Determinants of female sterilization uptake in Uganda

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Abstract

Female sterilization uptake in Uganda is very low despite its effectiveness, safety and convenience for women who do not wish to have more children. This study aimed at establishing factors influencing female sterilization uptake in the country. Secondary data from the 2016 Uganda Demographic and Health Survey was used. A binary logistic regression was fitted to determine predictors of female sterilization uptake in Uganda.

Results showed that prevalence of female sterilization among modern contraceptive users was 6%. Logistic regression indicated that female sterilization was significantly predicted by age, wealth status (middle), total number of children ever born (4+) and contraceptive decision maker. Family Planning programmes that aim to increase uptake need not only focus on spousal communication and male involvement, but also consider economic empowerment for women. Government and other stakeholders should scale-up efforts that increase accessibility to information on female sterilization services for women who have completed their fertility.

Introduction

Female sterilization is a permanent contraceptive method used by women who do not wish to have more children. Globally, female sterilization is used by nineteen percent of married or in union women although there are marked regional differences in its uptake among women of child bearing age. Study findings indicated that Female Sterilization is more common in Asia(23%) and Northern America Oceania and some parts of Asia, but less common in Africa (1.7%) as well as in Central Asia, South-Eastern Asia and Western Asia(United Nations, 2015).

In developing countries, 20 to 30 percent of women who use oral contraceptives or injectable stop within two years of starting because of side effects or other health concerns (Mota, Reddy, & Getachew, 2015). Long-acting and permanent methods (LAPMs) such as IUDs, Implants, Female sterilization(tubal ligation), and vasectomy are the most effective methods of contraceptionand would thus provide a very safe and convenient alternative(Melka, Tekelab, &

Wirtu, 2015). Currently,the prevalence of permanent contraception such as female sterilizationin developing countries is only 20.6 percent and higher (more than 35%) in countries such as India, Colombia and El Salvador(Patil & Jensen, 2016).

In many sub-Saharan African (SSA) countries, fertility rates and unmet need for family planning remain high (Kabagenyi et al., 2014a).Contraceptive prevalence in countries such as Uganda, Ghana, Nigeria and Rwanda among others has been reported to be influenced by partner support, approval or opposition(Mota et al., 2015).Despite many women in SSA wanting to stop having children, the proportion using long acting and permanent methods is low(Melka et al., 2015).In Ethiopia, a study found that vasectomy and female sterilization uptake were very low compared to the long acting reversible methods (Melka et al., 2015).

Results from Uganda show that more women use modern contraceptives during the postpartum period. This is significantly associated with women's: education level, wealth status, religion, age of the woman, number of surviving children, exposure to the media, and utilization of reproductive health services including skilled delivery care and timing of post-delivery care (Rutaremwa et al., 2015). Although Female sterilization issafe and effectively provides longer continuation rates for women who do not wish to have more children, actual uptake in poor settings like Uganda is low (Anguzu et al., 2014).The findings of the 2016 Uganda Demographic and Health Survey (UDHS) indicated that the proportion of women who have undergone sterilization increased from 2 percent in 2000/01 to only 2.7 percent in 2016(UBOS & ICF, 2018). Due to this, women continued to have unwanted fertility.

On average, women in Uganda are currently having one child more than they want. The 2016 UDHS reports that whereas, total wanted fertility rate for the women in Uganda in the year 2016 was 4.3 children per woman, the actual fertility rate was 5.4(UBOS & ICF, 2018). Women and couples could achieve their desired fertility goals by using more effective, reliable and safe methods of family planning. It was evident that the utilization of female sterilizationwhich is the most effective birth control continued to be very low(Anguzu et al., 2014).A study on contraceptive knowledge, and concerns among men in Uganda found that decisions around the use or disuse of particular contraceptive methods were often informed by efforts to protect female partners and in some cases future children, from adverse side effects or birth

defects(Thummalachetty et al., 2017). These methods are known to be safe, reliable and can therefore attract approval and support by menresulting into reduced unwanted births.

Most studies in Uganda examined factors that influence uptake of modern contraception methods(Thummalachetty et al., 2017), (Asiimwe, Ndugga, & Mushomi, 2013), (Sileo, Wanyenze, Lule, & Kiene, 2015), (Lule, Echoru, Nnabagulanyi, & Mulumba, 2015), (Thummalachetty et al., 2017), (Kabagenyi, Habaasa, & Rutaremwa, 2016), (Blackstone, Nwaozuru, & Iwelunmor, 2017), (Kabagenyi, Jennings, et al., 2014), (Rutaremwa et al., 2015), (Kabagenyi, Ndugga, Wandera, & Kwagala, 2014)(Kabagenyi, Reid, Ntozi, & Atuyambe, 2016). Some studies also explored the utilization of long acting reversible methods such as implants and intra-uterine device (IUD)(Anguzu et al., 2014).However, there is limited documentation on the non-reversible methods of family planning such as female sterilization. The purpose of the study was to explore the factors influencing uptake of female sterilization inUganda. Specifically the study assessed; theassociation between decision making and sterilization uptake among women aged 15-49 years in Uganda, the association between fertility preferences and female sterilization uptake in Uganda and the socio-demographic factors associated with uptakeof female sterilization in Uganda.

Data and Methods

Source of data

This study utilized secondary data from the 2016 Uganda Demographic and Health Survey (UDHS). The survey was conducted by the Uganda Bureau of Statistics (UBOS) with technical support from ICF International and collecteddata on demographic and health indicators. The UDHS collected data from women, children, men and couples. This study however, used the women's dataset. Information on marriage and sexual activity, and the contraceptive behavior of women aged 15-49 years was collected during the survey. The UDHS was anationally representative cross-sectional survey of all women aged 15-49 years. A total of 18,506 women aged 15-49 years were interviewed during the 2016 UDHS.The samples were obtained using a two-stage cluster sampling process beginning with the selection of clusters or enumeration areas followed by the selection of households from each cluster (UBOS & ICF, 2018). Permission was obtained from Measure DHS to access and use the dataset for this study.

During the survey, the women were asked to report about their current use of any method of contraception to avoid or delay pregnancy. This study was conducted on a sample of women who were using any contraceptive method (5,418), sample was weighted to yield 5601 to ensure representativeness and control for non responsiveness across regions. Figure 1 shows the derivation of the study sample. This study also investigated female sterilization uptake by their various socio-demographic characteristics, enabling factors related to family planning and fertility preferences.

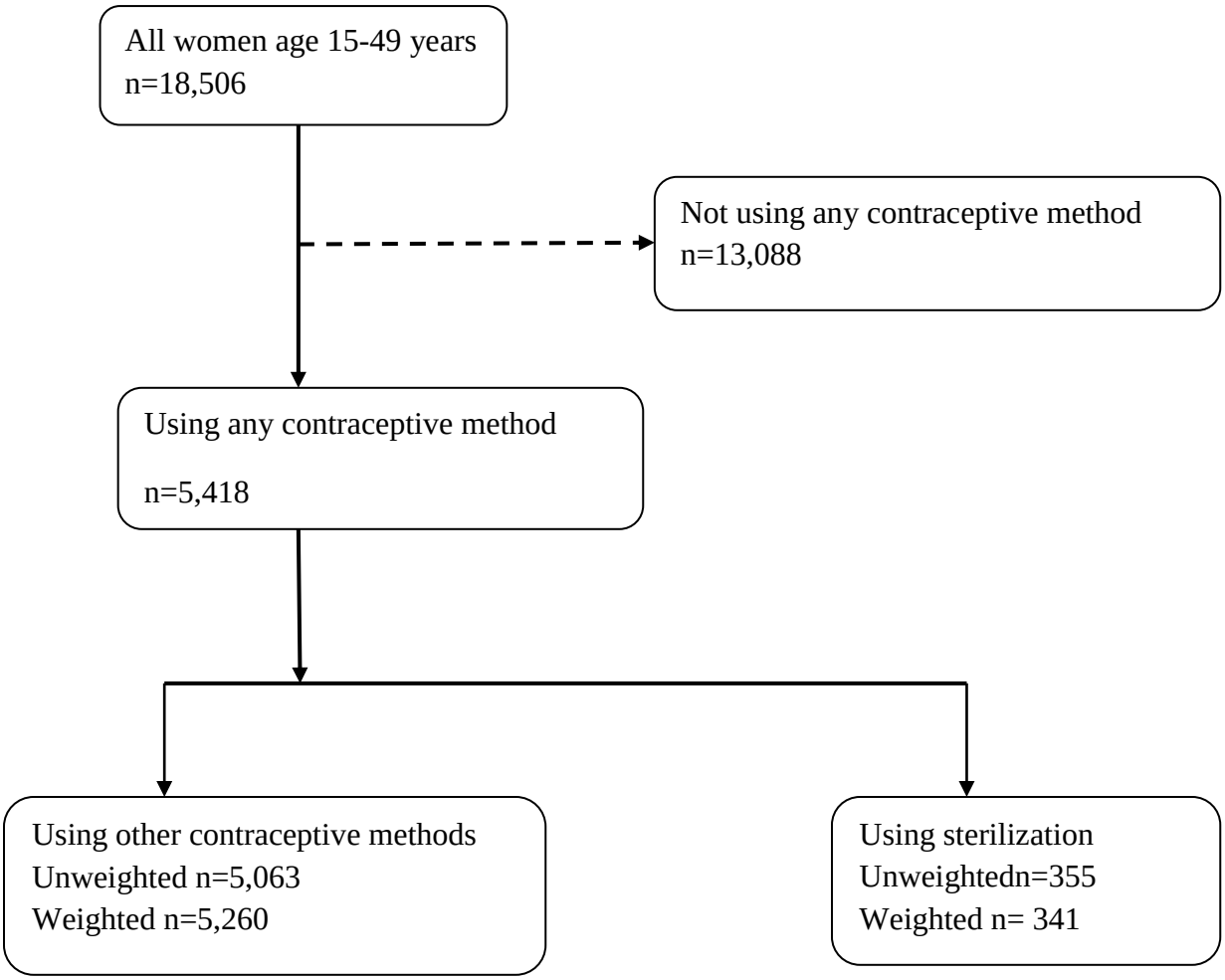

Figure 1:Derivation of sample used in the study

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}}$$

Variable selection and Measurements

The dependent variable was sterilization use and was re-coded to be a binary outcome. All women who used sterilization were coded 1, while women using other contraceptive methods were coded 0. This was based on the question "which method are you currently using?" in the survey.The independent variables included Age, education, residence, wealth status, place of residence, marital status, number of children ever born and women's paid employment. Others are knowledge about contraceptives, source of contraceptive, contraceptive decision maker and access to family planning services. Selection of the independent variables was based on previous studies and the hypothetical relationship they have with sterilization uptake. Some of the independent variables were regrouped to facilitate easy analysis and interpretation. The variable age of the respondents which was in five age groups was regrouped into two groups1=Younger than 30 years, 2=30 years and older due to the small numbers in UBOS report. For highest level of education attained, two categories "secondary" and "higher" were merged. Marital status was regrouped into 3 categories as 0=Never in union, 1=Married, 2=formerly married. Wealth status was re-coded into 1= Poor 2= Middle 3=Rich. For total number of children ever born, the categories were re-grouped as follows; 1=0-3 children, 2= 4+ children. The decision maker for contraceptive use was regrouped into 3 categories; 1=Respondent, 2=Husband & wife, 3=Husband/Partner. For fertility preference, the categories were re-grouped as follows; 0= none, 1= 1-3 children, 2=4+ children, 3= Non-numeric response. "Non-numeric" responses refer to a situation where the respondent has not specified the actual numbers. For example for the ideal number of children, some of the non-numeric responses were; "It depends on God", "As many as I can support", "I don't know".

Data Analysis

In the analysis current use of female sterilization was used as the outcome variable. A descriptive summary indicating the frequency distribution of women bysocio-demographic characteristics was performed. Secondly, a Pearson chi square test was used to analyze the association offemale sterilization useduring the period compared with each explanatory variable. The chi square test equation is illustrated below;

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{\left(O_{ij} - E_{ij}\right)^2}{E_{ij}} \quad \ldots\ldots 3.1$$

Where O_{ij} are observed frequencies that a woman i in cluster j underwent sterilization for contraception purposes

E_{ij} are expected frequencies that a woman i underwent sterilization in cluster j

Lastly, at the multivariate level, a binary logistic regression model was used for this analysis. Thebinary logistic regression model was used to determine the predictors of female sterilization.The model is illustrated as;

$$Log(\frac{p_i}{1-p_i}) = a + b_1X_1 + b_2X_2 + \cdots .. + b_yX_y \quad \text{3.2}$$

Where p_i is the probability of using female sterilization contraceptive method based on the respondent's demographic and socioeconomic characteristics and $1 - p$ is the probability of not using sterilization. $X_i$are independent variables; a is a constant and b_i represents coefficients associated with the independent variables. All statistical tests were conducted at a 5% level of significance.

Due to the complexity of the sampling design used in DHS, some areas were more likely to be under sampled or over sampled.The data was weighted to cater for this complex nature of the sampling design using the "svy" command in STATA.

Results

Table1 shows the percentage distribution of a weighted sample of 5601 women aged 15-49 years by selected characteristics. The results in Table 4.1 indicate that majority (51%) of the women were young than 30 years while 49% were aged 30 years and older. With regards to marital status, results show that majority (78%) of the women reported that they were currently married. The results also indicate that slightly more than half (55%) of the women had attained primary level of education while 38% had attained at least a secondary level of education. In terms of wealth status, majority (52%) of the women were from rich households, 29% from the poor households, while 19% were from the middle class. Table 1 results also indicate that majority (70%) of the women resided in rural areas.Regarding the current working status of women, majority (81%) reported to be working while 19% were not currently working.

Pertaining the total number of children ever born, the findings in Table 1 revealed that majority (51%) of the women said that they had ever born 0-3 children while (49%) had ever bornat least four children. In addition, findings also show that majority (84%) of the women reported their ideal number of children as 4+, 14% reported the number as 1-3 children. This may indicate high fertility preferences among women in Uganda.In terms of sex preference, the findings show that many (78%) of the women reported their ideal number of boys as 1-3 while 9% reported the ideal number of boys as 4+. Relatedly, majority (76%) of the women reported their ideal number of girls as 1-3 while 11% reported the ideal number of girls as 4+.

Table 1: Percentage distribution of women aged 15-49 by selected characteristics

Characteristic	Frequency (n)	Percent (%)
Age		
< 30 years	2,866	51.2
>30+	2,736	48.8
Marital status		
Never in Union	563	10.1
Married	4,373	78.1
Formerly married	665	11.9
Education level attained		
No education	416	7.4
Primary	3,085	55.1
Secondary+	2,100	37.5
Wealth quintile		
Poor	1,599	28.6
Middle	1,069	19.1
Rich	2,933	52.4
Place of residence		
Urban	1,688	30.1
Rural	3,913	69.9
Current working status		
Not working	1,053	18.8
Working	4,548	81.2
Total number of children ever born		
0-3 children	2,831	50.5
4+ children	2,771	49.5
Ideal number of children		
None	24	0.4
1-3 children	809	14.4
4+ children	4683	83.6
Non-numeric	86	1.5
Ideal number of boys		
None	637	11.4
1-3 boys	4366	77.9

4+ boys	491	8.8
Non-numeric	107	1.9
Ideal number of girls		
None	635	11.3
1-3 girls	4257	76.0
4+ girls	602	10.7
Non-numeric	107	1.9
Total	**5601**	**100.0**

Enabling factors

In the 2016 UDHS, women were asked whether they earned more than their husbands/partners. In this study, two variables on decision making were considered and these include; person who usually decides on how to spend the woman's earnings and the decision maker for using contraception. The Findings in Table 2 indicates that most (73%) of the women reported that they earned less than their partners/husbands while (14%) earned about the same amount of money as their husbands/partners and10% said that they earned more than their partners. The findings in Table 2 indicate that slightly more than half (51%) of the women said that they independently decided on how to spend their earnings, 42% said that they decided jointly with their husbands while 7% said that the husband/partner usually decided on how to spend the wife's earnings. Table 2 also shows that majority (61%) of the women aged 25-49 years said that the decision on contraception was taken jointly with their partners while 32% reported that they made independent decisions and only 7% reported that the decision was taken by the husband or partner.

Table 2: Distribution of respondents by enabling factors

Factor	Frequency (n)	Percent (%)
Whether respondent earns more than husband/partner		
Earn more than him	295	10.1
Earn less than him	2,139	73.4
Earn about the same	399	13.7
Don't know	81	2.8
Decision maker on respondent's earnings		
Respondent	1,483	50.9
Husband and wife	1,190	40.9
Husband/Partner	240	8.3
Decision maker on use of contraceptives		

Respondent	1,340	30.6
Husband/Partner	312	7.1
Joint decision	2,721	62.2

Known source of contraceptive methods

Figure 2 shows that slightly more than half (53%) of the womenknew public source like government health facilities as the main contraceptive sources followed by the private source (35%). The rest of the women said they did not know any source of contraceptives while only two percent said they knew other sources of contraceptive methods

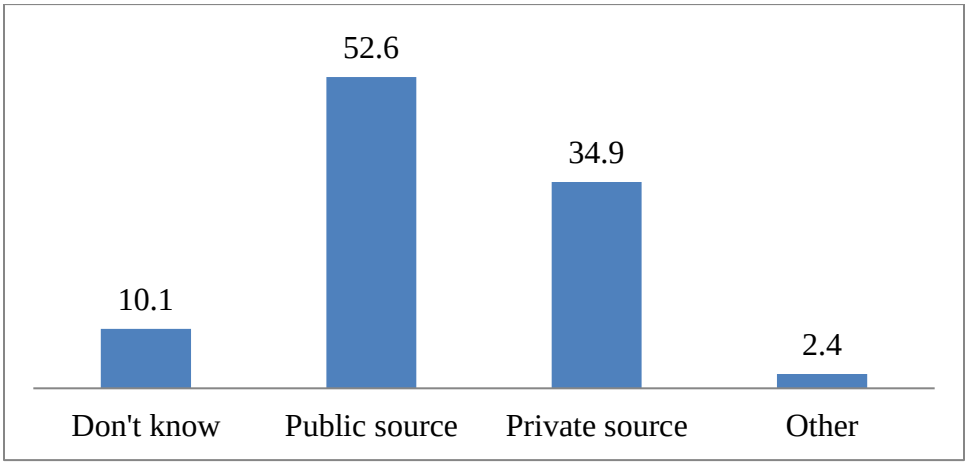

Figure 2: Known contraceptive source

Use of female sterilization

This study aimed to explore the uptake of female sterilization and factors associated with it. Women who were currently using a method were selected and subsequently categorized into two categories depending on whether they were sterilized or using other methods. The women who were using methods other than female sterilization were categorized as not using sterilization. Figure 3 shows the prevalence of female sterilization among users of family planning methods.

Figure3: Prevalence of sterilization

Figure 2 indicates that only 6% of the users of contraception had been sterilized while the remaining proportion (94%) of the women aged 15-49 years were using other methods.

Table3: Association female sterilization use and women'ssocio-demographic characteristics

Characteristic	Frequency	Sterilization status	
		Not using sterilization	Using sterilization
Age		χ^2 =366.78,p= 0.000	
< 30 years	2,738	99.8	0.2
>30+ years	2,680	86.9	13.1
Marital status		χ^2 =35.66p= 0.000	
Never in Union	543	99.3	0.7
Married	4,268	92.6	7.4
Formerly married	607	94.2	5.8
Education level attained		χ^2 =93.66p=0.000	
No education	426	85.2	14.8
Primary	3,127	92.4	7.6
Secondary+	1,865	97.1	2.9
Wealth quintile		χ^2 =22.29p=0.000	
Poor	1,755	91.6	8.4
Middle	1,066	92.5	7.5
Rich	2,597	95.1	4.9
Place of residence		χ^2 =12.68p=0.000	
Urban	1,445	95.4	4.6
Rural	3,973	92.7	7.3
Working status		χ^2 =9.18p=0.002	

Not working	963	95.6	4.4
Working	4,455	93.0	7.0
Total number of children ever born		**χ^2 =287.02p= 0.000**	
0-3 children	2,675	99.2	0.8
4+ children	2,743	87.8	12.2

Table 3 shows that female sterilization was significantly associated with age. The proportion of women who were sterilized increased with an increase in age as shown in the table. The results also show that the prevalence of female sterilization was higher (7%) among the married women and formerly married (6%) and low (1%) among the never married. The relationshipbetween marital status and female sterilization was significant (p=0.000) at 5% level of significance. Furthermore, education was significantly associated with female sterilization (p=0.000). The results displayed in the table indicate that the percentage of women who reported having been sterilized decreased with an increase in level of education attained. Such a percentage was 15% for the women who had not attained any level of education, 8% for those who had attained primary and 3% for those who had attained at least a secondary level of education. Similarly, the findings indicate that there was a significant relationship between wealth class of the respondents and female sterilization (p=0.000) and the proportion of women who had been sterilized reduced along the wealth classes. For instance, 8%, 7%, and 5% of the women in poor, middle, and rich classes respectively had been sterilized.

Regarding place of residence, the study results indicate that 7% of the women who reported that they resided in rural areas were sterilized compared to 5% of their urban counterparts. The relationship between place of residence and female sterilization was significant (p=0.000).Furthermore, results show a significant relationship between women's working status and female sterilization p=0.002), 7% of the working women were sterilized while4% of the women who were not working were sterilized. Pertaining the number of children ever born (CEB), results in Table 3 show that the prevalence of female sterilization increased with an increase in CEB. For example, while only 1% of women with CEB of 0-3 children were sterilized, 12% of the women with CEB of 4+ children were sterilized. CEB was significantly associated with female sterilization (p=0.000).

Table 4: Enabling factors and female sterilization

Characteristic	Frequency	Sterilization status	
		Not using sterilization	Using sterilization

Characteristic	Frequency	Sterilization status	
		Not using sterilization	Using sterilization

Whether respondent earns more than husband/partner χ^2=21.26, p=0.000			
Earn more than him	304	88.5	11.5
Earn less than him	2,038	93.8	6.2
Earn about the same	395	94.9	5.1
Don't know	74	85.1	14.9
Decision maker on respondent's earnings χ^2=2.03, p=0.363			
Respondent	1,385	93.8	6.2
Husband and wife	1,199	92.7	7.3
Husband/Partner	227	91.6	8.4
Decision-maker on contraception χ^2=5.75, p=0.056			
Respondent	1,294	93.4	6.7
Husband/Partner	311	89.4	10.6
Joint decision	2,663	92.6	7.4

The study findings also indicate that female earning was significantly associated with female sterilization (p=0.000). The findings in table 4.4 reveal that 12% of the women who reported that they earned more than their husband or partner were sterilized while 6% of those who earned less than their partners were sterilized. This is closely related with women empowerment and decision making power in the family.Regarding decision making on women's earnings, the results show that 8% of the women who said that the husband/partner took decisions on spending were sterilized while 7% of those who took a joint decision on spending their earnings were sterilized. However the relationship was not statistically significant (p=0.363) at 5% level of significance.With respect to the decision maker on contraception, the relationship was not statistically significant (p=0.056) between decision maker on contraception and female sterilization. However, findings show that 11% of the women who reported that contraceptive decisions were taken by husband or partner were sterilized while 7% of those who reported taking joint decisions with their partners were sterilized, similar to (7%) of the respondents that took an independent decision were sterilized.

Table 5. Fertility preferences and female sterilization

Characteristic	Frequency	Sterilization status	
		Not using sterilization	Using sterilization
Ideal number of children		**χ^2=106.58,p=0.000**	
None	21	91.7	8.3
1-3 children	791	98.4	1.6
4+ children	4,508	93.1	6.9
Non-numeric	95	71.6	28.4
Ideal number of boys		**χ^2=94.96, p=0.000**	
None	611	95.3	4.8
1-3 boys	4,232	94.3	5.7
4+ boys	459	87.4	12.6
Non-numeric	116	75.9	24.1
Ideal number of girls	**χ^2=90.87,p=0.000**		
None	605	95.4	4.6
1-3 girls	4,136	94.3	5.7
4+ girls	561	88.4	11.6
Non-numeric	116	75.9	24.1

Results in Table 5 shows a significant relationship between fertility preferences and female sterilization (p=0.000) whether it was with ideal number of children, ideal number of sons and daughters. The results showed that the prevalence of female sterilization was higher among women whose ideal number was non-numeric, followed by those whose ideal number was 4+.

Predictors of female sterilization uptake

The results of the binary logistic regression presented in Table 6 revealed that age,wealth status, total number of children ever born and contraceptive decision maker were significantly associated with the uptake of female sterilization. On the other hand, women's highest education level attained, place of residence, working status, the ideal number of children and ideal number of sons preferred did not have a significant influence on female sterilization.

Table 6: Binary logistic regression of female sterilization

Characteristic	Odds ratio	p-value	95%CI
Age			
< 30 years	1.00		
>30+ years	24.96	0.000	9.63-64.70
Education level			
None	1.00		
Primary	0.91	0.584	0.64-1.29

Secondary+	0.67	0.111	0.41-1.10
Wealth status			
Poor	1.00		
Middle	0.63	0.014	0.43-0.91
Rich	0.72	0.077	0.50-1.04
Place of residence			
Urban	1.00		
Rural	0.83	0.358	0.56-1.24
Working status			
Not working	1.00		
Working	0.98	0.908	0.64-1.49
Total number of children ever born			
0-3 children	1.00		
4+ children	3.17	0.001	1.66-6.06
Contraception decision-maker			
Respondent	1.00		
Husband/partner	2.64	0.000	1.60-4.35
Joint	1.41	0.034	1.03-1.94
Ideal number of children			
None	1.00		
1-3 children	0.27	0.158	0.04-1.67
4+ children	0.54	0.473	0.10-2.88
Non-numeric	0.38	0.492	0.03-5.90
Ideal number of boys			
None	1.00		
1-3 boys	1.15	0.573	0.71-1.87
4+ boys	1.38	0.261	0.79-2.42
Non-numeric	4.17	0.181	0.51-33.83

The results in table 4.7 show that age is significantly associated with uptake of sterilization. Older women (>30 years) are more likely to undergo sterilization compared to those less than 30 years. The odds of being sterilized were highest among women above 30 years (OR=24.96, 95% CI=9.63-64.70, p=0000). Findings also revealed that at 5% level of significance, being from middle households reduced the odds of being sterilized as compared to being from the poor households. The odds of being sterilized of women from middle households were approximately 0.6 times compared to their counterparts from poor households. Furthermore, the findings indicate that the odds of being sterilized were three times higher for women who had 4+children ever born compared to their counterparts with 0-3 children ever born(OR=3.17, 95% CI=1.66-6.06, p=0.001).

The odds of being sterilized for women who reported that the contraception decision-maker was the husband/partner were 2.64 times those of their counterparts who took independent decisions (OR=2.64,95% CI=1.60-4.35, p=0.000). Women who took joint decisions with their

husbands/partners had 1.41 odds higher of undergoing sterilization compared to those that took independent decisions (OR=1.41, 95% CI=1.03-1.94, p=0.034).

Discussion of findings

Findings of this study revealed that the odds of sterilization were highest among older women (>30 years).This is not surprising as younger women may prefer reversible methods that are suitable for spacing over those that limit childbirths. It could also probably be because older women have already completed childbearing while their young counterparts have not yet started childbearing and others are still implementing their fertility aspirations. This finding may also be linked to differences in onset and intervals of childbearing between young and older women. Older women are more likely to have already had excess children compared to the young women who are more exposed to contraceptive knowledge and services. In addition, the finding that sterilization was high among old women may be attributed to some service providers who feel that a woman should have permanent contraception after a certain age bracket. Furthermore, older women are likely to have explored all other temporary contraceptive options and experienced adverse effects yet they harbor no intentions of bearing more children, compared to their young counterparts who may want to space for a short time. These findings are consistent with evidence from similar studies in Ethiopia (Geta, Abera Asseffa, & Mekonnen, 2018) which revealed that older women (35-49 years) had three times higher odds of using sterilization contraception than their younger counterparts.

The number of children ever born was found to be associated with female sterilization uptake. This is probably because contraception choices are based on the already achieved fertility. Since sterilization is effective and irreversible, women who have not yet attained their desired fertility are less likely to use it. Women can confidently make contraceptive choices and implement decisions such as undergoing sterilization after achieving a certain number of children. In addition, for some high parity women, these may be influenced by birth related experiences to stop child bearing and thus opt for sterilization. It is perhaps not very surprising since most users of female sterilization are those who do not wish to have any more children. Furthermore, women prefer many children as a source of labour because Uganda is largely an agrarian economy with a poorly mechanized sector compared to other developed countries. This is in

agreement with study findings from Uganda, rural Rakai which revealed that women with higher number of children had a significant desire to undergo sterilization(Paul, Ayo, & Ayiga, 2015)

This study also revealed that middle wealth status significantly reduced the odds of a woman undergoing sterilization compared to their poor counterparts. This is partly attributed to the fact that women from middle wealth class have easy access and utilization of birth control measures compared to poor women who may have financial constraints. Women from poor wealth class have higher birth rates and are hence more likely to undergo sterilization compared to women from middle wealth class. In addition, many family planning programmes target poor women in hard to reach areas in form of outreaches, hence increased uptake. Women in middle wealth class tend to have bigger aspirations, they enter marriages late and hence child bearing is delayed probably because they are in school or busy looking for money as compared to women from poor households who enter marriages early and begin child bearing early. This agrees with study findings from India on dominance of sterilization and alternative choices of contraception which revealed that women from poor households relied on sterilization compared to their counterparts from rich households (Isabel Tiago de Oliveira, Jose G Dias, & Sabu. S. Padmadas, 2014).

Husband/partners' decision on contraception also significantly predicted female sterilization uptake. These points to the significant influence of husbands/partners in determining women`s contraceptive choices. Women who reported that the contraceptive decision maker was husband/partner had higher odds of utilizing female sterilization compared to those who took an independent decision. This can be attributed to the patriarchal nature of our society. Women have limited decision making power even on issues concerning their own health as a result of power dynamics from the male dominated societies. Women who visit health facilities in company of their husbands/partners have also reported improved uptake of reproductive health services such as family planning because their concerns/fears related to side effects are easily addressed. In addition men, equally have control over resources such as money and determine how they are used including sponsoring a woman to undergo sterilization or not. This finding is in agreement with (Eliason et al., 2014) study in Ghana on determinants on modern contraceptive use among women of reproductive age.

Conclusion and implications

The findings indicate that female sterilization uptake is generally low. Age, number of children ever born; wealth status and contraceptive decision maker were significant predictors of sterilization uptake among the women.The study concludes that older women are more likely to undergo female sterilization compared to their young counterparts.Furthermore, the study concludes that women who have given birth to at least four children are more likely to use sterilization compared to their counterparts who have given birth to less than 4 children.In addition, the hypothesis thatwomen who make independent contraceptive decisions are more likely to use sterilization compared to their counterparts who depend on their husbands/partners for the decision was rejected. The study concludes that women who make independent contraceptive decisions are less likely to use sterilization compared to their counterparts who depend on the husbands/partners for the decision.

On the other hand, the study did not find sufficient evidence in the data at the 5% level of significance to reject the hypothesis that women who reside in urban areas are less likely to utilize sterilization method compared to their rural counter parts and also failed to reject the hypothesis that that women who reside in urban areas are less likely to use sterilization compared to their rural counterparts. In addition, the study does not find sufficient evidence to reject the hypothesis that women who attain at least a secondary level of education are less likely to be sterilized compared to their counterparts with no level of education. Lastly, this study does not find sufficient evidence to reject the hypothesis that women who prefer more than 3 children are less likely to use sterilization compared to their counterparts who have fewer children.

There is need for active male engagement by all stakeholders and implementing partners in matters related to women's sexual and reproductive health, since it is evident that they play a key role in contraceptive decision making of service uptake. The government and other implementing partners of sexual and reproductive health programmes need to invest in comprehensive counseling and awareness creation campaigns targeting higher parity women (4+ children) by promoting acceptance of female sterilization method. This can be done through use of satisfied users of the method to clear myths and misconceptions related to the method that act as barriers of uptake, such as chronic abdominal and back pains as well as "secondary amenorrhea".

There is need for economic empowerment especially among women from poor households to enhance universal access to these permanent contraceptive methods. Female sterilization is a cheaper option and is cost effective because it's a onetime procedure, does not require stock of commodities. In addition, strengthening of public-private sector partnerships is recommended to help minimize 'missed' opportunities for women who may need the sterilization procedure but cannot have it because of factors like non availability of the provider, or overcrowding in many government facilities as is usually the case that results in procedure postponement and unnecessary bookings. This implies that, the women have to schedule another appointment, incur transport costs, since don't want to take on another contraceptive option at that time, hence putting them at risk of unintended/unplanned pregnancy/births. There is need for a qualitative inquiry on causes of low sterilization prevalence.

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