

# Knowledge of, and factors associated with current use of modern contraceptives among young people 10 - 24years in central and western Uganda: A cross-sectional study

Nelson Bunani (✉ [n.bunani@yahoo.com](mailto:n.bunani@yahoo.com))

Makerere University School of Public Health

Raymond Tweheyo

Makerere University School of Public Health

Evelyne Nyachwo Beavali

Makerere University School of Public Health

Allen Kabagenyi

Makerere University School of Statistics and Planning

Stella Neema

Makerere University School of Social Sciences

Elizeus Rutebemberwa

Makerere University School of Public Health



---

## Research Article

**Keywords:** Knowledge, Modern contraceptive use, Young people, Uganda

**Posted Date:** January 12th, 2023

**DOI:** <https://doi.org/10.21203/rs.3.rs-2455576/v1>

**License:**   This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

---

## Abstract

# Background

Although modern contraceptives are the most effective way for averting unintended pregnancies and related adverse reproductive events for the mother and baby, their use in Uganda remains low compared to the national target for the year 2020. Adolescents and young people start using modern contraceptives at 23.8 years, yet most of them have had sexual intercourse by age 16. The objective of the study was to determine the knowledge of, and factors associated with the current use of modern contraceptives among young people 10–24 years in central and western Uganda.

## Methods

This was a cross cross-sectional study. Data was collected from 289 in- and out-of-school young people aged 10–24 years in five districts of western and central Uganda between July and August 2020. Digital questionnaires designed in Census and Survey Processing System (CSPro) version 7.5.1 were used. Data was transferred to Stata 15.1 for analysis. Modified Poisson regression at bivariable and multivariable analysis was used to determine the factors associated with modern contraceptive use.

## Results

About 62.6% of the respondents had high knowledge of modern contraceptives. Most respondents were highly knowledgeable on injectable contraceptives 278 (96.2%) and male condoms (96.5%). Emergency contraceptives were known by only 138 (47.8%) of the respondents. In addition, the current use of modern contraceptives was 58.5% (169). Modern contraceptive use was significantly associated with being aged 20–24 years (Adj. PRR = 0.69, 95%CI; 0.52–0.90),  $p = 0.007$ ; not residing with someone as a sexual partner (Adj. PRR = 0.71, 95%CI; 0.57–0.88),  $p = 0.002$ ; and being a student (Adj. PRR = 1.37, 95% CI; 1.04–1.79),  $p = 0.023$ .

## Conclusion

Young people 10–24 years in central and western Uganda were highly knowledgeable about modern contraceptives, particularly injectables, and condoms, but least knowledgeable about emergency contraceptives. Respondents who were students compared to non-students were more likely to be using modern contraceptives, while those aged 20–24 years and those not staying with their sexual partners were less likely to use modern contraceptives. Awareness campaigns among young people aged 20–24 years and those co-residing with a sexual partner will be necessary to improve modern contraceptive use among young people aged 10–24 years.

## Plain English Summary

Modern contraceptive use in Uganda remains low compared to the national target for the year 2020. This study aimed to determine the knowledge of, and factors associated with current use of modern contraceptives among young people 10 – 24 years in central and western Uganda.

This study included data collected from 289 in and out-of-school young people aged 10-24 years in five districts of western and central Uganda between July and August 2020.

More than half of the respondents had high knowledge of modern contraceptives. They were more knowledgeable about injectable contraceptives and male condoms. The respondents who were aged 20-24 years were more likely not to use modern contraceptives compared to those who were younger. Respondents who were not staying with someone as a sexual partner were using modern contraceptives compared to those who were staying with someone as a sexual partner. A higher proportion of students were using modern contraceptives compared to non-students.

Being aged 20 – 24 years, and not co-residing with a sexual partner resulted into low use of modern contraceptive. Awareness campaigns among the young people aged 20-24 and those co-residing with a sexual partner will be necessary to improve modern contraceptive use among these people.

## Background

Globally, an estimated 21 million young girls aged 15-19 years become pregnant every year with majority of the pregnancies unintended (1). Additionally, an estimated 2.5 million girls in developing countries gave birth by age 16 in the year 2018 (2), most births were due to unintended pregnancies. The highest burden of teenage pregnancies is found in low and middle income countries, particularly in sub-Saharan Africa (SSA) and the Caribbean (2). In 2013, SSA had the highest burden of teenage pregnancies globally (3), which has since then been high with 21.5% of teenage pregnancies in East Africa (4), and in Uganda the teenage pregnancy rate is at 25% (5).

Early age pregnancy (before 18 years) affects young peoples' sexual and reproductive health (6). Additionally, the reproductive choices made by young people greatly impacts on their health, education, future aspirations and their transition into adulthood (7). Available evidence reveals that contributors to early pregnancy and childbearing includes individual level, community and health system related factors (8-10).

Although it is most effective for averting unintended pregnancies, and the related adverse reproductive events for the mother and baby (11), modern contraceptive use in Uganda remains low, estimated at 35%, versus 50% national target for the year 2020 (12). Low use of modern contraceptives could partly explain the persistently high total fertility rate (TFR) in Uganda that has slowly declined from 7.4 in 1988-1989 to 5.4 children per woman in 2016 (5). Teenage pregnancy is a key contributor to high fertility rate and risky pregnancies which have resulted into the persistently high maternal mortality rate in Uganda (5, 13).

While the government of Uganda made a commitment to improve the quality of life and well-being of young people (14), this population segment – especially the adolescents and youth are a key inaccessible population for modern contraceptives. Central and western Uganda have registered a high TFR in the past years compared to other areas (15). This study aimed at determining the knowledge of, and factors associated with use of modern contraceptives among young people 10-24 years in central and western Uganda.

## Methods

### Study design

This was a cross-sectional study. A semi-structured questionnaire designed in CSPro version 7.5.1 to collect the data from young people aged 10-24 years was used. Standardized modules of the Demographic and Health Survey (DHS) questionnaire on sexual and reproductive health for knowledge on family planning were adapted for this study.

### Study setting

The study was conducted in the five districts of western and central Uganda. They included; Gomba, Kyegegwa, Kibaale, Bundibugyo and Buliisa. These districts were selected because they have a higher population growth rate than the national average of 3%, and by 2020 these districts had a total of 2,041,106 people representing about 5% of Uganda's total population (16). The TFR in these five districts ranges from 4.7 in Gomba to 7.8 children per woman per annum in Kyegegwa (16). Additionally, a study conducted in Uganda identified these districts as fertility hot spots (17). We conducted this study during lock down when all the schools were closed, so the participants were located in their communities. We conducted this study between July and August 2020.

### Sampling and sample size

A sample of 289 respondents was computed using Kish Leslie formula for cross sectional studies (18). This number was proportionately divided across the different study districts. Simple random sampling using computer generated random numbers was used to select the study participants. In the communities, house-to-house assessments were done to find eligible young people who were then classified as either in-school or out-of-school. Respondents were asked the last time they were in school. Those who were in school by March 2020 (when the COVID-19 lockdown was instituted) were considered as being in school. At house hold level, only one respondent who met the inclusion criteria was interviewed.

### Study variables

The primary outcomes for this study were knowledge of modern contraceptives and modern contraceptive use. Knowledge of modern contraceptive was measured using 9 questions that were used to assess respondent's knowledge of modern contraceptives. Each of

the questions measuring knowledge had a “Yes” and “No” responses where a “yes” was considered to be a correct response and a “No” considered to be a “No” response. A respondent was considered to have good knowledge if he scored more than 6 out of the 9 knowledge questions. Respondents who scored less than 6 out of the 9 knowledge questions were considered to have low knowledge (19). Current use of modern contraceptives was recorded as “Yes” and “No”. Respondents currently using any modern contraceptive were recorded as “Yes” and those who were not using were recorded as “No”. Current use of modern contraceptives was defined as a respondent currently using any modern contraceptive method during sexual intercourse. The modern contraceptives considered in this study were; emergency pills, Intrauterine devices (IUDs), male condoms, injectable contraceptives and Implants. Independent variables were; sex of the respondent, age at first sexual intercourse, marital status, education level, occupation, religion, ever heard of any family planning (FP) method, access to FP service, distance to the health facility and the district of origin.

### **Data management and analysis**

A digital questionnaire designed in CSPro 7.5.1 was used as an interviewer-administered tool from computer tablets (personal digital assistants). The questionnaire was translated into the appropriate local language for the region: Luganda, Runyoro and Rutooro. Questionnaires included socio-demographic variables, questions on knowledge of modern contraceptives, health system related questions on access to family planning services, and assessments for risky behaviors, such as unprotected sexual intercourse, alcohol and other substance use. Research assistants (RAs) with a minimum of a bachelor’s degree and fluent in the appropriate language were trained on research ethics, field conduct and how to administer the questionnaire from the personal digital assistant (PDA) and sync data to the server. Daily editing of data was done, reviewed by a team leader, and data were synced to a central server at the Uganda Bureau of Statistics. Completed datasets were downloaded into Microsoft excel, and corresponding (CSpro files) cleaned before transfer to STATA software for analysis. Datasets held de-identified data, and alongside the computer folders were encrypted for data security.

Univariate, Bivariable, and multivariable analyses were conducted in STATA SE version 15 to explore the data, cross-tabulate the dependent and independent variables, and generate inferential statistics. We further performed stratified analysis to determine the level of current use of modern contraceptives by socio-demographic characteristics across the study districts. To determine the association between independent variables and current use of modern contraceptives, we used a generalized linear model (glm) using modified Poisson regression with robust variances at bivariable and multivariable analysis (20). Independent variables significant at  $p < 0.2$  in the bivariable cross tabulations, and all plausible variables, were included in the final multivariable model. Then model building was carried out using stepwise elimination method to obtain the variables that were associated with current use of modern contraceptives, prevalence rate ratios (PRRs) with the corresponding 95% confidence intervals were obtained and presented in a table.

## **Results**

### **Background Characteristics Of The Respondents**

Out of the 289 study respondents, 76 (27%) were in schools. More than half of the respondents, 184 (63.7%) were females. The mean age of the respondents was  $20.8 \pm 2.4$  years and at least half were aged 17 at sexual debut, 146 (50.5%). Furthermore, the majority of respondents 278 (96.2%) had ever heard about family FP methods. (Table 1).

Table 1  
Back ground characteristics of the respondents

<b>Variables</b>	<b>(N = 289, %)</b>
<b>Sex</b>	
Female	184 (63.7)
Male	105 (36.3)
<b>Age of the respondents</b>	
≤ 16	14 (4.8)
17–19	77 (26.6)
20–24	198 (68.5)
<b>Age at first sexual intercourse</b>	
≤ 14	51 (17.7)
15–17	146 (50.5)
17–24	92 (31.8)
<b>Marital status</b>	
Married	121 (41.9)
Not married	168 (58.1)
<b>Reside with someone as a sexual partner</b>	
Yes	121 (41.9)
No	168 (58.1)
<b>Education level</b>	
No education	14 (4.8)
Primary	131 (45.3)
Secondary	126 (43.6)
Tertiary	18 (6.2)
<b>Occupation</b>	
Agriculture worker	101 (35.9)
Salaried employment	16 (5.7)
Business	88 (31.3)
Student	76 (27.1)
<b>Region</b>	
Central	50 (17.3)
Western	239 (82.7)
<b>Religion</b>	
Catholics	145 (50.2)
Protestants	77 (26.6)
Muslims	25 (8.7)
<i>* Other religions included; Pentecostal and seventh day Adventists; **variable with missing data</i>	

Variables	(N = 289, %)
<b>Sex</b>	
Others*	42 (14.5)
<b>Ever heard of any FP method</b>	
Yes	278 (96.2)
No	11 (3.8)
<b>Access to FP services</b>	
Yes	181 (62.6)
No	108 (37.4)
<b>Distance to the nearest Health facility**</b>	
≤ 1Km	177 (68.3)
2-4Kms	54 (20.9)
≥ 5Kms	28 (10.8)
<i>* Other religions included; Pentecostal and seventh day Adventists; **variable with missing data</i>	

## Current Us Of Modern Contraceptive Use By Selected Background Characteristics Across The Study Districts

Overall, 58.5% (169) of the respondents were currently using modern contraceptives, and at least a half of the respondents with a secondary level of education in the districts of; Bundibugyo, Gomba, Kibaale and Kyegegwa were currently using modern contraceptives. Kyegegwa district had higher number of respondents, 21(87.5%) that were currently using modern contraceptives. (Table 2).

Table 2  
Prevalence of modern contraceptive use by selected back ground characteristics across the districts

Variable	District									
	Buliisa (n = 68)		Bundibugyo(n = 63)		Gomba (n = 50)		Kibaale (n = 56)		Kyegegwa (n = 52)	
	Yes (n, %)	No (n, %)	Yes (n, %)	No (n, %)	Yes (n, %)	No (n, %)	Yes (n, %)	No (n, %)	Yes (n, %)	No (n, %)
<b>Education level</b>										
No education	9 (23.7)	2 (6.7)	0 (0.0)	1(6.7)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	2(7.1)
Primary	22 (57.9)	23 (76.7)	21(43.8)	5(33.3)	12(40.0)	13(65.0)	10(34.5)	5(18.5)	8(33.3)	12(42.9)
Secondary	5 (13.2)	5 (16.7)	25(52.1)	9(60.0)	17(56.7)	5(25.0)	17(58.6)	16(59.3)	13(54.2)	14(50.0)
Tertiary	2 (5.3)	9 (0.0)	2(4.2)	0(0.0)	1(3.3)	2(10.0)	2(6.9)	6(22.2)	3(12.5)	0(0.0)
<b>Marital status</b>										
Married	26 (68.4)	12 (31.6)	12 (25.0)	36 (75.0)	9 (30.0)	21 (70.0)	6 (20.7)	23 (79.3)	7 (29.2)	17 (70.8)
Not married	20 (66.7)	10 (33.3)	7 (46.7)	8 (53.3)	10 (50.0)	10 (50.0)	8 (29.6)	19 (70.4)	16 (57.1)	12 (42.9)
<b>Age of the respondents</b>										
≤ 16	1(2.6)	4(13.3)	1(2.1)	3(20.0)	0(0.0)	2(10.0)	0(0.0)	0(0.0)	1(4.2)	2(7.1)
17–19	11(29.0)	6(20.0)	15(31.3)	3(20.0)	10(33.3)	10(50.0)	6(20.7)	7(25.9)	2(8.3)	7(25.0)
20–24	26(68.4)	20(66.7)	32(66.7)	9(60.0)	20(66.7)	8(40.0)	23(79.3)	20(74.1)	21(87.5)	19(67.9)
<b>Age at first sexual intercourse</b>										
≤ 14	11(29.0)	9(30.0)	14(29.2)	2(13.3)	5(16.7)	2(10.0)	1(3.5)	3(11.1)	1(4.2)	3(10.7)
15–17	19(50.0)	17(56.7)	23(47.9)	10(66.7)	14(46.7)	11(55.0)	16(55.2)	15(55.6)	8(33.3)	13(46.4)
17–24	8(21.1)	4(13.3)	11(22.9)	3(20.0)	11(36.7)	7(35.0)	12(41.4)	9(33.3)	15(62.5)	12(42.9)

## Knowledge of modern contraceptive among young people aged 10–24 years

As depicted in Table 3, out of the 289 respondents, 181(62.6%) had high knowledge of modern contraceptives. Most of the respondents were highly knowledgeable on injectable contraceptives 278 (96.2%) and male condoms 279 (96.5%). There was low knowledge of modern contraceptives, 138 (47.8%).

Table 3  
Knowledge of modern contraceptive among young people aged 10–24 years

Variables	Frequency (n = 289)	Percent (%)
Women can have an operation to avoid having any more children (female sterilization)	210	72.7
Men can have an operation to avoid having any more children (male sterilization)	181	62.6
Women can have a loop or coil placed inside them by a doctor or a nurse which can prevent them from having a pregnancy one or more years (IUDs)	217	75.1
Women can have an injection by a health provider that prevents them from becoming pregnant for one or more years (injectable)	278	96.2
Women can have one or more rods placed in their upper arm by a doctor or nurse that can prevent pregnancy for one or more years (implant)	247	85.5
Women can take a pill every day to avoid becoming pregnant (pill)	249	86.2
Men can put a rubber sheath on their penis before sexual intercourse to prevent becoming pregnant (Male condom)	279	96.5
Women can place a sheath in their vagina before sexual intercourse to prevent pregnancy (Female condom)	172	59.5
As an emergency measure, within three days of having un protected sexual intercourse, women can take an emergency pill to prevent pregnancy (Emergency contraception)	138	47.8
Overall knowledge	181	62.6

## Current use of modern contraceptives by district

Bundibugyo district had the highest number (76.2%) of respondents that were currently using modern contraceptives. (Fig. 1)

### Factors associated with current use of modern contraceptives among young people 10–24 years in central and western Uganda

At bivariable analysis, being aged above 16 years, marital status, being a student and having access to FP from a health facility appeared significantly associated with modern contraceptive use. At multivariable analysis; age, being married, and being a student were significantly associated with current use of modern contraceptives.

The prevalence of current use of modern contraceptives was 31% times lower among the respondents aged 20–24 years compared to those who were aged 16 years and below (Adj. PRR = 0.69, 95%CI; 0.52–0.90),  $p = 0.007$ . Additionally, the prevalence of current use of modern FP was 29% times lower among the respondents who were not married compared to those who resided with someone as sexual partner (Adj. PRR = 0.71, 95%CI; 0.57–0.88),  $p = 0.002$ . The prevalence of current use of modern FP was 37% times higher among the respondents that were students compared to those who had no formal education (APR = 1.37, 95% CI; 1.04–1.79),  $p = 0.023$ . (Table 4).



Table 4  
Factors associated with current use of modern contraceptive among young people aged 10–24 years

variables	Current use of modern contraceptives		Crude PRR (95%CI)	P-value	Adj.PRR (95%CI)	P-value
	Yes (n, %)	No (n, %)				
<b>Sex</b>						
Female	100 (54.4)	84 (45.7)	1		1	
Male	69 (65.7)	36 (34.3)	0.80 (0.63–1.01)	0.065	0.96 (0.76–1.20)	0.715
<b>Age</b>						
≤ 16	3 (21.4)	11 (78.6)	1		1	
17–19	44 (57.1)	33 (42.9)	0.60 (0.43–0.82)	0.002	0.78 (0.58–1.05)	0.108
20–24	122 (61.6)	76 (38.4)	0.55 (0.42–0.73)	< 0.001	0.69 (0.52–0.90)	<b>0.007**</b>
<b>Age at first sexual intercourse</b>						
≤ 14	32 (62.8)	19 (37.3)	1			
15–17	80 (54.8)	66 (45.2)	1.16 (0.85–1.59)	0.336		
17–24	57 (62.0)	35 (38.0)	1.02 (0.72–1.43)	0.926		
<b>Marital status</b>						
Married	60 (35.3)	109 (64.5)	1		1	
Not married	61 (50.8)	59 (49.2)	0.75 (0.61–0.93)	0.009	0.71 (0.57–0.88)	<b>0.002**</b>
<b>Education level</b>						
No education	9 (64.3)	5 (35.7)	1			
Primary	73 (55.7)	58 (44.3)	1.18 (0.68–2.07)	0.556		
Secondary	77 (61.1)	49 (38.9)	1.07 (0.61–1.88)	0.819		
Tertiary	10 (55.6)	8 (44.4)	1.19 (0.60–2.34)	0.621		
<b>Occupation</b>						
Agriculture worker	67 (66.3)	34 (33.7)	1		1	
Salaried employment	9 (56.3)	7 (43.8)	1.22 (0.75–2.0)	0.416	1.37 (0.83–2.26)	0.217
Business	55 (62.5)	33 (37.5)	1.09 (0.81–1.46)	0.583	1.11 (0.86–1.44)	0.418
Student	36 (47.4)	40 (52.6)	1.42 (1.09–1.87)	0.011	1.37 (1.04–1.79)	<b>0.023*</b>
<b>Region</b>						
Central	30 (60.0)	20 (40.0)	1			
Western	139 (58.2)	100 (41.8)	1.04 (0.77–1.39)	0.812		
<b>Religion</b>						
Catholics	83 (57.2)	62 (42.8)	1			
PRR-prevalence rate ratio, p < 0.05*, P < 0.01**, P < 0.001**						

variables	Current use of modern contraceptives		Crude PRR (95%CI)	P-value	Adj.PRR (95%CI)	P-value
	Yes (n, %)	No (n, %)				
<b>Sex</b>						
Protestants	48 (62.3)	29 (37.7)	0.91 (0.69–1.18)	0.467		
Muslims	16 (64.0)	9 (36.0)	0.87 (0.57–1.34)	0.539		
Others*	22 (52.4)	20 (47.6)	1.09 (0.81–1.47)	0.570		
<b>Ever heard of any FP method</b>						
Yes	164 (59.0)	114 (41.0)	1			
No	5 (45.5)	6 (54.6)	1.26 (0.79–2.0)	0.328		
<b>Distance to the nearest Health facility</b>						
≤ 1Km	104 (58.8)	73 (41.2)	1			
2-4Kms	34 (63.0)	20 (37.0)	0.92 (0.68–1.24)	0.587		
≥ 5Kms	16 (57.1)	12 (42.9)	1.03 (0.71–1.49)	0.871		
<b>Knowledge</b>						
Low knowledge	57 (52.8)	51 (47.2)	1		1	
High Knowledge	112 (61.9)	69 (38.1)	0.84 (0.68–1.05)	0.125	1.00(0.81–1.24)	0.980
PRR-prevalence rate ratio, p < 0.05*, P < 0.01**, P < 0.001**						

## Discussion

Modern contraceptive knowledge was found to be 62.6%. The most commonly known modern contraceptives were male condom, injectables and implants. The reported level of knowledge is higher than that reported in the UDHS (21). The higher level of knowledge may be due to increased access to information regarding family planning through radio and television (22). It is also higher than that reported in Ethiopia at 52.1% (23), but lower than that found in the general population in Gambia, where 89.4% of the population knew about progesterone only and contraceptives (24). The difference in the level of knowledge in Gambia and Ethiopia is attributed to limited access to mass media and social negative beliefs that make the young people shy away from using contraceptives (25, 26).

Our study further found current use modern contraceptive to be 58.5% among the young people which was higher than that previously reported among adolescents in Uganda at 30.9% (27). The higher prevalence of modern contraceptive use in this study is likely due to increased knowledge (28). The reported prevalence is higher than that reported in Mali at 17% (29). The low use of modern contraceptives in Mali suggests that their use for fertility prevention is low which may be due to limited awareness.

We also found that young people who were aged 20–24 years were less likely to use modern contraceptives. Low use of modern contraceptives could be attributed to the fact that people aged above 20 years may be possibly married or preparing to have children and therefore could not use contraceptives. Similarly, the UDHS 2016 reported low use of modern contraceptives among young women below 24 years compared to their older counterparts (5). Contrary to our findings, a previous study in Uganda found a positive association between modern contraceptive use and being aged 24 or less (30). Further, it has been stressed that youths and adolescents who are recently married are confronted with pressure to bear children which makes them not to use contraception (31). This pressure may be from the community and close family members as parents who would want to have grandchildren.

This study also found that young people who were not married were less likely to use modern contraceptives compared to those who co-resided with someone as a sexual partner. Most of the young people who were not residing with a sexual partner could not have been sexually active and therefore did not find any reason to use contraceptives. Our findings agree with those from a previous study in

Ghana which found that cohabiting and staying with someone as a sexual partner was associated with increased use of modern contraceptives (32). Additionally, adolescents who reside with someone as a sexual partner could be using modern contraceptives because they have partner support. Partner support has showed a positive relationship with modern contraceptive use among adolescents in north western Tanzania (33).

We also found that being a student was associated with current use of modern contraceptives. This is attributed to the exposure to contraceptive information through media and internet which increases their knowledge on benefits of contraceptives (34), while others may using contraceptives due to fear getting pregnant while in school which ultimately results into an increase in contraceptive use. Comparable findings were reported by a study conducted in 20 African countries which reported an increased contraceptive use and being in school (35). Additionally in northern Tanzania, being in school was associated with modern contraceptive use due to increased literacy levels that make for young people to easily access and understand family planning information (33).

## Strength And Limitations

We collected data during COVID-19 lockdown and therefore could have registered some young people as out of school yet they were in school which may have affected the findings. We verified this by asking them whether they were in school by the time of lockdown.

This was a cross-sectional study design which cannot infer causality among variables under study but can only help formulate a hypothesis for further investigations using stronger study designs which can infer temporal relationships.

## Conclusion And Implications

Young people 10–24 years in central and western Uganda were found highly knowledgeable of modern contraceptives, particularly injectables, and condoms, but least knowledgeable of emergency contraception. Respondents who were students compared to non-students were more likely to be using modern contraceptives, while those aged 20–24 years and those not staying with their sexual partners were less likely to use modern contraceptives. It appears that persons aged 10–24 years are planning their marital life, and have less likelihood for contraceptive use.

## Abbreviations

WHO	World Health Organization
UNFPA	United Nations Population Fund
REC	Research and Ethics Committee
UBOS	Uganda Bureau of Statistics
MOH	Ministry of Health

## Declarations

### Ethics approval and consent to participate

Ethical approval for this study was obtained from Makerere University School of Social Sciences, Research and Ethics Committee (MakSS REC) approval number MakSS REC 06.20.418 and the Uganda National Council of Science and Technology (UNSCT) approval number HS778ES. We further obtained clearance from the district local authorities to allow access to the study areas. A written informed consent was obtained from all subjects and they were assured of confidentiality. The respondents were further informed that that they could stop the interview any time they wanted.

### Consent for publication

Not applicable

### Availability of data and material

To protect the confidentiality of participant information, ethical restrictions have been imposed on the data used in this study. Interested researchers may submit queries related to data access to MAKSS REC or to the corresponding author.

### Competing interests

The authors declare that they have no competing interests.

### Authors' contributions

NB led the data analysis and development of the first draft of the manuscript. RT, ER, ENB, AK and SN contributed to study conceptualization, design, data collection, analysis and write up of the manuscript. RT and ER offered guidance on the study design, data analysis, and interpretation of the results and writing of the manuscript. All authors reviewed numerous versions of the manuscript and read and approved the final version for submission.

### Funding

This study was supported by the USAID Family Planning Activity in Uganda through Pathfinder International, Uganda. The funders have no direct involvement in the implementation of the project or content of the manuscript.

### Acknowledgements

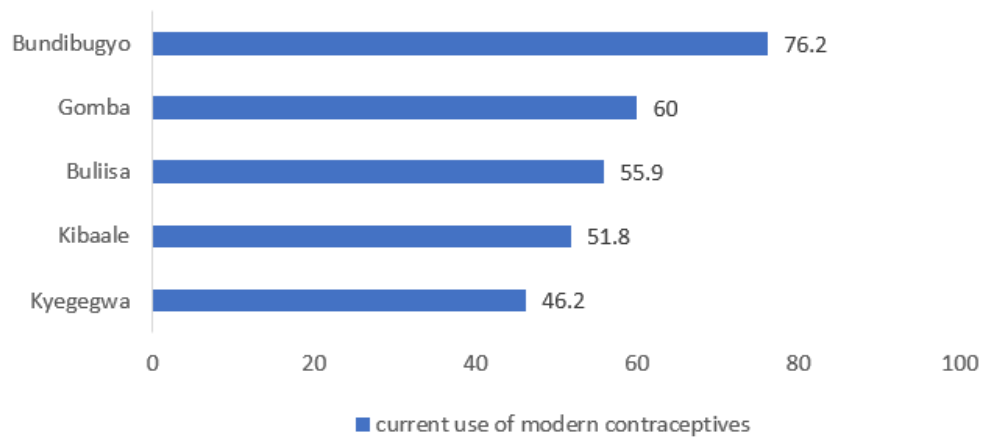
We acknowledge the support by the data collectors and the study participants who accepted to take part in this study. We also thank the local administration in the districts for giving us permission to access the study participants.

## References

1. Darroch JE, Woog V, Bankole A, Ashford LS, Points K. Costs and benefits of meeting the contraceptive needs of adolescents. Guttmacher Institute. 2016.
2. WHO. World Health Organisation. Adolescent pregnancy [Internet]. 2018. Available from: <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy;>; 2018.
3. UNFPA. Motherhood in Childhood: Facing the challenge of adolescent pregnancy. New York: UNFPA, 2013. 2013.
4. Kassa GM, Arowojolu A, Odukogbe A, Yalew AW. Prevalence and determinants of adolescent pregnancy in Africa: a systematic review and meta-analysis. *Reproductive health*. 2018;15(1):1-17.
5. UBOS&ICF. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF.; 2018.
6. Wado YD, Sully EA, Mumah JN. Pregnancy and early motherhood among adolescents in five East African countries: a multi-level analysis of risk and protective factors. *BMC pregnancy and childbirth*. 2019;19(1):59.
7. Juárez F, LeGrand T, Lloyd CB, Singh S, Hertrich V. Youth migration and transitions to adulthood in developing countries. Sage Publications Sage CA: Los Angeles, CA; 2013.
8. Buregyeya E, Rutebemberwa E, LaRussa P, Lal S, Clarke SE, Hansen KS, et al. Comparison of the capacity between public and private health facilities to manage under-five children with febrile illnesses in Uganda. *Malaria journal*. 2017;16(1):1-7.
9. MOH. Essential medicines and health supplies list for Uganda (EMHSLU). 2016, Republic of Uganda, Ministry of Health: Kampala. 2016.
10. Nabugoomu J, Seruwagi GK, Hanning R. What can be done to reduce the prevalence of teen pregnancy in rural Eastern Uganda?: multi-stakeholder perceptions. *Reproductive Health*. 2020;17(1):1-12.
11. Singh S, Darroch JE. Adding it up: Costs and benefits of contraceptive services. Guttmacher Institute and UNFPA. 2012:1269-86.
12. MOH. Reproductive, Maternal, Newborn, Child and Adolescent Health Sharpened Plan for Uganda 2016/17 – 2019/20 2016.
13. Muldoon KA, Galway LP, Nakajima M, Kanters S, Hogg RS, Bendavid E, et al. Health system determinants of infant, child and maternal mortality: A cross-sectional study of UN member countries. *Globalization and health*. 2011;7(1):1-10.
14. MOH. Health sector development plan 2015/16 - 2019/20. 2015, Republic of Uganda, Ministry of Health: Kampala. 2015.
15. UNFPA&UBOS. Uganda Family Planning Atlas. 2019.
16. UBOS. The National Population and Housing Census 2014 – Main Report, Kampala, Uganda. 2016.
17. F Mubiru F, PS Kibira. Identifying fertility hot spots in Uganda. 2018.

18. Kish L. survey sampling. New York, London: John Wiley & Sons; 1965.
19. Gomes LM, Vieira MM, Reis TC, Barbosa TL, Caldeira AP. Knowledge of family health program practitioners in Brazil about sickle cell disease: a descriptive, cross-sectional study. *BMC Family Practice*. 2011;12(1):89.
20. Barros AJ, Hirakata VN. Alternatives for logistic regression in cross-sectional studies: an empirical comparison of models that directly estimate the prevalence ratio. *BMC medical research methodology*. 2003;3(1):21.
21. UBOS. Demographic and Health Survey 2016 [Available from: <https://dhsprogram.com/pubs/pdf/FR333/FR333.pdf>].
22. Birabwa C, Chemonges D, Tetui M, Baroudi M, Namatovu F, Akuze J, et al. Knowledge and Information Exposure About Family Planning Among Women of Reproductive Age in Informal Settlements of Kira Municipality, Wakiso District, Uganda. *Frontiers in Global Women's Health*. 2021:24.
23. Oumer M, Manaye A, Mengistu Z. Modern Contraceptive Method Utilization and Associated Factors Among Women of Reproductive Age in Gondar City, Northwest Ethiopia. *Open Access J Contracept*. 2020;11:53-67.
24. Barrow A. A Survey on Prevalence and Knowledge of Family Planning among Women of Childbearing Age in the Provincial Settings of the Gambia: A Descriptive Cross-Sectional Study. *Advances in preventive medicine*. 2020;2020.
25. Jain A, Ismail H, Tobey E, Erulkar A. Stigma as a barrier to family planning use among married youth in Ethiopia. *Journal of biosocial science*. 2019;51(4):505-19.
26. Yaya S, Idriss-Wheeler D, Uthman OA, Bishwajit G. Determinants of unmet need for family planning in Gambia & Mozambique: implications for women's health. *BMC women's health*. 2021;21(1):1-8.
27. Fatuma N, Theresa P-W, Joseph R, Flavia N, Lorraine O, Paul M, et al. Ever Use of Modern Contraceptive among Adolescents in Uganda: A Cross-Sectional Survey of Sociodemographic Factors. *Health*. 2022;14(6):696-723.
28. Rogers D. The impact of mass media-delivered family planning campaigns in developing countries: a meta-analysis. 2018.
29. Ahinkorah BO, Seidu A-A, Appiah F, Budu E, Adu C, Aderoju YBG, et al. Individual and community-level factors associated with modern contraceptive use among adolescent girls and young women in Mali: a mixed effects multilevel analysis of the 2018 Mali demographic and health survey. *Contraception and reproductive medicine*. 2020;5(1):1-12.
30. Asimwe JB, Ndugga P, Mushomi J, Ntozi JPM. Factors associated with modern contraceptive use among young and older women in Uganda; a comparative analysis. *BMC public health*. 2014;14(1):1-11.
31. UNFPA. UNFPA. Girlhood, not motherhood: preventing adolescent pregnancy. New York: United Nations Population Fund. 2015.
32. Aryeetey R, Kotoh A, Hindin MJ. Knowledge, perceptions and ever use of modern contraception among women in the Ga East District, Ghana. *African Journal of Reproductive Health*. 2010;14(4).
33. Nsanya MK, Atchison CJ, Bottomley C, Doyle AM, Kapiga SH. Modern contraceptive use among sexually active women aged 15–19 years in North-Western Tanzania: results from the Adolescent 360 (A360) baseline survey. *BMJ open*. 2019;9(8):e030485.
34. Pazol K, Zapata LB, Tregear SJ, Mautone-Smith N, Gavin LE. Impact of Contraceptive Education on Contraceptive Knowledge and Decision Making: A Systematic Review. *American journal of preventive medicine*. 2015;49(2 Suppl 1):S46-56.
35. Apanga PA, Kumbeni MT, Ayamga EA, Ulanja MB, Akparibo R. Prevalence and factors associated with modern contraceptive use among women of reproductive age in 20 African countries: a large population-based study. *BMJ open*. 2020;10(9):e041103.

## Figures



**Figure 1**

Modern contraceptive use by district