DETERMINANTS OF UNINTENDED PREGNANCY AMONG CURRENTLY MARRIED WOMEN IN UGANDA

Ronald Wasswa[1], Allen Kabagenyi[2], Leonard K. Atuhairwe[3]

Author addresses

[1]Department of Planning and Applied Statistics, School of Statistics & Planning, College of Business and Management Sciences, Makerere University, P.O. Box 7062, Kampala-Uganda

[2]Department of Population Studies, School of Statistics & Planning, College of Business and Management Sciences, Makerere University, P.O. Box 7062, Kampala-Uganda

[3]Department of Planning and Applied Statistics, School of Statistics & Planning, College of Business and Management Sciences, Makerere University, P.O. Box 7062, Kampala-Uganda

Author email addresses

[1]Email: rwasswa93@yahoo.com

[2]Email: allenka79@yahoo.com

[3]Email: leonardatuhaire@gmail.com

Abstract

Background: Unintended pregnancy is a world health concern because of its negative association with adverse physical, social, economic, and psychological impact. This concern is no longer bound to teenagers or school going children, married women as well experience unplanned pregnancies in Uganda though little has been investigated on them. The study therefore, sought to examine the factors that may influence a married woman's intention to experience unintended pregnancy.

Methods: The study used data from the 2016 Uganda Demographic and Health Survey which comprised of 11,223 married women aged 15-49 years. The data was then analyzed using frequency distribution, logistic regression, Poisson regression, log-rank test for survival functions, cox proportional hazards model, and the generalized structural equation model.

Results: More than 44.6% of the pregnancies were unintended while 3 in 10 married women were also not using contraceptives. At the bivariate level; unintended pregnancy was significantly associated with the highest wealth quintile *(OR=0.45, 95% CI=0.40-0.49)* while contraceptive use was associated with higher education level *(OR=4.90, 95% CI=4.10-5.86).* Similarly, children ever born were associated with married women from rural areas *(IRR=4.34, 95% CI=4.30-4.39).* At the multivariate level, married women from the northern region who were using contraceptives were 45% less likely to experience unintended pregnancy compared to their counter parts in the central *(OR=0.55, 95% CI=0.45-0.64).* Additionally, for any additional child born among Muslim married women, the risk of unintended pregnancy raises by 4% as compared to Catholic married women *(OR=1.04, 95% CI=1.01-1.07).*

Conclusion: The government should therefore invest in programs and policies which reduce unintended pregnancies like sensitization of women on the effectiveness in use of contraceptives especially those in rural areas, distribution of free, long-acting and quality contraceptive methods especially among those families that already have four or more children. This will not only enable them and their families meet the required needs, reduce on public expenditure in the health sector but also improve their academic achievement.

Background

Unintended pregnancies are pregnancies that are either unwanted or mistimed at the time of conception [1]. Worldwide, an estimate of 9,817 women every day become pregnant without planning [2]. These pregnancies have brought a public health concern in both developed and developing countries because of their association with adverse social, health and economic outcomes for both mothers and children leading to the death of 529,000 women [3, 4]. Not only in Africa, studies in USA, China, Netherlands, and France have also registered increasing trends in unplanned births [1, 5, 6, 7]. However, 8 in 100 women experience unplanned pregnancies in Africa, the highest rate globally with eastern Africa taking the lead of 11 in 100 women [8].

In Uganda, the situation is also alarming when an estimate of 1.2 million unintended pregnancies was registered in 2008 representing more than half of the country's 2.2 million pregnancies [9]. This rate has seemingly remained high with 52% of Ugandan women still registered unplanned pregnancies in 2013 which partly contributes to an estimate of 85,000 of them who die every year due to unsafe abortion [10, 11].

Other than mortality rate, women who experience unintended pregnancy are more likely to have health problems than those with planned pregnancies [12, 13]. These health problems include hypertension, hypothyroidism, diabetes, hepatitis, and cardiac valvular disorders [14]. It was also discovered that such women are more likely to have low psychosocial well-being and high maternal depression [15, 16, 17, 18]. Furthermore, in Nepal, it was revealed that women with unplanned pregnancies spend a lot of money to take care of their pregnancies [16]. However, the expenditure is not only inclined on women but to the whole nation as well. Sonfield and colleagues revealed that half of the public expenditure in USA caters for unintended pregnancies which negatively affects the growth of the nation and the population as well [19, 20]. More still, women with unplanned pregnancies are more likely to have inadequate prenatal care, and antenatal care [21, 22]. This implies that some unplanned children are less breastfed and their mothers find it hard to properly parent them [22, 4] which makes them vulnerable to other social behaviors like drug consumption and violence at a later age.

According to 2016 UDHS, the total wanted fertility rate among Ugandan women is five children as compared to the actual total fertility rate of six children; implying that women in Uganda are having one child more than they want [23]. Similarly, the contraceptive prevalence rate among married women of reproductive age in Uganda is still very low with 3 in 10 wishing to delay or avoid pregnancy but are not using any contraceptive measure and yet desire a small family size [23]. Other women rely on traditional methods such as periodic abstinence and withdrawal, which have higher rates of failure than modern methods [23]. The combination of the low contraceptive use and smaller desired family size among married women implies high levels of unmet need for family planning which ranks Uganda highly in the Sub-Saharan Africa [9, 24, 23]. Still, relatively very little research on unintended pregnancy among married women has been done in Uganda. However, other existing studies on unintended pregnancy among women from different countries include: USA, China, Ethiopia, Bangladeshi, Nigeria, Malawi, and Kenya [25, 5, 26, 27, 28, 3, 29]. Several studies have also associated socio-demographic, economic, and intermediate factors on unintended pregnancy [3, 30, 31, 29]. These studies however, were limited in providing an understanding of the inter-relationships among the factors associated with unintended pregnancy and used binary regression models. This study therefore intended to address the shortfalls in regard to scope and methodology in assessing the determinants of unintended pregnancy among currently married women in Uganda.

Methods

Data source and study sample

Data for this study was based on secondary data from the 2016 Uganda Demographic and Health Survey. The authorization to use the data was obtained from Measure DHS by providing a description of the study through their website. The UDHS employed a nationally representative sample, which was based on a stratified two stage cluster design, where in the first stage; enumeration areas were selected from a list of clusters followed by a selection of a fixed number of households in each cluster [23]. This study constituted 11,223 women aged 15-49 years who were either married or living together with a partner as though married at the time of the survey. Additionally, informed consent for participation in the study was also acquired from all the respondents.

Variables

The dependent variable was the unintended pregnancy. According to the 2016 UDHS, pregnancy intention, Y_1, was measured by the question, "At the time you became pregnant, did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all?" [23]. For this study, it was a two-outcome variable and coded as intended pregnancy, if the pregnancy occurred at a time when the woman wanted it, and unintended pregnancy, if the pregnancy occurred at a time when the woman would have wanted it later or did not want it at all as illustrated in the equation below.

$$Y_1 = \begin{cases} 1 & \text{If a woman had unintended pregnancy} \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

Predictor variables considered included: woman's age, X_1 (15-24, 25-34, and 35-49), place of residence, X_2 (urban, rural), education level attainment, X_3 (no education, primary, secondary and higher), religion, X_4 (Catholic, Protestant, Muslims, others; where other religions include Seventh Day, Adventists (SDA) and unknown religions), wealth index, X_5 (poor, middle, rich and richest), region, X_6 (Central, Eastern, Northern and Western), Occupation, X_7 (not working, professional & clerical, agricultural & domestic, sales & services, and manual), partner's level of education, X_8 (no education, primary, secondary and higher), partner's age. X_9 (15-24, 25-34 and 35-49), literacy, X_{10} (cannot read at all, able to read, and others included blind), media, X_{11} (no

access and has access). Additional variables included the following: age at first marriage, Y_2 (continuous), age at first sex, Y_3 (continuous), age at first birth, Y_4 (continuous), number of children ever born, Y_5 (count), and use of contraceptives, Y_6 (yes and no). In order to have the inter-relationship among variables, they were grouped into two categories that is; exogenous and endogenous variables. The selected exogenous variables were: women's age, place of residence, region of residence, wealth index, education status, partner's education level, partner's age, occupation, religion, literacy, media access, Age at first marriage, Age at first sex, Age at first birth, Children ever born, and contraceptive use. On the other hand, there were six endogenous variables such as: Age at first marriage, Age at first sex, Age at first birth, Children ever born, contraceptive use, and unintended pregnancy.

Data Analysis

Data analysis was done using STATA version 13.0 statistical software at three stages. The data were first weighted to ensure representativeness of the sampled data. A weighting variable generated using the sample weight variable in the DHS data was applied in all statistical commands. At the first stage of analysis, a descriptive summary (either as percentages for the categorical variables or mean for the continuous variables) of socio-demographic, economic, and intermediate factors was done. At the second stage, the determinants of unintended pregnancy and contraceptive use were assessed by the socio-demographic, economic, and intermediate factors using logistic regression model, whereas a Poisson regression model was applied to assess the factors that influence the children ever born. The log rank test of equality of survival functions at $p<0.05$ was also applied to test for significant differences in Age at first marriage, Age at first sex, and Age at first birth for married women of different socio-demographic and economic characteristics. The results at this stage indicated how the exogenous variables independently influenced the endogenous variables. The purpose of this level was to select variables for further analysis at the multivariate level. The models at this stage were based on the following equations:

$$\ln\left(\frac{\mathrm{P}(\mathrm{Y}_1=1)}{1-\mathrm{P}(\mathrm{Y}_1=1)}\right) = \beta_0 + \sum \beta_{1j} X_j \qquad (2)$$

$$\mathrm{Y}_2 = \beta_1 + \sum \beta_{2j} X_j + \varepsilon_1 \qquad (3)$$

$$\mathrm{Y}_3 = \beta_2 + \sum \beta_{3j} X_j + \varepsilon_2 \qquad (4)$$

$$Y_4 = \beta_3 + \sum \beta_{4j} X_j + \varepsilon_3 \quad (5)$$

$$Y_5 = e^{\beta_4 + \sum \beta_{5j} X_j} \quad (6)$$

$$\ln\left(\frac{\mathrm{P(Y_6=1)}}{1-\mathrm{P(Y_6=1)}}\right) = \beta_5 + \sum \beta_{6j} X_j \quad (7)$$

Where $P(Y_j)$ with $j = 1, 6$ is the probability that one had unintended pregnancy or ever used contraceptives respectively; $\beta_0, \ldots, \beta_5$ are the intercepts; $\beta_{1j}, \ldots, \beta_{6j}$ are regression coefficients; X_j are explanatory variables; Y_5 is the expected number of children per woman; e is the base of natural logarithms; Y_2, Y_3, Y_4 is the woman's Age at first marriage, Age at first sex, and Age at first birth respectively with ε_i being the error terms.

At the third stage, the net-impact of the exogenous variables on the endogenous variables were established using a Generalized Structural Equation Model (GSEM). Several multiple relationships of endogenous and exogenous variables were investigated using path analysis as shown in Figure 1 below. The relationships comprise of direct and indirect effects on the endogenous factors.

The gsem model showing the selected exogenous and endogenous variables

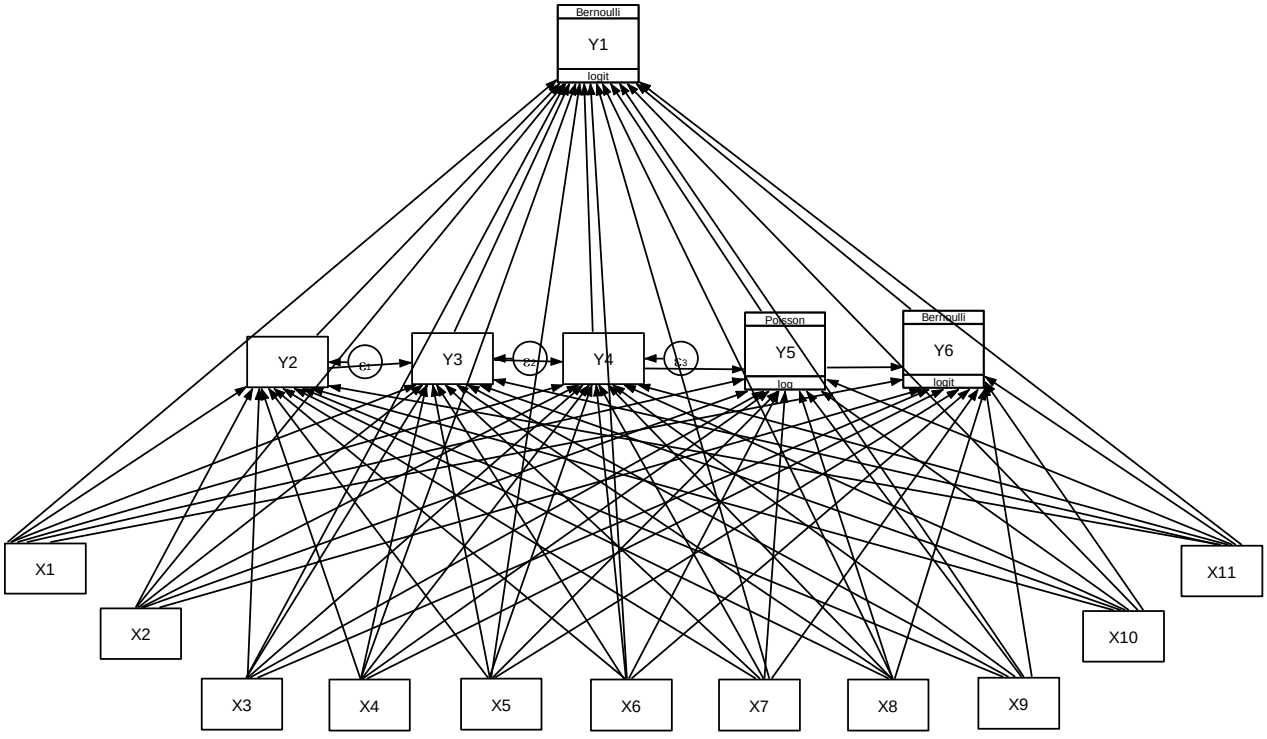

Figure 1: GSEM model

The regression to evaluate unintended pregnancy, Age at first marriage, Age at first sex, Age at first birth, children ever born, and contraceptive use were assessed basing on the following equations:

$$\ln\left(\frac{\mathrm{P}(\mathrm{Y}_1=1)}{1-\mathrm{P}(\mathrm{Y}_1=1)}\right) = \beta_0 + \sum_{j=2}^{6}\beta_{1j}Y_j + \sum_{j=1}^{11}\beta_{1j}X_j \quad (8)$$

$$\mathrm{Y}_2 = \beta_1 + \sum_{j=1}^{11}\beta_{2j}X_j + \varepsilon_1 \quad (9)$$

$$\mathrm{Y}_3 = \beta_2 + \beta_{32}Y_2 + \sum_{j=1}^{11}\beta_{3j}X_j + \varepsilon_2 \quad (10)$$

$$\mathrm{Y}_4 = \beta_3 + \sum_{j=2}^{3}\beta_{4j}Y_j + \sum_{j=1}^{11}\beta_{4j}X_j + \varepsilon_3 \quad (11)$$

$$Y_5 = e^{\beta_4+\sum_{j=2}^{4}\beta_{5j}Y_j+\sum_{j=1}^{11}\beta_{5j}X_j} \quad (12)$$

$$\ln\left(\frac{\mathrm{P}(\mathrm{Y}_6=1)}{1-\mathrm{P}(\mathrm{Y}_6=1)}\right) = \beta_5 + \sum_{j=2}^{5}\beta_{6j}Y_j + \sum_{j=1}^{11}\beta_{6j}X_j \quad (13)$$

Where: β_{ij} are the path coefficients representing the direct effect of variable j on variable i; $\beta_0 \ldots \beta_5$ are the intercepts; X_j are exogenous variables; $Y_1, \ldots, Y_6$ are the endogenous variables with ε_i being the error terms.

Results

Descriptive results

Table 1: Distribution of married women by the selected variables

Variable	Frequency (n=11,223)	Percentage (%)
Age		
15-24	3,294	29.4
25-34	4,355	38.8
35-49	3,574	31.8
Religion		
Catholic	4,471	39.9
Anglican	3,505	31.2
Muslim	1,483	13.2
Others	1,764	15.7
Place of residence		
Rural	8,579	23.6
Urban	2,644	76.4
Work status		
Work	8,967	79.9
Do not work	2,256	20.1

Table 1 continued

Variable	Frequency (n=11,223)	Percentage (%)
Occupation		
Not working	1,819	16.2
Professional & clerical	996	8.9
Agricultural & domestic	1,558	13.9
Sales & services	5,155	46.0
Manual	1,688	15.1
Education level		
No education	1,345	12.0
Primary	6,667	59.4
Secondary	2,353	21.0
Higher	857	7.6
Partner's education		
No education	712	6.4
Primary	5,831	52.0
Secondary	3,012	26.8
Higher	1,358	12.1
Do not know	311	2.8
Partner's age		
≤ 24†	1,198	10.7
25-34	3,988	35.5
35-44	3,380	30.1
45 and above	2,657	23.7
Region		
Central	3,005	26.8
Eastern	3,105	27.7
Western	2,902	25.9
Northern	2,212	19.7
Wealth index		
Poor	4,370	38.9
Middle	2,192	19.6
Rich	2,185	19.4
Richest	2,476	22.1
Literacy level		
Cannot read at all	4,182	37.3
Able to read	6,960	62.0
Others	81	0.7
Media access		
Has access	7,341	65.4
Has no access	3,882	34.6
Contraceptive use		
Yes	7,812	69.6
No	3,411	30.4

Table 1 continued

Variable	Frequency (n=11,223)	Percentage (%)
Pregnancy intention		
Intended	4,835	55.4
Unintended	3,894	44.6
Age at first marriage (continuous)	11,223	18.4
Age at first sex (continuous)	11,214	16.6
Age at first birth (continuous)	10,526	18.7
Children ever born (count)	11,223	4.1

Table 1 above presents selected background characteristics for currently married women. A total of weighted sample of 11,223 married women aged 15–49 years were enrolled in the study. The majority of married women were Catholics (39.9%) of which three quarters were from urban areas. Of these, a great number were also from eastern region of Uganda. The results also show that 4 in 5 women were working with the majority being in sales and service work. Similarly, the highest number of married women had attained primary education (59.4%) and at least 1 in 5 was not educated. Many of the married women were also lying under the lowest wealth quintile with almost 4 in 10 being poor. The results further reveal that majority of the women were able to read and could at least access information (newspaper, radio or television). Still, the average age at first marriage, age at first sex, and age at first birth among married women were respectively 18.4, 16.6, and 18.7 years giving birth on average four children. Additionally, more than half of the married women had their husbands having attained atleast a primary level of education. Still, more than half of the married women were using contraceptives while 3 in 10 were not using them leading to 4 in 10 births being unintended.

Bivariate analysis

Table 2: Association between unintended pregnancy and the selected factors

Variable	OR	Std. Err	95% CI		p-value
Woman's age					
15-24†	1.000	-	-		-
25-34	0.713	0.023	0.668	0.760	0.000
35-49	1.116	0.051	1.020	1.221	0.017
Region					
Central†	1.000	-	-		-
Eastern	1.116	0.045	1.031	1.208	0.006

Table 2 continued

Variable	OR	Std. Err	95% CI		p-value
Region					
Western	0.536	0.024	0.491	0.585	0.000
Northern	1.086	0.052	0.990	1.192	0.081
Place of residence					
Urban†	1.000	-	-		-
Rural	0.906	0.022	0.864	0.950	0.000
Religion					
Catholic†	1.000		-		-
Anglican	0.799	0.031	0.741	0.862	0.000
Muslim	0.885	0.051	0.791	0.990	0.033
Others	0.809	0.043	0.729	0.899	0.000
Wealth index					
Poor†	1.000	-	-		-
Middle	0.999	0.049	0.908	1.099	0.988
Rich	0.737	0.038	0.667	0.815	0.000
Richest	0.446	0.023	0.404	0.493	0.000
Occupation					
Not working†	1.000	-	-		
Professional & clerical	0.521	0.041	0.447	0.607	0.000
Agricultural & domestic	0.705	0.042	0.628	0.792	0.000
Sales & services	0.984	0.031	0.925	1.047	0.603
Manual	0.792	0.045	0.709	0.884	0.000
Woman's education					
No education†	1.000	-	-		
Primary	0.968	0.027	0.917	1.022	0.241
Secondary	0.633	0.030	0.577	0.694	0.000
Higher	0.362	0.032	0.304	0.430	0.000
Partner's education					
No education†	1.000	-	-		-
Primary	0.941	0.028	0.888	0.997	0.040
Secondary	0.762	0.032	0.703	0.826	0.000
Higher	0.566	0.037	0.498	0.642	0.000
Partner's age					
≤ 24†	1.000	-	-		-
25-34	0.709	0.024	0.664	0.757	0.000
35-44	0.821	0.032	0.761	0.886	0.000
45 and above	1.074	0.058	0.966	1.194	0.187
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	0.705	0.019	0.668	0.744	0.000
Others	0.902	0.258	0.515	1.580	0.719
Media access					
Has no access†	1.000	-	-		-
Has access	0.765	0.021	0.725	0.806	0.000

Table 2 continued

Variable	OR	Std. Err	95% CI		p-value
Contraceptives use					
No	1.000	-	-		-
Yes	0.822	0.021	0.782	0.864	0.000
Age at first marriage	0.986	0.001	0.984	0.989	0.000
Age at first sex	0.985	0.001	0.983	0.988	0.000
Age at first birth	0.988	0.001	0.986	0.990	0.000
Children ever born	1.010	0.005	1.001	1.019	0.034

† is a Reference category, OR is the Odds Ratio, 95% CI is the Confidence Interval, the assessment was based on logistic regression model at p < 0.05 with n = 8,906 and χ^2*=0.000*

From Table 2, the following factors were significantly associated with unintended pregnancy: age, region, religion, wealth index, occupation, education level of both the woman and her partner, partner's age, contraceptive use, and children ever born because they have a relatively smaller p-value *(p< 0.05)* and were therefore taken for further analysis in the multivariate model.

Table 3: Association of Age at first marriage, Age at first sex, and Age at first birth for the selected categorical variables

		Age at first marriage		Age at first sex		Age at first birth	
Categorical variables	**df**	**Log rank**	**p-value**	**Log rank**	**p-value**	**Log rank**	**p-value**
Woman's age	2	473.24	0.000	84.14	0.000	457.44	0.000
Region	3	157.11	0.000	313.90	0.000	203.99	0.000
Place of residence	1	257.48	0.000	224.73	0.000	248.37	0.000
Religion	3	7.86	0.049	58.62	0.000	18.15	0.000
Wealth index	3	493.37	0.000	490.21	0.000	473.86	0.000
Occupation	4	474.32	0.000	483.43	0.000	488.98	0.000
Woman's education	3	857.79	0.000	1184.74	0.000	1093.63	0.000
Partner's education	4	486.35	0.000	689.40	0.000	703.56	0.000
Partner's age	3	197.69	0.000	58.50	0.000	149.91	0.000
Literacy	2	265.21	0.000	650.68	0.000	294.82	0.000
Media access	1	92.05	0.000	115.30	0.000	89.80	0.000

The assessment was based on log-rank test of equality for survival function at p < 0.05; df represents the degrees of freedom.

Table 4: Association of Age at first sex, and Age at first birth for continuous variables

	Age at first sex			Age at first birth		
Continuous variable	**HR**	**Std. Err**	**p-value**	**HR**	**Std. Err**	**p-value**
Age at first marriage	0.858	0.003	0.000	0.820	0.003	0.000
Age at first sex	-	-	-	0.822	0.003	0.000

The assessment was based on Cox proportional hazards model at $p < 0.05$ and $\chi^2 = 0.000$; HR is the Hazard ratio; Std. Err is the standard error in HR; (-) shows a variable not considered for a particular outcome.

Results in Table 3 indicate that woman's age, region, place of residence, religion, wealth index, occupation, education level of the woman and her partner, partner's age, literacy and access to media significantly influenced Age at first marriage, Age at first sex, and Age at first birth *($p<0.05$).* Still, results in Table 4 show that Age at first marriage significantly influences Age at first sex whereas Age at first marriage and Age at first sex also impact on Age at first birth *($p < 0.05$).* Furthermore, results in Table 9 also reveal that 5 in 10 (48%) women had married by the age of 18. Similarly, not only do girls in Uganda marry early, but also initiate sex at a tender age with only 3 in 10 (31%) surviving not to have had sex by the age of 18 as indicated in Table 10. All the variables above were therefore considered for further analysis at the multivariate stage.

Table 5: Association between children ever born and the selected factors

Variable	**IRR**	**Std. Err**	**95% CI**		**p-value**
Woman's age					
15-24†	1.000	-	-		-
25-34	3.805	0.030	3.747	3.863	0.000
35-49	6.731	0.043	6.646	6.816	0.000
Region					
Central†	1.000	-	-		-
Eastern	4.451	0.038	4.378	4.526	0.000
Western	4.050	0.037	3.977	4.123	0.000
Northern	4.159	0.043	4.075	4.244	0.000
Place of residence					
Urban†	1.000	-	-		-
Rural	4.342	0.022	4.298	4.386	0.000
Religion					
Catholic†	1.000	-	-		-
Anglican	4.192	0.035	4.125	4.260	0.000
Muslim	3.897	0.051	3.798	3.999	0.000
Others	4.139	0.048	4.045	4.235	0.000

Table 5 continued

Variable	IRR	Std. Err	95% CI		p-value
Wealth index					
Poor†	1.000	-	-		-
Middle	4.577	0.046	4.488	4.667	0.000
Rich	4.236	0.044	4.151	4.323	0.000
Richest	3.057	0.035	2.989	3.127	0.000
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	3.083	0.056	2.975	3.194	0.000
Agricultural & domestic	3.419	0.047	3.328	3.512	0.000
Sales & services	4.638	0.030	4.579	4.697	0.000
Manual	4.107	0.049	4.012	4.205	0.000
Woman's education					
No education†	1.000	-	-		-
Primary	4.319	0.025	4.012	4.205	0.000
Secondary	2.793	0.034	2.727	2.862	0.000
Higher	2.366	0.053	2.265	2.471	0.000
Partner's education					
No education†	1.000	-	-		-
Primary	4.527	0.028	4.473	4.582	0.000
Secondary	3.413	0.034	3.348	3.480	0.000
Higher	3.041	0.047	2.950	3.135	0.000
Partner's age					
≤ 24†	1.000	-	-		-
25-34	2.687	0.047	2.637	2.739	0.000
35-44	4.839	0.038	4.765	4.913	0.000
45 and above	6.517	0.050	6.420	6.614	0.000
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	3.434	0.022	3.391	3.478	0.000
Others	4.588	0.238	4.144	5.079	0.000
Media access					
Has no access†	1.000	-	-		-
Has access	3.873	0.023	3.828	3.918	0.000
Age at first marriage	1.071	0.000	1.070	1.071	0.000
Age at first sex	1.083	0.000	1.082	1.084	0.000
Age at first birth	1.076	0.000	1.075	1.076	0.000

† is a Reference category, IRR are Incidence Risk Ratios, 95% CI is the Confidence Interval at $p < 0.05$ with $n = 11,379$ and $\chi^2 = 0.000$ based on Poisson regression model

Results in Table 5 indicate that the age of a woman and her husband, place of residence, religion, wealth index, region, education level of both the wife and the partner, occupation, literacy, media, Age at first marriage, Age at first sex, and Age at first birth significantly influence the

number of children ever born by a woman *(p< 0.05).* These variables were later considered and modeled at the multivariate level to determine the indirect factors that influence unintended pregnancy through children ever born.

Table 6: Association between contraceptive use and the selected factors

Variable	OR	Std. Err	95% CI		p-value
Woman's age					
15-24†	1.000	-	-		-
25-34	3.472	0.126	3.233	3.728	0.000
35-49	2.272	0.083	2.116	2.440	0.000
Region					
Central†	1.000	-	-		-
Eastern	2.294	0.090	2.125	2.476	0.000
Western	2.270	0.091	2.098	2.456	0.000
Northern	1.216	0.052	1.118	1.322	0.000
Place of residence					
Urban†	1.000	-	-		-
Rural	1.989	0.046	1.902	2.080	0.000
Religion					
Catholic†	1.000	-	-		-
Anglican	2.776	0.106	2.575	2.992	0.000
Muslim	2.603	0.151	2.323	2.916	0.000
Others	2.207	0.113	1.995	2.441	0.000
Wealth index					
Poor†	1.000	-	-		-
Middle	2.461	0.116	2.244	2.699	0.000
Rich	3.162	0.158	2.866	3.488	0.000
Richest	5.071	0.275	4.560	5.639	0.000
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	4.305	0.349	3.673	5.046	0.000
Agricultural & domestic	3.774	0.235	3.341	4.264	0.000
Sales & services	1.940	0.057	1.832	2.055	0.000
Manual	2.270	0.120	2.047	2.518	0.000
Woman's education					
No education†	1.000	-	-		-
Primary	2.143	0.056	2.035	2.256	0.000
Secondary	3.918	0.201	3.543	4.331	0.000
Higher	4.900	0.446	4.100	5.857	0.000
Partner's education					
No education†	1.000	-	-		-
Primary	1.938	0.054	1.836	2.046	0.000
Secondary	3.116	0.132	2.867	3.387	0.000
Higher	4.125	0.282	3.607	4.717	0.000

Table 6 continued

Variable	OR	Std. Err	95% CI		p-value
Partner's age					
≤ 24†	1.000	-	-		-
25-34	2.587	0.091	2.414	2.773	0.000
35-44	3.171	0.128	2.930	3.432	0.000
45 and above	2.060	0.085	1.899	2.234	0.000
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	3.140	0.088	2.972	3.317	0.000
Others	1.584	0.362	1.013	2.478	0.044
Media access					
Has no access†	1.000	-	-		-
Has access	2.849	0.076	2.705	3.002	0.000
Age at first marriage	1.045	0.001	1.042	1.047	0.000
Age at first sex	1.012	0.001	1.048	1.053	0.000
Age at first birth	1.050	0.010	1.048	1.053	0.000
Children ever born	1.184	0.005	1.173	1.195	0.000

† is a Reference category, OR is the Odds Ratio, CI is the Confidence Interval; the assessment was based on logistic regression model at $p < 0.05$ with n= 11379 and $\chi^2 = 0.000$

According to Table 6, the factors that significantly influence contraceptive use with increased odds include: age of the woman, region, place of residence, religion, wealth index, occupation, education level of the woman and partner, partner's age, literacy, media, ability to read, children ever born, age at first marriage, age at first sex, and age at first birth. These factors together directly influence Contraceptive use *($p< 0.05$)* and were therefore considered for multivariate stage.

Multivariate analysis

Table 7: Regression results from generalized structural equation model

	Unintended pregnancy				
Variable	**OR**	**Std. Err**	**95% CI**		**p-value**
Woman's age					
15-24†	1.000	-	-		-
25-34	0.623	0.045	0.540	0.719	**0.000**
35-49	0.500	0.061	0.394	0.634	**0.000**
Region					
Central†	1.000	-	-		-
Eastern	1.240	0.092	1.072	1.434	**0.004**
Western	0.722	0.054	0.624	0.837	**0.001**
Northern	1.302	0.107	1.108	1.530	**0.000**

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Place of residence					
Urban†	1.000	-	-		-
Rural	1.082	0.078	0.939	1.246	0.276
Religion					
Catholic†	1.000	-	-		-
Anglican	1.033	0.058	0.926	1.152	0.564
Muslim	1.134	0.087	0.976	1.318	0.101
Others	1.112	0.077	0.971	1.273	0.125
Wealth index					
Poor†	1.000	-	-		-
Middle	0.993	0.065	0.872	1.130	0.911
Rich	0.855	0.062	0.742	0.985	**0.031**
Richest	0.618	0.061	0.509	0.751	**0.000**
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	1.238	0.143	0.987	1.551	0.065
Agricultural & domestic	1.206	0.105	1.017	1.430	**0.031**
Sales & services	1.082	0.075	0.945	1.239	0.254
Manual	1.097	0.090	0.934	1.289	0.261
Woman's education					
No education†	1.000	-	-		-
Primary	1.589	0.132	1.350	1.869	**0.000**
Secondary	1.586	0.174	1.279	1.966	**0.000**
Higher	1.096	0.182	0.792	1.518	0.580
Partner's education					
No education†	1.000	-	-		-
Primary	2.297	0.230	1.887	2.795	**0.000**
Secondary	2.379	0.259	1.922	2.945	**0.000**
Higher	2.702	0.358	2.084	3.504	**0.000**
Partner's age					
≤ 24†	1.000	-	-		-
25-34	0.782	0.066	0.663	0.923	**0.004**
35-44	0.754	0.075	0.620	0.918	**0.005**
45 and above	0.756	0.089	0.600	0.953	**0.018**
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	0.924	0.054	0.824	1.036	0.176
Others	0.933	0.278	0.521	1.672	0.817
Media access					
Has no access†	1.000	-	-		-
Has access	1.067	0.054	0.966	1.179	0.202
Age at first marriage	0.994	0.008	0.979	1.010	0.483
Age at first sex	1.008	0.013	0.983	1.033	0.531

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Age at first birth	0.995	0.012	0.971	1.019	0.655
Children ever born	1.263	0.022	1.220	1.307	**0.000**
Contraceptive use					
No†	1.000	-	-		-
Yes	1.155	1.155	1.039	1.284	**0.007**
Age at first marriage					
Woman's age					
15-24†	1.000	-	-		-
25-34	3.969	0.419	3.227	4.881	**0.000**
35-49	9.559	1.332	7.274	12.562	**0.000**
Region					
Central†	1.000	-	-		-
Eastern	1.002	0.116	0.799	1.256	0.990
Western	1.246	0.142	0.997	1.558	0.053
Northern	0.789	0.101	0.614	1.014	0.064
Place of residence					
Urban†	1.000	-	-		-
Rural	0.736	0.080	0.594	0.912	**0.005**
Religion					
Catholic†	1.000	-	-		-
Anglican	0.703	0.061	0.593	0.832	**0.000**
Muslim	0.852	0.104	0.671	1.082	0.189
Others	0.982	0.106	0.796	1.213	0.868
Wealth index					
Poor†	1.000	-	-		-
Middle	0.874	0.091	0.712	1.071	0.194
Rich	0.831	0.094	0.666	1.037	0.101
Richest	1.001	0.151	0.745	1.345	0.993
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	1.445	0.251	1.028	2.032	**0.034**
Agricultural & domestic	1.112	0.150	0.854	1.447	0.432
Sales & services	0.832	0.090	0.673	1.030	0.091
Manual	1.218	0.156	0.947	1.565	0.124
Woman's education					
No education†	1.000	-	-		-
Primary	1.027	0.127	0.805	1.310	0.830
Secondary	4.216	0.705	3.039	5.850	**0.000**
Higher	42.409	10.139	26.543	67.759	**0.000**
Partner's education					
No education†	1.000	-	-		-
Primary	0.336	0.049	0.253	0.447	**0.000**
Secondary	0.394	0.063	0.288	0.539	**0.000**
Higher	0.588	0.116	0.400	0.865	**0.007**

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Partner's age					
≤ 24†	1.000	-	-		-
25-34	0.867	0.118	0.664	1.131	0.293
35-44	0.579	0.092	0.423	0.791	**0.001**
45 and above	0.448	0.081	0.315	0.638	**0.000**
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	1.535	0.142	1.280	1.840	**0.000**
Others	1.607	0.653	0.725	3.565	0.243
Media access					
Has no access†	1.000	-	-		-
Has access	1.028	0.082	0.879	1.203	0.728
Age at first sex					
Woman's age					
15-24†	1.000	-	-		-
25-34	1.143	0.070	1.014	1.289	**0.029**
35-49	1.011	0.082	0.862	1.186	0.891
Region					
Central†	1.000	-	-		-
Eastern	0.734	0.049	0.644	0.836	**0.000**
Western	1.509	0.099	1.327	1.716	**0.000**
Northern	1.788	0.132	1.547	2.066	**0.000**
Place of residence					
Urban†	1.000	-	-		-
Rural	1.046	0.066	0.924	1.183	0.478
Religion					
Catholic†	1.000	-	-		-
Anglican	0.809	0.040	0.733	0.892	**0.000**
Muslim	0.628	0.044	0.547	0.721	**0.000**
Others	0.951	0.059	0.842	1.074	0.420
Wealth index					
Poor†	1.000	-	-		-
Middle	1.057	0.063	0.940	1.189	0.355
Rich	1.192	0.078	1.049	1.354	**0.007**
Richest	1.161	0.101	0.979	1.377	0.085
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	1.268	0.127	1.042	1.543	**0.018**
Agricultural & domestic	1.229	0.095	1.055	1.431	**0.008**
Sales & services	1.354	0.085	1.198	1.531	**0.000**
Manual	1.512	0.112	1.308	1.748	**0.000**
Woman's education					
No education†	1.000	-	-		-
Primary	0.929	0.066	0.808	1.069	0.305

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Woman's education					
Secondary	1.651	0.160	1.366	1.996	**0.000**
Higher	4.892	0.682	3.723	6.429	**0.000**
Partner's education					
No education†	1.000	-	-		-
Primary	0.591	0.050	0.501	0.697	**0.000**
Secondary	0.666	0.062	0.556	0.799	**0.000**
Higher	0.900	0.102	0.721	1.125	0.357
Partner's age					
≤ 24†	1.000	-	-		-
25-34	0.931	0.073	0.799	1.085	0.362
35-44	0.712	0.065	0.594	0.853	**0.000**
45 and above	0.727	0.076	0.593	0.892	**0.002**
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	1.622	0.087	1.461	1.801	**0.000**
Others	4.432	1.039	2.800	7.015	**0.000**
Media access					
Has no access†	1.000	-	-		-
Has access	1.034	0.048	0.945	1.133	0.465
Age at first marriage	1.266	0.007	1.252	1.279	**0.000**
	Age at first birth				
Woman's age					
15-24†	1.000	-	-		-
25-34	2.279	0.162	1.983	2.619	**0.000**
35-49	4.258	0.393	3.553	5.104	**0.000**
Region					
Central†	1.000	-	-		-
Eastern	0.930	0.071	0.801	1.081	0.346
Western	1.307	0.065	1.127	1.517	**0.002**
Northern	0.764	0.099	0.647	0.903	**0.000**
Place of residence					
Urban†	1.000	-	-		-
Rural	0.816	0.059	0.708	0.940	**0.005**
Religion					
Catholic†	1.000	-	-		-
Anglican	0.884	0.051	0.790	0.989	**0.032**
Muslim	1.031	0.084	0.880	1.209	0.702
Others	0.961	0.069	0.836	1.106	0.581
Wealth index					
Poor†	1.000	-	-		-
Middle	0.860	0.059	0.751	0.984	**0.028**
Rich	0.714	0.053	0.617	0.827	**0.000**
Richest	0.855	0.085	0.703	1.040	0.117

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	0.926	0.107	0.739	1.161	0.507
Agricultural & domestic	0.781	0.070	0.655	0.932	**0.006**
Sales & services	0.737	0.054	0.639	0.850	**0.000**
Manual	0.780	0.067	0.659	0.922	**0.004**
Woman's education					
No education†	1.000	-	-		-
Primary	0.944	0.076	0.806	1.107	0.480
Secondary	1.611	0.179	1.296	2.002	**0.000**
Higher	6.934	1.144	5.018	9.580	**0.000**
Partner's education					
No education†	1.000	-	-		-
Primary	0.727	0.070	0.602	0.879	**0.001**
Secondary	0.805	0.085	0.654	0.991	**0.041**
Higher	1.087	0.141	0.842	1.402	0.522
Partner's age					
≤ 24†	1.000	-	-		-
25-34	0.822	0.081	0.678	0.996	**0.045**
35-44	0.684	0.077	0.549	0.852	**0.001**
45 and above	0.595	0.074	0.466	0.760	**0.000**
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	0.942	0.058	0.835	1.064	0.337
Others	1.411	0.389	0.822	2.422	0.211
Media access					
Has no access†	1.000	-	-		-
Has access	1.004	0.053	0.904	1.114	0.946
Age at first sex	2.086	0.036	2.017	2.157	**0.000**
Children ever born					
Woman's age					
15-24†	1.000	-	-		-
25-34	1.869	0.034	1.803	1.937	**0.000**
35-49	2.791	0.058	2.678	2.908	**0.000**
Region					
Central†	1.000	-			
Eastern	1.029	0.016	0.999	1.060	0.057
Western	0.977	0.015	0.948	1.006	0.118
Northern	0.967	0.016	0.935	0.999	**0.044**
Place of residence					
Urban†	1.000	-	-		-
Rural	1.054	0.016	1.024	1.085	**0.000**
Religion					
Catholic†	1.000	-	-		-

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Religion					
Anglican	1.017	0.011	0.994	1.039	0.143
Muslim	1.040	0.017	1.008	1.073	**0.015**
Others	1.047	0.015	1.019	1.076	**0.001**
Wealth index					
Poor†	1.000	-	-		-
Middle	0.994	0.013	0.969	1.020	0.664
Rich	0.964	0.014	0.937	0.991	**0.010**
Richest	0.878	0.018	0.844	0.913	**0.000**
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	0.974	0.024	0.927	1.022	0.280
Agricultural & domestic	0.964	0.018	0.929	1.000	0.052
Sales & services	1.029	0.015	1.000	1.059	0.050
Manual	0.993	0.017	0.961	1.028	0.702
Woman's education					
No education†	1.000	-	-		-
Primary	0.963	0.013	0.937	0.989	**0.006**
Secondary	0.866	0.019	0.831	0.904	**0.000**
Higher	0.787	0.028	0.734	0.844	**0.000**
Partner's education					
No education†	1.000	-	-		-
Primary	0.989	0.017	0.957	1.022	0.516
Secondary	0.929	0.018	0.894	0.965	**0.000**
Higher	0.941	0.024	0.895	0.989	**0.016**
Partner's age					
≤ 24†	1.000	-	-		-
25-34	1.368	0.042	1.288	1.453	**0.000**
35-44	1.626	0.053	1.526	1.733	**0.000**
45 and above	1.746	0.059	1.635	1.865	**0.000**
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	0.960	0.011	0.938	0.983	**0.001**
Others	0.948	0.047	0.860	1.046	0.287
Media access					
Has no access†	1.000	-	-		-
Has access	0.983	0.010	0.963	1.003	0.088
Age at first birth	0.954	0.001	0.951	0.957	**0.000**
Contraceptive use					
Woman's age					
15-24†	1.000	-	-		-
25-34	1.444	0.097	1.265	1.647	**0.000**
35-49	0.840	0.081	0.696	1.015	0.072

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Region					
Central†	1.000	-	-		-
Eastern	0.777	0.058	0.671	0.900	**0.001**
Western	0.761	0.056	0.658	0.880	**0.000**
Northern	0.546	0.044	0.467	0.638	**0.000**
Place of residence					
Urban†	1.000	-	-		-
Rural	0.859	0.060	0.749	0.986	**0.031**
Religion					
Catholic†	1.000	-	-		-
Anglican	1.247	0.066	1.123	1.384	**0.000**
Muslim	0.992	0.074	0.857	1.150	0.918
Others	0.940	0.061	0.827	1.068	0.343
Wealth index					
Poor†	1.000	-	-		-
Middle	1.286	0.079	1.140	1.451	**0.000**
Rich	1.524	0.106	1.330	1.746	**0.000**
Richest	1.806	0.174	1.494	2.182	**0.000**
Occupation					
Not working†	1.000	-	-		-
Professional & clerical	1.416	0.162	1.132	1.771	**0.002**
Agricultural & domestic	1.618	0.139	1.367	1.915	**0.000**
Sales & services	1.208	0.078	1.065	1.371	**0.003**
Manual	1.303	0.101	1.120	1.516	**0.001**
Woman's education					
No education†	1.000	-	-		-
Primary	1.858	0.131	1.618	2.134	**0.000**
Secondary	2.114	0.213	1.735	2.576	**0.000**
Higher	1.859	0.287	1.373	2.516	**0.000**
Partner's education					
No education†	1.000	-	-		-
Primary	1.622	0.135	1.378	1.909	**0.000**
Secondary	1.942	0.181	1.617	2.331	**0.000**
Higher	2.059	0.248	1.625	2.607	**0.000**
Partner's age					
≤ 24†	1.000	-	-		-
25-34	1.543	0.119	1.327	1.795	**0.000**
35-44	1.464	0.139	1.216	1.763	**0.000**
45 and above	0.952	0.103	0.770	1.178	0.653
Literacy					
Cannot read at all†	1.000	-	-		-
Able to read	1.428	0.079	1.281	1.591	**0.000**
Others	1.062	0.254	0.665	1.696	0.802

Table 7 continued

Variable	OR	Std. Err	95% CI		p-value
Media access					
Has no access†	1.000	-	-		-
Has access	1.192	0.057	1.086	1.308	**0.001**
Children ever born	1.213	0.015	1.184	1.243	**0.000**

† is a Reference category, OR is the Odds Ratio, CI is the Confidence Interval at 95%; the assessment was based on gsem at n=11,371and p < 0.05

Regression diagnostics

A diagnostic test was done after GSEM by running two models in order to check the level of adequacy of the explanatory variables in predicting the outcome variable by using the Akaike Information Criterion. The first model was the regression with all the variables while the other was a regression with only variables that had significant association at the bivariate level and those considered important in the literature. The table below shows the regression diagnostics of the two models in the analysis.

Table 8: AIC of two models

No.	Models	Degrees of Freedom	AIC
1	Model with all variables	127	239,006.7
2	Model with selected variables	84	227,254.2

The second model (with a smaller AIC) was able to fit the data well and indicated that the variables that were dropped had no significant effect on the model.

Multivariate results

Direct determinants of unintended pregnancy

Table 7 above shows the direct and indirect predictors of unintended pregnancy among currently married women. Results show that women aged 35-49 were 50% *(OR= 0.50, 95% CI= 0.39-0.63)* less likely to experience unintended pregnancy compared to those less than 25 years. Furthermore, married women from northern Uganda were 30% at a higher risk of getting unintended pregnancy as compared to their counter parts in the central region *(OR=1.30, 95% CI=1.55-2.07).* However, women from western region were 28% less likely to have unintended pregnancy as compared to those in the central *(OR=0.72, 95% CI= 0.62-0.84).* Married women

from the highest wealth quintile were 38% less likely to experience unplanned pregnancies as compared to those in the lowest wealth quintile *(OR=0.62, 95% CI= 0.51-0.75).* Still, there was almost no difference between married women with primary or secondary level of education towards the risk of having unintended pregnancy with both groups being 59% *(OR=1.59, 95% CI= 1.35-1.87;* and *OR=1.59; 95% CI=1.28-1.97* respectively*)* more likely to experience unintended pregnancy compared to their counter parts with no education. Similarly, women whose partners had higher educational level were thrice more likely to experience unintended pregnancy compared to those whose partners had no education *(OR=2.70, 95% CI= 2.08-3.50).* Generally, as the age of the partner increases, the risk of a woman to experience unintended pregnancy reduces with married women whose partners were aged above 44 years being 24% *(OR=0.76, 95% CI= 0.60-0.95)* less likely to experience unintended pregnancy as compared to those whose partners were less than 25 years. Additionally, married women who were employed in agricultural & domestic work were 21% *(OR=1.21, 95% CI= 1.02-1.43)* more likely to experience unintended pregnancy as compared to those who were not working. However, increasing the number of children by one, raises the risk of unintended pregnancy by 26% *(OR=1.26, 95% CI= 1.22-1.31).* More still, women who were using contraceptives were 16% *(OR=1.16, 95% CI= 1.04-1.28)* more likely to have unintended pregnancy as compared to those who were not using contraceptives.

Indirect determinants of unintended pregnancy through contraceptive use

Married women aged 25-34 years who were using contraceptives were 44% *(OR =1.44, 95% CI= 1.27-1.65)* more likely to experience unintended pregnancies as compared to their counterparts who were less than 25 years and were also using contraceptives. Similarly, married women from the northern, western, and eastern regions who were using contraceptives were respectively 45%, 24%, and 22% less likely to experience unintended pregnancy compared to their counter parts in the central *(OR= 0.55, 95% CI= 0.45-0.64; OR= 0.76, 95% CI= 0.66-0.88;* and *OR= 0.78, 95% CI= 0.67-0.90* respectively*).* Anglican married women who were using contraceptives were 25% more likely to experience unintended pregnancies as compared to the Catholics *(OR=1.25, 95% CI= 1.12-1.38).* Additionally, as the wealth index of the households improves, the risk of a married woman to experience unintended pregnancy increases with those who were using contraceptives from middle, rich, and richest wealth index respectively being

29% *(OR=1.29, 95% CI=1.14-1.45),* 52% *(OR=1.52, 95% CI=1.33-1.75),* and 81% *(OR=1.81, 95% CI=1.49-2.18)* more as compared to the poor. Employed women who were using contraceptives were more likely to experience unintended pregnancies as compared to women who were not working with those engaged in agriculture & domestic sector having the highest risk of 62% *(OR= 1.62, 95% CI=1.37-1.92).* Women with primary, secondary, and higher education level who were using contraceptives were all twice more likely to experience unplanned pregnancies compared to those who were not educated *(OR= 1.86, 95% CI= 1.62-2.13; OR= 2.11, 95% CI= 1.74-2.56;* and *OR=1.86, 95% CI=1.37-2.52* respectively*).* The results still revealed that as the level of education increased among partners of married women who were using contraceptives, their intention to have unintended pregnancies increased as well with those whose partners had attained primary, secondary and higher being 62%, 94%, and thrice respectively compared to those who were illiterates *(OR= 1.62, 95% CI=1.38-1.91; OR=1.94, 95% CI=1.62-2.33;* and *OR= 2.06, 95% CI=1.63-2.61* respectively*).* Married women who were using contraceptives and their partners were aged 25-34, and 35-44 were respectively 54% *(OR= 1.54, 95% CI=1.33-1.80),* and 46% *(OR= 1.46, 95% CI=1.22-1.76)* more likely experience unintended pregnancies compared to those whose partners were less than 25 years. Similarly, married women who could read and write as well as used contraceptives were 43% more likely to experience unintended pregnancies as compared to those who could not read at all *(OR= 1.43, 95% CI=1.28-1.59).* More still, married women who were using contraceptives and able to access any form of media were 19% *(OR= 1.19, 95% CI=1.09-1.31)* more likely to experience unintended pregnancies as compared to those who had no access to any form of media. The results still revealed that as the number of children born to married women who were using contraceptives increased by one, the risk of unintended pregnancy also increased by 21% *(OR= 1.21, 95% CI=1.18-1.24)* as compared to those with few children.

Indirect determinants of unintended pregnancy through children ever born

Results in Table 7 show a direct effect of Children ever born on unintended pregnancy. More still, married women aged 25-34 who had more children were 87% *(OR= 1.87, 95% CI=1.80-1.94)* where as those aged 35-49 years with the same number of children were thrice more likely to have unintended pregnancies as compared to those less than 25 years *(OR=* 2.79, *95% CI=2.68-2.91*). Furthermore, women from northern region who had more children were 3%

(OR= 0.97, *95% CI=0.94-1.00*) less likely to have unintended pregnancies as compared to their counter parts in the central region. Married women who had more children and were from rural areas were also 5% more likely experience unintended pregnancy compared to those in urban areas with the same number of children *(OR= 1.05, 95% CI=1.02-1.09*). Muslims who had more children were 4% *(OR= 1.04, 95% CI=1.01-1.07)* more likely to have unintended pregnancies compared to the Catholics with the same number of children. Additionally, married women from rich and richest households having who had more children were respectively 4% *(OR= 0.96, 95% CI=0.94-0.99*), and 12% *(OR= 0.88, 95% CI=0.84-0.91)* less likely to experience unintended pregnancy compared to the poor. Still, as the level of education among married women increased through Children ever born, their intention to have unintended pregnancies reduced with those with primary, secondary, and higher education level having 4% *(OR= 0.96, 95% CI=0.94-0.99*), 13% *(OR= 0.87, 95% CI=0.83-0.90),* and 21% *(OR= 0.79, 95% CI=0.73-0.84)* respectively reduced odds unintended pregnancies as compared to married women who had no education but with the same number of children. Additionally, women whose husbands had at least secondary or higher level of education respectively had 7% *(OR= 0.93, 95% CI=0.89-0.97),* and 6% *(OR= 0.94, 95% CI=0.90-0.99)* reduced odds of having unintended pregnancies compared to women whose husbands had no education but with the same number of children. As the husband's age increased, the probability for a woman to have unintended pregnancy also increased with those aged 25-34, 35-44, and above 44 years to respectively being 37%, 63%, and 75% respectively more likely as compared to women whose husbands were less than 25 years and yet had the same number of children *(OR= 1.37, 95% CI=1.29-1.45; OR= 1.63, 95% CI=1.53-1.73;* and *OR= 1.75, 95% CI=1.64-1.87* respectively*).* Similarly, married women who were able to read were 4% *(OR= 0.96, 95% CI=0.94-0.98)* less likely to have unintended pregnancies as compared to those who could not read at all but with the same number of children. Similarly, a one year increase in age at first birth of a woman was significantly associated with a slight reduction in the odds of unintended pregnancy through the number of children born *(OR=0.95, 95% CI=0.95-0.96).*

Direct determinants of Age at first marriage

The results in Table 7 revealed that there was no direct effect of Age at first marriage on unintended pregnancy. However, Age at first marriage was directly influenced by: woman's age,

place of residence, religion, occupation, woman's education level, husband's education level, husband's age, and literacy *(p<0.05).* Generally, as the age of women increased, the odds of Age at first marriage also increased with those aged 25-34, and 35-49 being four times *(OR= 3.97, 95% CI=3.23-4.88),* and ten times *(OR=9.56, 95% CI=7.27-12.56)* respectively as compared to those less than 25 years. Women in rural areas had their first marriage earlier as compared to those in urban areas with reduced odds of 26% *(OR= 0.74, 95% CI=0.59-0.91).* Similarly, Anglicans had their first marriage at a lower age as compared to the Catholics with reduced odds of 30% *(OR= 0.70, 95% CI=0.59-0.83).* Married women who were employed in professional & clerical sector were 45% *(OR= 1.45, 95% CI=1.03-2.03)* more likely to have delayed to get married as compared to those who were not working. Married women who had attained secondary or higher education level were four and forty two times respectively more likely to have a higher Age at first marriage as compared their counter parts who had no education *(OR= 4.22, 95% CI=3.04-5.85; OR= 42.41, 95% CI=26.54-67.76* respectively*).* On contrary, women whose husbands had attained primary, secondary, and higher were 66% *(OR= 0.34, 95% CI=0.25-0.45),* 61% *(OR= 0.39, 95% CI=0.29-0.54),* and 41% *(OR=0.59, 95% CI=0.40-0.87)* respectively less likely to have had their first marriage at a higher age compared to those whose husbands had no education. Additionally, married women whose husbands were aged 35-44 had 42% *(OR= 0.58, 95% CI=0.42-0.79)* while those aged above 44 years had 55% *(OR= 0.45, 95% CI=0.32-0.64)* reduced odds of Age at first marriage compared to whose husbands were less than 25 years. Married women who were able to read and write were 54% more likely to have had their first marriage at a higher age as compared to the illiterates *(OR= 1.54, 95% CI=1.28-1.84).*

Direct determinants of Age at first sex

Results in Table 7 still revealed that there was no direct effect of Age at first sex on the risk of having unintended pregnancy. However, Age at first sex was directly influenced by: woman's age, region of residence, religion, wealth index, occupation, woman's education level, husband's education level, husband's age, literacy, and Age at first marriage. Women aged 25-34 years had 14% *(OR=1.14, 95% CI=1.01-1.29)* increased odds of Age at first sex as compared to those below 25 years. Women from the northern region were 79% while those in the western region were 51% more likely to take longer to have sex compared to those in the central *(OR=1.79, 95% CI=1.55-2.07; OR=1.51, 95% CI=1.33-1.72).* However, women from the eastern region

were 27% more likely to have had sex earlier as compared to those in the central *(OR=0.73, 95% CI=0.64-0.84).* More still, Anglicans, and Muslims respectively had 19% *(OR=0.81, 95% CI=0.73-0.89),* and 37% *(OR= 0.63, 95% CI=0.55-0.72)* reduced odds of Age at first sex as compared to Catholics. Additionally, women from rich households were 19% more likely to have had their first sex at an older age as compared to those from the poor households *(OR=1.19, 95% CI=1.05-1.35).* Married women who were employed were more likely to have had their first sex at an older age as compared to those who were not working. This was reflected by the increased odds for those employed in profession & clerical, agricultural & domestic, sales & services, and manual sector to respectively be 27%, 23%, 35% and 51% as compared to those who were not working *(OR=1.27, 95% CI=1.04-1.54; OR=1.23, 95% CI=1.06-1.43; OR=1.35, 95% CI=1.20-1.53; OR=1.51, 95% CI=1.31-1.75* respectively*).* Furthermore, women who had attained secondary level of education had 65% *(OR= 1.65, 95% CI=1.37-2.00)* increased odds of Age at first sex while those with higher education were five times more likely to have had their first sex at an older age as compared to their counter parts with no education *(OR= 4.89, 95% CI=3.72-6.43).* On contrary, women whose husbands had attained primary or secondary had 41%, and 33% respectively reduced odds Age at first sex as compared to those whose husbands had not attained any formal education *(OR= 0.59, 95% CI=0.50-0.70; OR= 0.67, 95% CI=0.56-0.80,* respectively*).* Similarly, as the age of the husband increased, the odds of Age at first sex reduced gradually with those aged 35-44 and above 45 years having 29% *(OR= 0.71, 95% CI=0.59-0.85),* and 27% *(OR= 0.73, 95% CI=0.59-0.89)* respectively as compared to those women whose husbands were aged less than 25 years. Women who were able to read were 62% *(OR= 1.62, 95% CI=1.46-1.80)* more likely to have a higher Age at first sex as compared to those who could not read at all. More still, increasing Age at first marriage by one year, postpones Age at first sex by 1.27 years *(OR= 1.27, 95% CI=1.25-1.28).*

Direct determinants of Age at first birth

The results in Table 7 revealed that there was no direct effect of Age at first birth on unintended pregnancy. However, Age at first birth was directly influenced by: woman's age, region, wealth index, occupation, education level of the both the woman and her husband, age of the husband and, Age at first sex *(p<0.05).* Women in the age group 25-34 and 35-49 years were twice and four times respectively less likely to have produced earlier than those less than 25 years *(OR=*

2.28, 95% CI=1.98-2.62; OR= 4.26, 95% CI=3.55-5.10 respectively*).* Women from the northern region were 24% *(OR= 0.76, 95% CI=0.65-0.90)* less likely to have had their first birth at an older age as compared to those in the central. On contrary, women in the western region were 31% *(OR= 1.31, 95% CI=1.13-1.52*) more likely to have had their first birth at an older age as compared to their counter parts in the central region. Married women in the rural areas had reduced odds of Age at first birth with 18% *(OR=0.82, 95% CI=0.71-0.94)* as compared to those in urban areas. Anglicans were also less likely to have a higher age of first birth compared to the Catholics *(OR= 0.88, 95% CI=0.79-0.99).* Similarly, employed married women were more likely to have had their first birth earlier than those who were not working. This was reflected by women working in agricultural & domestic, sales & services, and manual sectors with reduced odds of 20% *(OR=0.78, 95% CI=0.66-0.93),* 26% *(OR=0.74, 95% CI=0.64-0.85),* and 20% *(OR=0.78, 95% CI=0.66-0.92)* respectively as compared to those who were not working. Married women with secondary level of education had 61% *(OR= 1.61, 95% CI=1.30-2.00)* increased odds of Age at first birth compared to those without education. More still, women with higher education were seven times more likely to have had their first birth at a later age as compared to those with no education *(OR= 6.93, 95% CI=5.02-9.58).* Married women whose husbands had attained primary, and secondary level of education respectively had 27% *(OR= 0.73, 95% CI=0.60-0.88*), and 19% *(OR= 0.81, 95% CI=0.65-0.99)* reduced odds of Age at first birth as compared to those whose husbands had no education. The results further reveal that; as the age of the husband increased, the odds of Age at first birth among women reduced with those aged 25-34, 35-44, and above 44 years respectively having 18% *(OR= 0.82, 95% CI=0.68-1.00),* 32% *(OR= 0.68, 95% CI=0.55-0.85),* and 41% *(OR= 0.59, 95% CI=0.47-0.76).* Lastly, Age at first sex directly influenced Age at first birth. Increasing age at first sex by one year raises age at first birth by two years *(OR= 2.09, 95% CI=2.02-2.16).*

Discussion

The main objective of the study was to explore the determinants of unintended pregnancy among currently married women in Uganda. Results showed that 44.6% of the pregnancies were unintended. Still, unintended pregnancy was directly associated with woman's: age, region, wealth index, occupation, education level, children ever born, contraceptive use; and as well as partner's age, and education level. Findings show that the prevalence of unintended births

reduces gradually with increasing age of married women. This was consistent with the findings in India, and Malawi [32, 3]. This could be to the fact that as married women become older, their intentions to have more children reduces probably because they could have reached their desired family size compared to young married women. Secondly, young married women may also be reluctant and fear to openly discuss family planning issues with their partners or even seek guidance from health personnel.

Still, married women from northern Uganda were at a higher risk of getting unintended pregnancy as compared to their counter parts in the central region. However, women from western region were also less likely to have unintended pregnancy as compared to those in the central. This was in agreement with the findings in 2005, and 2013 [9, 11]. This may be due to differences in access to health services and sensitization in the different communities.

The results also reveal that; as the economic status of the married woman improves, her intention to have unintended pregnancy reduces. Married women from the highest wealth quintile were less likely to experience unplanned pregnancies as compared to those in the lowest wealth quintile. This is consistent with studies in Bangladesh, Malawi, USA, and Iran [27, 3, 33, 30]. This is because rich women can easily access health services regarding whatever it may take to regulate on the risk of unintended pregnancy.

Educated women were more likely to experience unintended pregnancy compared to their counter parts with no education. This resonated with the findings in Ivory Coast, and Ethiopia [34, 31]. Similarly, women whose partners were educated were also more likely to have unintended pregnancy as compared to those whose husbands had no education. This could be attributed to method failure and decision making on the proper method to use among couples.

Still, as the age of the partner increased, the intention of his wife to have unplanned pregnancy reduced. This was contrary to the findings among African Americans [35]. More still, the total number of children a married woman has significantly affects her risk of having unintended pregnancy. The higher the number of children a woman has, the higher the risk of unintended pregnancy. This was in agreement with a study in Nigeria [36].

Women who were using contraceptives were more likely to have unintended pregnancy as compared to those who did not use them. This was consistent with previous studies in

Bangladesh, Pakistan, and Nigeria [37, 38 39]. This could be attributed to inadequate sensitization on the different contraceptive methods used.

Additionally, unintended pregnancy through contraceptive use was indirectly influenced by women's: age, region, place of residence, religion, wealth index, occupation, education level, literacy, media, children ever born; husband's age and educational level. Married women aged 25-34 years who were using contraceptives were more likely to experience unintended pregnancies as compared to their counterparts who were less than 25 years.

Similarly, married women from the northern, western, and eastern regions and were using contraceptives were less likely to experience unintended pregnancy compared to their counter parts in the central. Anglican married women who were using contraceptives were more likely to experience unintended pregnancies as compared to the Catholics.

Additionally, married women from rich households and were using contraceptives more likely to experience unintended pregnancies as compared to the poor. More still, women who were employed and used contraceptives were more likely to experience unintended pregnancies as compared to women who were not working.

The education level attained by married women through contraceptive use significantly affected the risk of having unintended pregnancies. Educated married women who were using contraceptives were more likely to experience unplanned pregnancies compared to those who were not educated but were also using contraceptives.

The results still revealed that as the level of education increased among husbands of married women who were using contraceptives, their intention to have unintended pregnancies increased as well. Furthermore, married women whose husbands were older and were using contraceptives were also more likely experience unintended pregnancies compared to those women with younger partners.

Married women who could read and write as well were using contraceptives were more likely to experience unintended pregnancies as compared to those who could not read at all but using contraceptives. More still, married women who were using contraceptives and able to access any form of media (television, radio or newspapers) were more likely to experience unintended

pregnancies as compared to those who had no access to any form of media but were using contraceptives.

The results still revealed that the total number of children a woman had through contraceptive use influenced her intention to have unintended pregnancies. Married women with more children and yet were using contraceptives were more likely to experience unintended pregnancies compared to those with few children.

Finally, the indirect effect on unintended pregnancy through children ever born were established by women's: age, region, place of residence, religion, wealth index, education level; husband's education, husband's age, and Age at first birth. As the age of married women increased, their risk of having unintended pregnancy also increased.

Furthermore, women from northern region who had more children were less likely to have unintended pregnancies as compared to their counter parts in the central region. Married women who had more children and were from rural areas were more likely experience unintended pregnancy compared to those in urban areas with the same number of children. More still, Muslims who had more children were more likely to have unintended pregnancies compared to the Catholics with the same number of children.

Additionally, as the economic status among married women improved, their intention to have unintended pregnancies through Children ever born reduced with those from rich and richest households having reduced odds of unintended pregnancy.

The results also show that; as the level of education among married women increased through Children ever born, their intention to have unintended pregnancies reduced. Women with higher education are assumed to have a more in-depth knowledge about the benefits and risks of unintended pregnancies as compared to those who are illiterates. Therefore the many children of an educated woman are more likely to have been planned.

Women whose husbands were educated were less likely to have unintended pregnancies compared to women whose husbands had no education but with the same number of children. Furthermore, the results still revealed that as the husband's age increased, the probability for a woman to have unintended pregnancy also increased.

Similarly, married women who were able to read were less likely to have unintended pregnancies as compared to those who could not read at all but with the same number of children. Still, a one year increase in age at first birth of a woman reduces the risk of unintended pregnancy through the number of children born.

Study limitations

The data used was cross sectional and therefore was limited in providing an understanding of the timing of unintended pregnancy. Women's perception on whether the pregnancy was planned or wanted can change over time. Pregnancy intention asked in the early stage of pregnancy is more likely to give an accurate answer than those at the late stage of pregnancy or even after delivering and the different cases are not reflected in the survey.

Despite the above limitation, reliable data and appropriate methods were used hence the findings reflect accurately the determinants of unintended pregnancy among currently married women in Uganda. The large size of this study and its likely representativeness was a great strength as well.

Conclusion

In the study, it was found out that the risk of unintended pregnancy does not segregate whether someone is highly educated or comes from a rich household. Furthermore, the prevalence of unintended pregnancy is still very high and the rate of contraceptive use is also very low especially among poor women and those in rural areas as compared to the rich and urban women. The factors that were directly associated with the risk of unintended pregnancy were: woman's age, region, wealth index, occupation, education level, husband's age, husband's education level, children ever born and contraceptive use. On the other hand, the factors that indirectly influenced unintended pregnancy were: woman's age, region, religion, wealth index, occupation, education level, husband's age, husband's education level, children ever born, literacy, access to media, and Age at first birth. Therefore, the government should invest in programs and policies like sensitization of women on the effectiveness in proper use of contraceptives, distribution of free, long-acting and quality contraceptive methods especially among those families that already have four or more children. This will in turn help these women and their families meet their needs, improve their health, reduce on public expenditure in the health sector and also improve their academic achievement.

References

1. Mosher WD, Jones J, Abma JC. Intended and Unintended Births in the United States: 1982 – 2010. Atlanta: CDC; 2012.

2. Singh S, Sedgh G, Hussain R. Unintended Pregnancy : Worldwide Levels , Trends , and Outcomes. Stud Fam Plann. 2010;41:241–50.

3. Martin P, Ayo A. Prevalence and Determinants of Unintended Pregnancies in Malawi. African Popul Stud. 2014;28:551–63.

4. Ronsmans C, Graham WJ. Maternal mortality : who , when , where , and why. Lancet. 2006;368 9,542:1189–200.

5. Che Y, Cleland J. Unintended Pregnancy Among Newly Married Couples In Shanghai. Int Fam Plan Perspect. 2004;30:6–11.

6. Levels M, Need A, Nieuwenhuis R, Sluiter R, Ultee W. Unintended Pregnancy and Induced Abortion in the Netherlands 1954-2002. Eur Sociol Rev. 2012;28:301–18.

7. Sihvo S, Bajos N, Ducot B, Kaminski M, Cocon Group. Women's life cycle and abortion decision in unintended pregnancies. J Epidemiol Community Health. 2003;57:601–5.

8. Sedgh G, Singh S, Hussain R. Intended and Unintended Pregnancies Worldwide in 2012 and Recent Trends. Stud Fam Plann. 2014;45:301–14.

9. Guttmacher Institute. Unintended Pregnancy and Abortion in Uganda. New York; 2013.

10. Prada E, Atuyambe LM, Blades NM, Bukenya JN, Orach CG, Bankole A. Incidence of Induced Abortion in Uganda , 2013: New Estimates Since 2003. PLOSONE. 2016;11:1–19.

11. Singh S, Prada E, Mirembe F, Kiggundu C. The Incidence of Induced Abortion in Uganda. Int Fam Plan Perspect. 2005;31:183–91.

12. Salama SI, Mores CW, Shaaban FA, Azmy OM. Determinants of unintended pregnancy and its impact on the health of women in some governorates of Upper Egypt. J Arab Soc Med Res. 2015;10:1–8.

13. Herd P, Higgins J, Sicinski K, Merkurieva I. The Implications of unintended pregnancies for

mental health in later Life. Am J Public Heal. 2016;106:421–9.

14. Bitto A, Gray RH, Simpson JL, Queenan JT, Kambic RT, Perez A, et al. Unplanned Pregnancies among Users of Natural Farmily Planning: A Prospective Study. Am J Public Health. 1997;87:338–43.

15. Hardee K, Eggleston E, Wong EL, Irwanto I, Hull TH. Unintended pregnancy and women ' s psychological well-being in Indonesia. J Biosoc Sci. 2004;36:617–626.

16. Puri M. Consequences of unintended pregnancy among young married women in Nepal. N J Obs Gynaecol. 2006;1:37–46.

17. Steinberg JR, Rubin LR. Psychological Aspects of Contraception, Unintended Pregnancy, and Abortion. Policy Insights from Behav Brain Sci. 2014;1:239–47.

18. Bahk J, Yun S, Kim Y, Khang Y. Impact of unintended pregnancy on maternal mental health: A causal analysis using follow up data of the Panel Study on Korean Children (PSKC). BMC Pregnancy Childbirth. 2015;15:1–12.

19. Sonfield A, Kost K, Gold RB, Finer LB. The Public Costs of Births Resulting from Unintended Pregnancies : National and State-Level Estimates. Perspect Sex Reprod Health. 2011;43:94–102.

20. Yazdkhasti M, Pourreza A, Pirak A. Unintended Pregnancy and Its Adverse Social and Economic Consequences on Health System: A Narrative Review Article. Iran J Public Heal. 2015;44:12–21.

21. Singh A, Singh A, Thapa S. Adverse Consequences of Unintended Pregnancy for Maternal and Child Health in Nepal. Asia-Pacific J Public Heal. 2015;27:1481–91.

22. Sanders B, Kaestner R, Joyce T, Ted N. Consequences for Infants of Parental Disagreement. Perspect Sex Reprod Health. 2002;34:198–205.

23. UBOS and ICF International. Uganda Demographic and Health Survey 2016. Kampala, Uganda and Rockville, Maryland, USA; 2018.

24. MoH. Annual Health Sector Performance Report. Kampala, Uganda; 2016.

25. Koren A, Mawn B. The context of unintended pregnancy among married women in the USA.

J Fam Plan Reprod Heal Care. 2010;36:150–8.

26. Kassie T, Moges G, Ali A, Tefera W. Magnitude and factors associated with unintended pregnancy among pregnant women in Addis Ababa , Ethiopia. Glob J Med Public Heal. 2017;6:1–15.

27. Roy TK, Singh BP. Correlates of Unwanted Births in Bangladesh: A Study through Path Analysis. PLOSONE. 2016;11:1–12.

28. Lamina MA. Prevalence and Determinants of Unintended Pregnancy Among Women In South-western Nigeria. Ghana Med J. 2015;49:187–94.

29. Ikamari L, Izugbara C, Ochako R. Prevalence and determinants of unintended pregnancy among women in Nairobi , Kenya. J BioMed Cent Pregnancy Childbirth. 2013;13:1–9. http://www.biomedcentral.com/1471-2393/13/69.

30. Omani-samani R, Rarani MA, Sepidarkish M, Morasae EK. Socioeconomic inequality of unintended pregnancy in the Iranian population : A decomposition approach. BMC Public Health. 2018;18:1–8.

31. Feyisso M, Girma A, Yimam H, Hailu S. Magnitude of Unintended Pregnancy and its Determinants among Pregnant Women Visiting Dilla University Referral Hospital , South Ethiopia. J Women ' s Heal Care. 2017;6:1–7.

32. Raushan R, Raushan MR. Level and Correlates of Unintended Pregnancy among Currently Pregnant Young Women in India. J Popul Soc Stud. 2017;25:194–212.

33. Finer LB, Zolna MR. Unintended pregnancy in the United States: Incidence and disparities, 2006. Contraception. 2011;84:478–85.

34. Djoukou K, Denise O, Purifine ASO, Joseph A, Eugène KY, Harvey A, et al. Correlates of Unintended Pregnancies in Ivory Coast : Results from a National Survey. Sci J Public Heal. 2018;6:6–14.

35. Senn T, Carey MP. Age of Partner at First Adolescent Intercourse and Adult Sexual Risk Behavior Among Women. J Women ' s Heal. 2011;20:61–6.

36. Izugbara C. Household characteristics and unintended pregnancy among ever-married

women in Nigeria. Soc Med. 2014;8:4–10.

37. Islam MM, Rashid M. Determinants of Unintended Pregnancy among Ever-married Women in Banladesh. J Fam Welf. 2004;50:40–7.

38. Ali SA, Abrejo F. The Relationship between Contraceptive Use and Unintended Pregnancies among Married Women in Thatta District. J Midwifery Reprod Heal. 2017;5:950–7.

39. Sedgh G, Bankole A, Oye-adeniran B, Adewole IF, Singh S, Hussain R, et al. Unwanted Pregnancy and Associated Factors among Nigerian Women. Int Fam Plan Perspect. 2006;32:175–84.

Table 9: Life table for time to first marriage

Interval		Beginning total	Deaths	Lost	Survival	Std.Err	(95% CI)	
10	12	11379	187	0	0.984	0.001	0.981	0.986
12	14	11192	555	0	0.935	0.002	0.930	0.939
14	16	10637	1745	0	0.781	0.004	0.774	0.789
16	18	8892	2976	0	0.520	0.005	0.511	0.529
18	20	5916	2522	0	0.298	0.004	0.290	0.307
20	22	3394	1451	0	0.171	0.004	0.164	0.178
22	24	1943	868	0	0.095	0.003	0.089	0.100
24	26	1075	447	0	0.055	0.002	0.051	0.060
26	28	628	267	0	0.032	0.002	0.029	0.035
28	30	361	144	0	0.019	0.001	0.017	0.022
30	32	217	97	0	0.011	0.001	0.009	0.013
32	34	120	32	0	0.008	0.001	0.006	0.010
34	36	88	37	0	0.005	0.001	0.003	0.060
36	38	51	16	0	0.003	0.001	0.002	0.004
38	40	35	11	0	0.002	0.000	0.001	0.003
40	42	24	8	0	0.001	0.000	0.001	0.002
42	44	16	6	0	0.001	0.000	0.001	0.002
44	46	10	5	0	0.000	0.000	0.000	0.001
46	48	5	3	0	0.000	0.000	0.000	0.001
48	50	2	2	0	0.000			

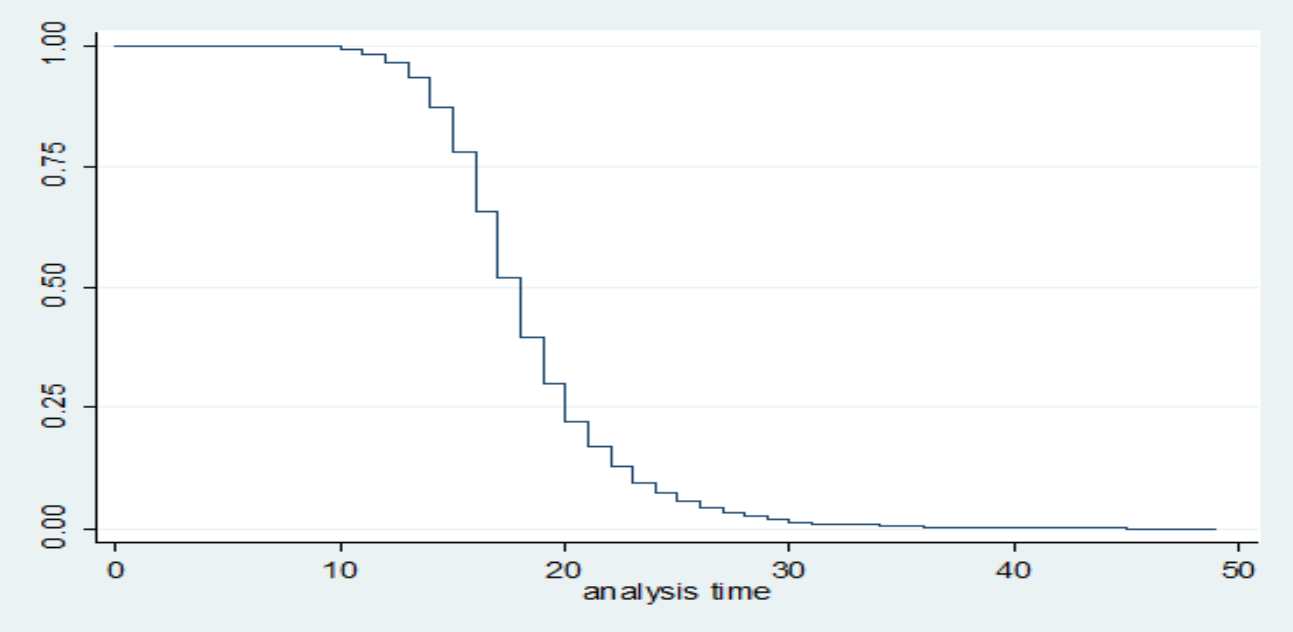

Figure 2: Kaplan-Meier survival curve for time to first marriage

Table 10: Life table for time to first sex

Interval		Beginning total	Deaths	Lost	Survival	Std.Err	(95% CI)	
8	10	11373	34	0	0.997	0.001	0.996	0.998
10	12	11339	133	0	0.985	0.001	0.983	0.987
12	14	11206	785	0	0.916	0.003	0.911	0.921
14	16	10421	3269	0	0.629	0.005	0.620	0.638
16	18	7152	3592	0	0.313	0.004	0.305	0.322
18	20	3560	2326	0	0.109	0.003	0.103	0.114
20	22	1234	803	0	0.038	0.002	0.035	0.042
22	24	431	249	0	0.016	0.001	0.014	0.018
24	26	182	126	0	0.005	0.001	0.004	0.006
26	28	56	30	0	0.002	0.000	0.002	0.003
28	30	26	13	0	0.001	0.000	0.001	0.002
30	32	13	8	0	0.000	0.000	0.000	0.001
32	34	5	1	0	0.000	0.000	0.000	0.001
34	36	4	2	0	0.000	0.000	0.000	0.001
38	40	2	1	0	0.000	0.000	0.000	0.001
42	44	1	1	0	0.000			

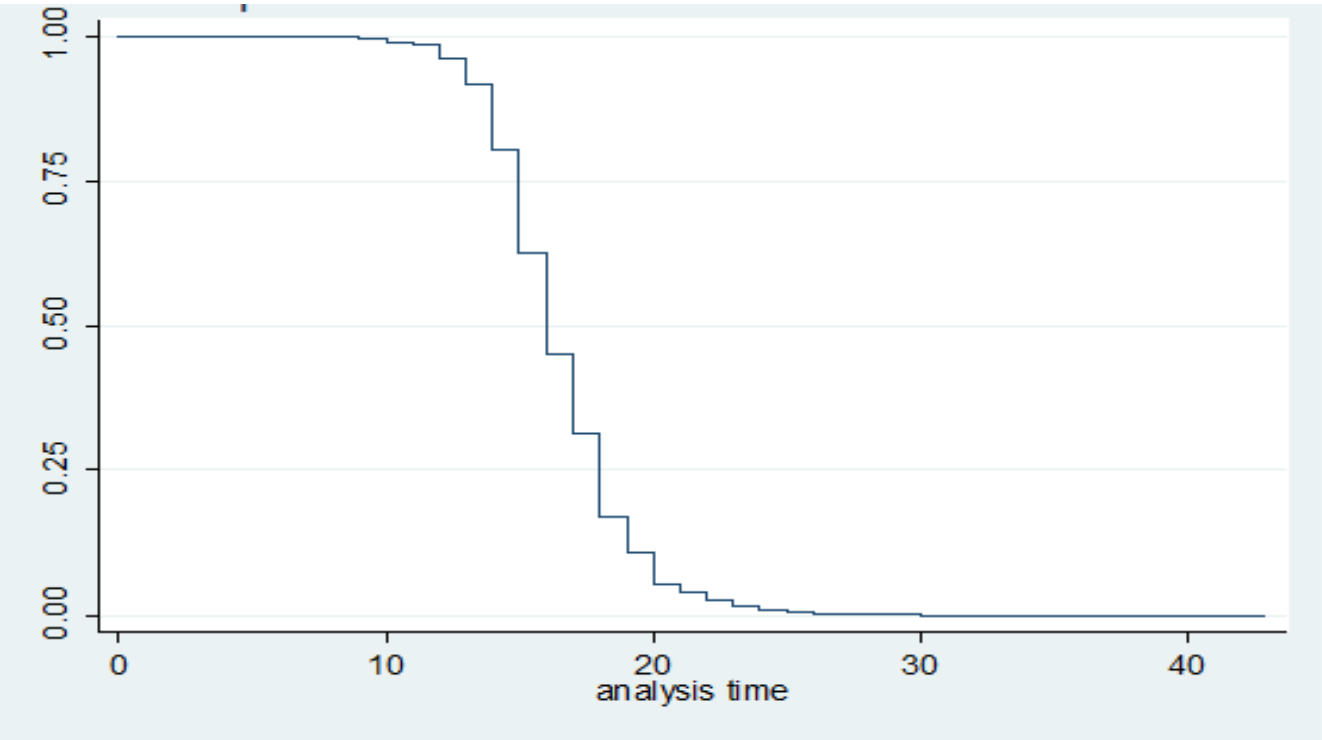

Figure 3: Kaplan-Meier survival curve for time to first sex

Table 11: Life table for time to first birth

Interval		Beginning total	Deaths	Lost	Survival	Std.Err	(95% CI)	
8	10	10692	1	0	1.000	0.000	0.999	1.000
12	14	10691	363	0	0.966	0.002	0.962	0.969
14	16	10328	1134	0	0.860	0.003	0.853	0.866
16	18	9194	2717	0	0.606	0.005	0.596	0.615
18	20	6477	2941	0	0.331	0.005	0.322	0.340
20	22	3536	1817	0	0.161	0.004	0.154	0.168
22	24	1719	880	0	0.079	0.003	0.074	0.084
24	26	839	440	0	0.037	0.002	0.034	0.041
26	28	399	230	0	0.016	0.001	0.014	0.018
28	30	169	93	0	0.007	0.001	0.006	0.009
30	32	76	36	0	0.004	0.001	0.003	0.005
32	34	40	23	0	0.002	0.000	0.001	0.003
34	36	17	8	0	0.001	0.000	0.000	0.002
36	38	9	7	0	0.000	0.000	0.000	0.001
38	40	2	2	0	0.000			

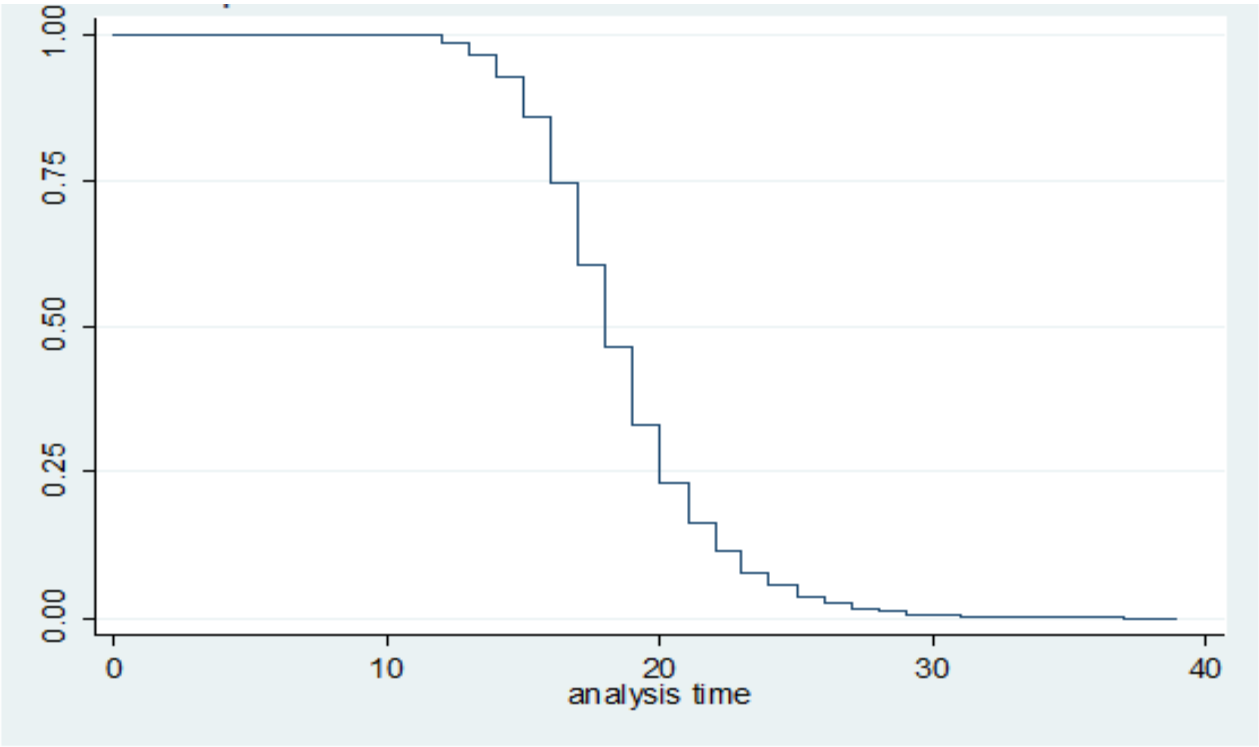

Figure 4: Kaplan-Meier survival curve for time to first birth