Rees, 2007; Murigi et al., 2016; Nalukwago et al., 2018). However, knowledge on the determinants of sexual behaviors among adolescents is still limited in Uganda. Therefore, as development practitioners grapple with designing targeted interventions that address the complex adolescent health needs, it is important to understand the socio-cognitive factors and gender norms associated with adolescent sexual behaviors. It is also critical to understand the effect of adolescents discussing sexual behaviors with key influencing audiences and to learn from experiences of already existing programs for scale-up of best practices in future adolescent health targeted programs.

To contextualize the health situation of adolescents in Uganda, it is imperative to define the background information of the country highlighting the geographical boundaries, social, education, and economic perspectives.

## **Uganda's background information**

### *Uganda's geographical location*

Uganda is a landlocked country situated in East Africa, neighboring Kenya, Tanzania, Rwanda, and Burundi. The country's capital city is Kampala. Uganda has an area of 240,038 km<sup>2</sup> of which 197,323 km<sup>2</sup> is covered by land. The country has nine geographically demarcated regions with several administrative units known as districts which are illustratively shown on the map of Uganda (see Figure 1).

Besides underlining the geographical landscape of Uganda, it is imperative to underscore the country's current population status, education background and economic status of the population. These factors have been highlighted by several empirical studies as major contributors to the health outcomes and indicators (UBOS, 2018; MOH, 2010).

Map of Uganda showing the different regions



Figure 1: Map of Uganda

## *Population*

Uganda is a multicultural country with over 50 ethnic groups and varying cultural traditions. Similarly, it is a multilingual country with English as its official language and Luganda as the most widely spoken indigenous language. According to the Uganda National Housing Survey of 2016/2017, the country's population was estimated at 37.7 million of which 52% were females and 48% males. The proportion of the population aged below 15 years constituted slightly more than half of the total population. Three in every ten households (31%) were headed by females (UBOS, 2017). According to UBOS, (2018), the broad base of Uganda's population pyramid shows that the majority of the population is young, which is characteristic of developing countries with high fertility and low life expectancy.

## *Education*

Educational involvement and attainment in early life have been linked with later health outcomes, where improved education of women has substantial benefits for the health of children worldwide (Viner et al., 2012). In Uganda, the literacy rate for persons aged 10 years was found to be higher for males than females (UBOS, 2017). The majority of Ugandans reported having either no formal education or only some primary education. Nineteen percent of women and 13% of men age 6 and older have never had any formal education. UBOS (2018) shows that the primary school Gender Parity Index (0.98) implies that there is almost no gender gap. Fifty-four percent of women and 54% of men had not completed primary education. Eight percent of women and 9% of men had completed primary school (UBOS, 2018). Studies show that education increases girls' knowledge of, and exposure to, the outside world; it strengthens their decision-making power within the family, promotes their social and physical mobility, and increases their economic independence and control over resources, all of which enhance their autonomy towards making health decisions and choices (Blum & Nelson-Mmari, 2004; Jejeebhoy, 1995).

## *Economy*

Uganda – a predominantly agricultural country – has more people living below the poverty line, and has been ranked as one of the poorest countries on the global Human Development Index. As such, the lack of a comprehensive social security system makes the poor more vulnerable in terms of affordability and choice of health provider (MOH, 2010). Adolescents are often disproportionately affected by social and economic inequities that characterize the development landscape. This makes them more vulnerable to poor health outcomes, especially outcomes related to sexual and reproductive health (WHO, 2011).

With such a complex nexus of an individual's behavioral and environmental setting characterized as having multiple physical, social and economic dimensions that influence a variety of health outcomes (Stokols, 1996), it is imperative to underscore the study's theoretical framework to put the different levels of influence into perspective.

## **Theoretical Framework of the study**

This study mainly used the Social Ecological Model (SEM) to conceptualize the understanding of adolescent sexual behaviors. The current study is embedded in and draws experience from the United States Agency for International Development (USAID) funded Communication for Healthy Communities (CHC) program in Uganda. The CHC's programming perspective is largely informed by the socio-ecological model, recognizing individuals as embedded within larger social systems and describes the interactive and reinforcing characteristics of individuals and their environments – as well as gender and other social norms – that underlie people's behaviors (McKee et al., 2002; Golden & Earp, 2012; Langille & Rodgers, 2010; Stokols, 1996). It describes different levels of influence such as individual (self), inter-personal (peers, family), community, institutional (services, education, religion, politics), and structural level (policy/ legislation, physical and organizational environment), with cultural dimensions and values as a cross-cutting factor (see Figure 2).

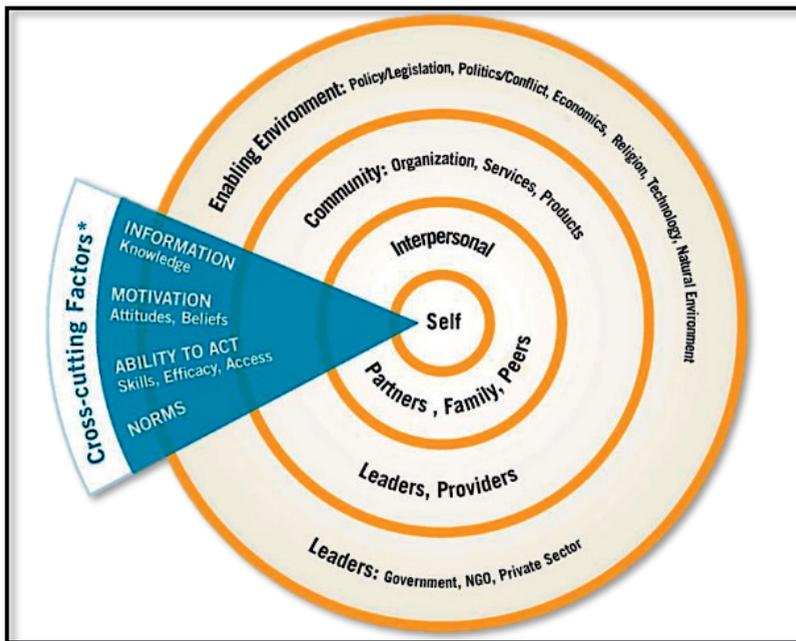


Figure 2: The Social Ecological Model adapted from McKee et al., (2000)

The SEM postulates that in making decisions, an individual will consider more deeply the interests and views of one’s family, peers, and community alongside her/his own preferences. Therefore, the model demonstrates that changing behavior requires a critical look at the different levels of an individual’s influence. This study was guided by the SEM constructs to develop specific research objectives aimed at understanding adolescent sexual behaviors in the context of condom use, contraception use, and multiple sexual partnerships. Specifically, the study used the SEM constructs to construe the socio-cognitive factors and gender norms associated with adolescent sexual behaviors and to assess the effect of discussing sexual and reproductive health issues with key influencing audiences. It also used the SEM constructs to understand why adolescents engage in multiple concurrent sexual partnerships. Further still, the SEM was used to assess the effect of already existing adolescent health programs to draw lessons for future programming and scale-up. The study research objectives are explained below.

## Research objectives

### *General research objective*

The overall goal of this study was to examine the determinants of adolescent sexual and reproductive health behaviors and needs to guide the design of targeted adolescent health programs. The study aimed at understanding the determinants of condom use, multiple sexual partnerships, and contraception use among adolescents, because knowledge of these determinants in the Ugandan context is still limited. These sexual behaviors are associated with health risks such as HIV/AIDS and teenage pregnancies that contribute to the alarming health statistics in Uganda. The study also aimed at conducting a process evaluation for existing adolescent SRH programs to draw their experiences for future programming. The case of Communication for Healthy Communities program in Uganda is used in this study to draw its implementation and practical experience embedded in its performance measurement.

### *Specific research objectives*

1. To assess socio-cognitive factors associated with condom use, multiple sexual partnerships, and contraception use among sexually-active adolescent girls in Uganda.
2. To assess the gender norms associated with adolescent sexual behaviors in Uganda.
3. To establish the effect of discussing sexual and reproductive health issues with key influencing audiences on adolescent perceptions of sexual behaviors.
4. To understand the problem of multiple concurrent sexual partnerships among adolescents.
5. To assess the effect of already existing interventions targeted at addressing sexual and reproductive health behaviors of adolescents by means of a process evaluation to draw lessons for future adolescent health programming.

## Thesis outline

This thesis provides a multidisciplinary overview of the studies conducted to understand adolescent health needs and the determinants of adolescent sexual behaviors for targeted adolescent health programming.

Chapter 2 describes the socio-cognitive factors associated with condom use, multiple sexual partnerships, and contraception use among sexually-active adolescent girls, using data drawn from a cross-sectional survey conducted in 16 districts of Uganda.

Chapter 3 highlights the perceptions and associations of gender norms and sexual behaviors among adolescents measured using the Gender Equitable Men scale.

Chapter 4 qualitatively explored the effect of adolescents discussing sexual behaviors with key influencing audiences by means of in-depth interviews and focus group discussions with adolescents.

Chapter 5 describes the use of core processes, which involve the use of theory and evidence, to understand the problem of why adolescents engage in multiple concurrent sexual partnerships. The scanty empirical literature on why adolescents engage in multiple sexual partnerships in Uganda necessitated this study.

Chapter 6 presents findings from a process evaluation of adolescent sexual and reproductive health interventions in Uganda, using the case of Communication for Healthy Communities program. Specifically, the study evaluated the context, reach, dose delivered, dose received by the target population, and whether the program was implemented with fidelity.

In Chapter 7, the main findings from all the five studies are summarized and discussed. Implications and suggestions for future adolescent health programming are made, and areas for further research highlighted.

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# Chapter 2

## Socio-cognitive factors associated with condom use, multiple sexual partnerships, and contraception use among sexually-active adolescent girls in Uganda

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## Abstract

Many adolescent girls start sexual activity early which exposes them to health risks of HIV and unplanned pregnancies. However, adolescent girls are less likely than boys to initiate discussion or demand use of condoms. Multiple sexual partnerships among girls are reported to be on the rise with eminent transactional sex and pre-marital relationships. The unmet need for contraception among adolescent girls is also high. A cross-sectional survey covering 16 districts in Uganda assessed the socio-cognitive factors associated with condom use, multiple sexual partnerships and contraception use among sexually active adolescent girls (N=255). There were strong associations between feeling confident to discuss contraceptive methods with a partner (OR = 9.41, 95 % CI = 3.54, 25.06), being comfortable to use contraception (OR = 30.61, 95% CI = 4.10, 228.64), discussing contraception use with someone (OR = 10.53, 95% CI = 5.61, 19.78), and contraception use. However, there were no significant associations between social cognitive factors (including behavioral intention, attitude, subjective norm, and knowledge) and condom use, as well as having multiple partners. Whereas knowledge was found to have no significant relationship with service uptake, information services remain important in clearing any misconceptions and addressing any health concerns. It is imperative to explore communication factors including skills development and providing adequate health information to guide dialogue among adolescents and their key influencers.

**Keywords:** Adolescent girls, condom use, contraception use, multiple sexual partnerships

## Introduction

Adolescent girls in Uganda face high risks of HIV/AIDS and unplanned pregnancies. The country recorded a 3.0% HIV prevalence among adolescent girls aged 15–19 and a teenage pregnancy rate that slightly increased from 24% in 2011 to 25% in 2016 (MOH, 2012; UBOS, 2018). The sexual and reproductive health (SRH) needs of these adolescents are inadequately addressed within the existing services system (Birungi et al., 2008; MOH, 2010). The scantiness of gender and age disaggregated program data for this target group increases the difficulty to develop targeted SRH programs (UNICEF, 2016). Understanding the socio-cognitive factors associated with adolescent sexual behaviors allows for better design of behavioral change programs targeted at adolescents. Many adolescent girls start sexual activity early, and this exposes them to health risks (Hardee, Gay, Croce-Galis, & Afari-Dwamena, 2014; Neema, Musisi, & Kibombo, 2004; UBOS, 2012; MOH, 2004). Health risks such as sexually transmitted infections (STIs) and maternal deaths associated with unsafe deliveries are aggravated by early marriages and limited access to basic needs (Bantebya, Muhanguzi, & Watson, 2014; Cortez, Saadat, Marinda, & Odutolu, 2016; Loaiza & Liang, 2013). As such, girls are challenged with limited opportunities and choices to negotiate, make health decisions, and demand access to quality SRH services (Klugman et al., 2014; Singh & Darroch, 2012; UNICEF, 2015; Williamson, 2014).

Designing adolescent sexual and reproductive health programs to address the risks requires an understanding of adolescent sexual behaviors such as condom use, multiple sexual partnerships, and contraception use. Although a key motivator to use condoms among adolescents is the heightened concern for pregnancy prevention over HIV/STIs, girls are less likely than boys to initiate discussion or demand use of condoms (Cortez et al., 2016; Widdice, Cornell, Liang, & Halpern-Felsher, 2006). The decision to use condoms is often controlled by a woman's partner (Baxter & Abdool Karim, 2016). Multiple sexual partnerships among adolescent girls are also reported to be on the rise where transactional sex, girls engaging in pre-marital relationships with older men, arranged marriages for financial gain, sexual coercion, and forced sex are eminent (Bantebya et al., 2014; Amin et al., 2013; Doyle, Mavedzenge, Plummer, & Ross, 2012; Kazaura & Masatu, 2009). In Uganda, adolescent girls aged 15-19 who reported having multiple sexual partners in the past 12 months increased from 2.1% in 2011 to 2.7% in 2016 [UBOS, 2018; UBOS, 2012]. Further, there is an unmet need for contraception among adolescent girls (Obare et al., 2011). Contraceptive use among married and sexually active unmarried adolescents aged 15-19 shows a 30% unmet need for family planning [UBOS, 2018]. Studies show persistent challenges in obtaining and using contraceptives. The challenges include; inadequate knowledge, social stigma, cost, perceived side effects,

provider bias, and limited health facilities that provide adolescent SRH services (MOH, 2010; Ankomah, Anyanti, Adebayo, & Giwa, 2013; Jonas, Crutzen, van den Borne, & Reddy, 2017; Singh & Darroch, 2014; Villarruel, Jemmott III, Jemmott, & Ronis, 2004).

Although previous studies have examined the prevalence and trends in HIV knowledge and sexual behavior, little is known about the socio-cognitive factors of sexual behaviors among sexually active adolescent girls in Uganda. There is less focus on understanding sexual behavioral patterns of adolescent girls aged 15-19 as a distinct group from the often-generalized youth or young adults. Therefore, distinctively assessing the factors associated with condom use, multiple sexual partnerships and contraceptive use among sexually active adolescent girls is critical, and the focus of this study. This is vital for contextualizing implementation of adolescent SRH interventions using relevant theoretical frameworks that are linked to behavioral models. This study concerns secondary data analysis of a cross-sectional survey. Although the aim of the survey was not to test a specific theory, the items used in the analysis for this paper are linked to constructs based on the Theory of Planned Behavior.

## **Methods**

A cross-sectional survey was conducted in 2015. The survey covered 16 districts (Lira, Amuru, Ntungamo, Ibanda, Mbale, Kumi, Iganga, Buyende, Arua, Nebbi, Moroto, Kaabong, Mukono, Sembabule, Kasese, Kyenjojo) spread across the eight regions of Uganda. The districts were purposively selected considering; the availability of United States Government (USG) supported health services, the high prevalence of specified health issues like HIV/AIDS and teenage pregnancy; and contextual comparisons of rural and urban characteristics. The survey collected data from men and women aged 15-49, but for the present study, only data from sexually active adolescent girls aged 15-19 were included.

### *Study Participants and Sampling*

The study used a stratified multi-stage probability sampling design where sampling occurred in four stages. Eighty parishes were randomly selected from the 16 districts using stratified, probability proportional to size (PPS) systematic sampling. For each sampled parish, a list of villages in the parish was obtained and 3 villages randomly sampled using PPS systematic sampling. Ten households were sampled from each randomly selected village. Household samples were drawn with uniform probability using a sampling frame/list generated with the local leaders. A member list for each

sampled household was generated. Basic demographic information about each household member was collected and used for selection of eligible individual participants using a Kish selection grid. The latter is a method for selecting members within a household to be interviewed (Kish, 1949; CHC, 2016). For this study, selected data for 255 sexually active adolescent girls aged 15-19 was used. The sexually active adolescent girls were selected based on adolescent girls that reported the age when they had sexual intercourse for the very first time.

### *Measures*

Socio-demographic and sexual behaviors measures. The study assessed the following socio-demographics: age, education level, occupation, begun childbearing, marital status, and sexual debut. The scale categories of these variables are listed in Table 1. All three sexual behaviors (condom use, multiple sexual partnerships, and contraception use) were assessed with one item (actual behavior) and dichotomized (yes/ no and 0-1/ 2 or more).

Socio-cognitive factors. The socio-cognitive factors that were assessed differed per outcome. Based on the Theory of Planned Behavior, the socio-cognitive factors were categorized as perceived behavioral control/ self-efficacy, attitude, subjective norm, and behavioral intention. Other factors such as psychological barrier and knowledge were included. Tables 2-4 show the operationalization at item level (including scale categories) for all factors regarding condom use, multiple sexual partnerships, and contraception use respectively.

### *Ethical Approval*

Ethical approval for the study was obtained from the United States of America federally registered institutional review board of FHI 360 (Family Health International), the Protection of Human Subjects Committee, under reference 616862-1, and in Uganda by the Government accredited Makerere School of Public Health Research Ethics Committee, under reference 259. Consent to conduct the study was obtained from Uganda National Council for Science and Technology and Office of the President. The study team requested and obtained a waiver of written consent to increase confidentiality because signed informed consent forms would be the only link to the participants' identity in this study. Adolescent consenting procedures were undertaken in two ways: verbal informed consent was obtained from emancipated adolescent 15–17 years (either married or not living under the care of a parent/guardian); and verbal informed parental/guardian consent and adolescent assent were obtained from non-emancipated adolescents 15–17 years (minors living under the care of a parent/guardian). For adolescents aged 18–19, verbal informed consent was sought from each participant before any study-specific activities were

undertaken. The consenting process was conducted in a local language that the potential participant understood. Participants were given time to ask questions for clarity. Per ethical approval, verbal informed consent was obtained for each participant and documented via the signature of the study staff member who obtained consent.

### *Data Analysis*

#### The Theory of Planned Behavior

The study used the theory of planned behavior (TPB) to guide analysis and interpretation of the data. TPB has been globally used to examine adolescent sexual behavior, mainly condom use (Buhi & Goodson, 2007; Heeren, Jemmott III, Mandeya, & Tyler, 2007; McEachan, Conner, Taylor, & Lawton, 2011; Fishbein & Ajzen, 2010). The TPB postulates that intention is the main determinant of behavior, and it is influenced by attitude, subjective norm, and perceived behavioral control (self-efficacy) (Fishbein & Ajzen, 2010; Glanz, Rimer, & Viswanath, 2008; Cooke & French, 2008). This study uses the socio-cognitive factors of behavioral intention, attitude, subjective norm, and perceived behavioral control/ self-efficacy to assess associations with actual sexual behavior. The study also includes other factors such as knowledge and psychological barriers that have been widely used and studied in sub-Saharan Africa (SSA) as predictors of behavior (Obare et al., 2011; Bakibinga et al., 2016; Eggers et al., 2016; Krugu, Mevissen, Debpuur, & Ruiters, 2016). The outcome measure are the actual sexual behaviors (condom use, multiple sexual partnerships, and contraception use) among sexually active adolescent girls.

### *Sample Weights*

Before analysis, sample weights were calculated based on parish, village, household and household member. The weights were determined based on probabilities that: the parish is selected; the village is selected conditional to parish being selected; the household is selected conditional to the village being selected, and the household member is selected conditional to household being selected. Those probabilities were multiplied, and then the inverse was taken as the individual sampling weights (CHC, 2016). The weight domain variable was created, set as 1 if the person was included in the analysis, and 0 if not. In these analyses, the highest-level sampling unit, the parish, was specified as the primary sampling unit. Adding sampling weights helped to ensure that individuals were sampled with equal probabilities (Winship & Radbill, 1994). It also helped to reduce the bias created by an imperfect sampling frame, non-response and coverage errors resulting from under or over-representation of certain groups (Antal & Rothenbühler, 2015; Verma & Lê, 1996; Kalton & Kasprzyk, 1986). Using weighted data for the estimation of regression models gives covariance and

variance estimates that are unbiased and consistent estimates of quantities in the population (Kish, 1949).

Descriptive statistics were run, and data were analyzed using logistic regression procedure.

### *Descriptive Frequencies*

Descriptive frequencies were run to understand the characteristics of the data. For analysis, descriptive frequencies were run for socio-demographic characteristics including; age, education level, occupation, whether girls had a child, marital status, and sexual debut.

### *Logistic Regression Analysis*

A binary logistic regression model was used to analyze the socio-cognitive factors associated with condom use, multiple sexual partnerships, and contraception use. Logistic regression analyses were used because all outcome variables were dichotomous (Tabachnick & Fidell, 2013; Field, 2009). The factors in the regression model were categorized as independent (socio-cognitive and marital status) and outcome (sexual behavior) variables. The independent variables were all categorical variables, where the first scale option was used as the reference category.

## Results

### *Socio-Demographics*

A total of 255 sexually active adolescent girls were included in the analysis. The majority were 18 years (31%, n=80) or 19 years (32%, n=82) old. Sixty-nine percent (n=169) of the respondents had attained primary level education. Thirty-five percent (n=88) reported having a child and 32% (n=79) reported that they were married (Table 1).

*Table 1: Socio-demographic characteristics of respondents (N=255)*

<i>Measures</i>	<i>Scale categories</i>	<i>Number (frequency)</i>	<i>Percentage (%)</i>
<i>Age of respondents in years</i>	15	13	5
	16	29	11
	17	51	20
	18	80	31
	19	82	32
<i>Education level</i>	Primary	169	69
	Secondary ("O" level)	70	29
	Tertiary	3	1
<i>Occupation of respondents</i>	Subsistence farmers	43	17
	Commercial farmers	79	31
	Fishery-related jobs	5	2
	Laborer/ domestic worker	30	12
	Petty trader/ Hawker	14	6
	Owens business with 3 or more employees	8	3
	Uniformed services	4	2
<i>Begun childbearing</i>	Students	61	24
	Yes	88	35
	No	166	65
<i>Marital status</i>	Married	79	32
	Unmarried	172	68

### *Sexual Debut Among Adolescent Girls*

Almost everybody (98%, n=250) mentioned age when they had sexual intercourse for the very first time, indicating that they were sexually active (the remaining 2% were excluded from further analyses). Of these, 19% (n=47) reported their age at first

sex was 14 years, 25% (n=62) at 15 years, 21% (n=53) at 16 years, 17% (n=43) at 17 years, and 10% (n=25) at 18 years. The median age at first sex for the adolescent girls was 15 years.

### *Factors Associated With Condom Use Among Adolescent Girls*

Regarding actual condom use, 41% (n=104) of the adolescent girls reported having used a condom at last sexual intercourse. Table 2 summarizes the association between socio-cognitive factors and marital status with condom use. The results indicate that there were no significant associations with condom use.

*Table 2: Factors associated with condom use*

Measures	Scale categories	Frequency	Bivariate	
			OR (95% CI)	P
<b><i>Perceived behavioral control/ self-efficacy on condom use</i></b>				
	Strongly disagree	35	Ref	
<i>Easy to suggest to partner that we use a condom</i>	Disagree	43	1.041 (0.422, 2.565)	0.931
	Agree	90	0.731 (0.330, 1.619)	0.441
	Strongly Agree	64	0.852 (0.369, 1.968)	0.708
<i>Comfortable talking with a sexual partner about condoms</i>	Not very comfortable	71	Ref	
	Somewhat comfortable	58	1.008 (0.500, 2.033)	0.982
	Very comfortable	113	0.628 (0.341, 1.157)	0.136
<b><i>Attitude</i></b>				
<i>The use of condoms can make sex more stimulating</i>	Strongly disagree	46	Ref	
	Disagree	82	0.575 (0.276, 1.197)	0.139
	Agree	61	0.582 (0.266, 1.276)	0.177
	Strongly Agree	13	1.150 (0.335, 3.946)	0.824
<i>Condoms are unreliable</i>	Strongly disagree	35	Ref	
	Disagree	78	0.662 (0.297, 1.477)	0.314
	Agree	83	0.433 (0.193, 0.974)	0.041
	Strongly Agree	33	0.700 (0.271, 1.807)	0.461
<b><i>Subjective norm</i></b>				
<i>Discussed condom use with anyone in the last six months</i>	No	181	Ref	
	Yes	72	0.538 (0.301, 0.963)	0.037
<b><i>Psychological barrier</i></b>				
<i>It would be embarrassing to be seen buying condoms in a store</i>	Strongly disagree	41	Ref	
	Disagree	66	0.858 (0.388, 0.963)	0.707
	Agree	75	0.912 (0.421, 1.978)	0.816
	Strongly Agree	65	0.842 (0.381, 1.862)	0.671

Measures	Scale categories	Frequency	Bivariate		
			OR (95% CI)	P	
<b>Knowledge on condoms</b>					
<i>Condoms can protect someone from HIV</i>	Strongly Disagree	9	Ref		
	Strongly Agree	239	0.920 (0.232, 3.641)	0.905	
<i>Condoms are an effective method of preventing the spread of HIV/AIDS and other STDs</i>	Strongly Disagree	17	Ref		
	Strongly Agree	225	0.985 (0.363, 2.672)	0.977	
<b>Behavioral intention</b>					
<i>Likely to use a condom during sex in the next six months</i>	Very Unlikely	70	Ref		
	Unlikely	51	0.992 (0.477, 2.060)	0.982	
	Likely	67	0.605 (0.299, 1.223)	0.161	
<i>Likely to use a condom the next time one has sexual intercourse</i>	Very Likely	47	1.027 (0.485, 2.171)	0.945	
	Very Unlikely	63	Ref		
	Unlikely	38	1.303 (0.580, 2.927)	0.522	
	Likely	86	0.719 (0.367, 1.410)	0.337	
<b>Marital status</b>	<i>Current marital status</i>	Very Likely	55	0.815 (0.386, 1.718)	0.591
		Not Married	174	Ref	
		Married	80	1.572 (0.918, 2.692)	0.099

Note. CI=confidence; OR=Odds Ratios; P=P-value.

### *Factors associated with multiple sexual partnerships among adolescent girls*

In this study, 14% (n=35) of the adolescent girls reported having two or more partners. Table 3 summarizes the association between socio-cognitive factors and marital status with having multiple partners. The results indicate that there were no significant associations between socio-cognitive factors and having multiple partners. There was a strong negative association between being married and having multiple partners.

Table 3: Factors associated with multiple sexual partners

Measures	Scale categories	Frequency	Bivariate	
			OR (95% CI)	P
<b>Perceived behavioral control/ self-efficacy to have one sexual partner</b>				
<i>Confident to have only one sexual partner in the next six months</i>	Not at all confident	23	Ref	
	Moderately confident	44	1.090 (0.291, 4.092)	0.898
	Very confident	179	0.568 (0.175, 1.850)	0.348
<b>Subjective norm</b>				
<i>Discussed the risk of having multiple sexual partners with someone in the last six months</i>	No	163	Ref	
	Yes	86	0.994 (0.469, 2.106)	0.987
<b>Knowledge on the risk of having multiple sexual partners</b>				
<i>Reducing one's number of sexual partners can limit the spread of HIV</i>	Disagree	5	Ref	
	Agree	140	0.558 (0.059, 5.256)	0.610
	Strongly Agree	109	0.672 (0.071, 6.364)	0.729
<b>Behavioral intention</b>				
<i>Likely to have only one sexual partner in the next six months</i>	Very Unlikely	10	Ref	
	Unlikely	18	0.524 (0.029, 9.469)	0.662
	Likely	77	1.553 (0.178, 13.583)	0.691
	Very Likely	138	1.199 (0.142, 10.158)	0.868
<b>Marital status</b>				
<i>Current marital status</i>	Not Married	217	Ref	
	Married	35	0.052 (0.007, 0.390)	0.004

Note. CI=confidence; OR=Odds Ratios; P=P-value.

### *Factors Associated With Contraception Use Among Adolescent Girls*

Regarding actual use of contraception, 31% (n=76) of the adolescent girls reported that they were using contraception with the main partner to prevent pregnancy. Table 4 summarizes the association between socio-cognitive factors and marital status and using contraception. Specifically, feeling confident to discuss contraceptive methods with a partner and comfortable to use contraception were strongly associated with using it. Also, having discussed contraception use with someone was strongly associated with contraception use. Finally, the likelihood to use a contraceptive method was associated with actual contraception use. None of the other socio-cognitive factors, nor marital status were associated with contraception use.

*Table 4: Factors associated with contraception use among adolescent girls*

Measures	Scale categories	Frequency	Bivariate	
			OR (95% CI)	P
<b><i>Perceived behavioral control/ self-efficacy on contraception use</i></b>				
<i>Comfortable discussing contraceptive methods with your spouse/partner</i>	Not very comfortable	65	Ref	
	Somewhat comfortable	42	5.485 (1.777, 16.930)	0.003
	Very comfortable	133	9.414 (3.536, 25.059)	0.000
<i>Confident to use a contraceptive method if one wanted to</i>	Not at all confident	46	Ref	
	Moderately confident	51	20.158 (2.537, 160.165)	0.005
	Extremely confident	147	30.606 (4.097, 228.640)	0.001
<b><i>Attitude</i></b>				
<i>Side effects from using contraception usually disappear after a few months of contraception use</i>	Strongly disagree	12	Ref	
	Disagree	29	2.295 (0.414, 12.722)	0.342
	Agree	118	2.812 (0.584, 13.555)	0.198
	Strongly Agree	38	4.535 (0.869, 23.651)	0.073
<b><i>Subjective norm</i></b>				
<i>Discussed contraception with someone in the last six months</i>	No	155	Ref	
	Yes	93	10.531 (5.607, 19.781)	0.000
<b><i>Knowledge on contraception</i></b>				
<i>A woman and her child will be healthier if a</i>	Disagree	6	Ref	
	Agree	140	2.352 (0.265, 20.887)	0.443

Socio-cognitive factors among sexually-active adolescent girls in Uganda

Measures	Scale categories	Frequency	Bivariate	
			OR (95% CI)	P
<i>woman waits at least two years between pregnancies</i>	Strongly Agree	102	2.093 (0.233, 18.821)	0.510
<i>Having too many children can be harmful to the health and well-being of women and their families</i>	Strongly disagree	3	Ref	
	Disagree	11	0.194 (0.008, 4.670)	0.312
	Agree	119	0.704 (0.060, 8.230)	0.779
	Strongly Agree	114	1.112 (0.095, 12.953)	0.933
<i>It is easy for most women to get pregnant soon after they stop using contraception</i>	Strongly disagree	5	Ref	
	Disagree	17	0.899 (0.072, 11.171)	0.934
	Agree	124	2.269 (0.247, 20.836)	0.469
	Strongly Agree	64	2.760 (0.293, 26.019)	0.375
<i>Knowledge on the different types of contraceptives to try</i>	Strongly disagree	4	Ref	
	Disagree	1	0.000 (0.000)	1.000
	Agree	141	1.560 (0.157, 15.467)	0.704
	Strongly Agree	82	1.282 (0.126, 12.999)	0.833
<b>Behavioral intention</b>				
<i>Likely to use a contraceptive method in the next six months</i>	Very Unlikely	71	Ref	
	Unlikely	34	0.636 (0.065, 6.189)	0.697
	Likely	59	14.903 (4.370, 50.820)	0.000
	Very Likely	74	36.088 (10.804, 120.540)	0.000
<b>Marital status</b>				
<i>Current marital status</i>	Not Married	168	Ref	
	Married	80	0.578 (0.314, 1.064)	0.078

Note. CI=confidence; OR=Odds Ratios; P=P-value

## Discussion

This study assessed social cognitive factors associated with sexual behaviors among sexually active adolescent girls in Uganda. Bivariate analyses showed that the socio-cognitive factors of perceived behavioral control/ self-efficacy, subjective norm, behavioral intention, and marital status were strongly associated with using contraception. We found no significant association between socio-cognitive factors and marital status with condom use. Similarly, the results indicate no significant association between socio-cognitive factors and having multiple sexual partners. These findings are surprising, but this could (partly) result from the study not being designed from the outset to test TPB constructs and the relatively small sample size could have affected the accuracy of estimating associations.

Nonetheless, some of the findings are comparable to other studies conducted in SSA. While many studies indicate high knowledge on condoms, little is known about the consistent and correct use of condoms among teenage girls (UBOS, 2018; Amoran, 2012). This is evident in the study finding which showed no significant relationship between knowledge and use of condoms. Whereas knowledge was found to have no significant relationship with the use of condoms, information services remain important in clearing any misconceptions and addressing any health concerns. Although several studies found that socio-cognitive factors such as perceived social norm, self-efficacy, attitudes, behavioral beliefs were significant predictors of intention to use condoms (Villarruel et al., 2004; Buhi & Goodson, 2007; Rijdsdijk et al., 2012), our study found that such socio-cognitive factors were not associated with the actual use of condoms among sexually active adolescent girls. In concurrence with our findings, Catania et al., (1989) found that self-efficacy and subjective norms were non-significant predictors of condom use among adolescent girls. Similarly, Eggers et al., (2015) found that attitude, subjective norm, and self-efficacy were weakly correlated with condom use. The findings of this study seem to suggest the need to explore other socio-cognitive factors such as gender norms, having stable and long-term relationships, self-esteem, and cultural make-up that are associated with condom use among adolescents, as well as health communication factors to assess their effect on sexual behaviors. Gender norms that put men in a position of sexual dominance were found to limit women's ability to control their own reproductive and sexual health, as often seen in the belief that girls who carry or suggest using condoms are promiscuous (Pulerwitz, Michaelis, Verma, & Weiss, 2010; Varga, 2003). Studies found widespread resistance to the use of condoms in stable and long-term relationships because of their association with lack of trust and illicit sex (Maharaj & Cleland, 2005; Pulerwitz, Gortmaker, & DeJong, 2000). A young man's self-esteem, his ability to speak openly to a girl, and his cultural make-up, were found to influence his readiness to use the condom (Centerwall & Laack, 2008).

Regarding multiple sexual partnerships, it has been shown that adolescents often have multiple sequential partners because many of their relationships are short term (Georges, Thomas, & Bignami Simona, 2014). Our study found a strong negative correlation between being married and having multiple sexual partners. This is consistent with Santelli, Brener, Lowry, Bhatt, & Zabin, (1998) finding that married females were significantly less likely than their never-married counterparts to have had multiple partners in the past three months. A study by Catania et al., (1989) found that the increased number of sexual partners was associated with susceptibility beliefs to HIV, poorer sexual communication with a partner, and greater peer acceptance for being sexually active. Our findings indicate that confidence to have only one sexual partner and discussing the risk of having multiple sexual partners with someone were not significantly associated with multiple sexual partnerships among adolescent girls. Therefore, there is need to assess other factors found to be associated with multiple sexual partnerships such as susceptibility beliefs to HIV, gender power relations and beliefs found to indicate that young men often think that it is heroic to have many sexual partners and girls engaging in transactional sex with older men who are seen as better able to provide for them economically (Catania et al., 1989; Centerwall & Laack, 2008; Bantebya, Muhanguzi, & Watson, 2014).

Contraceptive continuation over sustained periods of time is not assured for adolescents particularly because they tend to have more limited access than older individuals to family planning, more unpredictable and irregular sexual activity, and are less knowledgeable about how to use contraceptive methods effectively (Burger & Inderbitzen, 1985). In concurrence with other studies (Blanc, Tsui, Croft, & Trevitt, 2009), our survey found that knowledge on contraception is not significantly associated with its use. However, the unmet need for contraception, despite the desire to limit births or delay them for at least two years is high among unmarried adolescents in SSA – more than 40% in most countries (Bakibinga et al., 2016; Hindin & Fatusi, 2009). Despite high sexual activity among adolescent girls in Uganda, contraceptive uptake is still low with only 43% sexually active unmarried adolescent girls, and 22% married adolescent girls using a contraceptive method (UBOS, 2018). Our findings indicate that there is no significant association between marital status and contraception use. The low contraceptive uptake is linked to negative perceptions on contraceptive use among adolescents, partners and parents (Hardee et al., 2014; Kinaro, 2011; MacPhail, Pettifor, Pascoe, & Rees, 2007; Murigi, Butto, Barasa, Maina, & Munyalo, 2016). Studies in Ghana and Bangladesh on correlates of contraceptive use among female adolescents found that knowledge and contraception use had significant relationships (Khan, Hossain, & Hoq, 2012; Nyarko, 2015), which contradicts our findings showing almost everyone agreeing to the knowledge statements, but not translated into use. However, Chandra-Mouli et al., (2017) found that knowledge gaps and misconceptions on contraception both reduce uptake and

increase discontinuation of contraceptive use. Our study found that three socio-cognitive factors including perceived behavioral control/ self-efficacy, subjective norm, and behavioral intention were strongly associated with contraception use. This finding supports other studies that found contraceptive use to be associated with the ability to discuss sexual topics with sex partners and other influencers such as parents (Davies et al., 2006; Whitaker, Miller, May, & Levin, 1999; Shrier, Goodman, & Emans, 1999; Mbalinda, Kiwanuka, Eriksson, Wanyenze, & Kaye, 2015). Although interventions that aim to increase contraceptive knowledge and availability to prevent unintended pregnancy would have little effect on their own (Chandra-Mouli et al., 2017), health promotion programs should strive to address broader aspects in adolescent health programming that include creating an enabling environment which is fully supported by theoretical models. To increase contraception use among adolescents, aspects such as gender inequalities, social norms, and understanding adolescent dynamics of married and unmarried adolescents ought to be explored and addressed (Chandra-Mouli et al., 2017).

### *Limitations of the Study*

The study findings rely on self-report data which may have limitations of sexual activity recall bias and the potential for under-reporting of sexual behavior due to the sensitive nature of the subject (Mbalinda et al., 2015; Reid & Aiken, 2011). Our focus on sexually active adolescent girls may limit generalization to the entire population. The relatively small sample size in the study provided results in very wide confidence intervals, which made it hard to demonstrate the association for some variables. The predictive measures of the study were approached theoretically using TPB, but the self-reported questionnaire was not structured as such. Therefore, given that the study was not designed to test TPB means that operationalization of the study constructs may not be in line with TPB guidelines (Ajzen, nd; Ajzen, 1991). For example, some measures - such as discussing contraception and condom use with others – might be indicative of subjective norm, but may not clearly be in line with the conceptualization, nor the operationalization, as specified in the TPB (Ajzen, nd). However, these findings give us a contextual understanding of how socio-cognitive factors are variedly associated with contraception use, condom use, and having multiple sexual partners among adolescents. The study was cross-sectional in nature where behavioral predictors were not studied over a long period of time to confirm the temporal assumptions. Therefore, longitudinal and experimental studies are required to confirm the assumptions (Sniehotta, 2009).

## **Conclusion**

Health promotion programs in SSA are faced with the intricate challenge of designing practicable intervention approaches to address the reality that many adolescents are increasingly becoming sexually active by age 15. Based on our findings that indicate strong associations between perceived behavioral control/ self-efficacy, subjective norm, and behavioral intention, it is important to improve contraception communication among adolescents and their key influencers. Specifically, health promotion programs should provide adequate information on SRH to guide dialogue among adolescents and their key influencers such as health workers, parents, partners, and peers (Jonas et al., 2016; Pilgrim et al., 2014; Aarø et al., 2014). Creating an enabling environment that addresses aspects such as gender inequalities, social norms, and understanding adolescent dynamics of married and unmarried adolescents is pertinent (Chandra-Mouli et al., 2017). In this regard, further research is needed to find out other factors such as gender differences associated with adolescent sexual behavior, and practicable approaches on strengthening communication skills for key influencers of adolescents such as—parents, health workers, and religious leaders—to promote open dialogue on sexuality and SRH services. It is also important to learn from the experience of piloted adolescent health programs that have implemented aspects of interpersonal communication with and service delivery to adolescents. This will help in generating lessons for addressing the persistent challenges outlined in this paper, and guide improvements in the new and follow-on adolescent health targeted interventions.

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# Chapter 3

## Gender norms associated with adolescent sexual behaviors in Uganda

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## Abstract

The relationship between gendered power relations and sexual behaviors of adolescents has been limitedly explored in Uganda. A 2015 cross-sectional survey covering 16 purposively selected districts of Uganda assessed perceptions and associations of gender norms measured using the Gender Equitable Men scale and sexual behaviors among adolescents (N=867). Findings indicate that behavioral intention to use contraception was moderately correlated with a gender equitable norm towards reproductive health and pregnancy/ disease prevention among girls,  $r = .23$  ( $p < .01$ ; 95% CI .14, .31) and boys,  $r = .22$  ( $p < .01$ ; 95% CI .12, .31). This indicates adolescents' approval of the gender norms underscoring that 'it is a woman's responsibility to avoid getting pregnant'. A moderate correlation was found between self-efficacy to use condoms and the norm towards reproductive health and pregnancy/ disease prevention among girls,  $r = .29$  ( $p < .01$ ; 95% CI .20, .37) and boys,  $r = .30$  ( $p < .01$ ; 95% CI .21, .38). This implies that adolescents approve gender inequitable norms such as 'women who carry condoms on them are cheap'. However, there was no significant correlation among self-efficacy to use contraception and to use condoms, with sexual relationship/ habits among both girls and boys. There was also no significant correlation between behavioral intention to only have one sexual partner and physical violence among either girls and boys. This indicates persistent inequitable gender norms that affect health service uptake among adolescents. Addressing inequitable gender norms require working closely with girls and boys, promoting informed peer and partner discussions, engaging in strategic partnerships with parents, religious, political, and community leaders, and enforcing health information services to address misconceptions.

**Keywords:** Gender norms, sexual behaviors, condom use, contraception, multiple sexual partners.

## Introduction

Gender norm attitudes and practices remain deeply entrenched in many African societies (Wight et al., 2006; Gibson et al., 2014). Countries driven by gender inequalities that constrain individual behavior in sexual interactions often have the highest rates of HIV and teenage pregnancies (Hardee et al., 2014; Van den Berg et al., 2013; Richards et al., 2013). Women and girls face more gendered risks than their male counterparts, which affects their social, economic and political opportunities (UNAIDS, 2016; UNICEF, 2015; Mbonye et al., 2012). Risks such as poverty, school dropout owing to pregnancy or early marriage, sexual harassment and continuing parental preference to invest in the education of boys, limit girls from reaching their full potential (Bantebya et al., 2014; Amin et al., 2013; Ssewamala et al., 2010; Burgess & Campbell, 2016). Gender norms and power dynamics between men and women have been widely studied in the context of HIV and gender-based violence in adult populations (Nanda, 2011). However, less is known about the association between gender norms and sexual behaviors among adolescents in Uganda, and whether adolescents approve or disapprove the gender inequitable norms. Yet, messages around gender norms that influence behavior are transmitted early in life and internalized by adolescence into a young person's worldview (Vu et al., 2017). Therefore, adolescents' gender perspectives and inequitable gender norms found to affect SRH service uptake need to be addressed in the design of adolescent health programs (Chandra-Mouli et al., 2017). This is because gender inequitable norms often times lead to gender power imbalance and affects adolescents' ability to negotiate safe sex (UNESCO, 2017), thereby putting them at risk of HIV and unplanned pregnancies (UBOS, 2018). Thus, the present study focuses on understanding the gender norms associated with sexual and reproductive health (SRH) behaviors such as behavioral intention and self-efficacy to; use condoms, use contraception and reduction of multiple concurrent sexual partnerships as outcome measures. The Gender Equitable Men [GEM] scale was used to assess the gender norms in this study.

## Methods

### *The Gender Equitable Men (GEM) scale*

This study used the GEM scale to explore the perceptions and associations of gender norms and SRH behaviors among adolescent girls and boys aged 15-19. The GEM scale, which emerged out of a social constructionist perspective of gender identity, postulates that any given cultural setting provides multiple versions of appropriate

behavior for men and women (Pulerwitz & Barker, 2008). It contains thirty-four items that have been validated and used over time in different country settings among both men and women (Vu et al., 2017; Pulerwitz & Barker, 2008; Singh et al., 2013; Shattuck et al., 2013; Harrison et al., 2006). The general discourse in studies that used the GEM Scale in sub-Saharan Africa (SSA) settings found that—both men and women were in high support for gender inequitable norms, with women being less gender equitable (Flood & Lang, 2015; Vu et al., 2017; Harrison et al., 2006; Ezekiel et al., 2015). We adopted the GEM scale because it is a standardized measure widely used to explore gender norms perspectives. The specific sub-groups/sub-scales adopted from the GEM scale to measure gender-related attitudes among adolescents include; domestic chores/ household decision-making, sexual relationships/ habits, reproductive health and pregnancy/ disease prevention, and physical violence. These sub-groups were adopted based on previous research on gender norms (Nanda, 2011; Pulerwitz & Barker, 2008). The respondents who agreed or partly agreed to the GEM scale variables were identified as being gender inequitable.

### *Study design and sampling*

We used data from a cross-sectional survey, conducted in 2015, that covered 16 purposively selected districts of Uganda (Lira, Amuru, Ntungamo, Ibanda, Mbale, Kumi, Iganga, Buyende, Arua, Nebbi, Moroto, Kaabong, Mukono, Sembabule, Kasese, Kyenjojo). A stratified multi-stage probability sampling design was employed where sampling occurred in four stages: 80 parishes were randomly selected from the 16 districts using stratified, probability proportional to size (PPS) systematic sampling, for which a list of villages in the parish was obtained and 3 villages randomly sampled using PPS. Ten households from each randomly selected village and household samples were drawn with uniform probability using a sampling frame/list generated with the local leaders. A members list for each sampled household was generated and basic demographic information about each household member was collected and used for selection of eligible individual participants using a Kish grid. The latter is a method for selecting members within a household to be interviewed if there is more than one eligible member in each stratum (CHC, 2016; Kish, 1949). Although data from men and women aged 15-49 was collected, the current study only included data from 867 adolescent girls and boys aged 15-19.

### *Measures*

Table 1 summarizes the socio-demographic and SRH behavioral measures, as well as the GEM scale measures, including questions and response categories. The study assessed the following socio-demographics: age, education level, marital status,

religion, occupation, sexual debut, and begun childbearing. All three sexual behaviors (condom use, multiple sexual partnerships, and contraception use) were assessed with two items (Behavioral intention and Self-efficacy) using a three to four-point Likert scale (e.g. Very likely, Likely, Unlikely, Very unlikely, and Extremely Confident, Moderately confident, Not at all confident). The survey tool was structured with automatic skips to ensure respondents were only asked questions they could ethically respond to. This applied especially to questions of past and/or current sexual activity (e.g. sexual debut, contraceptive use) for which a conditional response may follow. Except in such occurrences, most questions on sexual and reproductive health were asked of every respondent, including general questions on health seeking, behavioral determinants, and future intentions. The GEM scale measure used four items (Domestic chores and Household decision-making, Sexual relationships/ habits, Reproductive health and pregnancy/ disease prevention, and Physical Violence) whose variables were assessed using a three-point Likert scale (Agree, Partly agree, Do not agree).

*Table 1: Socio-demographics, SRH behaviors, and GEM scale measures in this study*

<b>Measures</b>	<b>Questions and response categories</b>
<i>Socio-demographic characteristics</i>	<i>Age:</i> Respondents were asked the age at their last birthday.
	<i>Education level:</i> Participants were asked their highest level of school. Responses were: <i>Primary</i> (=1), <i>“O” level</i> (=2), <i>“A” level</i> (=3), <i>Tertiary</i> (=4)
	<i>Marital status:</i> Responses were <i>Not married</i> (=1), <i>Married</i> (=2)
	<i>Religion:</i> Responses were <i>Catholic</i> (=1), <i>Protestant</i> (=2), <i>Muslim</i> (=3), <i>Pentecostal</i> (=4), <i>Seventh Day Adventist</i> (=5), <i>Other</i> (=6)
	<i>Occupation:</i> Responses were <i>Subsistence farmer</i> (=1), <i>Commercial farmer</i> (=2), <i>Labourer/ domestic worker</i> (=3), <i>Petty trader/ Hawke</i> (=4), <i>Owens business with 3 or more employees</i> (=5), <i>Student</i> (=6), <i>Other</i> (=7)
	<i>Sexual debut:</i> For age at first sex, respondents were asked how old they were when they had sexual intercourse for the very first time Responses: <i>Entered age at first sex</i> (1), <i>Did not enter age</i> (2) <i>Already had a child:</i> Respondents were asked if they had a child at the time of the survey. Responses: <i>Yes</i> (=1), <i>No</i> (=0)
<i>Sexual and Reproductive Health behaviors</i>	<i>Behavioral intention to use contraception:</i> a) How likely are you to use a contraceptive method in the next six months? Responses: <i>Very likely</i> (=3), <i>Likely</i> (=2), <i>Unlikely</i> (=1), <i>Very unlikely</i> (=0)
	<i>Self-efficacy to use contraception:</i> b) How confident are you that you can use a contraceptive method if you want to?

Measures	Questions and response categories
	<p>Responses: <i>Extremely Confident</i> (=2), <i>Moderately confident</i> (=1), <i>Not at all confident</i> (=0)</p> <hr/> <p><i>Behavioral intention to use condoms at every sexual encounter:</i></p> <p>a) How likely are you to use a condom during sex in the next six months?  b) How likely are you to use a condom the next time you have sexual intercourse?</p> <p>Responses: <i>Very likely</i> (=3), <i>Likely</i> (=2), <i>Unlikely</i> (=1), <i>Very unlikely</i> (=0)</p> <p><i>Self-efficacy to use a condom at every sexual encounter:</i></p> <p>c) It is easy to suggest to partner to use a condom</p> <p>Responses recoded as: <i>Strongly agree</i> (=3), <i>Agree</i> (=2), <i>Disagree</i> (=1), <i>Strongly disagree</i> (=0)</p> <p>d) How comfortable are you talking with a sexual partner about condoms?</p> <p>Responses: <i>Very comfortable</i> (=2), <i>Somewhat comfortable</i> (=1), <i>Not very comfortable</i> (=0)</p> <hr/> <p><i>Behavioral intention to have one sexual partner:</i></p> <p>a) How likely are you to only have one sexual partner in the next six months?</p> <p>Responses: <i>Very likely</i> (=3), <i>Likely</i> (=2), <i>Unlikely</i> (=1), <i>Very unlikely</i> (0).</p> <p><i>Self-efficacy to avoid multiple concurrent sexual partnerships</i></p> <p>b) How confident are you that you could have only one sexual partner in the next six months?</p> <p>Responses: <i>Extremely Confident</i> (=2), <i>Moderately confident</i> (=1), <i>Not at all confident</i> (=0).</p> <hr/>
<b>GEM scale</b>	
<i>Domestic chores and Household decision-making</i>	<p>a) Changing diapers, giving a bath, and feeding children is the mother's responsibility  b) A man should have the final word about decisions in his home  c) A woman's most important role is taking care of her home and cook for her family</p> <p>All responses coded as: <i>Agree</i> (0), <i>Partly agree</i> (1), <i>Do not agree</i> (2)</p> <hr/>
<i>Sexual relationships/habits</i>	<p>a) It is the man who decides what type of sex to have  b) Men need sex more than women do  c) Men are always ready to have sex  d) You don't talk about sex, you just do it.</p> <p>All responses coded as: <i>Agree</i> (0), <i>Partly agree</i> (1), <i>Do not agree</i> (2)</p> <hr/>
<i>Reproductive health and pregnancy/disease prevention</i>	<p>a) It is a woman's responsibility to avoid getting pregnant  b) Women who carry condoms on them are 'cheap'  c) I would be outraged if my wife asked me to use a condom  d) A man must have sex with other women, even if things with his wife are fine</p> <p>All responses coded as: <i>Agree</i> (0), <i>Partly agree</i> (1), <i>Do not agree</i> (2)</p> <hr/>
<i>Physical Violence</i>	<p>a) A woman should tolerate violence to keep the family together  b) It is okay for a man to hit his wife if she won't have sex with him  c) If a woman cheats on a man, it is okay for him to hit her  d) If someone insults me, I will defend my reputation with force if I have to  e) There are times when a woman deserves to be beaten</p> <p>All responses coded as: <i>Agree</i> (0), <i>Partly agree</i> (1), <i>Do not agree</i> (2)</p> <hr/>

Source: Own adjustment based on CHC Evaluative survey data

### *Data analysis*

The GEM scale is comprised of items categorized in two ways; gender inequitable norms and equitable gender norms sub-scales (Antal & Rothenbühler, 2015). The gender norms survey instrument used in this study adopted 16 items from the gender inequitable norms sub-scale. The sub-groupings of the 16 items (Table 4) adopted from the GEM scale was based on previous research on gender norms which showed that GEM scale consists of several sub-scales/sub-groups (Nanda, 2011; Pulerwitz & Barker, 2008). The use of the sub-scales within the GEM scale were deemed appropriate based on the factor loadings in Table 6. The dropped items were not assessed during data collection because they were not considered appropriate for the program context, and the unfavorable policy environment. Some of the dropped items include: I would never have a gay friend; If she wants, a woman can have more than one sexual partner; A man always deserves the respect of his wife and children.

### *Sampling weights*

Before analysis, sample weights were calculated based on parish, village, household and household member. The weights were determined based on probabilities that: the parish is selected; the village is selected conditional to parish being selected; the household is selected conditional to the village being selected, and the household member is selected conditional to household being selected. Those probabilities were multiplied, and then the inverse was taken as the individual sampling weights (CHC, 2016). The weight domain variable was created, set as 1 if the person was included in the analysis, and 0 if not. In these analyses, the highest-level sampling unit, the parish, was specified as the primary sampling unit. Adding sampling weights helped to ensure that individuals were sampled with equal probabilities. This aimed at correcting the bias introduced by an imperfect sampling frame, compensating for non-response and an under or over representation of certain groups (Antal & Rothenbühler, 2015).

### *Descriptive statistics analysis*

Descriptive statistics for socio-demographics including age, education level, marital status, religion, occupation, and sexual debut were analyzed to describe gender norms characteristics in the data. Descriptive statistics disaggregated by gender were run to assess their perceptions of the gender norms variables explored in this study.

### *Scale structure*

To assess the internal structure of the scales, factor analysis and omega hierarchical were computed for the GEM sub-scales (Crutzen & Peters, 2017), whose eigenvalues and omega hierarchical were deemed appropriate for the measurement (Table 2). The mean scores for the respective sub-scale items were computed to combine them into one variable for analysis.

*Table 2: Assessment of scale structure for GEM sub-scales*

<i>GEM sub-scale</i>	<i>Eigenvalue</i>	$\Omega$	<i>95% CI</i>
<i>Domestic chores and household decision-making sub-scale</i>	1.61	0.76	0.74, 0.79
<i>Sexual relationships/ habits sub-scale</i>	1.87	0.76	0.73, 0.79
<i>Reproductive health and pregnancy/ disease prevention sub-scale</i>	1.43	0.56	0.51, 0.62
<i>Physical violence sub-scale</i>	2.15	0.80	0.77, 0.82

*Note: Refer to Appendix for items in each sub-scale*

*Source: Own adjustment based on CHC Evaluative survey data*

The same procedure was applied to the SRH behavior variables. The scale structure of the measurements for behavioral intention to use condoms at every sexual encounter (*eigenvalue 1.58;  $r = .79$ ; 95% CI .76, .81*); and self-efficacy to use condoms at every sexual encounter (*eigenvalue 1.55;  $r = .78$ ; 95% CI .75, .80*) were both deemed appropriate. The mean of the variables was computed to derive one variable for analysis.

*Generating data associations:* Using bivariate correlation analysis, associations between the GEM sub-scale variables and SRH behavior variables were analyzed. Using a frequentist approach, the most widely accepted method would be to draw conclusions based on the confidence intervals (CI) for these associations (Crutzen, Peters & Noijen, 2017).

### *Ethical approval*

Ethical approval for the study was obtained from the United States of America federally registered institutional review board of FHI 360 (Family Health International), the Protection of Human Subjects Committee, under reference 616862-1, and in Uganda by the Government accredited Makerere School of Public Health Research Ethics Committee, under reference 259. Consent to conduct the study was obtained from Uganda National Council for Science and Technology and

Office of the President. The study team requested and obtained a waiver of written consent to increase confidentiality because signed informed consent forms would be the only link to the participants' identity in this study. Adolescent consenting procedures were undertaken in two ways: i) verbal informed consent was obtained for emancipated adolescent 15-17 years (either married or not living under the care of a parent/guardian), and ii) verbal informed parental/guardian consent and adolescent assent were obtained for non-emancipated adolescents 15-17 years (minors living under the care of a parent/guardian). For adolescents aged 18-19, verbal informed consent was sought from each participant before any study specific activities were undertaken. Per ethical approval, verbal informed consent was obtained for each participant and documented via the signature of the study staff member who obtained consent.

## Results

A total of 867 adolescents participated in this study. Of these, 447 (52%) were girls and 420 (48%) boys. The majority (55%) were in the age group of 15-17. Sixty-four percent (64%) of both adolescent girls and boys had attained primary level education, and 33% attained secondary ordinary level education. The religious affiliation of the respondents shows that the majority were Catholics (43%) followed by Protestants (33%). Almost half (49%) of the respondents reported that they were students. In terms of occupation, commercial farmers were 19%, subsistence farmers 16%, and laborers including domestic workers were 4%. Forty-nine (49%) percent of the respondents were reportedly sexually active. Almost half, 48% of the respondents' age at first sexual debut was between 15 and 16 years. The median age at first sex in this study is 15 years. Among the sexually active, 11% (96) were married and of these, 48% (46) were married at the age of 19 and 36% (35) at the age of 18. Among the married, 85% (82) were living with their partner. A total of 13% reported already having a child at the time of the survey (Table 3).

Table 3: Socio-demographic characteristics of respondents (N=867)

Measure	Weighted frequency and percentage (%)		
	All respondents (N = 867)	Girls (N = 447)	Boys (N = 420)
<i>Age</i>			
15-17	478 (55%)	237 (53%)	241 (57%)
18-19	389 (45%)	210 (47%)	179 (43%)
<i>Education level</i>			
Primary level	535 (64%)	276 (64%)	259 (64%)
Secondary ordinary level	273 (33%)	140 (33%)	133 (33%)
Secondary advanced level	16 (2%)	8 (2%)	8 (2%)
Tertiary level	8 (1%)	4 (1%)	4 (1%)
<i>Marital status</i>			
Married	96 (11%)	44 (10%)	52 (13%)
Not married	768 (89%)	402 (90%)	366 (87%)
<i>Religion</i>			
Catholic	371 (43%)	188 (42%)	182 (43%)
Protestant	288 (33%)	150 (34%)	138 (33%)
Muslim	125 (15%)	62 (14%)	63 (15%)
Pentecostal	61 (7%)	35 (8%)	26 (6%)
Seventh Day Adventists (SDA)	10 (1%)	7 (2%)	3 (1%)
<i>Occupation</i>			
Student	420 (49%)	217 (49%)	203 (49%)
Subsistence farmer	137 (16%)	64 (14%)	73 (17%)
Commercial farmer	164 (19%)	80 (18%)	84 (20%)
Laborer (domestic worker/maid/house help)	31 (4%)	17 (4%)	14 (3%)
Petty trader/hawker/vendor/boda-boda	27 (3%)	16 (4%)	10 (2%)
Owns business with 3 or more employees	28 (3%)	15 (3%)	13 (3%)
Other	55 (6%)	35 (8%)	21 (9%)
<i>Sexual debut (Age at first sex)</i>			
<= 12 years	30 (7%)	13 (6%)	17 (9%)
13 – 14 years	84 (20%)	45 (21%)	39 (20%)
15 - 16 years	200 (48%)	111 (50%)	89 (45%)
17 – 18 years	102 (24%)	49 (22%)	53 (27%)
19 years	3 (1%)	3 (1%)	0
<i>Already had a child</i>	111 (13%)	58 (13%)	53 (13%)

*Perceptions of adolescents on gender norms explored in this study*

The findings in Table 4 indicate that the perceptions of adolescent girls and boys were quite similar on most of the gender norms explored in this study. For example, there appears to be general agreement with domestic chores and household decision making, and sexual relationships/ habits constructs. Both girls (84%) and boys (84%) agreed that changing diapers, giving a bath, and feeding children is the mother's responsibility. They also agreed that men need sex more than women do (girls = 65% and boys = 65%) and that men are always ready to have sex (girls = 62% and boys = 62%). The sentiments of both girls and boys were also more towards disagreement with the norms under physical violence, and partly reproductive health. Both girls (31%) and boys (32%) were in agreement with the statement 'I would be outraged if my wife asked me to use a condom'. Similarly, both girls (28%) and boys (29%) agreed that 'A man must have sex with other women, even if things with his wife are fine'. Slightly more boys (25%) than girls (19%) agreed with the statement that 'it is okay for a man to hit his wife if she won't have sex with him'. Additionally, 37% of girls and 40% of boys agreed that 'There are times a woman deserves to be beaten' (Table 4).

Table 4: Perceptions of adolescents on GEM scale norms (N = 867)

GEM sales	GEM scale variables	Agreed [N (%)]	
		Girls (N=447)	Boys (N=420)
<i>Domestic chores and household decision-making</i>	1) Changing diapers, giving a bath, and feeding children is the mother's responsibility	371 (84%)	346 (84%)
	2) A man should have the final word about decisions in his home	338 (78%)	327 (79%)
	3) A woman's most important role is taking care of her home and cook for her family	375 (85%)	360 (87%)
Mean (M) = .23 and Standard Deviation (SD) = .39			
<i>Sexual relations/habits</i>	4) It is the man who decides what type of sex to have	199 (54%)	191 (56%)
	5) Men need sex more than women do	252 (65%)	230 (65%)
	6) Men are always ready to have sex	237 (62%)	221 (62%)
	7) You don't talk about sex, you just do it.	112 (32%)	100 (31%)
Mean (M) = .77 and Standard Deviation (SD) = .63			
<i>Reproductive health and pregnancy/disease prevention</i>	8) It is a woman's responsibility to avoid getting pregnant	260 (64%)	250 (66%)
	9) Women who carry condoms on them are 'cheap'	212 (53%)	215 (56%)
	10) I would be outraged if my wife asked me to use a condom	109 (31%)	105 (32%)
	11) A man must have sex with other women, even if things with his wife are fine	113 (28%)	112 (29%)
Mean (M) = .96 and Standard Deviation (SD) = .57			
<i>Physical violence</i>	12) A woman should tolerate violence to keep the family together	242 (56%)	232 (58%)
	13) It is okay for a man to hit his wife if she won't have sex with him	78 (19%)	98 (25%)
	14) If a woman cheats on a man, it is okay for him to hit her	240 (56%)	235 (59%)
	15) If someone insults me, I will defend my reputation with force if I have to	176 (41%)	178 (45%)
	16) There are times when a woman deserves to be beaten	160 (37%)	162 (40%)
Mean (M) = .99 and Standard Deviation (SD) = .60			

**Response categories on a 3-point Likert scale:** Agree (0), Partly agree (1), Do not agree (2)

Single frequencies presented in the table are based on respondents who agreed or partly agreed to the GEM scale statements.

Source: Own adjustment based on CHC Evaluative survey data

### ***Associations between gender norms and sexual behaviors among adolescents***

The findings in Table 5 indicate that there were no significant correlations between the gender equitable norm towards sexual relationships/ habits and behavioral intention and self-efficacy towards– contraceptive use; condom use; and number of sexual partners. A more general observation is that the highest correlations were found between behavioral intention and self-efficacy towards– contraceptive use, condom use, and the norm towards reproductive health and pregnancy prevention/ disease prevention. For example, there was a moderate positive correlation between the norm towards reproductive health and pregnancy/ disease prevention and behavioral intention to use contraception,  $r = .23$  ( $p < .01$ ; 95% CI .16, .29), as well as self-efficacy to use condoms,  $r = .29$  ( $p < .01$ ; 95% CI .23, .35). The norm towards reproductive health and pregnancy/ disease prevention has non-significant correlations with behavioral intention to have one sexual partner, and self-efficacy to avoid multiple concurrent sexual partnerships.

### ***Gender norms and contraception use among adolescents***

We found a moderate positive correlation between behavioral intention to use contraception and the norm towards reproductive health and pregnancy/ disease prevention among girls,  $r = .23$  ( $p < 0.01$ ; 95% CI .14, .31) and boys,  $r = .22$  ( $p < .01$ ; 95% CI .12, .31). Behavioral intention to use contraception and domestic chores and household decision making among girls and boys was not significant. Self-efficacy to use contraception and the norm towards reproductive health and pregnancy/ disease prevention had a moderate positive correlation among girls,  $r = .25$  ( $p < .01$ ; 95% CI .16, .34) and boys,  $r = .21$  ( $p < 0.01$ ; 95% CI .11, .30). There was no significant correlation between self-efficacy to use contraception and sexual relationship/ habits among both girls and boys (Table 5).

### ***Gender norms and condom use among adolescents***

The findings indicate a moderate positive correlation between behavioral intention to use condoms at every sexual encounter and the norm towards reproductive health and pregnancy/ disease prevention for both girls,  $r = .25$  ( $p < .01$ ; 95% CI .16, .34) and boys,  $r = .23$  ( $p < .01$ ; 95% CI .13, .32). There is a moderate positive correlation between self-efficacy to use condoms and the norm towards reproductive health and pregnancy/ disease prevention among girls,  $r = .29$  ( $p < .01$ ; 95% CI .20, .37) and boys,  $r = .30$  ( $p < .01$ ; 95% CI .21, .38). There was no significant correlation between self-efficacy to use condoms and sexual relationship/ habits among girls and boys (Table 5).

### *Gender norms and number of sexual partners among adolescents*

The findings indicate a small positive correlation between self-efficacy to avoid multiple concurrent sexual partnerships and the norm towards use of physical violence among girls,  $r = .13$  ( $p < .05$ ; 95% CI .04, .22), but no significant correlation among boys,  $r = .07$  (95% CI -.03, .16). There was no significant correlation between behavioral intention to only have one sexual partner and physical violence among girls and boys (Table 5).

*Table 5: Correlates of GEM scale norms and SRH behaviors (N = 867)*

Sexual and Reproductive Health (SRH) behaviors		Mean and Standard deviation		GEM scales	Associations		
Key SRH behavior	Behavioral variables	M	SD		Pearson's (r)		
					All respondents N = 867 (95% CI)	Girls - N = 447 (95% CI)	Boys - N = 420 (95% CI)
<i>Contraceptive use</i>	<i>Behavioral intention to use contraception</i>	1.14	1.21	1	.13** (.06, .19)	.14** (.05, .23)	.11* (.02, .21)
				2	-.04 (-.11, .03)	-.06 (-.15, .04)	-.02 (-.11, .08)
				3	.23** (.16, .29)	.23** (.14, .31)	.22** (.12, .31)
				4	-.07 (-.14, -.01)	-.06 (-.15, .04)	-.10 (-.19, .00)
	<i>Self-efficacy to use contraception</i>	1.18	.85	1	.07 (.00, .13)	.06 (-.04, .15)	.08 (-.02, .17)
				2	-.04 (-.11, -.03)	-.02 (-.11, .07)	-.06 (-.15, .04)
				3	.23** (.17, .29)	.25** (.16, .34)	.21** (.11, .30)
				4	.02 (-.05, .08)	.00 (-.09, .09)	.03 (-.06, .13)
<i>Condom use</i>	<i>Behavioral intention to use condoms at every sexual encounter</i>	1.63	1.10	1	.06 (.00, .13)	.06 (-.03, .16)	.06 (-.03, .16)
				2	.03 (-.04, .09)	.06 (-.03, .15)	-.01 (-.10, .09)
				3	.24** (.18, .30)	.25** (.16, .34)	.23** (.13, .32)
				4	.00 (-.06, .07)	.03 (-.07, .12)	-.03 (-.12, .07)
		1.41	.09	1	.08* (.02, .15)	.08 (-.01, .17)	.09 (-.01, .18)

Sexual and Reproductive Health (SRH) behaviors		Mean and Standard deviation		GEM scales	Associations		
Key SRH behavior	Behavioral variables	M	SD		Pearson's (r)		
					All respondents N = 867 (95% CI)	Girls - N = 447 (95% CI)	Boys - N = 420 (95% CI)
Number of sexual partners	Self-efficacy to use condoms	2.16	.94	1	.02	.04	.01
				2	(-.05, .09)	(-.06, .13)	(-.09, .10)
				3	.29**	.29**	.30**
				4	(.23, .35)	(.20, .37)	(.21, .38)
	Behavioral intention to have one sexual partner	1.46	.74	1	-.01	.02	-.04
				2	(-.08, .06)	(-.07, .12)	(-.14, .05)
				1	-.05	-.02	-.07
				2	(-.11, .02)	(-.11, .07)	(-.18, .03)
				3	-.05	-.09	-.02
				4	(-.12, .01)	(-.18, .01)	(-.12, .09)
				1	.03	.02	.04
				2	(-.04, .10)	(-.08, .11)	(-.06, .15)
3	.06	.06	.06				
4	(.00, .13)	(-.03, .15)	(-.04, .17)				
Self-efficacy to avoid multiple concurrent sexual partnerships	1.46	.74	1	-.03	-.03	-.04	
			2	(-.10, .04)	(-.12, .07)	(-.13, .06)	
			3	-.03	-.02	-.03	
			4	(-.09, .04)	(-.11, .07)	(-.13, .07)	
Self-efficacy to avoid multiple concurrent sexual partnerships	1.46	.74	1	.05	.04	.06	
			2	(-.02, .12)	(-.05, .13)	(-.03, .16)	
			3	.10*	.13*	.07	
			4	(.04, .17)	(.04, .22)	(-.03, .16)	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

GEM scale: 1 = Domestic chores and household decision-making sub-scale; 2 = Sexual relationships/ habits sub-scale; 3 = Reproductive health and pregnancy/ disease prevention sub-scale; 4 = Physical violence sub-scale

Source: Own adjustment based on CHC Evaluative survey data

## Discussion

This study assessed the gender norms associated with adolescent SRH behaviors such as behavioral intention to perform recommended behaviors including condom use and contraception use. The findings on contraceptive use, indicate positive correlations for behavioral intention to use contraception and self-efficacy to use contraception, with an equitable gender norm towards reproductive health and pregnancy/ disease prevention. The perceptions of adolescents were on average similar towards the gender norms underscoring that ‘it is a woman’s responsibility to avoid getting pregnant’, and ‘women who carry condoms on them are cheap’, with boys being more gender inequitable than girls. Behavioral intention to use contraception was found to be correlated with an equitable gender norm towards domestic chores/ household decision making. On average, adolescents had similar views towards the gender inequitable norms of male dominance in decision making and the women’s subordinate position of taking care of a home. Regarding condom use, positive correlations were found for behavioral intention to use condoms at every sexual encounter, and self-efficacy to use condoms with an equitable gender norm towards reproductive health and pregnancy/ disease prevention. On average, both adolescent girls and boys agreed to the gender inequitable norms such as ‘women who carry condoms on them are cheap’. Regarding number of sexual partners, our study found self-efficacy to avoid multiple concurrent partnerships to be correlated with an equitable gender norm regarding the use of physical violence in the partnership. However, this correlation was low. The perceptions of most of the adolescents were towards disapproval of the use of physical violence in maintaining a relationship with a sexual partner. Therefore, although the perceptions of girls and boys appeared to agree on norms towards; domestic chores/ household decision making, and sexual relationships/ habits, their sentiments were more towards disagreement with the statements under physical violence.

These findings are comparable to other studies conducted in sub-Saharan Africa. In South Africa, it was found that a girl’s respectability is gained by her being sexually available to her partner, allowing him sexual decision-making authority, being sexually faithful, and avoiding pregnancy—which is not necessarily synonymous with practicing female contraception (Varga, 2003; Lary et al., 2004). Our study found that most girls and boys believed that it is a woman’s responsibility to avoid getting pregnant, and yet over a half agreed that women who carry condoms on them are ‘cheap’. This finding also concurs with Pulerwitz et al., (2010) who found that gender norms that put men in a position of sexual dominance limit women’s ability to control their own reproductive and sexual health, and the belief that girls who carry or suggest using condoms are promiscuous (Varga, 2003; Pulerwitz et al., 2010). Other studies also found widespread resistance to the use of condoms in stable

and long-term relationships because of their association with lack of trust and illicit sex (Maharaj & Cleland, 2005). A study in three sub-Saharan countries found that more prevalent traditional gender roles including “the male is supposed to take the initiative and responsibility for safe sex practices such as condom buying and negotiating”, inhibit safe sex practices (Eggers et al., 2016). Our study found no significant correlation between behavioral intention to use condoms at every sexual encounter, self-efficacy to use condoms, and the norm towards sexual relationships/ habits among girls and boys. These findings seem to suggest that the design of adolescent health programs needs to consider addressing and changing negative gender norms that hinder the use of condoms among adolescents. Information and health communication services such as mass media and interpersonal communication should be used to address gender norms misconceptions.

Gender inequitable norms were found to be associated with multiple concurrent sexual partners, where having more male and casual partners are associated with physical violence (Shattuck et al., 2013; Dunkle et al., 2004). Shannon et al., (2012) found that 39% of boys in Botswana and Swaziland reported having multiple concurrent sexual partners compared to 18% of girls (Shannon et al., 2012). Though our study found no significant correlation between self-efficacy to avoid multiple concurrent sexual partnerships and norms towards physical violence, the correlation was higher among girls than boys.

The unmet need for contraception is high among adolescent girls. In Kenya, 65% of parents or guardians reportedly objected to contraceptives use by unmarried adolescents, and 68% of the adolescents disapproved contraceptive use by unmarried adolescents (Kinaro, 2011). Childbearing beliefs indoctrinated among community members—such as ‘a man should have the final word about decisions in his home’, limit girls from using contraception if perceived as being bound to the will of her husband (Paek et al., 2008). Yet, infertility is often blamed on women, while infidelity is almost never sanctioned for men (Mbonye et al., 2012). Our study found no significant correlation between behavioral intention to use contraception, self-efficacy to use contraception, and sexual relationships/ habits norm. This study demonstrates the need to address adolescent SRH needs and demystify gender inequitable norms that affect contraception use and steer multiple sexual partnerships among adolescents. It is important to work with adolescents through their social networks to devise strategies for addressing negative gender norms. This may involve assessing information needs on addressing gender norms, and holding gender integration community dialogue meetings with community leaders, religious leaders, cultural leaders and elders who often steer the gender norms.

### *Implications for adolescent health programming*

From the findings, the GEM scale seemed to work for CHC program needs of depicting perceptions and attitudes among adolescents towards gender equitable norms. Our findings also support previous studies that demonstrate a link between HIV risks, teenage pregnancy risks and gender equitable norms (Vu et al., 2017; Pulerwitz & Barker, 2008; Shattuck et al., 2013; Kinaro, 2011; Murigi et al., 2010). Promoting gender-equitable attitudes, should start in childhood and continue during the formative period of adolescence and into adulthood. Strategies that involve working closely with both girls and boys; promoting informed peer and partner discussions; community-based education; gender awareness trainings; engaging in progressive community and religious discourses that question gender stereotypes; engaging in strategic partnerships with parents, religious, political, and community leaders; and use of social and mass media campaigns, can improve health behavioral outcomes among adolescents (Hardee et al., 2014; Vu et al., 2017; El Feki, Heilman & Barker, 2017; Barnes et al., 2017). The findings from our study and similar research in other countries underline the pertinent need to focus on the broader circumstances in which gender inequalities within society may structure beliefs and norms that perpetrate differential exposure/risks of HIV infection, with more enhanced efforts targeting women and re-enforcing involvement of men (Ezekiel et al., 2015).

### *Study limitations*

This study had some limitations. Although the quantitative inequitable GEM scale measure was useful in generating insights on gender norms and sexual behaviors among adolescents, this study does not explain all the variations in gender related attitudes. To overcome this, use of qualitative methods to triangulate findings related to the complex notion of gender norms is recommended (Shattuck et al., 2013). The internal structure of the Reproductive health and pregnancy/ disease prevention GEM sub-scale was not optimal given the omega hierarchical of 0.56, which might affect reliability of this specific sub-scale. The study did not measure actual behavior, rather behavioral intention and self-efficacy were used as predictors of self-reported risky sexual behaviors among adolescents. Studies show that behavioral intention is the most immediate and important predictor of a behavior, which is in turn determined by attitudes towards the behavior, subjective norms regarding it, and perceived control over it (Fishbein & Ajzen, 2010; Webb & Sheeran, 2006; Sheeran & Orbell, 1998; Villarruel et al., 2004). Correlational studies show that intentions are reliably associated with behavior, such as condom use (Webb & Sheeran, 2006; Sheeran & Orbell, 1998). Therefore, future studies need to assess the associations between self-reported sexual behaviors and gender norms, as well as the perceptions of adolescents on equitable gender norms to draw comparisons with the present study.

## **Conclusion**

The study indicates that most girls and boys were in support of and approved gender inequitable norms which often times lead to gender power imbalance and affects adolescents' ability to negotiate safe sex, thereby putting them at risk of HIV and unplanned pregnancies. Changing the negative perceptions requires a multi-pronged gender responsive approach for social change. Working with both girls and boys, and engaging influential stakeholders such as; peers, parents, healthcare workers, policy makers, community and religious leaders, who create the environment where attitudes and world views are formed is pertinent. The findings in this study should be used to inform targeted solutions for designing gender responsive adolescent SRH programs.

## APPENDIX

*Table 6: Factor Loadings (x 100) for Items included in the Gender-Equitable Men Scale for this study (N = 867)*

GEM sales	GEM scale variables	Factor Loadings <sup>a</sup>
<i>Domestic chores and household decision-making</i>	1) Changing diapers, giving a bath, and feeding children is the mother's responsibility	0.74
	2) A man should have the final word about decisions in his home	0.69
	3) A woman's most important role is taking care of her home and cook for her family	0.77
<i>Sexual relations/habits</i>	4) It is the man who decides what type of sex to have	0.63
	5) Men need sex more than women do	0.70
	6) Men are always ready to have sex	0.67
	7) You don't talk about sex, you just do it.	0.74
<i>Reproductive health and pregnancy/disease prevention</i>	8) It is a woman's responsibility to avoid getting pregnant	0.49
	9) Women who carry condoms on them are 'cheap'	0.62
	10) I would be outraged if my wife asked me to use a condom	0.65
	11) A man must have sex with other women, even if things with his wife are fine	0.62
<i>Physical violence</i>	12) A woman should tolerate violence to keep the family together	0.67
	13) It is okay for a man to hit his wife if she won't have sex with him	0.63
	14) If a woman cheats on a man, it is okay for him to hit her	0.68
	15) If someone insults me, I will defend my reputation with force if I have to	0.58
	16) There are times when a woman deserves to be beaten	0.70

**Response categories on a 3-point Likert scale:** Agree (0), Partly agree (1), Do not agree (2). Factor loadings are presented for analysis after imputation for missing values.

a. 1 components extracted, using Principal Component Analysis.

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# Chapter 4

## Adolescents discussing sexual behaviors with key influencing audiences

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## **Abstract**

There is an increasing concern on early initiation of sexual activity among adolescents, increasing sexually transmitted infections, and teenage pregnancy in Uganda. Adolescents perceptions of these sexual behaviors might be the result of discussing sexual and reproductive health issues with key influencing audiences. This study qualitatively explored the effect of sexuality discussions with key influencing audiences by means of in-depth interviews and focus group discussions with adolescents (N=83). Findings indicate that adolescence stage comes with changes of intense sexual desires, often presumed difficult to control thus leading adolescents to engage in sexual activities. Adolescents indicated that they were aware of the sexual behaviors such as condom use, contraception use, and multiple concurrent partnerships, but intertwined with persistent myths and misconceptions. Although discussing sexuality issues with someone was found to be instrumental, adolescent highlighted challenges that hinder discussion with key influencers. Challenges include, parents lack of time to talk to their children; some religious affiliations perceived to discourage use of contraception; limited skills of community health workers to address adolescent information needs; meetings held in groups not followed up with age-focused or one-on-one discussions; negative health workers' attitudes and use of technical language; and peer pressure. These findings suggest the need to provide adequate and updated information to clear any misconceptions and strengthening of key influencers' communication skills to gain confidence in addressing adolescent sexual and reproductive health needs.

**Keywords:** Adolescents, Condom use, Contraception, Multiple concurrent partnerships, Key influencers

## Introduction

There is increasing global concern on early initiation of sexual activity among adolescents, the increasing sexually transmitted infections, and teenage pregnancy (UBOS, 2018; UBOS, 2011; Kaestle et al., 2005; Brooks-Gunn & Furstenberg Jr, 1989). Discussing sexual and reproductive health (SRH) issues with key influencing audiences to change adolescent sexual behaviors is pertinent. Sexuality education has featured prominently in the global adolescent health discourse (Asampong et al., 2013; Singh et al., 2005), where discussion of sexuality issues with key influencing audiences was found to be associated with adolescent sexual decision making (Meschke et al., 2002; Somers et al., 2012). In Uganda, alarming adolescent health statistics have been recorded including, 19% of adolescent girls aged 15-19 have had a live birth, 10% of girls and 17% of boys age 15-19 reported to have had sexual intercourse by age 15, and an HIV prevalence of 6% with 1.8% among adolescent girls and 0.4% among boys (UBOS, 2018). In Uganda, little is known about the effects of discussing sexual and reproductive health issues with key influencing audiences on adolescent sexual behaviors. This article explores adolescents' perceptions on adolescence stage, sexual behaviors and sexual behavioral changes associated with adolescent discussion and interactions with key influencing audiences such as parents, peers, health workers, village health teams (community health workers) and religious leaders. Several studies found parent-adolescent communication to be effective in influencing adolescent sexual behaviors such as delayed sexual debut, condom use, reduction of multiple concurrent partnerships, and contraceptive use (Rodgers 1999; Biddlecom et al., 2009; Hadley et al., 2009; Eisenberg et al., 2006). However, there are persistent barriers in parent-adolescent communication concerning sex such as embarrassment, lack of knowledge, poorly defined values, fear of encouraging sexual activity, and inability to initiate and maintain a conversation about the subject (Pick & Palos, 1995; Werner-Wilson & Fitzharris, 2001). When adolescents do not get sexuality information from parents, they turn to and rely more on their peers for the information (Whitaker & Miller, 2000; Kioli, 2017). Peer-adolescent communication has been found to influence adolescent sexual behavior (Whitbeck et al., 1993). Health workers and community health workers were found to be a major source of sexuality information for adolescents, often seen as role-models and experts in filling adolescent SRH information needs (Jonas et al., 2017; Tilahun et al., 2012). There is increasing involvement of religious groups in local debates over sex education (Brewster et al., 1998), where religious leaders play a vital role of giving religious teachings about sex education. Religious teachings about sexuality that are against premarital sex create the putative impact of religion on sexual behavior (McCree et al., 2003; Landor et al., 2011; Kagimu et al., 2013). Individuals who attend religious services frequently

receive religious messages against premarital sex and are more likely to develop sexual attitudes and behaviors that are consistent with their religious doctrines (Odimegwu, 2005). Therefore, exploring the perspectives of adolescent interactions with key influencing audiences is imperative for guiding the design of context appropriate adolescent SRH programs. This study draws on qualitative data from Communication for Healthy Communities program on the behavioral perspectives of adolescent interactions with key influencing audiences.

### *Communication for Healthy Communities Program*

Communication for Healthy Communities (CHC) is a five-year program implemented through a June 2013 cooperative agreement between the United States Agency for International Development Uganda and FHI 360 (Family Health International). It aims to increase adoption of healthy behaviors through strengthened targeted social and behavior change communication (SBCC) of six integrated priority areas including; HIV/AIDS, family planning, maternal and child health, nutrition, malaria and tuberculosis (CHC, 2016). Its overarching programming is based on the Socio-Ecological Model that looks beyond individuals to their social context including – interpersonal, institutional, community and policy (Mckee et al., 2002; Golden & Earp, 2012; Langille & Rodgers, 2010). The social ecological paradigm is rooted in certain core principles concerning the interrelations among environmental conditions, human behavior and well-being. Environmental settings are characterized as having multiple physical, social, and cultural dimensions that can influence a variety of health outcomes (Stokols, 1996). Grounded in the underlying ideologies of the social ecological model, the program implements an integrated SBCC campaign (called *OBULAMU?*). *OBULAMU?* or “How is Life?” is an innovative approach to standardize and revitalize health communication in Uganda by putting health in the context of day-to-day life. The campaign premised on a Life Stage approach employs integrated strategies of inter-personal communication by champions such as home visits, community health mobilization events, mass media, social media, print and outdoor media. The integrated strategies trigger dialogue and self-reflection, provide knowledge, motivation and skills on different health areas. The Life Stage approach identifies and addresses evolving health needs over different stages of an individual’s life, rather than from a disease focused perspective. The four life stages addressed in the campaign include: 1) Young adults (18 – 30 years) in relationships; 2) Pregnant women and their male partners; 3) Family with children (0 – 14 years), targeting caregivers of children under five; and 4) Adolescent girls and boys (15 – 19 years) (CHC, 2016). The campaign platform uses inter-personal communication as the lead medium, complemented by mass media, social media, print and outdoor media to reach the targeted audiences. When the target audiences are exposed to all types of

the campaign interventions, then there is high exposure which is likely to lead to behavior change. The present qualitative study aims to examine the resultant behavioral changes of CHC Life Stage interventions among sexually active adolescents (girls and boys; 15-19 years) related to condom use, reduction of multiple concurrent partnerships, and contraception use, with specific reference to adolescent interactions with key influencing audiences.

## **Methods**

### *Study methods*

The study used the following methods guided by the consolidated criteria for reporting qualitative research (Tong et al., 2007).

### *Research team.*

A research team of both male and female data collectors was recruited and trained on qualitative research processes, research ethics, consenting procedures, and on OBULAMU campaign health messaging platform. The data collectors were selected based on demonstrated experience and performance during training and pre-test of data collection tools. The recruited data collectors had knowledge of the local languages used in the selected study sites. This helped in conducting the interviews in the language comfortable for the participants.

### *Study design*

Data for this study was obtained from a non-experimental qualitative study conducted between February to March 2017 in Uganda. Use of the non-experimental qualitative study approach helped to describe, gather an authentic understanding of, and find the reasons for adolescent health behavior and its social context (Marston & King, 2006; Seale & Silverman, 1997; Baxter & Jack, 2008; Creswell et al., 2007). The qualitative study used a case study of Communication for Healthy Communities program in Uganda. Qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts (Baxter & Jack, 2008). The aim of a case study design is not to find out how often something occurs in a population, but rather what occurred, why it occurred, and what relationship exists among observed events. To generate health behavioral change insights from adolescents, the study employed a Most Significant Change methodology. The Most Significant Change methodology

is a dialogical, story-based technique often used to generate knowledge on a phenomenon (Davies & Dart, 2005; Dart & Davies, 2003).

### *Study setting*

Data was collected in four purposively selected districts of Lira, Mukono, Iganga, and Kyenjojo in Uganda. The sites selection was based on existence of program campaign interventions specifically interpersonal communication and mass media; urban and rural representation to achieve maximum variation in terms of geographical contexts; and existence of adolescent-focused sub-program activities such as the Determined, Resilient, Empowered, AIDS-free, Mentored Safe (DREAMS Core Package of Interventions Summary), the Accelerating the Rise of Contraceptive Prevalence, and the Saving Mothers Giving Life programs (SMGL, 2014).

### *Participant selection*

The study employed purposive sampling strategies particularly snowball and convenience sampling in the recruitment of participants. Using convenience sampling, adolescents were recruited for in-depth interviews (IDIs) through community organizations by working with community and peer champions, and programs that provide SRH services to young girls and boys such as School Health Programs, Straight Talk Foundation, and partners implementing Stepping Stones approach (ACORD, 2007) in selected districts. Convenience sampling is a non-probabilistic sampling procedure that enabled researching subjects of the population that were easily accessible to the data collectors (Etikan et al., 2016; Farrokhi & Mahmoudi-Hamidabad, 2012). Focus group discussion (FGD) participants were recruited using snowball sampling from IDI participants. Snowball sampling procedure enabled data collectors to access FGD informants through contact information that was provided by IDI informants (Noy, 2008; Sadler et al., 2010). Adolescents who had been exposed to CHC interventions at various levels including mass media, non-home-based activations supported by champions, and champion home visits, were recruited for IDIs and FGDs. The study aimed at recruiting potential sexually active adolescents 15–19 years for both IDIs and FGDs.

### *Data collection methods*

In-depth interviews and focus group discussions were conducted in sequence. IDIs with adolescents aged 15-19 were conducted first and respondents contacts were taken to be contacted on another date to participate in FGDs. This helped in giving time for snowballing other FGD participants. FGDs were conducted after IDIs with adolescents aged 15–19 and young lovers in relationships aged 18–30 because these

target groups overlap and often have similar characteristics related to sexual behaviors. Interview guides for the IDIs and FGDs were developed using program SBCC strategy and objectives for the targeted population group, and they were refined during data collectors' training using trainee pre-test experience and using data from the pre-test exercise. The questions in the interview guides focused on—existence and appropriateness of health services or information sources in the community, the environmental (household, community, structural, or health system) factors perceived to affect ability to take up health services and healthy behaviors, health messages that people have been exposed to, the perceived most significant contribution of integrated health communication intervention in their lives and community, and noted health behavior changes. IDIs were conducted to gather detailed information (Boyce & Neale, 2006) on the effect of discussing selected health topics within the adolescent social networks on an individual's intentions and action/behaviors. A total of sixteen IDIs were conducted, eight for males and eight for females. FGDs were conducted to understand how the normative environment and service delivery context in communities potentially interacted with individual's health behaviors, and the role interpersonal communication played to complement health communication. To enable full participation, FGDs were conducted separately with male and female respondents. In total, eight FGDs, four for males and four for females were conducted. Each FGD had between 8-12 participants.

### *Ethical approval*

Ethical approval was obtained from the federally-registered institutional review board of FHI 360 (Family Health International), the Protection of Human Subjects Committee in the United States of America, under reference 939934, and in Uganda by the Makerere School of Public Health Research Ethics Committee, under reference 446. Consent to conduct research was provided by Uganda National Council for Science and Technology and Office of the President. Oral informed consent was obtained from each participant before any study specific activities were undertaken. A waiver of written consent to increase confidentiality was sought because signed informed consent forms would be the only link to the participants' identity in the study population groups. A waiver of parental consent was also sought to protect adolescent participants' privacy, particularly around disclosure of sexual behavior, and because recruitment was conducted away from homes in some cases and based on convenience sampling, which is not conducive to parental consent. Once eligibility was established for study participants, full verbal informed consent was obtained from each study participant aged 15 -19 before any research activities were undertaken. Verbal informed consent was sought for mature/ emancipated minors aged 15–17 years who were not under parental/ guardian care but catered for their

own livelihood. Consent was documented for each participant via the signature of the study staff member who obtained consent.

### *Data analysis*

Audio-recorded data from IDIs and FGDs collected in the local language was translated into English after verbatim transcription. The IDIs lasted an average of 45 minutes (excluding informed consent process), while FGDs lasted an average of 1½ hours (excluding informed consent process). All interviews were audio recorded to ensure that all data were captured. NVivo 11 software was used to facilitate the data coding process. The software package provided a simple to work with structure for creating codes and discovering themes (Zamawe, 2015; Abuya et al., 2013). Analysis codes, such as experience on adolescence stage, sexual behaviors (condom use, contraception use, multiple concurrent partnerships), and effect of key influencing audiences were developed to guide the generation of concepts that emerged from the data. Codes were also identified from reading the first set of transcripts. Thematic content analysis was used to organize the data into themes and sub-themes used to develop emerging concepts and interpret the meaning of adolescent health behaviors drawn from the study. Thematic content analysis was used to describe the naturalistic phenomenon of adolescent sexual behaviors. The analysis adopted analytic approaches ranging from impressionistic, intuitive, interpretive analyses to systematic and textual analyses (Zamawe, 2015). Thematic content analysis was chosen to help in gaining direct information from study participants without imposing preconceived categories or theoretical perspectives (Hsieh & Shannon, 2005).

## **Results**

### *Demographic characteristics of respondents*

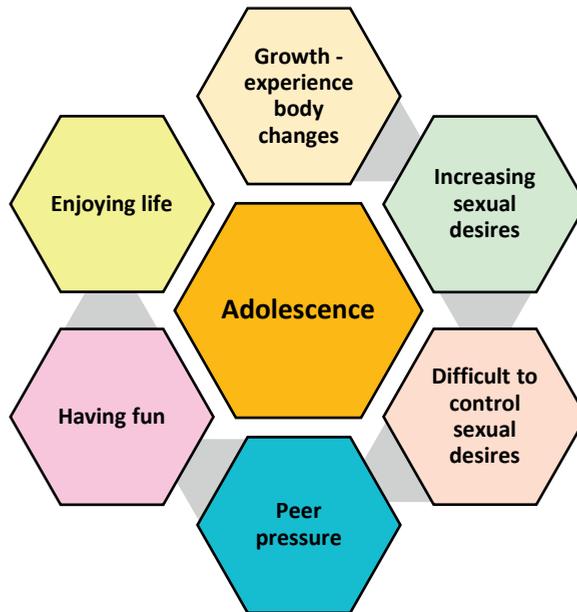
A total of 83 adolescents participated in the study. Of these, 16 respondents participated in in-depth interviews and 67 respondents participated in focus group discussions. Most of the respondents were female. Regarding education level, most respondents had started secondary school, and many were not married. Most respondents were Protestants and Catholics (Table 1).

Table 1: Demographic characteristics of Adolescents

Demographic categories		Frequency and percentage (%)		
		All adolescents (N = 83)	Girls (N = 53)	Boys (N = 30)
<b>Age</b>	15	9 (11%)	5 (9%)	4 (13%)
	16	5 (6%)	3 (6%)	2 (7%)
	17	17 (21%)	13 (25%)	4 (13%)
	18	18 (22%)	8 (15%)	10 (33%)
	19	34 (41%)	24 (45%)	10 (33%)
<b>Education level</b>	Started primary	12 (15%)	8 (15%)	4 (13%)
	Completed primary	15 (18%)	10 (19%)	5 (17%)
	Started secondary	42 (51%)	29 (55%)	13 (43%)
	Completed secondary	12 (15%)	5 (9%)	7 (23%)
	Higher than secondary	2 (2%)	1 (2%)	1 (3%)
<b>Relationship status</b>	Single	54 (65%)	30 (57%)	24 (80%)
	Dating	19 (23%)	15 (28%)	4 (13%)
	Living with partner, but not married	1 (1%)	0	1 (3%)
	Married	9 (11%)	8 (15%)	1 (3%)
<b>Religion</b>	Catholic	28 (39%)	17 (37%)	11 (42%)
	Muslim	10 (14%)	5 (11%)	5 (19%)
	Protestant	34 (47%)	24 (52%)	10 (39%)

### *Experience of respondents on adolescence stage*

When asked about their experience on adolescence, the respondents mentioned that adolescence stage comes with changes. They noted that the changes are often seen in increasing sexual desires and feelings that may make adolescents sexually active, and yet controlling the sexual desire is a challenge. The respondents further noted that adolescence is associated with a lot of peer influence that sometimes affects adolescents negatively because it leads them to engage in activities that they feel are not good. Others perceived adolescence as a time where youth have fun and face so many temptations (Figure 1).



**Figure 1: Respondents' experience on adolescence stage**

*The change is in growth, like at this moment I am an adolescent, yeah? I have started changing, let's say I am now experiencing my monthly periods. And another change is that I have started getting sexual feelings towards men. (IDI, Female adolescent, Lira district).*

*Sometimes the sexual desires are intense and therefore, controlling the desires as you are not supposed to get involved in such (sexual) acts is a challenge. (IDI, Female adolescent, Lira district).*

*I realized that I had many friends who bring peer pressure, and they make us do things that we should not have done as youths. The adolescent stage disturbs us a lot thus doing things that we shouldn't have done.... (IDI, Male adolescent, Lira district).*

*The youth of today like having fun and enjoying life and sexual pleasures and they say that the world is coming to an end hence living a reckless life. They don't care to use a condom during sex.... (IDI, Female adolescent, Lira district).*

### *Adolescent perceptions on sexual behaviors*

Sexual behaviors such as condom use, multiple concurrent partnerships, and contraception were explored in this study. The aim was to understand the perceptions of adolescents on sexual behaviors including, knowledge, attitudes, myths, and misconceptions.

### *Perceptions on condom use*

Most of the respondents perceived that they had knowledge on condoms and were aware of the benefit of using them. Although some adolescents noted that they did not know how to use condoms, others highlighted that there are complications and side effects associated with using condoms, an indication of existing myths and misconceptions. The participants noted that the use of condoms promotes premarital sex, it causes diseases to women, and they affect sexual enjoyment (Figure 2).

*...a condom is a bit different in a way that it plays many roles or more than one function. It prevents us from contracting UTIs, STDs, HIV/AIDS, and even pregnancies... (FGD, Female respondent, Mukono district).*

*Yes, it is true we are using condoms but they are promoting pre-marital sex. If they tell us to use condoms then also pre-marital sex will increase. (FGD, Male respondent, Iganga district).*

*These condoms are good but they talk badly about them. They say that when you use condoms, they contain lubricants which have side effects for women after use and that they may result into complications... (FGD, Female respondent, Mukono district).*

*When using a condom, it's like licking a wrapped sweet, your saliva keeps it soft but you can never taste its sweetness, or it's like eating bananas used for making local brew. You can't feel the taste. (FGD, Male respondent, Kyenjojo district).*

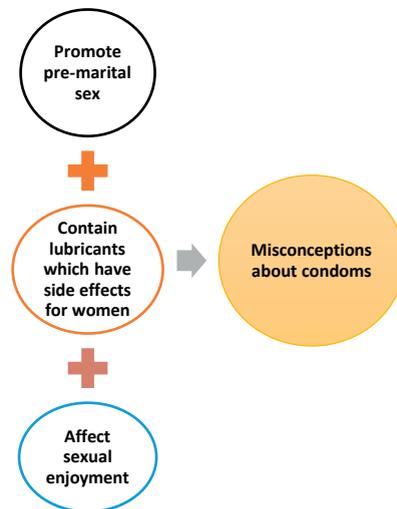


Figure 2: Adolescents' misconceptions about

### *Perceptions on multiple concurrent partnerships*

Most of the respondents noted that they had a history of two or more sexual partners. The participants also stated that they knew the importance of being faithful to one partner including, one knows the partner's health, it protects them from diseases, and it brings trust in the relationship. However, others highlighted that faithfulness to one partner is not necessarily easy because youth are not always truthful, and there is usually no trust in the relationship. The respondents also highlight the existence of inter-generational sex, which often times causes gender power imbalance and affects adolescents' ability to negotiate safe sex.

*Being with one partner only is good because you will know your health; you are preventing disease and he also trusts you. (FGD, Female adolescent, Lira district).*

*Faithfulness, that one is hard because you can decide to be faithful to your partner but it is still hard unless when you have got an older man. Getting your age-mate, he can cheat on you with another person and even make you cry. To me, that's impossible unless you have got an older man who has settled. (FGD, Female respondent, Mukono district).*

Having multiple sexual partners was seen as expensive for boys as they felt that they had to spend a lot of money impressing girls. The respondents highlight the onset of feelings of responsibility with finances among boys. Transactional sex and multiple sexual relationships for money and material gain was mentioned as a factor that makes adolescents girls to have multiple concurrent partnerships.

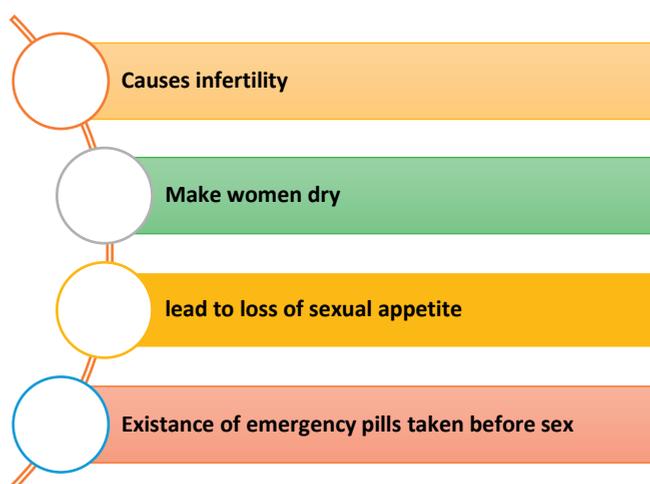
*I would go and give out pocket money of Uganda shillings (UGX) 10,000/- [US\$ 1 = UGX 3,696] and they would call me a rich man. ...I realized that every day I would spend like 50,000/-. ...I regretted the money I had spent yet I wanted to buy what to eat but I did not even have 100/- (FGD, Male respondent, Iganga district).*

*You might find a woman with three men like one is for paying for costs of making her hair, the second is to settle bills for her nail care, and the third is for paying rent. Such a woman may tell her husband to be faithful but the moment the husband leaves she cheats on him. (FGD, Female respondent, Mukono district).*

### *Perceptions on contraception use*

The respondents perceived that they had knowledge on contraception use. Many talked about the benefits of contraception (family planning) as helping to have a

number of children one could provide for. The respondents also highlighted the onset of feelings of responsibility to provide partner support in the use of contraception. Some mentioned that they were aware of the possibility of using emergency pills before sex to avoid getting pregnant. Most respondents also cited fears that contraception use has side effects which discourage adolescents from using it. They mentioned side effects such as infertility, swollen wounds and bleeding, making women dry, and loss of sexual appetite presumed to result from using contraception (Figure 3).



**Figure 3: Adolescents' fears about contraception use**

*The change I have seen is that in the past people used to give birth to many children because there was no family planning, but now people are using family planning. In the near future when I get a wife, I will take her for family planning so that we have two children. This will allow us to take good care of them, feed them well. It will also be easy to take them to good schools. (FGD, Male respondent, Lira district)*

*But for my case, I have heard girls saying that there are certain emergency pills that you take before sex, and you can't get pregnant. (IDI, Female adolescent, Kyenjojo district).*

*When you talk about using family planning, they do use it, but end up becoming infertile! That's why they fear. (FGD, Female respondent, Kyenjojo district).*

*These injections have side effects. They make the woman dry, and you lose sexual appetite. (IDI, Female adolescent, Kyenjojo district).*

### *The effect of key influencing audiences on adolescent sexual behaviors*

The respondents were asked if they discuss sexual behaviors such as condom use, multiple concurrent partnerships and contraception use with key influencers such as health workers, VHTs, parents, religious leaders, and peers. Most respondents mentioned that they had discussions with VHTs and peers, and a few with health workers, parents and religious leaders.

### *Village health teams (VHTs)-adolescent interaction and its effect on adolescent sexual behavior*

Most adolescents mentioned that they had discussions with VHTs about sexual behaviors. They noted that their interaction with the VHTs had an effect on their behaviors towards behavior change. Some highlighted that using the information they got from VHTs, they gained the confidence to start using condoms, contraception, reduce the number of sexual partners, and going for HIV testing.

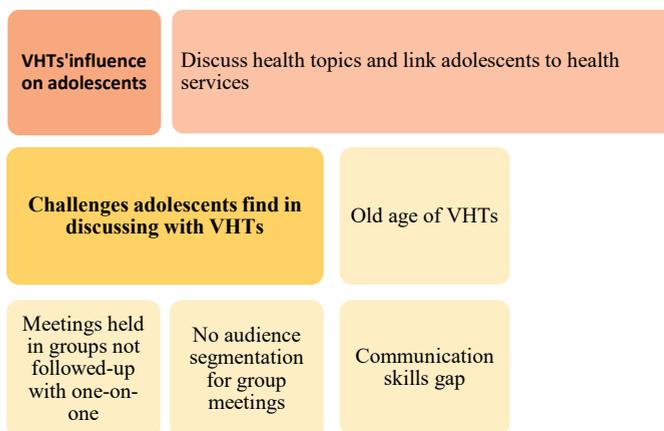
*My discussion with the champion (VHT) focused on protection and he was interested in knowing how I go about protecting myself. He talked about family planning in case someone is not abstaining and the use of condoms and IUD. (IDI, Female adolescent, Iganga district).*

*...he (VHT) just told me that I should leave women and I heeded what he was telling me... The change that I got that was good is that I used to think about girls but now I stopped thinking about them. (IDI, Male adolescent, Iganga district)*

*Yes, he (VHT) told me about HIV, and I took his advice and went for testing. I did it on 4th October, it was a Tuesday if my memory serves me right. I found that I was negative. (IDI, Male adolescent, Kyenjojo district).*

However, the adolescents also highlighted challenges in interacting with VHTs. Some respondents expressed concerns about the nature of meetings they had with the VHTs. They noted that some meetings were held in groups but not necessarily followed up with age-focused or one-on-one discussions to provide a conducive

environment for sharing confidential information. Others noted that the age of VHTs made it difficult for them to easily open up during discussions (Figure 4).



**Figure 4: Effect of VHTs discussing with adolescents**

*In my opinion, he (VHT) had no target because the meeting had individuals aged 65, 19, and 35. The young and old participated; thus, it was general. (IDI, Male adolescent, Mukono district).*

*We talked to him (VHT) while in a group. It would be very important to talk to him in one-on-one discussions since I would still need to get more information where I did not understand. (IDI, Male adolescent, Lira district).*

*What I feel like is an obstacle, is that at times the champions (VHTs) are of my father or mother's age. That is my problem. (IDI, Female adolescent, Lira district).*

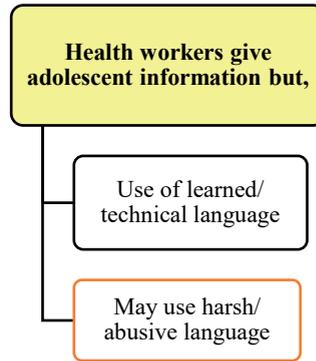
### *Health worker-adolescent interaction and its effect on adolescent behavior*

A few adolescents noted that health workers are key in providing information and specific service delivery points that encourage adolescents to take up SRH services such as HIV testing. However, other adolescents had concerns about their interactions with health workers, highlighting that they use a lot of learned (technical) language, and may use harsh or abusive language with clients (Figure 5).

*Whenever you go to a health facility, the health workers give you a lot of information. For instance, taking an HIV test free of charge and sometimes they have a range of places where we can go to have the tests like at the health facilities. (FGD, Male respondent, Mukono district).*

*...sometimes the health worker gives me information but as usual, they have a learned language they use, ...so most people (friends) that we usually hang out with know us better than the health workers. (FGD, Male respondent, Mukono district).*

*For me what I would like to say is that midwives should change their ways. Sometimes you find her inside with the pregnant woman asking her if she is the one who impregnated the patient. She just shouts at you instead of encouraging you. (FGD, Female respondent, Mukono district).*



**Figure 5: Adolescents' perception on discussing with health workers**

### *Parent-adolescent interaction and its effect on adolescent behavior*

A few respondents mentioned having discussions with parents. They noted that they try to get more SRH information from the parents who they see as the first people to guide them, and adolescents pride in trust from parents. However, some adolescents expressed concern of non-availability of parents for SRH discussions because they are too busy and often do not have time for discussion or they try to avoid topics of sexuality (Figure 6).



**Figure 6: Adolescents' experience interacting with parents**

*Parents are the first people to guide us; when they see us going astray, and tell us to protect ourselves, and take the right path in life. (IDI, Male adolescent, Kyenjojo district).*

*When you abstain, your parents trust you, but if you do not, they think their money used for taking you to school is being wasted. (FGD, Female respondent, Kyenjojo district).*

*The challenge I face is that whenever I ask my mummy about some of these things (sexuality issues), she is too busy to discuss with me. (IDI, Female adolescent, Mukono district).*

### *Religious leaders-adolescent interaction and its effect on adolescent behavior*

A few adolescents talked about interactions with religious leaders, noting that they help in advising the youth to behave well. However, others highlighted that some religions might be discouraging the recommended SRH behaviors such as contraception use.

*Religious leaders, they advise the youth; you should behave well, and we should listen to them. (IDI, Male adolescent, Kyenjojo district).*

*My engagement with church services motivated me. Some of the church members are orphans who have grown up within the church, so I got this opportunity to talk to them. I opened up to them and told them that they are now grown-ups... “So, you must protect yourselves”. I guide them about controlling sexual desires even if they are in that age group (adolescents). (IDI, Female respondent, Iganga district).*

*I am not a Muslim but I usually hear them say that the sharia law does not accept family planning (contraception) use. They say that it will kill their unborn children in the uterus thus limiting the number of children they should have. (FGD, Female adolescent, Iganga district).*

### *Peer-adolescent interaction and its effect on adolescent behavior*

Most of the respondents mentioned that peers are influential in getting them to take up SRH services. They listen to peer advice and are free to discuss sexuality issues with them. However, others noted that peer groups and pressure can sometimes lead them to engage in bad behavior.

*I want to say that close friends or people who we usually hang out with influence us. ...My friend can advise me to take an HIV test by giving an example of his real-life situation.... If your peer features in a health advert, you may decide to follow his advice. (FGD, Male respondent, Mukono district).*

*We have peer groups like I told you that make us lose focus. They make you leave something good and you do what is not right thus resulting in problems. (IDI, Male adolescent, Iganga district).*

## Discussion

This study explored adolescents' experiences on adolescence stage, perceptions on sexual behaviors, and the effect of interacting and discussing sexual behaviors with key influencers. The findings indicate that adolescence stage comes with changes such as intense sexual desires, which are perceived difficult to control. These findings support other studies which show that adolescence is a critical and vulnerable time of biological, physical, psychological change where youth face new challenges such as initiating sexual activity, entering the age of risk-taking, and entering into unions (Cortez et al., 2016; Williamson, 2014). With the realities of increasing sexual desires during adolescence, most adolescents indicated that they were aware of sexual behaviors such as condom use, contraception use, and multiple concurrent partnerships. However, Radecki and Jaccard (1995) found that adolescent perceptions of their knowledge about sex and birth control are only weakly correlated with their performance on knowledge tests about these topics, which suggests that perceptions of knowledge are not reflective of the actual knowledge an individual possesses. Thus, adolescent claims of high knowledge levels on health risks should not be trusted (Jaccard et al., 2002). Our study concurs with these findings where adolescents presumed to have knowledge of health risks. However, what they called knowledge was actually laced with a lot of hearsay, myths, and misconceptions. This implies that health promotion practitioners still need to increase adolescents' knowledge on these SRH topics. Therefore, information services remain important in clearing any misconceptions and addressing any health concerns for increased service uptake.

Most adolescents in this study highlighted that discussing SRH issues with someone was fundamental in influencing their sexual behaviors. Several studies indicate that parent-adolescent interaction and communication was found to be associated with reduced sexual risk taking on the part of adolescents (Asampong et al., 2013; Dittus & Jaccard, 2000; Jaccard et al., 2002). The function of parents is to motivate and guide the behavior of their children (Jaccard et al., 2002). Whitaker and

Miller (2000) found that peer norms were associated more strongly with behavior for those adolescents who had not discussed sex or condoms with a parent than for those who had engaged in such discussions. The non-initiation of sex was found to be associated with adolescents believing parents care and hold high expectations for their children (Asampong et al., 2013). Consistent with other studies, our findings indicate that adolescents see parents as the first people to give them guidance, and adolescents pride in being trusted by their parents. However, adolescents in our study indicated challenges that hinder parent-adolescent discussion such as parents being too busy and not having time to talk to their children. Similar findings were reported in a study by Löfgren, Byamugisha, Tillgren & Rubenson (2009), in which parents' lack of time to talk to their children was noted to hinder parent-adolescent communication. Additionally, our findings concur with other studies which found that parents often have difficulty finding the right place and time for communication because they feel inadequately informed, embarrassed and uncomfortable discussing sexuality topics (Feldman & Rosenthal, 2000; Jaccard et al., 2002; Taffa et al., 2017; Bastien et al., 2011). Other studies recommend that a comprehensive family life education should be initiated at home, in the school, churches/mosques, and health facilities, with a sense of responsibility assumed by all partners; and there is need to educate parents for a better awareness on sexuality and change of attitude and practice towards adolescent sexuality (Taffa et al., 2017; Bastien et al., 2011; Löfgren et al., 2009). Our findings seem to suggest the need to sensitize parents about making time to talk to their children about sexuality before sexual debut. It is also imperative to strengthen parents' communication skills about SRH to boost their confidence in talking about sexuality issues with adolescents.

Religious leaders were highlighted by adolescents in this study as being instrumental in motivating and advising the youth to behave well. This finding is consistent with other studies which found that adolescents who reported not engaging in sexual intercourse cited religious or moral values as their motivation for abstinence from sexual activity (Odimegwu, 2005; Rostosky et al., 2004). However, our study also found that adolescents felt that some religious affiliations were discouraging the use of contraception. This is consistent with other studies that reported significant correlations between more conservative religious affiliations and a lack of contraceptive use among adolescent girls (Brewster et al., 1998; Cooksey et al., 1996; Rostosky et al., 2004). Similarly, Lefkowitz et al., (2004) found that individuals who followed their religions more closely were less likely to believe that condoms could prevent negative outcomes such as pregnancy or sexually transmitted diseases. And individuals who attended religious services more frequently had less fear about HIV (Lefkowitz et al., 2004). Our findings suggest the need for health promotion programs to work closely with religious institutions in providing SRH information that addresses myths and misconceptions, foremost being learning from the experiences

of existing adolescent health programs which have sensitized religious leaders on SRH issues. There is need for further research to understand how the religious leaders' SRH sensitization interventions lead to change in conservative religious doctrines that inhibit contraception and condom use.

Most adolescents in our study mentioned that they had discussions with village health teams (VHTs) about sexual behaviors such as condom use, contraception use, and multiple concurrent partnerships. They highlighted that VHTs gave them detailed information which helped them in taking up health services. This supports other studies which found that community health workers can translate health and system information into the community's language, they can successfully teach concepts of primary or secondary prevention and improve access to prenatal care, and they can facilitate community participation in the health system (Witmer et al., 1995; Denno et al., 2015; Liu et al., 2011). Our findings suggest that interpersonal communication is highly effective in complementing and clarifying generic messages relayed through mass media (radio, TV, posters). Thus, an indication that a combination of channels in health communication programming is paramount in message saturation, rather than the use of one channel. However, adolescents in our study expressed concerns about VHTs being too old to address their information needs, the communication skills of the VHTs, and meetings held in groups not followed up with age-focused or one-on-one discussions. These findings suggest the utmost importance for health promotion programs to address these concerns if adolescent health is to be improved. Such concerns can be addressed through recruiting and training age appropriate peer champions to work with adolescents, providing more resources for supportive supervision to facilitate VHTs' follow-up visits to adolescents met in groups and one-on-one discussions, if group meetings are to be held, age categorization and audience segmentation for the participants ought to be emphasized. This is consistent with other studies which recommended that, health authorities should lead efforts to define and endorse community health workers' roles, while providing strategies for training, supervision, remuneration, recognition, career progression and quality assurance (Mwai et al., 2013), and evaluation programs should be cognizant of the fact that community health worker programs grow and evolve in phases of continuous learning, improvement, and expansion of coverage (Liu et al., 2011). Therefore, drawing experiences from successfully piloted community health workers interventions is pertinent in improving health promotion programming.

Health workers were also identified as an important group that helps adolescents with health issues including giving them health information. However, the adolescents highlighted that sometimes they do not go to health workers because of their attitude, use of technical language and giving unclear information. These findings support other studies that reported negative health workers' attitudes and

inadequate skills to communicate to adolescents as barriers for service uptake by adolescents (Jonas et al., 2017; Chaibva et al., 2010; Chandra-Mouli et al., 2017; Jonas et al., 2018). Therefore, continuous medical education as a method of keeping abreast with current and updated knowledge for healthcare workers needs to be addressed, with specific reference on skills of handling adolescents. Adapting the use of successful piloted interventions in addressing myths and misconceptions such as the use of values clarification component under the CHC program (CHC, 2016) is pertinent.

Adolescents in our study also highlighted that they find it convenient to discuss health issues with their peers, who often influence them both positively and sometimes negatively in health service uptake. This finding is consistent with other studies which found that friends play an important role in both harmful and positive activities of adolescents (Maxwell, 2002; Brendt, 1999). Adolescents' perceptions that their friends hold sexually liberal attitudes and are sexually active also influence their sexual choices (Whitbeck et al., 1993). Varga (2003) also found that adolescent relationships appear to be driven by pressure from peers and partners to engage in early and unprotected sex as markers of trust or commitment. Our findings indicate that providing adequate SRH information to adolescents should be a priori for guiding peer-adolescent discussions. Monitoring guided peer-adolescent discussions would be the first step in identifying knowledge gaps. This can be done through drawing lessons from existing adolescent health programs that work with adolescent groups and networks using methodologies such as stepping stones (ACORD, 2007) to assess how peer discussions are moderated, and identify areas for improvement.

This study confirms the reality of sexual desires that drive adolescents to engage in sexual activities often with multiple concurrent partners. This contributes to the alarming adolescent SRH indicators of early sexual debut, increasing HIV prevalence, and teenage pregnancies in Uganda. The findings seem to suggest that for improved adolescent health and behavioral outcomes, health promotion programs need to invest in developing the communication skills and bridging the SRH information gaps of key influencing audiences such as community health workers, health workers, parents, religious leaders, and peers. Additionally, continued provision of updated SRH information to adolescents and the general public is important to bridge knowledge gaps. However, it is important to understand the unique information needs of the different audiences for targeted programming. Therefore, continuous studies need to be done to understand the different and emerging information needs of adolescents and their key influencers.

### *Study limitations*

This study had some methodological limitations that need to be considered. The study was conducted in only four districts of Uganda with a few sampled participants, thus this could affect the generalizability of the findings. The study also used convenience sampling to recruit participants, but its limitation is that groups chosen by convenience sampling are conducive to self-selection, administrative decision, time of the class, number of the years of exposure and many other polluting influences (Farrokhi & Mahmoudi-Hamidabad, 2012).

## **Conclusion**

Adolescent health has been placed on the global agenda where health promotion development practitioners are challenged with finding solutions towards addressing adolescent health problems. Listening to the voice of adolescents themselves provides the first opportunity to understand the contextual problems and thereby work with them to find practicable solutions. The need to integrate community and adolescent social network approaches to work synonymously with health communication interventions is imperative for adolescent health programming.

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# Chapter 5

## Application of core processes for understanding multiple concurrent sexual partnerships among adolescents in Uganda

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## Abstract

**Introduction:** Adolescents in Uganda, as in other sub-Saharan countries, engage in sex with multiple concurrent partners, thus placing them at risk for HIV and unplanned pregnancies, but it is not clear why. This study explored why adolescents in Uganda engage in multiple concurrent sexual partnerships (MCSP).

**Methods:** This study used a Core Processes methodology. We used the processes of brainstorming, and identification of evidence and theoretical support, in various phases/steps of intervention planning, to provide possible explanations for adolescent MCSP.

**Results:** Adolescents were found to have limited knowledge of the risks associated with MCSP and perceived low risk for HIV. Peer influence to engage in MCSP exacerbated the problem among adolescents. Poor communication with sexual partners and parents and societal indifference to multiple sexual partnerships increased permissive attitudes towards infidelity. The unclear adolescent sexual and reproductive health policies hampered access to services, and transactional sexual relationships with older (polygamous) sexual partners increased the HIV risk. Adolescents were found to be more concerned about unplanned pregnancies than HIV risk.

**Discussion:** From the empirical evidence, adolescent health programs in Uganda should incorporate comprehensive sexual health education on HIV and teenage pregnancy risk-reduction strategies. Programs should strengthen parental and community support through enhanced collaborative training on communication with and for adolescents. Forming strategic partnerships with various stakeholders for concerted efforts to address the MCSP problem among adolescents is critical.

**Keywords:** Adolescents, Multiple Concurrent Sexual Partnerships, Determinants, Core Processes, Intervention Mapping

## Introduction

Multiple sexual partnering is on the rise among adolescents aged 15-19 in Uganda. National surveys show that in 2016, 2.2% of adolescent females and 6.6% of males reported having two or more sexual partners in the past 12 months compared to 2011 (1.5% for females and 5.4% for males) (UBOS, 2018; UBOS, 2012). Moreover, adolescents often have sexual partnerships that overlap for months or years (Santelli et al., 2013; Harrison et al., 2008; Lurie & Rosenthal, 2010). These sexual partnerships are labeled as multiple concurrent sexual partnerships (MCSP). MCSP is associated with a heightened risk of sexually transmitted diseases (STDs), particularly HIV/AIDS (Rosenberg et al., 1999; Epstein & Morris, 2011; Mah & Halperin, 2010, Howard & Wang, 2004). It is not yet clear why adolescents in Uganda engage in MCSP, which can also lead to health problems of unplanned pregnancies and ultimately a decreased quality of life. Most adolescent sexual behavior studies in Uganda have focused on HIV prevention in light of condom use, and include limited explanations for MCSP. This study used Core Processes including brainstorming and the identification of empirical evidence and theoretical support to explore persistent MCSP among adolescents in Uganda.

MCSP is defined in this study as an overlap of sexual partners in a given time period, with two or more simultaneous sexual partnerships. Adolescents who engage in MCSP increase the risk of acquiring and subsequently exposing partners in their sexual network to HIV (Rosenberg et al., 1999; Shelton et al., 2004; Pilgrim et al., 2015; Sawers & Stillwaggon, 2010; Morris & Kretzschmar, 1997). Many individuals infected with HIV in sub-Saharan Africa have been found to be men and women in stable partnerships, although some have become infected during MCSP within their stable relationship or their partner's engagement in MCSP (Cox et al., 2014). Thus, in order to design targeted adolescent health programs in Uganda, it is imperative to determine why there are persistent MCSP among adolescents. Identifying determinants for this behavior requires investigating individual, community and environmental factors (Bartholomew et al., 2016).

This study used a Core Processes methodology to explore why adolescents in Uganda engage in MCSP. Core Processes are a systematic way to answer questions raised in various phases/steps of planning frameworks for program development (e.g., "Why do people in the priority population carry out the (risk) behavior?") (Bartholomew et al., 2016). Identification and formulations of these core processes originated from Veen (1984) and Lave and March (1993) and were further developed by Buunk and Veen (1995), Kok et al. (1996), Buunk and Van Vugt (2008), Buunk and Van Vugt (2013), Bartholomew et al. (2001), Bartholomew et al. (2006) Bartholomew et al. (2011), and Bartholomew et al. (2016). Although Core Processes are described in Intervention Mapping (Bartholomew et al., 2016), they can be

applied to any planning framework. So, Core Processes do not form a planning framework on their own, but rather operate as a systematic approach to address questions relevant to problem definition and solutions.

## Methods

### *The Core Processes methodology*

This study used the Core Processes methodology described in Intervention Mapping (Bartholomew et al., 2016) to explore MCSP among adolescents in Uganda. The methodology provides a systematic way to answer questions raised in distinct phases/steps of planning frameworks. The steps described in the methodology are crucial to answer questions in such a way that the chances of adequately addressing the problem with new research at hand are optimized (Ruiter, Crutzen & Kok, 2018). Using Core Processes minimizes the likelihood of achieving an incomplete understanding and thus selecting ineffective solutions because the processes use available evidence before engaging in new research. The Core Processes involve six steps: 1) posing the problem question, 2) brainstorming for possible answers, 3) reviewing empirical literature related to the problem, 4) identifying theoretical support based on the topic, concepts, and general theoretical approaches, 5) identifying and addressing new needs for research on the problem, and 6) proposing answers to the problem. The order of steps in the Core Processes is crucial; brainstorming (step 2) utilizes theoretical and empirical knowledge available within the planning group that can later be combined with empirical findings (step 3) and theoretical support (step 4). As a result of completing the steps, the planners assemble a set of potential answers to the problem from both the theoretical and the empirical literature that fit with, suggest changes for, or add to provisional explanations. The six steps of the Core Processes used in the current study are detailed below.

#### *1. Posed the question of adolescents engaging in MCSP*

In the introduction, we noted why engaging in MCSP is a health risk. The point of departure of the study was the question “*Why do adolescents in Uganda engage in MCSP?*”

#### *2. Brainstorming on possible explanations for adolescent MCSP*

In 2017, brainstorming sessions to identify possible determinants and factors explaining why adolescents engage in MCSP were held with various stakeholders and experts in Uganda. Studies argue that brainstorming is an intervention in which

individuals and groups adhere to a set of rules while working in sessions designated to generate ideas (Litchfield, 2008). Brainstorming is conducted to 1) generate as many ideas as possible, 2) avoid criticism of proposed ideas, 3) attempt to combine and improve previously articulated ideas, and 4) encourage generation of “wild” ideas, and 5) record all ideas for future consideration (Litchfield, 2008; Kramer, Kuo & Dailey, 1997). A discussion guide is used to clarify the question flow and the emphasis placed on each question (Litchfield, 2008; Kramer, Kuo & Dailey, 1997). Brainstorming allows people with multiple areas of expertise to come together as a whole greater than the sum of the individual parts (Boddy, 2012).

The brainstorming sessions for this study were conducted during quarterly monitoring activities undertaken by Communication for Healthy Communities (CHC), a social and behavior change communication program funded by the United States Agency for International Development and implemented by Family Health International 360 (FHI 360) (CHC, 2016). To focus the brainstorming sessions on topics related to adolescent sexual behaviors and sexual and reproductive health (SRH) needs, a discussion guide was developed based on the study objectives. The questions in the discussion guide focused on underscoring adolescent sexual behaviors (with specific reference to MCSP) and the risks associated with the behaviors, existence, and appropriateness of SRH services for adolescents and information sources in the community, the environmental (household, community, structural, or health system) determinants perceived to affect adolescents’ ability to take up health services and healthy behaviors, and recommended strategies for addressing adolescent SRH needs and promoting healthy behaviors. The same questions were asked in each session for consistency in generating a pool of explanations for why adolescents engage in MCSP.

First, separate brainstorming sessions were held with adolescents, community leaders (religious leaders, community health workers, and local council leaders), and experts from the Ministry of Health in Uganda. Based on the outcome of those sessions, brainstorming sessions were held with additional experts including behavioral scientists, health promotion practitioners, sociologists, and monitoring-and-evaluation experts to draw on their practical experience in addressing adolescent health issues in various contexts in Uganda. The additional experts who participated in the brainstorming sessions were selected based on their knowledge of Uganda, expertise working with adolescents, and experience in designing and implementing adolescent health promotion programs. In total, five brainstorming sessions were conducted: two with adolescents, two with community leaders, and one with additional experts. Each session had between 8–12 participants, and lasted an average of one hour. Studies indicate that attempts to understand the process of behavior change or to develop an intervention should consider all levels of influence and related variables from individual to structural (Kaufman et al., 2014; Kok et al., 2016). Therefore, based on the Social Ecological Model, the brainstorming sessions put particular emphasis on identifying and classifying behavioral determinants and

factors reflected at multiple levels of influence (Kaufman et al., 2014; McKee et al., 2002; Golden & Earp, 2012) including individual, interpersonal, community, institutional, and structural factors (Figure 1). The adolescents and community leaders were mobilized through community health workers who work with CHC. Sixteen adolescents (eight girls and eight boys), 15 community leaders (eight female and seven male), and eight experts (three female and five male) participated in the brainstorming sessions. To ensure full participation, the sessions for male and female participants were conducted separately. Preliminary answers/explanations on the problem identified during the brainstorming session were written down to guide an extensive literature review on why adolescents engage in MCSP.

### *2.1 Participants' informed consent*

Verbal informed consent was sought from each study participant prior to brainstorming sessions. Ethical approval and a waiver of written consent was obtained from the United States of America's federally registered institutional review board of FHI 360, the Protection of Human Subjects Committee, under reference 939934, and in Uganda by the government-accredited Makerere School of Public Health Research Ethics Committee under reference 446. Verbal consent was preferred to minimize the risk of a loss of anonymity because signed informed consents would have been a link to the participants' identity in this study. The consenting process was conducted in both English and a local language that participants understood. The purpose of the study was explained, and participants were given time to ask questions before voluntarily agreeing to participate in the study. Verbal informed consent was documented by recording the date and time when the consent was sought and the signature of the study staff member who obtained consent.

### *3. Reviewed empirical literature on adolescent MCSP*

Insights from the brainstorming sessions informed an extensive literature search and review on adolescent MCSP. The literature review included a search of multiple electronic databases including Google Scholar, Cochrane central (via Cochrane library), Wolters Kluwer (via Ovid), PubMed, Emerald, and PsychINFO (via EBSCOhost) to retrieve empirical studies on MCSP. The specific search terms used were multiple sexual partnerships, concurrent partnerships, multiple concurrent partnerships, factors, determinants, correlates, gender, and predictors associated with MCSP. The search specifically focused on but was not limited to, studies of adolescents. Only studies that highlighted aspects of multiple sexual partnerships and MCSP among adolescents and those that compared adolescent MCSP with adult MCSP were considered. The extensive review of existing literature on MCSP among

adolescents focused on learning what is known worldwide including sub-Saharan Africa, East Africa, and Uganda. The researchers identified issues of missing links or what was not known or not clear in the literature about adolescent MCSP. The literature search ranged from 1990-2018, and approximately 120 studies were identified. However, we used 98 studies found to be related to the current study. Studies were selected based on the inclusion criteria of highlighting adolescent MCSP and factors associated with MCSP. We excluded those that explored sexual behaviors other than MCSP among adolescents. Findings from this review are presented in Figure 1 and Table 3.

#### *4. Identified theoretical support*

Theoretical support for the study was identified using three main approaches: topic, concept, and general theories (Bartholomew et al., 2016). The topic approach involved a review of theoretical constructs used in the design of other empirical studies on MCSP included in the literature review. Most of the included empirical studies used theories to provide potential explanations for MCSP. The identified theories were used as the first step to select theoretical support for the present study.

The concepts approach involved scrutiny of ideas generated during the brainstorming sessions and grouping them by aspects of similarity. For precision, related ideas from the brainstorming sessions and empirical literature were renamed using theoretical labels.

The general theories approach involved exploring a vast array of theories that might offer detailed explanations and answers to the problem of adolescent MCSP. The study researchers further explored alternative theoretical frameworks including behavioral, community and environmental theories that had not been assessed through the topic and concept approaches.

#### *5. Identified and addressed new needs for research on adolescent MCSP*

From the selected empirical literature, the missing links or what is not yet known and remains unclear about adolescent MCSP were identified. Specific research questions for further exploration in Uganda were formulated based on the literature review results.

#### *6. Proposed answers to reducing the problem of adolescent MCSP*

Using findings from the brainstorming sessions, literature review, and exploration of theoretical support, the researchers listed possible explanations as to why adolescents

in Uganda engage in MCSP. These explanations will inform future adolescent health programming to decrease the MCSP behavior. The frequently listed possible explanations of the problem were ranked by order of importance and changeability. Importance refers to the determinants that significantly contribute to the behavior, and changeability refers to determinants that can be changed with available methods (Bartholomew et al., 2016). The ranking procedure was adapted from Bartholomew et al. (2016) as 0 = less important, + = important, and ++ = very important and 0 = hard to change, + = may be changed, ++ = it is changeable. The explanations/answers that appeared in all three theoretical support approaches (topic, concept, and general theories) and suggested practicable interventions to address the problem were ranked with high importance and changeability. Ranking of the possible explanations/answers helped to prioritize determinants and factors for adolescent MCSP to guide targeted adolescent health programs.

It was important that the design-planning group for the program completed the previously described steps of the core processes instead of jumping straight into research. Conducting new research requires resources including time, expertise and money. All available evidence and insight should be used before conducting new research to guide program design. The order of steps following the problem identification (step 1) is crucial: brainstorming (step 2) ensures utilizing the theoretical and empirical knowledge that is available within the planning group, which can later be combined with empirical findings (step 3) and identification of theoretical support (step 4). Taking these steps should improve new research strategies.

## Results

### *Findings from brainstorming sessions with stakeholders in Uganda (step 2 of core processes)*

Group brainstorming sessions with adolescents indicated that adolescents in Uganda engage in MCSP because of peer pressure, and a lack of basic needs drives them to engage in multiple transactional sexual relationships for money. Although some adolescents suggested that engaging in MCSP was a way of exploring life, others noted that it was morally not okay to have multiple concurrent sexual partners. Some adolescents alleged that occasionally parents encourage them to engage in transactional sex and early marriages to older sexual partners who may be polygamous, which increases their risk for HIV. However, parent-adolescent communication gaps make adolescents fearful of talking openly about sex (Table 1).

Community leaders and policymakers from the Ministry of Health indicated parents' laxity and lack of discipline for their children, and fading community support for disciplining children all contribute to the problem of adolescent MCSP. They further alluded to poor family backgrounds that create an inappropriate environment for adolescent sexual behavior. For instance, some parents were cited to be setting a bad example by dressing in a manner considered to be indecent, while domestic violence reportedly drove adolescents away from homes. Parent-adolescent communication was mentioned as lacking in homes, and inadequate government policies for prohibiting early marriages to limit adolescent sexual activities. Away from home, some churches were noted to expose adolescents to sexual risks during unchaperoned activities such as night prayers and concerts.

Brainstorming sessions were also held with additional experts, including behavioral scientists, health promotion practitioners, sociologists, and monitoring and evaluation specialists. Findings from these sessions indicated that individuals' attitudes and beliefs about masculinity, such as "it is okay for a man to have many sexual partners", encourage male adolescents to engage in MCSP. Male adolescents often believe that it is good to experiment with many sexual partners because they see it as a sign of braveness, and "being a man". The experts further noted that adolescents lacked the confidence to commit to only one sexual partner. In this sense, self-confidence is often affected by other factors including an individual's environment (e.g., difficult family situation) and the need for means of survival (e.g., extreme poverty). They noted that adolescents and their parents do not often perceive or they may not be aware of the risks of engaging in MCSP. Poverty was also indicated as a factor that makes adolescents engage in transactional sex, including MCSP. Limited and inconsistent use of condoms among adolescents was highlighted as a challenge in multiple sexual relationships. Table 1 summarizes the findings from the brainstorming sessions with stakeholders.

*Table 1: A summary of findings from brainstorming sessions on MCSP with stakeholders*

<b>Stakeholder category</b>	<b>Main issues raised from the brainstorming sessions</b>
Adolescents	<ul style="list-style-type: none"> <li>• Peer pressure</li> <li>• Transactional sex</li> <li>• Exploring life</li> <li>• Morally not okay to have multiple concurrent sexual partners</li> <li>• Poor parent-adolescent communication</li> </ul>
Community leaders and policymakers	<ul style="list-style-type: none"> <li>• Parents' laxity in disciplining children</li> <li>• Poor family background creates an inappropriate environment for adolescent sexual behavior</li> <li>• Some parents can be bad examples to adolescent children</li> <li>• Domestic violence</li> <li>• Churches provide opportunities for risky adolescent sexual behavior</li> <li>• Poor parent-adolescent communication</li> <li>• Inadequate policies limiting adolescent sexual activities</li> </ul>
Other experts in additional fields (behavioral scientists, health promotion practitioners, sociologists)	<ul style="list-style-type: none"> <li>• The belief that is okay to have many partners</li> <li>• Adolescents believe it is good to experiment with MCSP</li> <li>• MCSP is seen as a sign of masculinity, braveness and being a man</li> <li>• Adolescents and parents do not see the risk of MCSP</li> <li>• Poverty</li> <li>• Limited and inconsistent use of condoms in MCSP</li> </ul>

*Note.* MCSP = Multiple Concurrent Sexual Partnerships

### ***Findings from the review of empirical literature (step 3 of core processes)***

To synthesize empirical literature findings on adolescent MCSP, the main determinants and levels of influence were categorized using the Social Ecological Model (Kaufman et al., 2014; McKee et al., 2002; Golden & Earp, 2012) as indicated in Figure 1. The findings indicate that adolescents often report having two or more sexual partners, and boys are more likely to have concurrent sexual partners than girls (UBOS, 2018; UBOS, 2012; Catania et al., 1989). Individual determinants drawn from the literature indicate that adolescents perceive they have a low risk and susceptibility to HIV (Catania et al., 1989; Durbin et al., 1993). Others engage in MCSP with the belief that they already carry HIV/AIDS (30, 31). Studies found that condoms are used less consistently in relationships with MCSP, which increases the risk of HIV spreading to the adolescent's sexual network (Harrison et al., 2008; Pulerwitz et al., 2010; MacPhail & Campbell, 2001; Maharaj & Cleland, 2004; Romer et al., 1994). In addition, condoms were used less consistently with steady or regular sexual partners than with casual sexual partners (Harrison et al., 2008; Maharaj & Cleland, 2004; Romer et al., 1994). Adolescent girls who perceive to be

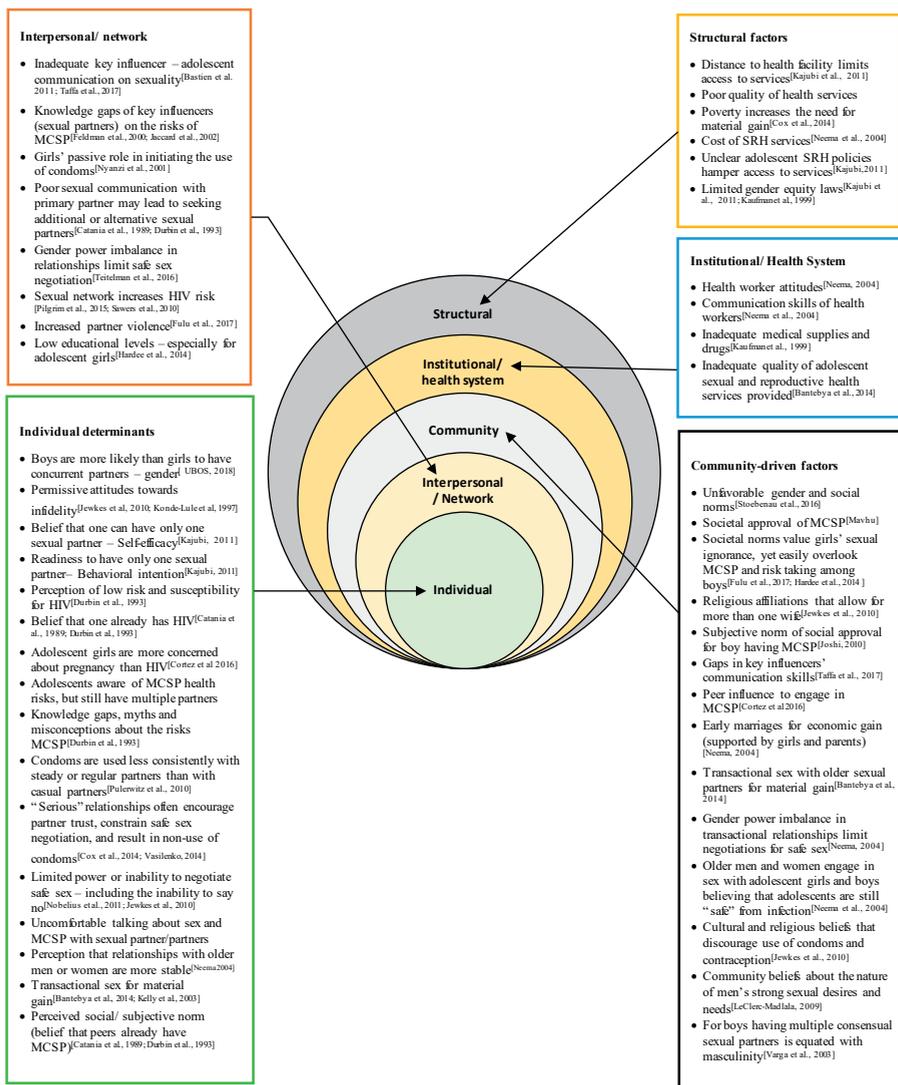
in “serious” relationships are socially pressured to trust their partners, which constrains their ability to negotiate safe sex and results in the non-use of condoms (Harrison et al., 2008; Cox et al., 2014; MacPhail & Campbell, 2001; Smith, 2004; Samuelsen, 2006; Dolcini et al., 1995; Vasilenko SA, Lanza, 2014; Pulerwitz, Gortmaker & DeJong, 2000). Although adolescents were found to be aware of the risks associated with MCSP, they continue to engage in these relationships (Durbin et al., 1993). Adolescent girls were found to be more concerned about unplanned pregnancy than HIV risk (Catania et al., 1989). Adolescents were also found to engage in transactional sexual relationships with older men and women for material gain or money, and the belief that relationships with these partners are stable (Neema, Musisi & Kibombo, 2004; Konde-Lule et al., 1997; Bantebya, Muhanguzi & Watson, 2014; Nyanzi, Pool & Kinsman, 2001; Kelly et al., 2003; Nobelius et al., 2010; LeClerc-Madlala, 2009). This is an indication that adolescents may have inadequate knowledge of the consequences of MCSP.

Poor communication with the primary sexual partner intersects between individual and interpersonal determinants. Studies indicated that poor sexual communication with the primary sexual partner might lead to seeking additional or other sexual partners (Catania et al., 1989; Durbin et al., 1993). Adolescents who engage in MCSP with older sexual partners often experience gender power imbalances that limit their power to negotiate for safe sex practices and may feel uncomfortable talking to their sexual partner about sex, and MCSP in general (LeClerc-Madlala, 2009; Nobelius et al., 2010; Jewkes & Morrell, 2010; Teitelman et al., 2016). Girls have been found to take a more passive role in initiating the use of condoms since they believed that boys/men need more sex than girls/women (Nyanzi, Pool & Kinsman, 2001). Furthermore, studies report that concurrent relationships with gender power imbalances can be characterized by physical intimate partner violence (Neema, Musisi & Kibombo, 2004; Teitelman et al., 2016; Fulu et al., 2017). However, knowledge gaps on issues of sexuality and MCSP and poor communication skills of key influencers such as sexual partners, parents, and peers were found to limit open discussion of sexuality, thereby precipitating MCSP among adolescents. Parents were found to have difficulty in finding the right place and time to communicate with their children about sexuality. This is because parents often feel inadequately informed, embarrassed and uncomfortable discussing topics of sexuality (Bastien, Kajula & Muhwezi, 2011; Feldman & Rosenthal, 2000; Jaccard, Dodge & Dittus, 2002; Taffa et al., 2017).

Adolescents were found to engage in MCSP because they believed that peers already had multiple sexual partners (Catania et al., 1989; Durbin et al., 1993). This is an indication that the social environment of adolescents ought to be critically scrutinized to underscore community-driven factors that encourage MCSP. Studies indicate significant societal approval of MCSP, especially for boys/men. Societal

norms value sexual ignorance for girls while overlooking MCSP and sexual risk-taking for boys, both of which contribute to the problem (Teitelman et al., 2016; Jaccard, Dodge & Dittus, 2002; Ehrhardt et al., 2009; Hardee et al., 2014). A man's infidelity is commonly accepted and is often viewed as something inevitable that a woman must simply expect and learn to tolerate (LeClerc-Madlala, 2009; Joshi, 2010). With this societal approval, adolescent boys were found to have more permissive attitudes towards infidelity than girls (Dolcini et al., 1999; Konde-Lule et al., 1997; LeClerc-Madlala, 2009; Jewkes & Morrell, 2010). Older men and women were found to advance transactional sexual relationships with adolescent girls and boys with the belief that adolescents are still "safe" from infection (Neema, Musisi & Kibombo, 2004). Similarly, early marriages to older men for material gain (precipitated by some parents and adolescent girls), increase the girls' risk for HIV and teenage pregnancy because of their inadequate reproductive health education and subordinate position when negotiating safe sex with adult sexual partners (Neema, Musisi & Kibombo, 2004; Bantebya, Muhanguzi & Watson, 2014). However, studies have also found that previously married adolescent girls are more likely to have multiple sexual partnerships compared to married or never married counterparts (Santelli et al., 2013). Community beliefs about the nature of men's strong sexual desires and needs create an oblique view of having concurrent sexual partners for boys, which is often seen as a sign of masculinity (Pulerwitz et al., 2010; Bantebya, Muhanguzi & Watson, 2014; LeClerc-Madlala, 2009; Varga, 1997; Varga, 2003). Cultural and religious beliefs that encourage having more than one wife are perceived to promote MCSP (Jewkes & Morrell, 2010; Mavhu et al., 2011).

Beyond the social and cultural factors, there are institutional or health system factors that facilitate MCSP among adolescents and should not be overlooked. Studies indicate that health worker attitudes and inadequate communication skills for reaching adolescents discourage adolescents from seeking information and services related to sexuality and MCSP (Neema, Musisi & Kibombo, 2004; Bantebya, Muhanguzi & Watson, 2014). Coupled with this is the inadequate availability of medical supplies in health facilities and inadequate quality of adolescent SRH services provided in Africa (Bantebya, Muhanguzi & Watson, 2014). Structural barriers also aggravate the challenge of adolescent access to SRH services. Distances to health facilities, poor quality of health services, and the cost of SRH services discourage adolescents from seeking health care services and information related to MCSP (Kaufman et al., 2014; Bantebya, Muhanguzi & Watson, 2014; Kajubi et al., 2011). The unfavorable policies on adolescent access to SRH services and limited gender equity laws constrain adolescents' access to services and increase gender power imbalances (Kaufman et al., 2014; Bantebya, Muhanguzi & Watson, 2014). Figure 1 summarizes the main findings identified in the empirical literature on MCSP among adolescents.



(MCSP = Multiple Concurrent Sexual Partnerships; SRH = sexual and reproductive health)

**Figure 1: Determinants of multiple sexual partnerships among adolescents at all levels of the Social Ecological Model based on literature findings.**

Source: Depiction of Social-Ecological Model adapted from Mckee et al., (2002) and Kaufman et al. (2014)

***Theoretical support for the determinants of adolescent MCSP (step 4 of core processes)***

Supportive theoretical constructs were reviewed to generate possible answers to what is known about the problem of MCSP among adolescents. Using the topic approach, theoretical constructs from empirical studies were identified and reviewed in the current study. Six theories identified from other studies included: Theories of Reasoned Action and Planned Behavior (Albarracín et al., 2001; Fishbein & Ajzen, 2011; Fishbein, 2007; DiClemente, Crosby & Kegler, 2009), Health Belief Model (Rosenstock, 1974; Janz & Becker, 1984), Social Cognitive Theory (Bartholomew et al., 2016; Bandura, 1989; Bandura, 2009), Social Exchange Theory (Cox et al., 2014), Social Ecological Model (Kaufman et al., 2014; McKee et al., 2002; Golden & Earp, 2012), and Social Norms Theory (Berkowitz, 2003; Berkowitz, 2004; Lapinski & Rimal, 2005; Oum et al., 2016). In the concept formation approach, the ideas generated from the brainstorming session and empirical literature were grouped and relabeled using these six theories. Labels such as attitude, perceived susceptibility beliefs, self-efficacy, and social/subjective norms were drawn from the aforementioned theories.

Using the general theories approach, we reviewed theories that offered detailed explanations and provided potential answers to the problem of MCSP among adolescents to gain additional insights for explaining the problem. We explored alternative theoretical frameworks that were not identified at the topic and concept approach steps but deemed relevant for the MCSP problem. Two alternative theoretical frameworks explored included the Self-Regulation Theory and the Extended Parallel Process Model. To better understand and group similar theoretical constructs in this study, all eight theories identified for review were classified into three categories: 1) individual, 2) community, and 3) environmental theories. Individual-level theories included Theories of Reasoned Action and Planned Behavior, Health Belief Model, Social Cognitive Theory, Extended Parallel Process Model, and the Self-Regulation Theory. Community-level theories included The Social Norms Theory and the Social Exchange Theory. Environmental-level theories only included The Social Ecological Model. To avoid replication, our review did not include theories that advanced constructs already known and identified in the brainstorming sessions and empirical literature. Only theories that highlighted new and additional insight into the problem of MCSP (four in total) were reviewed and documented for application to this study (Table 2).

### *Individual-level theories*

Theoretical support on an individual level for the Extended Parallel Process Model indicates that peoples' perceptions of a threat often draw them to action. The model proposes the use of risk messaging to elicit fear and stimulate danger control responses (Popova, 2012; Witte, 1992; Witte 1994; McMahan, Witte, Meyer, 1998; Gore & Bracken, 2005; Maloney, Lapinski & Witte, 2011). However, to be effective, risk messages must contain both a threat component that creates a perception of personal susceptibility and severity and an efficacy component that provides information about measures to employ in reducing the threat (Witte, 1992; Witte 1994; Peters, Ruiter & Kok, 2013). Many interventions that attempted to use a risk-messaging approach were found to be unsuccessful because they tended to focus on the fear component and leave out efficacy (Peters, Ruiter & Kok, 2013). Thus, they failed to meet the requirements as specified within the model. This model helps explain and contextualize the perception of low-risk and susceptibility to HIV among adolescents in Uganda.

The Self-Regulation Theory postulates that self-regulation refers to self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals (Boekaerts, 1999; Boekaerts, Pintrich & Zeidner, 2000; Baumeister & Vohs, 2004). The theory delineates aspects of self-motivation to perform a behavior such as self-efficacy, goal setting, self-judgment, and self-evaluation. These self-motivated actions may be critical in further understanding sexually active adolescents' low level of self-efficacy and motivations for having MCSP. It is important to note that motivation might not be driven only by the self, but also driven by other factors within one's environment that may influence a decision to engage in the behavior.

### *Community-level theories*

The community-level Social Norms Theory describes the situation in which individuals incorrectly perceive the attitudes and/or behaviors of peers and community members to be different from or similar to their own (Berkowitz, 2003; Berkowitz, 2004; Lapinski & Rimal, 2005). The theory proposes that presenting communally accepted norms – such as promoting gender equity and discouraging early marriages – that exist in support of existing policies are pertinent. This implies that to understand the problem of MCSP among adolescents, we need to know the policy environment in which communally accepted norms for behavior change are found.

The Social Exchange Theory advances actions that are contingent on rewarding reactions from others (Emerson, 1976). The theory mainly positions reciprocity or repayment in kind as the main exchange rule (Cropanzano & Mitchell,

2005). The notion that the recipient of a gift is somehow obligated to provide a return gives more insight into understanding why adolescents engage in multiple transactional sexual relationships. Table 2 summarizes the theoretical support and application to the study.

*Table 2: Theoretical support at the individual and community levels and its application to the problem of MCSP among adolescents in Uganda*

<b>Theoretical support</b>	<b>Main theoretical constructs</b>	<b>Application to MCSP among adolescents</b>
<b>Individual theories</b>		
<i>Extended Parallel Process Model</i> <sup>[Popov, 2012; Witt, 1992; Witt, 1994; McMahan et al., 1998; Maloney et al., 2011; Peters et al., 2013]</sup>	<p>The model advances constructs of fear/threat, efficacy, and responses to danger in relation to susceptibility and self-efficacy.</p> <p>Predicts that fear-arousing persuasive messages should show an effect on behavior only if both efficacy and threat are successfully manipulated.</p>	<p>Proposes the use of risk messaging to elicit fear or danger control responses for those who perceive a low risk and susceptibility to HIV.</p> <p>It is imperative to note that sometimes the use of risk messaging to elicit fear may not work if both components of fear and efficacy are not considered. Therefore, the model helps explain the perceived low risk and susceptibility to HIV among adolescents.</p>
<i>Self-Regulation Theory</i> <sup>[Boekaerts, 1999; Boekaerts et al., 2000; Baumeister &amp; Vohs, 2004]</sup>	<p>Self-regulation refers to self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals.</p>	<p>Delineates aspects of self-motivation such as self-efficacy, goal setting, self-judgment, and self-evaluation. Adolescents engaging in MCSP were found to have low self-efficacy and there is limited information on their motivation to engage in MCSP.</p>
<b>Community Theories</b>		
<i>Social Norms Theory</i> <sup>[Berkowitz, 2003; Lapinski &amp; Rimal, 2005]</sup>	<p>States that our behavior is influenced by incorrect perceptions of how other members of our social groups think and act (misconception).</p>	<p>Outlines the pertinence of presenting communally accepted norms that exist in support of existing policies. This is an indication that communally accepted norms, such as gender equity and discouraging early marriages – both of which discourage MCSP – need to be grounded in policy.</p>
<i>Social Exchange Theory</i> <sup>[Cox et al., 2014; Emerson, 1976; Cropanzano &amp; Mitchell, 2005]</sup>	<p>Delineates a two-sided notion of mutually contingent and rewarding processes involving “transactions” or simple “exchange”.</p>	<p>Indicates that the recipient of a gift is somehow obligated to provide a return. Therefore, adolescents’ rational sense of action to engage in MCSP may be based upon a prior calculation of expected returns.</p>

*Note.* MCSP = Multiple Concurrent Sexual Partnerships

*Identified and addressed the new needs for research on adolescent MCSP*

***Missing links in the empirical literature on adolescent MCSP (step 5 of core processes)***

The study identified the missing links in the empirical literature about adolescent MCSP to address new research needs. Despite existing empirical literature on adolescent MCSP, knowledge on why adolescents engage in MCSP is still limited. Such gaps continue to hinder the design of effective adolescent health-targeted programs addressing sexual behavior change. Missing links categorized by individual determinants and environmental agents were identified from the empirical literature reviewed and theoretical support of the four alternative theories (Table 2).

*Individual determinants*

Even with the existing studies about sexual relationships of adolescents in Africa, there is still limited research on MCSP and interventions targeted towards reducing MCSP among adolescents (Stoebenau et al., 2016; Mushwana, 2015). Although studies found that males are more likely to have multiple concurrent sexual partners than females, it is still unclear why adolescents with HIV are more likely to be female than male if MCSP increases the risk of contracting HIV (UBOS, 2018; Catania et al., 1989). It is also not yet clear why adolescents attending family planning clinics are eager to address their reproductive concerns, but appear to be less concerned about STDs (Nalukwago et al., 2018-a; Cortez et al., 2016). This indicates an urgent need to discover why adolescents continue to risk contracting HIV through sexual activity.

We did not find literature that addressed new research at the community level, but new research needs were identified with environmental agents.

*Environmental agents*

In Uganda, little is known about the motivations behind sexual behavior among adolescents and how these might differ by background factors such as gender and age. It is thus important to explore whether adolescents with an earlier sexual debut have unique attitudes or beliefs that make them more likely to have many sexual partners than those who delay sexual debut (UBOS, 2018; Richter et al., 2015; Wubs et al., 2015). Gender differences in multiple concurrent sexual relationships need to be clearly assessed for targeted programming (Helleringer et al., 2011). It is not clear in the literature whether relationships, wherein a woman is younger than her sexual partner, are always characterized by sexual coercion or not, yet older men and women

often engage with adolescent girls and boys with the belief that they are “safe” from infection (Neema, Musisi & Kibombo, 2004; Richter et al., 2015; Nalukwago et al., 2018-b). Many studies on MCSP report the limitation of under-reporting and under-measurement of multiple sexual partners among adolescents (Santelli et al., 2013; Kajubi et al., 2011; Helleringer et al., 2011). This indicates the need to re-examine the role of MCSP and the resulting sexual networks in HIV transmission (Mah & Halperin, 2010). The ultimate design of interventions should be able to impact on adolescents’ reference or peer group norms, which have been found to influence sexual behaviors such as MCSP (Catania et al., 1989). Emotional aspects of relationships and ethnic cultural differences are often overlooked in research and practice on adolescent health in Africa. It is important to explore how other factors such as love, trust, and commitment are associated with MCSP among adolescents (Cox et al., 2014; Catania et al., 1989). Table 3 summarizes the missing links in the empirical literature about MCSP among adolescents by individual determinants and environmental agents.

*Table 3: Missing links in the empirical literature and recommendations for further research on adolescent MCSP*

Main issues for MCSP	Missing links and recommendations for research on adolescent MCSP
<b><i>Individual determinants</i></b>	
Attitude	<ul style="list-style-type: none"> <li>▪ Need to explore whether adolescents with an earlier sexual debut have unique attitudes or beliefs that make them more likely to have many sexual partners, or have had a longer time period to accrue partners (Durbin et al., 1993).</li> <li>▪ It is important to clarify the extent of HIV risk through multiple sex partners among adolescents by quantifying the sequence and frequency of sexual partners (Durbin et al., 1993; Kajubi et al., 2011).</li> </ul>
Risk perception and beliefs about susceptibility to HIV	<ul style="list-style-type: none"> <li>▪ Need to examine why adolescents attending family planning clinics are eager to address their reproductive concerns but appear to be less concerned about STDs (Nalukwago et al., 2018-a; Cortez et al., 2016).</li> <li>▪ It is unclear why adolescents with HIV are more likely to be female than male (UBOS, 2018; Catania et al., 1989).</li> </ul>
Self-efficacy	<ul style="list-style-type: none"> <li>▪ Little is known about the motivations behind sexual behavior among adolescents and how these might differ by gender and age (Durbin et al., 1993; Nalukwago et al., 2018-a; Helleringer et al., 2011).</li> </ul>
<b><i>Environmental agents</i></b>	
Gender and social norms	<ul style="list-style-type: none"> <li>▪ Gender differences in concurrent relationships need to be clearly assessed for targeted programming (Nalukwago et al., 2018-a; Helleringer et al., 2011).</li> </ul>
Communication with parents	<ul style="list-style-type: none"> <li>▪ Little is known about how parents can communicate with and influence their adolescent children (Neema et al., 2004; Nalukwago et al., 2018-b).</li> <li>▪ Little is known about how couples communicate, interact and resolve problems, especially with regard to sexual health (Cox et al., 2014).</li> </ul>

Other influencing factors	<ul style="list-style-type: none"> <li>▪ It is important to further explore the influence of other factors such as trust, the social embarrassment when buying condoms, and sub-cultural differences with respect to sexual values (Catania et al., 1989).</li> <li>▪ Understanding how the quality of relationships, such as love, trust, and commitment, influence engagement in MCSP is pertinent (Cox et al., 2014).</li> </ul>
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*Note.* MCSP = Multiple Concurrent Sexual Partnerships; STDs = sexually transmitted diseases

### *Specific research questions*

From the missing links in existing literature, we identified specific research questions for further exploration. These include:

- How do the patterns of sex partners among adolescents compare to those of the adult population?
- Why are adolescents more concerned about pregnancy than the risk of STDs and HIV?
- How do the attitudes and beliefs of adolescents with an early sexual debut influence their likelihood to have MCSP?
- What are the specific ethnic cultural, gender and social norms that precipitate MCSP among adolescents in Uganda?
- How do MCSP among adolescents increase HIV transmission in the resultant sexual networks?

### ***Proposed answers for reducing the problem of adolescent MCSP (step 6 of core processes)***

The main findings from the brainstorming sessions, empirical literature, and theoretical support indicate that it is important for health promotion programs to address the recurrent factors that influence adolescents to engage in MCSP. These include attitude, perceived susceptibility, perceived social/subjective norms, self-efficacy, knowledge, communication with partners and other influencers, and social exchange/transactional sexual relations. The recurrent individual and environmental determinants identified in the brainstorming sessions, empirical literature and supported by theory were ranked by importance and changeability. Importance refers to the determinants that contribute significantly to the behavior, and changeability refers to the determinants that can be changed with the available methods or interventions (Bartholomew et al., 2016; 95. Ruiter, Crutzen & Kok, 2018). The ranking helped in identifying highly important and changeable determinants to guide future design of adolescent health interventions using the currently available evidence. Determinants that were found to be important and changeable were ranked

using ++ = very important and + = it is changeable. Table 4 summarizes the rankings of the identified list of determinants that provide possible answers/explanations to the problem of MCSP among adolescents. It is important to note that we did not find community-level answers to the problem.

*Table 4: List of determinants providing possible answers for reducing adolescent MCSP*

<b>Determinants</b>	<b>Importance</b>	<b>Changeability</b>
<b>Individual determinants</b>		
Attitude – Individual	++	++
Perceived susceptibility and risk to HIV	++	++
Self-efficacy	++	++
Perceived social/subjective norm	+	++
Knowledge of the risks of MCSP – Individual	+	++
Communication with sexual partner and influencers	++	++
Social exchange/transactional sexual relations	+	+
<b>Environmental agents</b>		
Attitude – Influencers	+	++
Knowledge of the risks of MCSP – Influencers	+	++
Social/group norms	+	+
Perceived social/subjective norm	+	++
Communication with parents	++	++
Communication with sexual partner	++	++
Social exchange/transactional sexual relations	+	+
Policy environment targeting adolescent access to SRH	++	+

*Note.* ++ = very important, and it is changeable; + = important, and may be changed; MCSP = Multiple Concurrent Sexual Partnerships; SRH = Sexual and Reproductive Health

## Discussion

This study explored why adolescents in Uganda engage in MCSP. The findings will guide the design of targeted adolescent SRH programs in Uganda. The findings from the ranked determinants delineate several factors associated with MCSP among adolescents at various levels of influence. The determinants ranked by importance and changeability generated a list of possible answers for designing targeted interventions that address the problem of adolescent MCSP. However, this list should be interpreted with caution, because it is not exhaustive. The list indicates what is known in the currently available literature. So, future interventions should rely on currently available evidence.

The findings indicate that adolescents engage in MCSP because they perceive low risk and susceptibility to HIV (Catania et al., 1989; Durbin et al., 1993). With this perception, adolescents fail to see the risk associated with their sexual behavior (Dolcini et al., 1995). Poor communication with sexual partners and parents was found to be associated with adolescent MCSP both in the brainstorming sessions as well as in the literature (Bastien, Kajula & Muhwezi, 2011; Feldman & Rosenthal, 2000; Jaccard, Dodge & Dittus, 2002; Taffa et al., 2017; Nalukwago et al., 2018-b). However, Dolcini et al. found that people who are comfortable talking about sex may simply be better at getting new sexual partners than those who are poor communicators (Dolcini et al., 1995), and this might also be true for adolescents. This accentuates the need to further understand how adolescent couples communicate, interact and resolve problems, especially with regard to sexual health and MCSP (Cox et al., 2014). Knowledge of the risks of MCSP among adolescents and their influencers was found to be inadequate and often intertwined with myths and misconceptions (Hardee et al., 2014). Although several studies on adolescent sexual behaviors found that knowledge is weakly associated with the performance of the actual behaviors (Dolcini et al., 1995; Hardee et al., 2014; Nalukwago et al., 2018-a), information services remain important in clearing misconceptions and addressing health concerns. Brainstorming sessions and the literature showed that adolescents have low levels of self-efficacy towards having one sexual partner, often associated with the perception that peers have multiple sexual partners (Catania et al., 1989; Durbin et al., 1993). Community influences, including societal approval of MCSP and beliefs about the sexual dominance of men (LeClerc-Madlala, 2009; Joshi, 2010; Mavhu et al., 2011), were found to increase permissive attitudes of adolescents and their influencers on infidelity (Dolcini et al., 1995; Konde-Lule et al., 1997; Jewkes & Morrell, 2010). Transactional sexual relationships whereby adolescents engage with older men and women called ‘sponsors’ were found to be widespread (Neema, Musisi & Kibombo, 2004; Bantebya, Muhanguzi & Watson, 2014; Nyanzi, Pool & Kinsman, 2001; Kelly et al., 2003; Nobelius et al., 2011). Studies argue that the notion of transactional sexual relationships is deeply rooted in cultural contexts that model sexual relationships of exchange on traditional social institutions of courting and bride-wealth payments (LeClerc-Madlala, 2009; Nobelius et al., 2010). With these social influences, social norms on MCSP including gender equity and discouraging early marriages, communally deemed as appropriate, need to be grounded in policy and effectively communicated to the general public (Teitelman et al., 2016; Hardee et al., 2014; Berkowitz, 2003; Lapinski & Rimal, 2005). The unfavorable policy environment surrounding adolescent access to SRH contributes to the problem of adolescents engaging in MCSP (Kaufman et al., 2014; Bantebya GK, Muhanguzi FK, Watson, 2014). It is important to work with and form strategic partnerships with

multiple key players in the institutional and structural environment to create a conducive environment for adolescent health.

Even with the existing empirical literature, there are still unanswered questions and missing links that need to be addressed to increase the understanding of why adolescents engage in MCSP. Not yet known are sexual relationship patterns among adolescents (Stoebenau et al., 2016; Mushwana et al., 2015), and why adolescents are more concerned about unplanned pregnancy than HIV risk (Nalukwago et al., 2018-a; Cortez et al., 2016). Several studies in Uganda have reported that adolescents are increasingly becoming sexually active, depicted by early sexual debut since many adolescent's report starting sex as early as 14 and 15 years (UBOS, 2018; UBOS, 2012). However, it is not yet clear whether an early sexual debut eventually influences MCSP among adolescents (UBOS, 2018; Durbin et al., 1993; Richter et al., 2015; Wubs et al., 2015). The gap in understanding gender differences in multiple concurrent sexual relationships remains a challenge (Nalukwago et al., 2018-a; Helleringer et al., 2011). It is also not yet clear whether relationships in which an adolescent is younger than his or her sexual partner are characterized by violence and sexual coercion. It is imperative to understand the power balance dynamics in all sexual relationships, including MCSP in the light of married and unmarried adolescents, and those who are in-and-out of school (Kelly et al., 2003; Teitelman et al., 2016; Nalukwago et al., 2018-a; Helleringer et al., 2011). There is inadequate documentation of the sequence and frequency of sexual partners, coupled with underreporting of sexual partners among adolescents (Lurie & Rosenthal, 2011; Kajubi et al., 2011). Other factors including ethnic cultural differences with respect to sexual values, and emotional aspects including love, trust, and commitment have only been studied to a limited extent and data are needed to understand how they influence adolescent MCSP (Cox et al., 2014; Catania et al., 1989). These gaps are a clear indication that additional research is needed to further understand the missing links on why adolescents engage in MCSP. Studies recommend longitudinal research to understand the complex notion of and ever-changing sexual relationships of adolescents particularly in sub-Saharan Africa (Lurie & Rosenthal, 2011; Howard & Wang, 2004; Catania et al., 1989).

Despite the gaps in the existing empirical literature, reviewed studies provided relevant recommendations for designing targeted adolescent health programs. Several studies highlighted the need to intensify sexuality education and strengthen communication skills for adolescents and their influencers (Catania et al., 1989; Durbin et al., 1993; Dolcini et al., 1995; Hardee et al., 2014). Health-promotion programs need to communicate the importance of using condoms and how to use and enjoy sex with condoms to reduce the HIV risk among adolescents (Nobelius et al., 2010; Joshi, 2010). The use of mass media coupled with face-to-face interaction and public dialogue is pertinent for reinforcing social-change interventions (Oum et al.,

2016). Gender integration should be central to health promotion to address inequitable socio-cultural norms that encourage adolescents to engage in MCSP (Pulerwitz et al., 2010; Pulerwitz, Gortmaker & DeJong, 2000; Varga, 1997; Varga, 2003). It is vital to engage influential cultural institutions to promote longer courting for adolescents in relationships as a way of encouraging greater commitment to one relationship and to deter casual and concurrent sexual partnerships (LeClerc-Madlala, 2009; Nobelius et al., 2010). Theoretical support drawn from the Social Norms Theory indicates that to address social norms, it is important to develop norms grounded in policy (Berkowitz, 2003; Lapinski & Rimal, 2005). Therefore, health promotion programs need to partner with governments who have a role in legitimizing normative change efforts and work within a policy context (Oum et al., 2016). Rather than solely depending on national surveys such as Demographic Health Surveys, program development practitioners need to devise other routine methods of monitoring the sequence and frequency of MCSP among adolescents in regard to HIV transmission (Kajubi et al., 2011).

### *Study Limitations*

This study generated insights from group brainstorming sessions and empirical literature review of MCSP studies from countries other than Uganda. This may limit the generalizability of the findings to Uganda's population. However, additional studies of a similar nature can be conducted in Uganda to offer a contextual comparison of the findings. The few sub-cultural contexts described in this study might not provide a deeper understanding of the multi-cultural divides in Uganda. Therefore, it is imperative to conduct further studies to understand the problem of adolescent MCSP within the confines of the multiple ethnic cultural settings in Uganda. Although the study used core processes including theoretical support to generate a list of possible answers for why adolescents engage in MCSP, this list is not exhaustive or conclusive in addressing the problem. This means that there might be other contributing factors that the currently available literature may not have captured.

## **Conclusion**

MCSP among adolescents in Uganda is a problem attracting the attention of international and local development partners who are eager to understand why there is increasing HIV/AIDS among this population. Our findings indicate that programs targeted to reduce the number of sexual partners among adolescents in Uganda should strive to design integrated interventions that address the determinants of MCSP at various levels of influence. The findings not only show the need to work with adolescents to understand the contextual and emerging health communication needs to appropriately position the risk of MCSP messaging, but they also indicate the need to involve and partner with other key players. Therefore, forming strategic partnerships with adolescents' families, communities, cultural and religious institutions, health facilities, and local governments for concerted efforts to address the problem of MCSP is critical.

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# Chapter 6

## Process Evaluation of the Communication for Healthy Communities Adolescent Health Program in Uganda

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## Abstract

**Background:** Evaluation of the contribution of adolescent health promotion programs towards improving adolescent sexual and reproductive health is limited in Uganda.

**Objective:** This study evaluated an adolescent-focused intervention (“Accelerating the Rise in Contraceptive Prevalence”), of the USAID Communication for Healthy Communities program, in Uganda.

**Research Design:** A process evaluation design included quantitative and qualitative data collection methods.

**Subjects:** Study participants were adolescents and program implementers.

**Measures:** The outcomes included program coverage and reach, and factors influencing implementation.

**Results:** The program’s activities were successfully implemented through collaborative partnerships with service partners and the community. Interpersonal communication complemented by mass media messaging was effective in reaching and empowering adolescents with health information to make informed choices for behavior change. The program used theoretical frameworks to guide targeted intervention implementation including audience segmentation and community empowerment. The use of mass media messaging without targeted placement was found to negatively affect program reach. Working through existing community structures is important for an effective reach of health promotion programs. Lessons identified for scaling-up adolescent health programs include the need to harmonize training and deployment of community champions by development partners, recruit audience-specific influential champions, and link income-generating activities to health education interventions.

**Conclusion:** This study indicates the need to collaboratively develop and institutionalize effective monitoring and evaluation strategies during the inception and design phases of adolescent health promotion programs. This strategy will help program developers achieve appropriate accountability for efforts towards ownership and a continuation of gains.

**Keywords:** Adolescents, Process Evaluation, Health Communication, Sexual and Reproductive Health, sub-Saharan Africa, Uganda

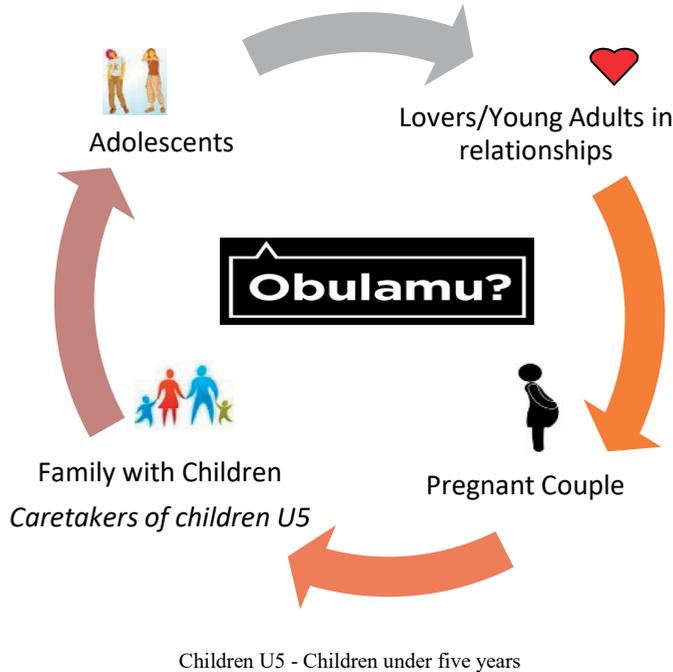
## Introduction

With the increasing population of adolescents in sub-Saharan Africa, the design of targeted adolescent sexual and reproductive health (SRH) programs has recently become a priority for governments and international development partners. This follows the realization that adolescents contribute to the alarming health indicators of increasing HIV prevalence and teenage pregnancy globally (Hindin & Fatusi, 2009; Paul-Ebhohimhen, Poobalan, & Van Teijlingen, 2008). While a significant proportion of Uganda's population are adolescents, adolescent SRH services are limited and do not address their needs (MOH, 2010; Birungi et al., 2008). This is partly due to the limited understanding of the SRH needs of adolescents as distinct from often generalized youth (Nalukwago et al., 2018-a). In Uganda, in 2016, adolescents had a 25% teenage pregnancy rate, and a 1.8% HIV prevalence for girls and 0.4% for boys (UBOS, 2018). Adolescents continue to face unmet SRH needs (e.g., 30% contraception use in Uganda in 2016) (UBOS, 2018) and maternal and child mortality associated with unsafe deliveries (Bantebya, Muhanguzi, & Watson, 2014; Loaiza & Liang, 2013). These challenges are often aggravated by early marriages and poverty that force adolescents to engage in multiple transactional relationships with older partners for material gain (Neema, Musisi, & Kibombo, 2004; Nobelius et al., 2010). Adolescents' beliefs regarding sex, contraceptive choices, and reproductive health are largely based on information from peers and often characterized by inadequate knowledge, myths, and misconceptions (CHC, 2016-a; Nalukwago et al., 2018-b). However, many adolescent health targeted programs are not evaluated for their contribution towards addressing adolescents' needs. This study evaluated the "Accelerating the Rise in Contraceptive Prevalence" (ARC) adolescent health interventions of the United States Agency for International Development (USAID)-funded, Communication for Healthy Communities (CHC) program in Uganda.

The CHC program was developed to support the Government of Uganda and its implementing partners to address adolescent SRH needs. CHC is a five-year program implemented by a cooperative agreement signed in June 2013, between USAID Uganda and FHI 360 (Family Health International). The program aimed to design and implement quality health-communication (HC) interventions to contribute to a reduction in HIV infections, total fertility, maternal and child mortality, malnutrition, malaria, and tuberculosis (CHC, 2016-b). A CHC-implemented process evaluation of adolescent SRH interventions guided program scale-up. A process evaluation provides information on program implementation, which is important for interpreting program outcomes and informing future efforts including generating critical lessons for impact evaluations (Rashid et al., 2017; Androustos et al., 2014; Joseph et al., 2015). This study presents the process-evaluation findings on how the

CHC program’s prioritized health (and recommended) behavior-change actions were received and adopted by adolescents.

The CHC program implements an integrated campaign called ‘Obulamu? [How’s Life?].’ The campaign platform uses a Life Cycle approach to integrate health communication messaging across age groups and public health topics. The program incorporates interventions that address the norms of gender inequity, which act as barriers to health services uptake (CHC, 2016-b). The integrated Obulamu? campaign delivers holistic messages relevant to a person’s stage of life rather than focusing on a fragmented disease approach. The four life stages addressed in the campaign include: 1) young adults (18–30 years) in relationships; 2) pregnant women and their male partners; 3) families with children (0–14 years) and targets caregivers of under-five children; and 4) adolescents (15–19 years) (CHC, 2016-b) as indicated in Figure 1.



**Figure 1: Obulamu? Life Cycle approach**

Through its campaign platform, CHC implements the adolescent-focused component of the Accelerating the Rise in Contraceptive Prevalence (ARC) program in Uganda, which addresses adolescent contraception needs (CHC, 2016-c). This process evaluation focused on ARC’s adolescent SRH interventions to understand their

current effect on future programming. Use of process evaluation to understand ARC’s contribution was essential to avoid a “black-box evaluation” (measuring and attributing outcomes to a program without exploring how the program was delivered) (Bartholomew et al., 2016; Harachi et al., 1999).

## Methods

### *Program Description*

The ARC program, implemented in 2016, primarily targets adolescent girls aged 15-19 (in and out of school), and young women aged 20-24 and their partners in five districts (Kamuli, Iganga, Mayuge, Namutumba, and Luuka) of East Central Uganda. These districts have the highest rates of teenage pregnancy (CHC, 2016-a). The secondary target audiences include adolescent boys 15-19 years and young men aged 20-24 years, parents and guardians of adolescents, health workers, and religious leaders. Using the 360-degree communication approach indicated in Figure 2, the campaign used a multi-channel approach employing a variety of high-dose and high-intensity interpersonal communication (IPC) activities including community dialogues (CHC, 2016-b). IPC activities were complemented by radio, TV/video, outdoor media, and social media placements (CHC, 2016-b).



Figure 2: CHC's 360-degree communication approach for the ARC program

The design and implementation of the ARC program were grounded in the underlying ideologies of the Socio Ecological Model (SEM) illustrated in Figure 3. The model looks beyond individuals to their social context including interpersonal, institutional, community and policy environments (CHC, 2016-b; Mckee, Manoncourt, Chin, & Carnegie, 2002; Golden & Earp, 2012). The social ecological paradigm is rooted in core principles concerning the interrelations among environmental conditions, human behavior, and well-being. Environmental settings are characterized as having multiple physical, social, and cultural dimensions that can influence a variety of health outcomes (Stokols, 1996). The SEM was used to analyze the context in which the target audiences made decisions, accessed services, and related socially to address barriers to change using theory- and evidence-based programming (CHC 2016-b).



Figure 3: An illustration of the Social Ecological Model

Source: Mckee et al., 2002

### *Study Design*

This study used a process evaluation design. We used a mixed-methods approach combining quantitative and qualitative data collection methods as recommended for complex interventions (Moore et al., 2015).

### *Data Collection methods*

Data collection included a review of CHC program records, direct observation during site-monitoring activities, and consultations with program staff.

### *Study team*

Planning a process evaluation requires sufficient expertise and experience to determine and achieve the aims (Moore et al., 2015). This study drew expertise from a range of relevant disciplines including public health, behavioral science, health promotion, primary care, sociology, monitoring, evaluation, and research. The experts provided practical experience in the design and implementation of adolescent SRH programs from various settings, and objective judgments in the process evaluation.

### *Review of program records*

The review of program records entailed an assessment of the program's theoretical approaches, and documents related to activity implementation and research (see below).

### *Assessment of program theoretical approaches*

All public health interventions reflect explicit and implicit theories on how a course of action will solve a perceived problem (Moore et al., 2013; Rossi, Lipsey, & Freeman, 2004). Theories should clearly specify intervening processes or mechanisms that link the program's activities and outcomes (Harachi et al., 1999; Rawat et al., 2013). We assessed the theoretical constructs embedded in the ARC program design and implementation.

### *Assessment of documents for program activity implementation*

Process evaluation encompasses an assessment of the following: 1) program implementation, 2) specific intervention activities, 3) context surrounding the activities, 4) responsible personnel, 5) target audiences, and 6) level of effort (Plummer et al., 2006; Saunders, Evans, & Joshi, 2005). To understand context, we first reviewed the CHC and ARC programs' inception documents including the technical proposal and HC audit report. Next, we reviewed documents related to activity implementation, individual activity reports, monthly and quarterly reports, PowerPoint presentations, and minutes from planning meetings.

### *Assessment of documents for program research*

We reviewed ARC research documents to understand the program's diffusion in the community and community awareness. The reviewed documents included formative assessments, evaluative surveys (quantitative/cross-sectional), qualitative rapid assessments, and participatory action research reports. National surveys, including

Uganda Demographic Health surveys, were reviewed to corroborate the ARC program research reports. The aim was to understand the program's progress towards addressing performance measures/indicators.

### *Direct observation during on-site monitoring*

ARC program staff shared their field observations. Approximately 12 process-evaluation observations were conducted using a checklist during on-site monitoring to assess the progress of activity implementation.

### *Consultations with ARC program staff*

Consultations with ARC program staff provided a clear understanding of the program's implementation approaches. The staff verbally agreed and voluntarily consented to participate in this study after a thorough explanation of the study purpose. In total, 10 program staff (five male and five female) were individually consulted.

### *Evaluation Outcomes and Data Analysis*

The evaluation outcomes of interest were to understand ARC's program design and coverage, factors that influenced program implementation, and the program's effectiveness in reaching the intended target populations. To ensure a structured data analysis based on the themes and code categories identified in program documents, we adopted Linnan and Steckler's (2002) process-evaluation components. The components include a description of the program context, reach, dose delivered, dose received, and fidelity (Bartholomew et al., 2016). We analyzed data from January 2014 - December 2017, including the CHC program's inception and design periods.

Qualitative content analysis of the available program documents was conducted (Jäger et al., 2016; Bess, King, & LeMaster, 2004). Content analysis refers to a systematic review of written documents produced by ARC program staff and other stakeholders including village health teams (VHTs), peer champions, community leaders, and community members during program design and implementation (Bess et al., 2004). From the review of written documents, themes, code categories, words, and phrases that captured salient program elements were developed into a common analysis framework reflected in the study evaluation questions (Table 1). Quantitative data from cross-sectional surveys and rapid assessments that addressed the study objectives were analyzed using the program's Monitoring, Evaluation and Learning (MEL) Plan including the program's performance indicators on contraception use (FHI 360, 2015). The analysis focused on performance indicators such as exposure to family planning messages, knowledge, awareness and contraception prevalence rates among adolescents. The program planning/implementation team and

community members (especially the target population–adolescents) were the main units of analysis. The use of both qualitative and quantitative data analysis techniques allowed for data saturation while informing the process evaluation. Data analysis software (NVivo for qualitative data and SPSS for quantitative data) was used for data structuring.

*Process evaluation questions for CHC’s ARC program implementation*

In contextualizing the process evaluation components, this study explored the evaluation questions highlighted in Table 1.

*Table 1: Process Evaluation Questions for CHC’s ARC program*

<b>Components</b>	<b>Questions</b>	<b>Indicators</b>	<b>Method</b>	
<i>Context</i>	What were the policy, social, and economic environmental contexts before and during program implementation?	Existing adolescent health policies addressing adolescent SRH needs	Assessment of theoretical approaches	
	What changes were made in the policy environment for adolescent health? Were changes informed by evidence?	Adolescent access to SRH services	Assessment of design and practical activity implementation documents	
	What ARC health-communication programs or messages were adolescents exposed to before and after the interventions?	Adolescent exposure to health messages	Level of stakeholder engagement and skill development for empowerment	Consultations with the implementation team
	How were various stakeholders involved in the ARC program design and implementation?			
<i>Reach</i>	To what extent is the program reaching the adolescents?	Percentage of intended participants, disaggregated by sub-group	Assessment of practical activity implementation documents	
	Were sub-groups within the adolescent population being missed? Were some sub-groups reached more than others?	Percentage of unintended users	Observation of activities during on-site monitoring	
	Were unintended groups taking part and benefiting from the ARC program?	Number of changes made during program implementation to ensure effective reach	Consultations with the implementation team	
	Were changes made during program implementation? To what extent were the changes informed by evidence to ensure effective reach?			
<i>Dose delivered</i>	How much of the program was delivered?	Percentage of the target audience who reported having seen or heard messages	Assessment of practical activity implementation documents	
	What was delivered inconsistently or omitted? Why? To what extent were the planned intended message dose and intensity delivered?		Media monitoring reports	
	Did any factors affect the delivered dose?			

<b>Components</b>	<b>Questions</b>	<b>Indicators</b>	<b>Method</b>
<i>Dose received</i>	<p>What was the average dose received by adolescents?</p> <p>What parts of the intervention were not received consistently? Why? What was the difference in results (based on the evaluation) for intervention segments delivered consistently and inconsistently?</p>	<p>Percentage of adolescents who demonstrated comprehensive knowledge of contraception, approved of desired behaviors and/or health services on contraception, and intended to adopt the same.</p> <p>Percentage of sexually active adolescent girls aged 15-19 who used modern contraception methods</p>	<p>Assessment of program research documents</p>
<i>Fidelity</i>	<p>How were the program interventions and messages linked to theoretical methods in practice?</p> <p>Was the program implemented with fidelity and quality?</p> <p>Were the program interventions implemented as planned?</p> <p>Were there program interventions that did not work? How did the program use evidence and feedback on what did not work to learn and adapt the activity implementation?</p>	<p>The degree to which the message was linked to theoretical methods and practical applications, and determinants</p>	<p>Narrative analysis and assessment of feedback documents</p> <p>Assessment of research documents</p>

### *Ethical considerations*

The FHI 360 institutional review board (the USA federally registered Protection of Human Subjects Committee) waived written consent for this study (reference number 616862-1). The Ugandan Government-accredited Makerere School of Public Health Research Ethics Committee also waived written consent (reference 259). Participants were told the purpose of the study and given the opportunity to ask questions before agreeing to participate. Verbal informed consent was requested from ARC program staff before being interviewed. The date and time of verbal consent was noted for each participant accompanied by the responsible study staff member's signature.

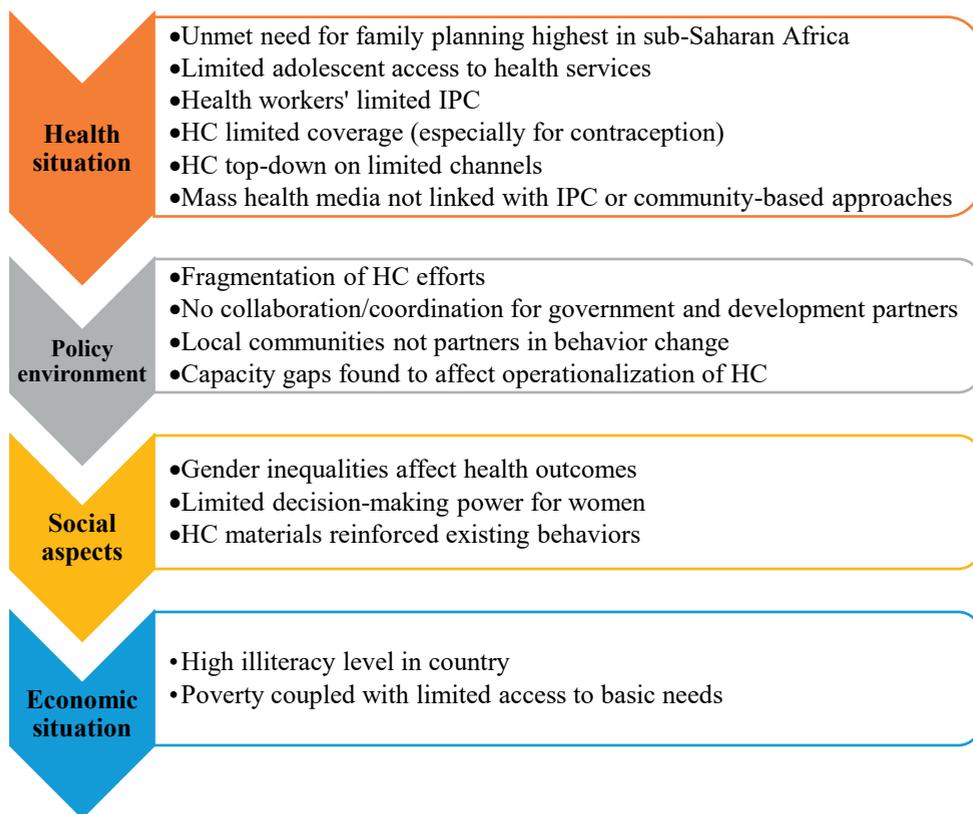
## Results

Our evaluation assessed the practical experience of the ARC program's design and implementation. The analysis focused on three main aspects: 1) context of program design, 2) areas of program success and 3) areas for strengthening the scale-up of adolescent health programs. Evaluation results should be interpreted with caution because they do not reflect the full impact of the overarching OBULAMU? campaign and the whole CHC program on adolescents. Rather, the central focus was on aspects that culminated in the ARC program's design and implementation.

### *The context of program design*

The program planning documents indicated that the ARC program was developed following the alarming health outcomes among adolescents in Uganda. Uganda's unmet need for family planning was among the highest in sub-Saharan Africa—31% among adolescent girls aged 15-19 (FHI 360, 2013; UBOS, 2012). Exacerbating the challenge of unmet need was gender inequality affecting health outcomes by limiting women's decision-making power within families and their ability to access health services (FHI 360, 2013). The overall effectiveness of HC interventions in Uganda, even in late 2012, was identified as unclear and not well translated into health outcomes (CHC, 2014; FHI 360, 2013). The fragmentation of HC efforts was identified as a major problem. This was linked to the lack of collaboration and coordination among diverse government and development partners responsible for designing and delivering HC. Although HC campaigns were found to be targeted to specific audiences, they had limited coverage and did not reach beyond urban centers. Messaging focused on top-down messages delivered through limited channels relying heavily on printed materials, although only slightly more than a quarter of Uganda's population is literate (FHI 360, 2013; UBOS, 2012). Mass media campaigns were not adequately intensive or linked with IPC and other community-based approaches in mutually reinforcing ways (FHI 360, 2013). Thus, local communities were not engaged as partners in their own behavior change, which made it difficult to address gender and other social norms that negatively affect health behaviors and service demands. Within facilities, health workers' limited IPC skills were found to contribute to a perception of unfriendly services in many communities. Existing national HC strategies before the project intervention were still in draft form, and some were outdated (CHC, 2014). Existing HC materials and activities conveying health-related social and behavior change communication (SBCC) messages were occasionally contradictory. While strategies covered gender issues, actual materials negligibly included considerations for social systems and relationships that reinforced existing behaviors. Capacity gaps were identified as affecting the operationalization

of working groups and task forces, e.g., the adolescent SRH working group. Services targeting adolescents were limited and/or poorly resourced with staff and commodities in general (CHC, 2014; MOH, 2010). These contextual factors (summarized in Figure 4) and the realization that there was a need to target adolescent SRH needs – specifically addressing communication on contraception use – led to the ARC program design.



IPC = Interpersonal communication; HC = health communication

**Figure 4: A summary of contextual issues identified before and during implementation of the ARC program for adolescent and young adult females**

## *Areas of program success*

### *Program coverage*

The findings showed that the ARC program was designed to increase knowledge and uptake of modern contraceptives among adolescents and young women of reproductive age in selected districts of Uganda. It aimed to increase adolescent and young adult females' comprehensive knowledge of contraception and its benefits and equip them with information to make informed choices (CHC, 2016-a). Embedded within the program was the explicit use of theoretical frameworks, including the SEM, to define the primary target population and their key influencers. The program worked collaboratively with the Government of Uganda through the Ministry of Health and other development/implementing partners to conduct HC interventions including mass media messaging and IPC. For IPC, ARC planned to implement 150 youth bashes or edutainment events and orient and deploy 150 community champions. The mass media plan was to develop and disseminate print and outdoor HC materials such as posters, flyers, and billboards (CHC, 2015) and conduct monthly broadcasts on radio including, 180 radio spots, 180 DJ mentions and 90 DJ-led discussions called "Obulamumu? Moments" on local radio stations with coverage in the five targeted districts.

### *Program Reach*

ARC had intended quantitative outcomes focused on the number of the target populations reached by interventions and qualitative outcomes focused on feedback from target audiences. Findings indicated that ARC staff conducted quarterly coordination meetings with service partners and developed joint implementation schedules linking demand generation and service delivery interventions. Working in this partnership, the ARC program trained and deployed 1,303 champions (VHTs, peer champions, and community leaders) who reached 202,060 adolescent girls and young women in home visits, one-on-one sessions and small group discussions on contraception use. Some adolescent girls and young adult women may have been reached more than once, and females from non-participating districts may also have been reached. The ARC program conducted 53 community edutainment events that were locally known as *Kadankes*, wherein 8,236 adolescent girls were reached with messages on contraception use. The program had 6,240 radio placements on four local radio stations (Baba FM, NBS FM, and Kamuli Broadcasting Service, and Apex FM), and reached an estimated 400,000 adolescents every quarter (CHC quarterly reports, 2015-2016). Prioritized health messages included: using contraception to prevent teenage pregnancy, testing for HIV and receiving results, building healthy

relationships with the opposite sex, delaying sexual debut, using condoms, and seeking accurate health information.

ARC also reached secondary and unintended groups. For example, the community-based interventions and the radio broadcasts reached men and women beyond the targeted age group (CHC quarterly reports, 2015-2016). Implicit in program implementation was the use of other theoretical frameworks to reach targeted audiences. Using the Diffusion of Innovations theory, the program adopted targeted implementation of community interventions including materials distributed in hot-spots such as bars, bore-holes, markets, and trading centers to reach laggards. The program used the Empowerment theory to build community capacity through collaborative partnerships and shared decision making. IPC complemented by mass media was found to be an effective HC approach by providing information that empowered adolescents to make informed health choices (CHC, 2018). This is illustrated in the quotes below.

*I used to think that other family planning methods are for women who have given birth and want to space their children. But the peers helped me understand that family planning can be used by any female above 15 years and their information was confirmed by the nurse who gave me the injection.* (Female adolescent, Namutumba district)

*We get enough time with the champion so the level of discussion and understanding is far much better. Even the puzzling questions that someone would fear to ask in public, he/she will be free to ask since it is only two people.* (Female adolescent, Iganga district)

### *The dose delivered and received*

ARC program's cross-sectional baseline and end-line surveys showed several self-reported and health service data changes among adolescents for family-planning services uptake. ARC evaluative surveys indicated that exposure to family-planning messages was 80% among adolescent girls. These females showed a slight increase in knowledge on the use of modern contraception methods (23% at baseline to 37% at end-line) (Table 2). The proportion of adolescent girls who reported having one child decreased from 33% to 28% and those who reported having two or more children decreased from 10% to 6% (Bufumbo et al., 2016).

Although the CHC omnibus survey (2017) indicated that approval of the use of modern contraceptives was 74%, the contraceptive prevalence rate was relatively low at 33% (CHC & IPSOS Limited, 2017) (Table 2).

CHC evaluative surveys (2016) indicated that although there was a slight increase in prevalence at end-line, approval for contraception use remained high (baseline 85% and end-line 82%). There was a slight increase in the use of contraceptives (baseline 17% and end-line 25%) and knowledge about contraception (baseline 38% and end-line 56%) (Table 2).

*Table 2: ARC program reach by performance indicators*

Program Performance Indicators	ARC program Evaluative Assessments		CHC Listening/Omnibus survey June 2017	CHC Evaluative Surveys	
	Baseline percentage (%) October 2015	End-line percentage (%) September 2016	East Central region percentages (%)	Baseline percentage (%) 2015	End-line percentage (%) 2017
Exposure (heard or seen) to family planning messages (pregnancy delay or birth spacing)	-	80	74	59	60
Knowledge of the use of modern contraception methods	23	37	-	38	56
Approve the use of contraceptives	55	74	74	85	82
Intention to seek contraceptive services in the next 6 months	<i>Not Married</i>	40	86	-	-
	<i>Married</i>	57		-	-
Intention to use contraceptives in the next 6 months	<i>Not Married</i>	39	47	33	42
	<i>Married</i>	54		35	44
Contraceptive prevalence rate (sexually active girls currently using any modern method of family planning)	-	-	33	17	25

ARC = Accelerating the Rise in Contraceptive Prevalence; CHC = Communication for Healthy Communities

### *Fidelity*

ARC records showed that implementation was done as planned and changes effected using the collaborative learning and adaptation approach to address emerging adolescent needs. The SEM theoretical framework was used in program implementation to segment target audiences. ARC instituted measures to continuously assess progress in the implementation of activities with quality and fidelity. The measures included continuous quality-improvement monitoring visits,

progress review meetings, rapid assessments, and client exit interviews during community edutainment events. The results from the program assessments indicate that trained peer champions were able to execute their IPC activities to influence adolescents in adopting health-seeking behaviors and increasing access to contraceptive services (Batamwita, et al., 2016). However, some champions revealed their difficulties in discussing some family planning topics related to an age-group mismatch/barrier between the champion and adolescent. Monitoring reports indicated that 90% of the champions required additional support, e.g., refresher training, supervision, and identification material access to effectively execute their work (MOH & CHC, 2016). However, disaggregation of data in most program reports did not include targeted sub-group reach. This made it difficult to effectively evaluate and describe the ARC program's reach.

*Areas that did not work for the ARC program and where subsequent collaborative learning and adaptation occurred*

Records indicated that the ARC program did not work in some areas and so staff used evidence and feedback to adapt and make changes in activity implementation. The program first targeted adolescent girls and young adult women without involving parents. However, most parents did not allow their adolescent girls to attend health edutainment events citing that they were avenues for girls to meet with boys. This affected the number of adolescent girls attending health gatherings. The program used this evidence to design a parent communication campaign. Community interventions were halted in January and February 2016 following Parliamentary and Presidential elections. The elections disrupted community health-edutainment events since they were mistaken as political rallies, and program campaign materials were vandalized. This disruption cost time in the effective implementation of planned ARC activities. At inception, the program targeted all community champions, specifically VHTs attached to health facilities. This did not work because champion follow-up was not manageable and their work structure varied by implementing partners, thereby making champion reporting difficult. To improve follow-up, CHC changed the approach to focus on 10 champions per high-volume site and opted to work with existing community district structures to improve reporting.

*Areas for strengthening in adolescent health programming*

The study findings highlighted lessons for strengthening and improving adolescent health programming in Uganda.

### *Targeted radio placements for adolescents*

Media channel mix was important for reaching adolescents. The key lesson from using mass media (especially radio and TV) was that identifying the time when adolescents listen to radios was important. Adolescents reported specific times and radio programs of interest on selected days that motivate them to listen. Effective channels of communication for reaching this target group were radio complemented by IPC (CHC, 2018). Identifying high-volume listener times of a target audience is evidence that informed program adaptation to place HC messages in youth-focused programs on radio and TV (CHC quarterly reports, 2015-2016).

*Radios are more effective because those who do not read, can listen to radios and understand.* (Female adolescent, Kyenjojo district)

*The method which is not effective is the TV because we don't own any, but the radio is very effective.* (Male adolescent, Kyenjojo district)

*Because on radio the information is not in-depth, even posters always highlight the briefs on major issues compared to the VHTs who give detailed information.* (Male adolescent, Lira district)

### *Harmonized training and deployment of champions by development partners*

Monitoring reports indicated that although there was an appreciation of ARC's IPC strategy to effectively engage community champions, efforts to train and deploy the champions were fragmented among development partners (MOH & CHC, 2016). Harmonization of IPC interventions among implementing partners is critical for improving adolescent health programming. Harmonization of partner-led community champion efforts should be spearheaded by the Government.

*You know the way the VHT [IPC] strategy has been implemented, it has not been straight forward because each partner who comes, they come with their own programs and they will all set targets for their programs, so we don't have specific targets for the VHTs. Their work depends on the partner who comes and wants to use them. However, under normal circumstances, the VHTs are supposed to work harmoniously within their villages to refer clients to facilities and carry out health education talks.* (In-charge at a health facility in one participating district) *Recruitment of traditional female sex educators/aunties as interpersonal champions*

Traditional female sex educators or aunties, popularly known as *Ssengas*, were identified as influential and credible sources of information for adolescent girls. Therefore, recruitment of aunties as IPC champions was highlighted as vital. On the

contrary, some program records showed that adolescents were alienated from interacting with aunties on sexuality issues because they were not updated with fast-growing technological advancements. For example, the aunties' inability to use advanced communication over internet-based social media (popularly used for teenage communication) distances them when discussing sexuality issues with adolescents. It was noted that some aunties do not keep secrets, which affects confidentiality in discussions of sexuality issues with adolescents. Therefore, equipping aunties with updated communication skills and effective supervision is pertinent.

*Facebook has kept the aunties far from the adolescent. So, the adolescent learns most sexual issues from the internet because the aunt does not know what is trendy. Examples in her talk are archaic and unconnected to the present internet exposure.* (Female adolescent, Jinja district)

*Aunties also do not keep confidentiality and speak loud about adolescent secrets at boreholes.* (Female adolescent, Mayuge district)

### *Linking income-generating activities to health education*

Linking health education with livelihood and income-generating activities motivates adolescents to seek health services. Livelihood interventions were identified as important in providing alternative choices for female adolescents to receive income rather than depend on male partners (CHC quarterly reports, 2015-2016). This evidence guided program adaptation in integrating skills for income-generating activities including farming, kneading, weaving, and hairdressing to support female adolescents' livelihoods.

*Adolescents look towards employing themselves by waking up early to go cultivate or make bricks to keep them busy so that they do not run after sex. If properly done they can earn enough to pay for their school fees.* (Female adolescent, Kamuli district)

### *Values Clarification Tool used to demystify gender and misconceptions about contraception use*

The use of Obulamun? Values Clarification Tool (VCT) (Figure 5) was important in highlighting gender issues and addressing myths and misconceptions on contraception use during IPC discussions. Although the program trained champions on the use of the VCT, for maximum benefit the use of the tool was only as effective as the user's ability to correctly apply the tool and avoid personal bias. The VCT assisted champions to re-evaluate their perceptions of adolescent SRH in regard to seeking information on sexuality and contraception services. However, the

champions’ ability to effectively use the VCT in their routine work was not detailed in ARC documentation (CHC, 2016-d). Nonetheless, the VCT can be adapted in adolescent health programming and revised to reflect evolving/emerging issues and needs that apply to context.

OBULAMU Values Clarification Tool

Statement	Yes	No	Don't know
<b>Family Planning (FP)</b>			
Women need permission from their husbands before using Family Planning.			
Family Planning causes infertility.			
People below 18 years should get information about Family Planning.			
Having many children is a sign of wealth and prestige.			
Only the man can decide the number of children a family can have.			

Figure 5: Obulamu? Values Clarification Tool used by CHC for the ARC program

## Discussion

CHC’s planned ARC activities including training and deploying community champions to conduct health education talks, community edutainment events, and mass-media message placements were successfully implemented in collaboration with service partners and the community in Uganda. IPC complemented by mass media was effective in reaching and empowering adolescents with health information to make informed choices. Adolescent interaction with the community champions helped them understand contraception use information to facilitate behavior change and service uptake. The ARC program used theoretical frameworks to guide implementation (including the SEM for audience segmentation), and Empowerment theory for community empowerment through collaborative partnerships and shared

decision making. Through its instituted measures of assessing the progress of activity implementation, we noted that the trained community champions were able to execute their IPC activities. However, many champions were not confident about all health topics, which indicated that they needed additional refresher training. Our evaluation found that the use of mass-media messaging without targeted placement negatively affected program reach to the intended target audiences. National political elections disrupted health communication interventions because they were mistaken as partisan. Targeting a large number of community champions was difficult for follow-up and reporting, therefore limiting the number to a manageable size and working with existing community structures is important. Effective evaluation of program reach was challenged by the limited data disaggregation in most ARC reports, which did not indicate program reach to the various sub-groups of the target population.

Our findings reflect those of other studies. Collaborative partnerships for community health and development provide opportunities for studying and contributing to empowerment (Fawcett et al., 1995). Previous studies found that shared decision making empowers individuals to exercise some control over local services and recognize the importance of matching program delivery to local needs, preferences, and cultural norms (Durlak & DuPre, 2008; Kegler & Wyatt, 2003). Using message-effect theories to design messages for target audiences can enhance the probability of a campaign's success (Randolph & Viswanath, 2004). Mass-media messaging by radio has been found to be a common method for reaching adolescents if matched with targeted message placement. UBOS (2018) found that radio is the most common source for family planning messages in Uganda since 57% of girls and 55% of boys reported hearing a family-planning message on the radio. Women who view more family planning messages on television, radio, and print media were found to be more likely than those who see fewer messages to use contraceptives (Medley et al., 2009). Multi-media campaigns are more likely to result in greater impact since messages are mutually reinforced (Bessinger et al., 2004). Communication channels including media and IPC should be selected and used in a way that reaches a high percentage of the target population multiple times over a given period, because the greater a campaign's reach (exposure), the greater the behavior change (Snyder, 2007; Randolph & Viswanath, 2004; Kwasnicka et al., 2016). Appropriately trained community health workers can effectively support the health system by improving the community-facility linkage (Malarcher et al., 2011; Mwai et al., 2013). Health authorities should lead efforts to define and endorse community health workers' roles while providing strategies for training, supervision, remuneration, recognition, career progression and quality assurance (Mwai et al., 2013; Nalukwago et al., 2018-b).

### *Lessons and implications for future programming*

Several lessons emerged from the findings of this evaluation that have implications on future adolescent health programming. First, it was noted that recruitment of champions with a greater influence on the target population was key. Adequately training and equipping selected champions with skills and updated information was vital for reaching adolescents. Therefore, development practitioners should adopt an integrated program-design approach to work collaboratively and harmoniously in providing continuous refresher training and champion deployment for effective implementation (Mwai et al., 2013; Liu et al., 2011; Nalukwago et al., 2018-b). Harmonization of partner-level champion-led efforts should be driven by the government through the Ministry of Health. Second, linking income-generating activities to health promotion programs is pertinent for reaching adolescents. Livelihood interventions provide alternative options for adolescents to generate income. Sheheli (2012) found that building women's individual incomes is essential for eliminating poverty since it helps to build a base for social change. Income-generating activities change the livelihood of the poor including living conditions, housing, nutrition, savings, dress, medical treatment, health, sanitation, liberalization, and education (Sheheli, 2012; Ahsan Ullah & Routray, 2007). Third, program developers should adopt activity implementation tools that have been tested and used by other adolescent health programs. This will help new programs to scale-up best practices of existing projects for continuity towards sustainability. Overall, this evaluation indicates the pertinent need to periodically evaluate existing adolescent health programs to draw additional lessons for implementation and scale-up. Studies indicate that relatively few communication interventions have been subjected to rigorous evaluation (Nahar et al., 1999; Bertrand et al., 2006). Most adolescent programs that exist do not systematically document their activities, implying that they cannot be evaluated objectively (Nahar et al., 1999). Few studies address the costs and cost-effectiveness of mass communication programming, leaving funders and policymakers without the data necessary to determine which intervention strategies offer the greatest "bang for the buck" (Bertrand et al., 2006).

### *Study limitations*

The study's findings have limitations. Our evaluation was conducted retrospectively based on program records, and staff information was subject to recall bias. However, using multiple data sources helped in tracing the implementation footsteps to objectively evaluate the program. The study used adolescent self-report data based on quantitative and qualitative program records, which are subject to bias. However, this self-report data provided practical insights into areas for strengthening scale-up of adolescent health programs.

## **Conclusion**

Evaluation of CHC's ARC program showed that the campaign's implementation was successful in the Ugandan context. Effective collaboration and partnerships with policy and development partners and community members in intervention implementation was critical for ownership and continuing gains. However, full program monitoring and evaluation requires detailed data disaggregation of program reach to various sub-groups of the target population and needs to be strengthened in scale-up programs. Strategies for monitoring and evaluation of adolescent health programs should be collaboratively developed during program inception and design for proper accountability of HC program efforts.

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# Chapter 7

## General discussion

This thesis primarily aimed at gaining insight into the determinants of adolescent sexual and reproductive health behaviors, and drawing practical experiences from already existing adolescent health programs. These insights can inform and guide the design and scale-up of future adolescent sexual and reproductive health (SRH) programs that aim to address adolescent health needs. The thesis comprises of five papers that represent two main parts. The first part of this thesis (Chapters 2-5) focuses on understanding the determinants of adolescent sexual and reproductive health behaviors and needs. The second part of this thesis (Chapter 6) is a process evaluation of an existing adolescent health program in Uganda, using the case of an adolescent-focused component of Communication for Healthy Communities (CHC) program. This aimed at underscoring practical experiences and lessons for future design and implementation of adolescent health programs. This concluding chapter presents the discussion of the main findings from the five papers in this thesis, methodological considerations, as well as implications for policy and practice.

## **Main findings**

### *Socio-cognitive factors associated with adolescent sexual behaviors*

In Uganda, adolescent sexual and reproductive health needs are inadequately addressed because there is limited understanding of adolescent sexual behaviors to guide targeted programming. To provide insights into adolescent sexual behaviors, we explored the socio-cognitive factors of sexual behaviors among sexually active adolescent girls in Uganda. The first study question was, “*What are the distinctive socio-cognitive factors associated with sexual behaviors among sexually active adolescent girls?*”. To address this question, a cross-sectional survey was conducted with sexually active adolescent girls (N=255) in 2015 covering 16 purposively selected districts in Uganda. From the results, it appears that knowledge on condom use and contraception was not significantly associated with their use among sexually active adolescent girls. We also found a strong negative correlation between being married and having multiple sexual partners. Yet, perceived behavioral control/ self-efficacy, subjective norm, and behavioral intention were strongly associated with contraception use. These findings suggest that, in particular, increasing self-efficacy and subjective norms towards contraception use may increase intention and actual use. Studies show that increasing self-efficacy and subjective norm towards contraception use may require adolescents discussing sexual behaviors with key influencing audiences including sex partners, parents, religious leaders, and health workers to improve adolescent health outcomes (Nalukwago et al., 2018; Whitaker, Miller, May, & Levin, 1999). It is indicated that efforts to understand contraception

use among adolescents also benefit from exploration of other socio-cognitive factors including gender norms or gender differences/inequalities, and social norms (Chandra-Mouli et al., 2017; Pulerwitz, Michaelis, Verma, & Weiss, 2010; Varga, 2003; Baxter & Abdool Karim, 2016). This thesis explored the gender norms associated with adolescent sexual behaviors in the second study question.

### *Gender norms associated with adolescent sexual behaviors*

Gender norm attitudes and practices remain deeply entrenched in many African societies including Uganda, which often affects adolescent sexual behaviors and health outcomes. Our second study question was, “*What gender norms are associated with adolescent sexual behaviors?*”. Data from a cross-sectional survey among adolescents (N=867) covering 16 purposively selected districts in Uganda was used to answer this question. The results show that the majority of adolescent girls and boys were in support of gender inequitable norms. Positive correlations were found between behavioral intention to use contraception and an equitable gender norm towards domestic chores/ household decision making. Similarly, positive correlations were found among behavioral intention to use condoms at every sexual encounter, and self-efficacy to use condoms with an equitable gender norm towards reproductive health and pregnancy/disease prevention. These findings seem to suggest that changing the negative gender norms/perceptions requires a multi-pronged gender-responsive approach for social change. Working with both girls and boys, and engaging influential stakeholders such as parents, health care workers, policymakers, community, and religious leaders, who create the environment where gender-related attitudes and world views are formed is pertinent. Empirical studies show that countries driven by gender inequalities that constrain individual behavior in sexual interactions often have the highest rates of HIV and teenage pregnancies (Hardee et al., 2014; Van den Berg et al., 2013; Richards et al., 2013; Watts & Seeley, 2014). Studies underline the pertinent need to focus on the broader circumstances in which gender inequalities within society may structure beliefs and norms that perpetrate differential exposure/risks of HIV infection, with more enhanced efforts targeting women and re-enforcing involvement of men (Ezekiel et al., 2015). To further understand the social structural beliefs and the broader environment influencing adolescents’ behaviors, we explored the effect of adolescents discussing sexual behaviors with key influencers.

### *Adolescents discussing sexual behaviors with key influencers*

Our third study question was, “*What is the effect of discussing sexual and reproductive health issues with key influencing audiences on adolescent sexual behaviors?*”. We used data from a qualitative study that conducted in-depth

interviews and focus group discussions with adolescents (N=83). This study revealed that parents were seen as the first people to give adolescents guidance and adolescents pride in being trusted by their parents. However, it was noted that parents were too busy and did not have time to talk to their children. Health workers were also seen as an important source of sexuality information for adolescents. However, health workers' attitude, use of technical language and giving unclear information were highlighted as barriers to communication with adolescents. The results also indicate that adolescents found it convenient to discuss health and sexuality issues with their peers, who often influence them both positively and sometimes negatively in health service uptake. These findings suggest that health promotion programs need to invest in developing the communication skills and bridging the sexual and reproductive health information gaps of key influencing audiences such as (community) health workers, parents, religious leaders, and peers. To begin with, programs should provide adequate and updated SRH information to adolescents and the general public to bridge knowledge gaps and guide sexuality dialogues. Studies highlight that discussing sexuality issues with key influencing audiences is associated with adolescent sexual decision making with regards to delaying sexual debut, as well as the use of condoms and contraception (Somers, Tolia, & Anagurthi, 2012; Biddlecom, Awusabo-Asare, & Bankole, 2009; Hadley et al., 2009). However, adolescents highlight persistent barriers in communicating with key influencers such as inadequate knowledge, poorly defined values, fear of encouraging sexual activity, and inability to initiate and maintain a conversation about sex (Pick & Palos, 1995; Werner-Wilson & Fitzharris, 2001). For targeted programming, it is imperative to understand the unique emerging needs of the different audiences and subgroups. In exploring the socio-cognitive factors and influencers of adolescent sexual behaviors, our study found limited literature on multiple concurrent sexual partnerships among adolescents in Uganda. This necessitated further exploration of the aspect of multiple concurrent sexual partnerships among adolescents.

### *Multiple concurrent sexual partnerships among adolescents*

Adolescents in Uganda engage in sex with multiple concurrent partners, thus placing them at risk for HIV and unplanned pregnancies, but it is not clear why. The fourth study question was, “*Why do adolescents engage in multiple concurrent sexual partnerships (MCSP)?*”. This study used a Core Processes methodology. We used the processes of brainstorming, and identification of evidence and theoretical support, in various phases/steps of intervention planning, to provide possible explanations for adolescent MCSP. The results show that multiple sexual partnering is on the rise among adolescents in Uganda, and these sexual partnerships often overlap for months or years. The findings from the brainstorming sessions with various stakeholders

(including adolescents, community leaders and policymakers, and experts—behavioral scientists, health promotion practitioners, and sociologists) highlighted several factors associated with MCSP among adolescents. They noted that peer influence and a lack of basic needs drive adolescents to engage in multiple transactional sexual relationships for money. Parents’ laxity and lack of discipline for their children, and the fading community support for disciplining children contribute to the problem of adolescent MCSP. It was noted that adolescents often lack the confidence to commit to only one sexual partner. In this sense, self-confidence is often affected by other factors including an individual’s environment (e.g., difficult family situation) and the need for means of survival (e.g., extreme poverty). Empirical studies indicate that MCSP is associated with higher sexually transmitted diseases (STDs) risks, particularly HIV/AIDS (Epstein & Morris, 2011; Mah & Halperin, 2010). Yet, adolescents engage in MCSP because they perceive low risk and susceptibility to HIV (Dolcini et al., 1995; Durbin et al., 1993). Poor communication with sexual partners and parents was found to be associated with adolescent MCSP (Bastien et al., 2011; Taffa et al., 2017). Knowledge of the risks of MCSP among adolescents and their influencers was found to be inadequate and often intertwined with myths and misconceptions (Hardee et al., 2014). Community influences, including societal approval of MCSP and beliefs about the sexual dominance of men (Mavhu et al., 2011; LeClerc-Madlala et al., 2009), were found to increase permissive attitudes of adolescents and their influencers on infidelity (Dolcini et al., 1995; Konde-Lule et al., 1997; Jewkes & Morrell, 2010). The disconnect between policy and practice surrounding adolescent access to SRH contributes to the problem of adolescents engaging in MCSP (Bantebya et al., 2014). This indicates the need to work with and form strategic partnerships with multiple key players in the institutional and structural environment to create a conducive environment for adolescent health. Creating a conducive environment requires scanning the environment for existing adolescent health programs. Therefore, assessing the practical experience of existing programs towards addressing adolescent health needs is pertinent to guide the targeted design of future programs and scaling-up of best practices. We conducted a process evaluation for an existing adolescent health program in Uganda to draw lessons for guiding future programming.

### *Experience from an existing adolescent health intervention*

The fifth study question was, “*What is the practical experience of the existing sexual and reproductive health programs towards addressing targeted adolescent health needs in Uganda?*”. To answer this question, an adolescent-focused contraceptive promotion intervention implemented by the Communication for Healthy Communities program in Uganda i.e. Accelerating the Rise in Contraceptive

Prevalence was selected for review. We used a process evaluation design including both quantitative and qualitative data collection methods. The results indicate that the planned program activities including, training and deploying community champions to conduct health education talks, community edutainment events, and mass media placements were successfully implemented in collaboration with service partners and the community. Interpersonal communication complemented by mass media was found to be effective in reaching and empowering adolescents with health information to make informed choices. We found that the program used theoretical frameworks to guide implementation including the Social Ecological Model for audience segmentation, and Empowerment theory for community empowerment through collaborative partnerships and shared decision making. Through its institutionalized measures of assessing activity implementation progress, we noted that the trained community champions were able to execute their IPC activities. However, many were not confident to address all health topics, which is an indication that they needed more refresher training. Our evaluation found that the use of mass media messaging without targeted placements (through identifying high-volume listener times of a target audience) negatively affected program reach to the intended target audiences. At inception, the program targeted all community champions, specifically Village Health Teams attached to health facilities. However, targeting a large number of community champions was found to be difficult in terms of follow-up and reporting. Therefore, this informed program adaptation that limiting the number to a manageable size (10 per health facility) and working through existing community structures is important. Effective evaluation of program reach was challenged by the limited disaggregation of data in most of the program reports which did not indicate reach of the different sub-groups of the target population. These findings seem to suggest the need to address training needs of community champions, work with the target audiences to design targeted mass media schedules, and the institution of results-based monitoring and evaluation systems that capture detailed program-related data. Other empirical studies indicate that collaborative partnerships for community health and development provide an opportunity for studying and contributing to empowerment (Fawcett et al., 1995). Studies also indicate that using message effects theories to design messages for target audiences can enhance the probability of a campaign's success (Randolph & Viswanath, 2004). Multi-media campaigns are more likely to result in greater impact as messages are mutually reinforced (Bessinger et al., 2004). Others show that appropriately trained community health workers can effectively support the health system by improving the community-facility linkage (Malarcher et al., 2011; Mwai et al., 2013). Our evaluation identified lessons for future programming including, recruitment of champions that have a greater influence on the target population is key, linking income-generating activities to health promotion programs is pertinent in reaching

adolescents, and program development practitioners should adopt activity implementation tools that have been tested and used by other existing adolescent health programs.

## **Methodological considerations**

This section discusses the methodological approaches used in the studies of this thesis. It highlights the study designs, the strengths, and limitations of the adopted methodological approaches, and the theoretical considerations.

### *Cross-sectional studies*

This thesis has two cross-sectional designed studies (Chapter 2 and 3). The first study presented in Chapter 2 examines the socio-cognitive factors associated with condom use, multiple sexual partnerships, and contraception use among sexually-active adolescent girls in Uganda. The predictive measures of the variables studied in this chapter were approached theoretically using the Theory of Planned Behavior. The second study in Chapter 3 examines the gender norms associated with adolescent sexual behaviors in Uganda. The variables in this study were measured using the Gender Equitable Men scale. However, due to the cross-sectional nature of these studies, the examined behavioral predictors were not studied over a long period of time to confirm the temporal assumptions. Empirical literature indicates that cross-sectional studies are carried out at a one time point or over a short period (Levin, 2006). Cross-sectional studies save time and cost to conduct, and they help to answer many types of research questions unrelated to longitudinal inferences (Kraemer et al., 2000). However, such studies are limited by the fact that they are carried out at one time point and give no indication of the sequence of events — whether exposure occurred before, after or during the onset of the studied outcome. Thus, it is difficult to make causal inference, and the situation may provide differing results if another timeframe is chosen (Levin, 2006). Studies recommend that the more the conclusions vary with which time point or which time scale is used, the more imperative it is to do longitudinal studies in order to truly understand the developmental process and to confirm the temporal assumptions (Kraemer et al., 2000; Sniehotta, 2009). It is important to note that the cross-sectional studies in this thesis had some limitations. Their focus on sexually active adolescents provided relatively small sample sizes which made it hard to demonstrate the association for some variables, hence limiting generalization to the entire population. The studies also covered fewer (16) districts of Uganda which has over 120 districts. This also limited the number of sampled participants and affected the generalizability of the findings to the study population.

For future research, increasing the number of study targeted districts and sampled participants is recommended for greater generalizability.

### *Qualitative studies*

Chapter 4 of this thesis is a non-experimental qualitative design study that explored the effect of sexuality discussions with key influencing audiences by means of in-depth interviews and focus group discussions with adolescents. Using this study design, convenience sampling was used to recruit participants. Convenience sampling involves drawing samples that are both easily accessible and willing to participate in a study (Teddlie & Yu, 2007). However, its limitation is that groups chosen by convenience sampling are conducive to self-selection, administrative decision, time of the class, number of the years of exposure and many other polluting influences (Farrokhi & Mahmoudi-Hamidabad, 2012). Therefore, the use of mixed methods, both quantitative and qualitative to triangulate findings related to understanding the complex notion of adolescent sexual behaviors is recommended (Shattuck et al., 2013). The mixed methods complement each other in providing a broader understanding of the determinants of adolescent sexual behaviors and existing adolescent health programs. Studies show that the purpose of mixing the quantitative and qualitative approaches is for triangulation, complementarity, initiation, development, and expansion, to allow researchers generate databases that include information that has both depth and breadth regarding the phenomenon under study (Onwuegbuzie & Collins, 2007; Teddlie & Yu, 2007). The success of a mixed methods research project in answering a variety of questions is a function, to a large degree, of the combination of sampling strategies that are employed (Teddlie & Yu, 2007). Mixed methods designs often use multilevel sampling with a combination of random sampling (i.e., probabilistic sampling) and nonrandom sampling (i.e., non-probabilistic sampling) schemes. Specifically, they often involve a combination of probability and purposive sampling techniques. These multilevel sampling techniques are more general and inclusive in creating sample relationships to facilitate drawing of generalizable inferences (Onwuegbuzie & Collins, 2007). For instance, probability sampling used in quantitative studies that are triangulated with qualitative studies is a viable method in which to ascertain the measure of representation. This sampling procedure provides more objective probable scenarios for equal chances of inclusion for targeted participants to reduce the sampling bias (McCusker & Gunaydin, 2015). The qualitative studies in this thesis also had some limitations. The studies relied on self-reported data which have limitations of sexual activity recall bias and the potential for under-reporting of sexual behavior due to the sensitive nature of the subject (Mbalinda et al., 2015; Reid & Aiken, 2011). Thus, exclusive reliance on adolescents' self-reports can lead to erroneous prevalence

estimates, and sometimes the discrepancies between the specificity and sensitivity of a self-report measure can result from systematic error (Elgar, et al., 2005). Studies argue that the use of objective indicators for health including response to questions about specific health conditions or limitations, and doctors' reports, are presumably more objective than self-reported measures (Bound, 1989).

### *Review studies*

Chapter 5 of this thesis used a literature review approach to delineate core processes that draw theoretical and empirical support for generating a list of possible explanations/answers to why adolescents engage in multiple concurrent sexual partnerships. However, the list of possible explanations/answers generated from the review study may not be exhaustive and conclusive in addressing the problem. This is because there is a possibility that not all studies related to the problem were reviewed or there could have been new research studies being conducted on the problem. Therefore, this implies that there might be other contributing factors that may not have been captured in the currently available literature which may require further exploration. As such, additional studies of a similar nature should be conducted in Uganda to offer a contextual comparison of the findings, and to understand the problem within the confines of the multiple ethnic cultural settings in Uganda. Our study justifies that there are a lot of options between 'doing nothing' and 'conducting new research.' It shows that the order of steps in the core processes is crucial; brainstorming (step 2) ensures utilizing the theoretical and empirical knowledge that is available within the planning group, which can later be combined with empirical findings (step 3) and theoretical support (step 4). In fact, going through these steps might actually improve new research: if new research should be conducted, then it should be clear what questions to ask and address in the research. As a result of completing the steps, the planners will have assembled a set of potential answers from both the theoretical and the empirical literature that fit with, suggest changes to, or add to the provisional explanations. In some cases, this information provides insight into the exact processes underlying the provisional answers. The information may, at the same time, raise questions that the planning group had not thought of before. For example, the planning group may want to know whether certain theoretical constructs that look promising are actually explanatory in relation to their population of interest. They may also want to know the particular way in which an explanation found in published research relates to their population. Studies show that literature reviews can tackle broader and more abstract questions, can engage in more post hoc theorizing without the danger of capitalizing on chance, can make a stronger case for a null-hypothesis conclusion, and can appreciate and use methodological diversity better (Baumeister & Leary, 1997; Rosenthal & DiMatteo,

2001). To achieve this, the review should have adequate coverage of the cited literature with clarity about how much detail to give. As such, all reviews, regardless of their primary goal, should provide an overarching conceptualization, perspective, or point-of-view— called a take-home message—and not be content to merely recount previous ideas and research (Baumeister & Leary, 1997). The review should explicitly say what the implications for future research are. A literature review loses considerable value when it fails to tell the reader the nature of the evidence it presents and does not convey enough information on the study topic (Baumeister & Leary, 1997; Fagard, Staessen, & Thijs, 1996; Benzies et al., 2006). Imperative to note is that review studies in this thesis had limitations. The few sub-cultural contexts described in our study might not provide a deeper understanding of the multi-cultural divides in Uganda and how they influence adolescent sexual behaviors. Studies show that cultural setting provides multiple versions of appropriate behavior for men and women (Pulerwitz & Barker 2008). Yet, ethnic cultural differences are often overlooked in research and practice on adolescent health in Africa. For example, studies show that cultural and religious beliefs that encourage having more than one wife are perceived to promote multiple concurrent sexual partnerships (Jewkes & Morrell, 2010; LeClerc-Madlala, 2009). And that the notion of transactional sexual relationships is deeply rooted in cultural contexts that model sexual relationships of exchange on traditional social institutions of courting and bride-wealth payments (LeClerc-Madlala, 2009; Nobelius et al., 2010). Such notions require the conduct of further studies to understand adolescent sexual behaviors within the confines of ethnic cultural differences and settings in Uganda. The studies should explore how power dynamics associated with gender norms, roles, and relationships may contribute to adolescents' sexual behaviors. More so, future studies need to assess the associations between self-reported sexual behaviors and gender norms, as well as the perceptions of adolescents on equitable gender norms.

### *Process evaluation studies*

Chapter 6 of this thesis used a process evaluation design to underscore the practical experience of an existing sexual and reproductive health program in Uganda targeted at addressing adolescent health needs. We used a mixed-methods approach, combining quantitative and qualitative data collection methods. Studies show that process evaluation of complex interventions usually requires a combination of quantitative and qualitative methods (Moore et al., 2015). Process evaluation fulfills the need for information on program implementation, which is important for interpreting program outcomes, and informing future efforts including generating critical lessons for impact evaluations (Rashid et al., 2017; Androustos et al., 2014; Joseph et al., 2015). The strength of a process evaluation is the ability to combine

multiple data sources. Studies indicate that by combining data sources and methods, a more complete picture of the process evaluation emerges, and this entails tracing the footsteps of program implementation (Bess et al., 2004; Rashid et al., 2017). However, process evaluation requires vigilance on the part of the evaluators to respect the trust that has been afforded them. This is because it is the evaluators who ultimately classify, aggregate, or disaggregate themes that emerge as a result of the planning process (Bess et al., 2004). To ensure that evaluators respected the trust afforded them, our study drew expertise from a range of relevant disciplines including public health, behavioral science, health promotion, primary care, sociology, monitoring, evaluation, and research. The experts provided practical experience in the design and implementation of adolescent SRH programs from various settings, and objective judgments in the process evaluation. The limitation of our process evaluation is that the study was conducted retrospectively based on program records, and staff information was subject to recall bias. However, using multiple data sources helped in tracing the implementation footsteps to objectively evaluate the program. More so, the study used adolescent self-report data based on quantitative and qualitative program records, which are subject to bias. However, the self-report data provided practical insights into areas for strengthening scale-up of adolescent health programs

### *Theoretical considerations*

The study used various theoretical approaches and models to understand the determinants of adolescent sexual behaviors. The Social Ecological Model (SEM) which looks beyond individuals to their social context including interpersonal, institutional, community and policy environments (McKee, et al., 2002; Golden & Earp, 2012), was used to assess the interrelations among environmental conditions, human behavior, and well-being that influence adolescent sexual behaviors. The SEM was instrumental in defining and understanding the various levels of behavioral influence and the key players/influencers of behavior that needed to be targeted in adolescent health programming. For example, using the SEM, our study identified that parents, religious leaders, health workers, policymakers, peers, and cultural leaders are key influencers of adolescent sexual behaviors. Furthermore, theoretical constructs drawn from the Theory of Planned Behavior (TPB) were used to describe the data variables of the study in Chapter 2 of this thesis. The TPB constructs we used include intention, attitude, subjective norm, and perceived behavioral control/self-efficacy (Fishbein & Ajzen, 2010). The results in Chapter 2 showed that the socio-cognitive factors of perceived behavioral control/self-efficacy, subjective norm, behavioral intention, and marital status were strongly associated with using contraception. Although the predictive measures of the study were approached

theoretically using TPB, the self-reported questionnaire was not structured as such. Therefore, given that the study was not designed to test TPB means that some operationalizations were not in line with TPB guidelines (Fishbein & Ajzen, 2010). For example, some of the measures we used such as discussing contraception and condom use with others – might be indicative of subjective norm, but are not clearly in line with the conceptualization, nor the operationalization, as specified in the TPB (Fishbein & Ajzen, 2010). Evidence from existing adolescent health programs (described in Chapter 6) shows that it is important to use theory- and evidence-based programming to analyze the context in which the target audiences (adolescents) make decisions, access services, and relate socially in order to address barriers to change (CHC 2016). For example, the CHC-ARC program described in Chapter 6 used theoretical frameworks to guide implementation including the SEM for audience segmentation, and Empowerment theory for community empowerment through collaborative partnerships and shared decision making. Overall, we found that the apparently strong influence of normative beliefs and subjective norms, impact of the social environment and health service structure, and adolescent’s means for self-realization (need for income generating activities) need to be targeted in addressing adolescent health needs.

## **Implications for policy and practice in designing adolescent health programs**

### *Policy Implications*

The intricacies of understanding adolescent health needs call for forming strategic partnerships with various key players in the institutional and structural arena to create a conducive environment for adolescents. This means that concerted efforts from policymakers, parents, religious leaders, peer leaders and health workers in designing targeted adolescent health programs are required. Results of this thesis indicate that these stakeholders should act as advocates for actions geared towards increasing adolescents’ access to sexual and reproductive health services to improve health outcomes.

There is a clear indication that the unfavorable social norms surrounding adolescent access to SRH contribute to the challenges associated with adolescent sexual behaviors. Therefore, social norms that are communally deemed as appropriate, such as gender equity and discouraging early marriages, need to be grounded in policy and effectively communicated to the general public for action. Societal approval of multiple concurrent sexual partnerships and beliefs about the sexual dominance of

men often lead to gender inequalities which may work against the desired policies on adolescent health.

Village Health Teams or Community Health Workers were identified as a key resource in reaching adolescents in this thesis. Therefore, Government through Ministry of Health (health authorities) should lead efforts to define and endorse community health workers' roles, while providing strategies for training, supervision, remuneration, recognition, career progression and quality assurance. Policy makers and practitioners ought to embrace the fact that community health worker programs grow and evolve in phases of continuous learning, improvement, and expansion of coverage.

### *Practical implications*

This thesis indicates that adolescents and their key influencers' knowledge of SRH issues is inadequate and often laced with a lot of hearsay, myths, and misconceptions. As such, information services remain important in clearing any misconceptions and addressing any health concerns for increased service uptake. Therefore, health promotion practitioners need to develop participatory strategies such as promoting informed parent-adolescent communication, community-based education, and provider-adolescent communication to enhance respect and confidentiality when serving adolescent clients. Programs should use social and mass media campaigns more extensively to provide adequate and updated SRH information to guide sexuality dialogue of adolescents and their key influencers. Above all, development practitioners in Uganda need to look more towards community-driven change, rather than focus on the individual alone. More so, considering that many of the challenges are not entirely an information gap, but more gender and social norms related.

Interpersonal communication was found to be highly effective in complementing and clarifying generic messages relayed through mass media (radio, TV, posters). This is an indication that a combination of channels in health promotion and communication programming is paramount in message saturation, rather than the use of one channel. Therefore, health promotion practitioners need to develop strategies that enable communication channel mix in adolescent health programming. However, it is always important to understand the unique information needs of the different audiences and subgroups for targeted programming. Continuous studies need to be done to understand the different and emerging information needs of adolescents and their key influencers.

Religious leaders were highlighted as being instrumental in motivating and advising adolescents to behave well. Studies show that individuals who attend religious services frequently receive religious messages against premarital sex and are more

likely to develop sexual attitudes and behaviors that are consistent with their religious doctrines (Odimegwu, 2005; Kagimu et al., 2013; Maulana et al., 2012). Therefore, health promotion practitioners need to engage in progressive religious discourses and work closely with religious institutions in providing SRH information that addresses myths and misconceptions. Foremost should be learning from the experiences of existing adolescent health programs which have sensitized religious leaders on SRH issues to champion the cause of adolescent health programming.

Gender integration should be central to health promotion and adolescent health programming to address any inequitable socio-cultural norms that influence adolescent sexual behaviors. Studies argue that gender norms that put men in a position of sexual dominance were found to limit women's ability to control their own reproductive and sexual health, as often seen in the belief that girls who carry or suggest using condoms are promiscuous (Pulerwitz, Michaelis, Verma, & Weiss, 2010; Varga, 2003). Studies indicate that gender power relations and beliefs where young men often think that it is heroic to have many sexual partners, and girls engaging in transactional sex with older men who are seen as better able to provide for them economically, influence adolescent sexual behavior (Bantebya et al., 2014; Centerwall & Laack, 2008). As such, health promotion programs should engage influential cultural institutions and policymakers in promoting gender integration approaches towards addressing adolescent health needs. To start with, gender awareness training and gender inclusive programming need to be adopted. Both adolescent girls and boys should be given the opportunity to provide input into program design based on their personal experience and needs.

## **Conclusion**

The findings of this research provide insight and knowledge into the determinants of adolescent sexual behaviors and underscore experiences from already existing adolescent health programs. This information is important for future interventions to rely on the available evidence in the design of targeted adolescent health programs in Uganda. First, our research reveals that contraceptive uptake among adolescents is correlated with self-efficacy, subjective norm, and behavioral intention. These findings suggest that increasing self-efficacy and subjective norms may increase intention to use contraception and actual contraception use. This implies that community-wide, rather than just individual change, should be a critical focus for adolescent health programs. Second, it highlights that the majority of adolescent girls and boys were in support of gender inequitable norms explored in the study. Thus, the use of a multi-pronged gender-responsive approach for social and behavior

change to address the negative gender perceptions of adolescents is required. This means that social and behavior change is enhanced if efforts target community-wide and social paradigm shifts because it is within such a context that better individual choices and outcomes are assured. Notably, the study circles around factors such as social and gender norms which are not individualistic. They are also the same factors implicated in the disconnect between policy and practice. Third, it indicates that adolescents desire information, and more especially sexuality information, from parents as their immediate most respected/trusted source of knowledge. Thus, strengthening parent-adolescent communication is paramount. Fourth, it underscores that multiple sexual partnering is on the rise among adolescents which puts them at higher risk of sexually transmitted diseases. Yet, knowledge gaps about health risks among adolescents and their key influencers are eminent. Therefore, information services that address knowledge gaps, myths and misconceptions are important. Above all, the design of future adolescent health targeted programs should be based on the experiences and lessons drawn from already existing programs for scale-up.

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# Summary

Adolescents in Uganda, as in other sub-Saharan countries, are increasingly engaging in risky sexual behaviors such as early sexual debut and multiple and concurrent sexual partnerships, which expose them to health risks of HIV/AIDS and unplanned pregnancies. Adolescents are challenged with limited access to sexual and reproductive health (SRH) services. A complex mix of factors including gaps in the adolescent SRH policy and cultural norms regarding sexuality and fertility limit not only the capacity of the existing health system to address their SRH needs, but also hinder adolescents from accessing available services. There is need to focus on understanding the determinants of sexual behaviors among adolescents aged 15-19 as a distinct group from the often-generalized youth or young adults. Targeted adolescent health programming can improve when development practitioners distinctively assess the determinants or factors associated with sexual behaviors (such as condom use, multiple sexual partnerships, and contraceptive use) among sexually active adolescents.

The studies reported in this thesis focused on two main goals. The first is to describe the determinants of adolescent SRH behaviors and needs. The second is aimed at underscoring the practical experiences and lessons from existing adolescent health programs for future design and scale-up. Results from studies in Chapter 2-6 indicate that the adolescence stage comes with changes of intense sexual desires, often presumed difficult to control thus leading adolescents to engage in sexual activities. The unmet need for contraception among adolescent girls was found to be high. Multiple concurrent sexual partnerships were found to be on the rise among adolescents, with persistent transactional sex and pre-marital relationships that increase the risk of HIV and unplanned pregnancies. Adolescents themselves, however, were found to be more concerned about unplanned pregnancies than HIV risk. We found persistent inequitable gender norms and social pressures that affect SRH service uptake among adolescents. Behavioral intention and self-efficacy to use contraception was found to be moderately correlated with a gender equitable norm towards reproductive health and pregnancy/ disease prevention among both girls and boys. Although adolescents showed awareness of the risks of sexual behaviors such as condom use, contraception use, and risks of multiple concurrent partnerships, their knowledge of SRH issues was inadequate and often laced with a lot of hearsay, myths, and misconceptions. We found strong associations between feeling confident to discuss contraceptive methods with a partner, being comfortable to use contraception, discussing contraception use with someone, and contraception use. Interpersonal communication complemented by mass media messaging was found to be instrumental in reaching and empowering adolescents with health information to make informed choices regarding sexual behaviors.

Several conclusions in designing effective and targeted adolescent SRH programs can be drawn from the findings reported in this thesis. First, the findings suggest the need to continually provide adequate and updated information to clear any misconceptions. Strengthening parental and community support through enhanced collaborative training on communication with and for adolescents is pertinent to enable key influencers and adolescents gain confidence in addressing adolescent SRH needs. Second, changing the negative gender norms/perceptions requires a multi-pronged gender-responsive approach for social change. Working

with both girls and boys, and engaging influential stakeholders such as parents, health care workers, policymakers, community, and religious leaders, who create the environment where gender-related attitudes and world views are formed is critical. Therefore, forming strategic partnerships with various stakeholders for concerted efforts in addressing adolescent SRH needs is required. Third, the lessons identified for scaling-up adolescent health programs include the need to harmonize training and deployment of community champions by development partners, whose efforts should be led by the government through Ministry of Health, recruit audience-specific influential champions, and link income-generating activities to health education interventions.

Above all, experiences from existing adolescent health programs discussed in Chapter 6 of this thesis indicates the need to collaboratively develop and institutionalize effective monitoring and evaluation strategies during the inception and design phases of adolescent SRH promotion programs. This will help programmers achieve appropriate accountability for efforts towards ownership and a continuation of gains.



# Valorisation

Adolescents are a critical target population with regards to influencing global public health outcomes (WHO, 2011). In sub-Saharan Africa, including Uganda, many adolescent girls and boys aged 15–19 years continue to face health challenges related to HIV/AIDS, teenage pregnancies, and limited access to sexual and reproductive health (SRH) services. Among adolescent girls aged 15-19 years in Uganda, 19% have had a live birth, and an HIV prevalence of 1.8% was recorded among adolescent girls and 0.4% among boys (UBOS, 2018). Aggravating the health problems in Uganda is that multiple concurrent partnerships are on the rise among adolescents. Yet, the use of condoms among adolescents is still relatively low, and the unmet need for contraception among girls is high. With such intricacies surrounding adolescents and their sexual behaviors, our study focused on understanding the determinants of adolescent sexual and reproductive health needs to guide future programming. This study focused on understanding the socio-cognitive factors and gender norms associated with adolescent sexual behaviors, assessing the effect of adolescents discussing sexual behaviors with key influencers, and understanding why adolescents engage in multiple concurrent sexual partnerships, as well as drawing lessons from an existing adolescent health program for scale-up.

The findings in this thesis show strong associations between perceived behavioral control/self-efficacy, subjective norm, and behavioral intention to use contraception. These findings suggest that increasing self-efficacy and subjective norms towards contraception use may increase intention and actual use. As such, it is important to improve contraception communication among adolescents and their key influencers. More so, the findings evidently show that the majority of adolescent girls and boys were in support of gender inequitable norms such as approval of male dominance in health decision making, and agreement that women who carry condoms on them are cheap. These findings seem to suggest that the design of adolescent health programs needs to consider addressing and changing negative gender norms that hinder the use of condoms, contraception and steer multiple sexual partnerships among adolescents. The findings further point out that parents, health workers, religious leaders, and peers were instrumental in influencing adolescent sexual behaviors. However, challenges such as limited knowledge on the health risks, attitude, use of technical language and giving unclear information were highlighted as barriers to communication with adolescents. The rise of multiple sexual partnering among adolescents in Uganda should not go unnoticed as the findings show that these sexual partnerships often overlap for months or years. Factors such as limited knowledge, peer influence, poor communication with sexual partner and parents, and societal indifference steered the problem. From the experience of an existing adolescent health program, the study findings indicate that the program activities were successfully implemented through collaborative partnerships with service partners and the community and that the program used theoretical frameworks to guide targeted intervention implementation. Lessons drawn from the program include the pertinent need to link income-generating activities to health promotion programs, and adopting activity implementation tools that have been tested and used by other

existing programs. These findings are of interest to governments including health authorities, policy makers, and local leaders to inform nationally driven policy formulation and strategies for adolescent sexual and reproductive health programs. The development and implementing partners including donors, international and national non-governmental organizations, civil society organizations, religious, cultural, and local leaders can use the findings to develop targeted and evidence based adolescent health interventions. The results are of interest to adolescents and their key influencers (parents, health workers, religious leaders) who can use them to be part of their change process as actors/advocates for the cause.

The results presented in this thesis suggest practicable solutions/activities for addressing adolescent sexual and reproductive health needs. The suggested solutions/activities provide a potential direction of focusing on both individual and community-led efforts to address adolescent health behavior change. First, health promotion programs should invest in developing the influencers' communication skills and provide adequate/up-to-date information on sexual and reproductive health to guide dialogue among adolescents and their key influencers including health workers, parents, partners, and peers. Programs should adopt a multi-pronged gender-responsive approach to devise strategies for addressing negative/inequitable gender norms that affect adolescent sexual behaviors. The strategies include using participatory approaches that encourage working closely with both girls and boys to develop intervention efforts; promoting informed peer and partner discussions; community-based education; gender awareness trainings; engaging in progressive community and religious discourses that question gender stereotypes; and engaging in strategic partnerships with parents, religious, political, and community leaders. The use of mass media coupled with face-to-face interaction and public dialogue is pertinent for reinforcing social-change interventions. Further still, it is imperative to recruit champions with a greater influence on the target population. Adequately training and equipping selected champions with skills and updated information is critical. Secondly, linking income-generating activities to health promotion programs is pertinent for reaching adolescents. Livelihood interventions provide alternative options for adolescents to generate income. It is imperative to intensify periodic evaluation of existing adolescent health programs to draw additional lessons for implementation and scale-up.

The findings in this thesis can be used to improve adolescent health programming in Uganda. Currently, Uganda has initiated a nationwide drive of revising the community health workers strategy that aims to harmonize partner interventions as a means to leverage key resources in the health sector. This study indicates that the efforts should focus on defining and endorsing community health workers' roles while providing strategies for training, supervision, remuneration, recognition, career progression and quality assurance. Through routine monitoring and evaluation, phases of continuous learning, improvement, and expansion of coverage should evolve as the community health worker programs grow with new emerging issues widening their operational scope. Additionally, to create a conducive

environment for adolescents and their key influencers such as parents and health workers, strategic partnerships should be formed among development practitioners in the institutional and structural arena. Routine dialogue meetings can be held among policymakers, parents, religious leaders, peer leaders, and health workers to discuss contextual solutions and forge a way forward towards addressing the complex and ever emerging adolescent health needs. Most importantly, the communities and adolescents should be able to contribute to their own change efforts as key stakeholders. They should be involved in the planning and execution of change interventions. Cognizant that the adolescent health agenda in Uganda is grounded in policy, strategic partners should advocate for community demand for gender equity and discouraging harmful social values and practices including early marriages. The policies affecting adolescent health should be effectively communicated (through community dialogue meetings, using mass and social media, and interpersonal communication) to the general public for action and further advocacy for change. Above all, the periodic (quarterly, annual, and ad-hoc) efforts to review and update the national adolescent health policies should consider addressing the emerging needs highlighted in this thesis.

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## Author's Resume

Judith Nalukwago was born in Kampala, Uganda, where she attended school. She pursued a Bachelors' degree majoring in Sociology at Kyambogo University, Uganda, graduating in 2009, after which she worked as a Program Assistant at the National Union of Disabled Persons of Uganda, on an HIV prevention program. In 2011, she pursued a postgraduate Diploma in Monitoring and Evaluation at the Uganda Management Institute, graduating in 2012. She moved on to work with Malaria Consortium Uganda from 2011 to 2013, as a Technical Officer – Monitoring and Evaluation. She further pursued a Masters in Management Science (Monitoring and Evaluation) at Uganda Management Institute, graduating in 2014. She has worked as a Monitoring and Evaluation Manager with FHI 360 (Family Health International) in Uganda, since December 2013, under the USAID-funded Communication for Healthy Communities Project, focused on addressing six health areas including Maternal and Child Health, HIV/AIDS, TB, Malaria, Nutrition, and Family Planning. During her time with FHI 360, she diligently pursued a sandwich doctoral/PhD program at Maastricht University in the Netherlands, while taking her responsibilities on the project. Since 2016, she worked with Maastricht University as a researcher until the completion of this doctoral thesis, mainly leading in the technical writing of scientific manuscripts, leading design and conduct of qualitative and quantitative studies, and leading in data analysis for the studies. Specifically, she is skilled in conducting capacity building in Monitoring, Evaluation, Research, and Social and Behavior Change Communication for staff, implementing partners, and government. She has technical expertise in *Project Planning and Management*– proposal development, program conceptualization, design and implementation, partner coordination, M&E budget management, financial and narrative reporting. *Monitoring and Evaluation*– developing and managing program M&E systems including; M&E plan development, constructing program context specific theories of change, set-up of databases for tracking progress, and quality control mechanisms. *Research*– leading Evaluative surveys (Baseline, Midline, and Endline), formative research, and directing operational research using both qualitative and quantitative methods, skills in designing studies, protocol and tools development, field supervision and data synthesis – cleaning and analysis, deployment of participatory assessment approaches including; Action Media methodology; Visualization in participatory programming (VIPP); and Rapid Participatory Assessments. With her expertise, Judith's particular interest is in the meticulous application of theories of behavior change into the practice of developing, implementing, and sustaining disease control and health behavior change interventions. This can contribute to change solutions in the development discourse and practice.

## Publication list

Nalukwago, J., Crutzen, R., Van den Borne, B., Bukuluki, P. M., Bufumbo, L., Burke, H. M., ... & Alaii, J. (2018). Socio-cognitive factors associated with condom use, multiple sexual partnerships, and contraception use among sexually-active adolescent girls in Uganda. *Global Journal of Health Science*, 10, 41-54.

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Nalukwago, J., Crutzen, R., Van den Borne, B., Bukuluki, P.M., Bufumbo, L. Holl y M. Burke, H.M., Field, S., Zikusooka, A., Fiedler, A.A., & Alaii, J (submitted). *Gender norms associated with adolescent sexual behaviors in Uganda*.

Nalukwago, J., Alaii, J., Van Den Borne, B., Bukuluki, P. M., & Crutzen, R. (2018). Application of core processes for understanding multiple concurrent sexual partnerships among adolescents in Uganda. *Frontiers in Public Health*, 6, 371.

Nalukwago, J., Alaii, J., Van den Borne, B., Bukuluki, P. M., Kimbowa, M., Bockh, E., Coutinho, M. S., & Crutzen, R. (submitted). *Process evaluation of the Communication for Healthy Communities adolescent health program in Uganda*.

