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Patterns of premarital childbearing among unmarried female youths in sub-Saharan Africa: Evidence from demographic health survey

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Premarital childbearing (PC) among young women remains a problem in Africa. Victims are often stigmatized, neglected and their socio-economic advancement in life is compromised. There is dearth of information on patterns of PC among unmarried female youths (UFY) in sub-Saharan Africa. The objectives of the study are to explore the patterns and differentials in the levels of PC in sub-Saharan Africa. It also identifies the factors that might account for high cases of PC in the region. The study used DHS dataset for Nigeria, Senegal, Rwanda, Malawi, Congo DR and Namibia. Bivariate and multivariate analyses were used to examine association between the socioeconomic factors and PC among UFY (15 to 24 years). The prevalence of PC was found to be highest in Namibia (25.5%) and least in Nigeria (4.8%). PC was more prominent among women with no formal education in Namibia (54.4%), Rwanda (16.5%) and Congo DR (7.9%). In Malawi, 4.5 and 78.0% of UFY had their first birth at ages 10 to 14 and 15 to 19 years respectively. Residing in urban areas in Nigeria (OR=0.37; CI=0.28 to 0.50) and Congo DR (OR=0.66; CI=0.45 to 0.98) reduces the risk of PC. The odd of PC reduces as the level of wealth quintile increases in Nigeria, Rwanda and Namibia. The identified determinants of PC included never use of contraceptive, Christianity, Islam and early sexual initiation. The study thus revealed premarital childbearing is still a problem in sub-Saharan Africa and the hardest hit country is Namibia and women with no formal education. Strategies aimed at reducing PC among UFY in this region should include improvement in female education.

Key words: Premarital childbearing, unmarried female youths, premarital sex.

INTRODUCTION

Premarital births are births occurring to women before their first marriage and it is one of the fundamental indicators of monitoring fertility trends in different countries (Bachu, 1999). Marriage postponement among women in pursuit of academic and career advancement, cohabitation, poor education along with poverty have exposed women to higher risks of premarital births (Shell-Duncan and Wimmer, 1999). Consequently, the first five theme of the Millennium Development Goals to eradicate extreme poverty andand hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality rates and improving

maternal health (World Bank, 2002) would remain unrealizable if premarital childbearing (PC) remains a problem. The issue of premarital births has gained interest of importance concerns in the literature (Arnstein, 2003).

Right away from the ancient times, African diverse cultures have strong aversion for PC and Africans understood it to be illegitimate behaviour. In some parts of Africa, local deprecating names are given to children born out-of-wedlock, and their mothers are stigmatized in the community in order to discourage such behaviour. In Malawi for example, these children are referred to as "children without fathers", "child of the bush". Yoruba people in Nigeria referred to such children as "*omoale*" meaning bastard. However, recently, having babies and being unmarried has undergone changing levels of acceptance by various social institutions such as families, schools, public and private institutions (Scott and Eric, 2000). Premarital childbearing can occur at any age but the societal attitudes to the victims become less condemnatory after about age 25, as women are judged to have waited long enough for marriage (Pitso and Gordon, 2003).

In recent times, a number of sub-Saharan African countries have experienced a marked rise in births among unmarried female youths. One hypothesis used to explain the increasing frequency of PC in sub-Africa is a breakdown of traditional social controls by the extended family over the sexual behaviour of adolescents (Cicely and Eleanor, 2006; Eaton et al., 1998). A competing hypothesis suggests that unmarried women use sexual relations to achieve specific goals such as marriage, financial gain, job opportunities and other supports from their male partners (Shell-Duncan and Wimmer, 1999).

The social and health implications of PC have more negative influence on female youths than their male counterparts (Tiisetso, 2002). Female youths who find themselves in this situation are often neglected and uncared for, because the society and family believe that they are the sole cause of their adversity (Zwang and Garenne, 2002). Such young women are likely to be anaemic, malnourished during pregnancy and suffer from severe complications during delivery, which result in higher morbidity and mortality for both themselves and their children (Ikamari, 2005). In addition, their socio-economic development in the areas of educational attainment and accessibility to job opportunities may be curtailed (Abma et al., 2004; Chevalier and Viitanen, 2001). Having a child out of wed-lock can have considerable effects on his/her upkeep, health and survival, particularly if the custody of the child remains with a parent who is not economically viable (Abma et al., 2004; Arnstein, 2003).

Premarital childbearing among youths is known to be one of the public health problems of great concern particularly in developing countries where poverty and access to quality health care are part of the challenges

which pose threat to survival chances of individuals (Ana et al., 2013). It will continue to emerge as an issue of great importance and more focus of heated debates among the general public, policy makers and researchers (Shelly and Robert, 1995; Garenne et al., 2000). Sub-Saharan Africa is one of the regions where PC among female youths is highest globally (World Population Monitoring, 2000; South African Government Publication, 1998). The high prevalence in this region is likely to have adverse consequences on young mothers, their children and long term impact on the economic development of the region. For instance, analysis of data from the 1993 Kenya and 1992 Namibia Demographic and Health Surveys show that PC is an important risk factor for the under-utilization of maternity care (Gage, 1998). In both countries, women with premarital births were significantly less likely than those with marital births to seek prenatal care in the first trimester (Gage, 1998).

The demographic, socio-economic and cultural consequences of PC have made many scholars to focus more on its determinants and socio-economic correlates among youths in different countries (Mturi and Moerane, 2001; Garenne et al., 2000). However, such studies have not been adequately addressed in sub-Saharan Africa. Therefore, we designed this study with the view to exploring the patterns and differentials in the levels of PC. The study also identifies the factors that might account for high cases of PC in the region. The countries included in this study represent a variety of regional blocks in sub-Saharan African. This includes: Nigeria and Senegal in West Africa, Congo DR in Central Africa, Namibia in Southern Africa, and Rwanda and Malawi in East Africa. In each of the countries, the population is young and majority of households are located in rural areas. Levels of fertility are generally high, with the total fertility rate ranging from 3.3 in Namibia in 2006/7 to 6.3 in Congo DR in 2007 (Population Reference Bureau – PRB, 2012).

MATERIALS AND METHODS

Data collection

The study focused on unmarried young women (aged 15 to 24 years) from the most recent rounds of Demographic and Health Surveys (DHS) in 6 selected countries from the four regional blocks in sub-Saharan African. The selected DHS are: Nigeria, 2008; Senegal, 2010; Rwanda, 2010; Malawi, 2010; Congo DR, 2007 and Namibia, 2006/2007. The selection was based on data availability at meeting the goals of the study. We extracted the data from measure DHS database and as such, the methodologies involved in the collection process are available to interested readers in the DHS reports of the selected countries obtainable from measure DHS website (http://www.measuredhs.com/).

Data analysis

The dependent variable was "PC" which was created using the variable children ever born (CEB). The variable CEB was re-coded
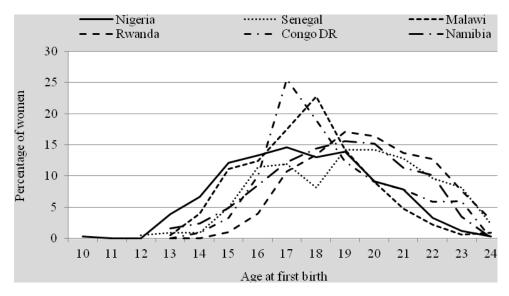
Figure 1. Line graph of patterns of age at first birth.

as 0 if no child was previously born by the respondent and 1 if otherwise. Code 1 was used as an indicator of PC. Data analysis was carried out using descriptive, Chi-square statistic and logistic regression model. At bivariate, chi-square was used to examine the association between the PC and independent variables such as; age, education, religion, residence, contraceptive use, age at first sexual intercourse and wealth quintile in all the selected countries. Independent variables found to be significant at bivariate were entered into logistic regression model in order to identify those that are causal of pre-marital childbearing.

The logistic regression is of the form

$$\log\left\{\frac{\gamma}{1-\gamma}\right\} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots + \beta_n x_n$$

Where; $\gamma - 1$ represents the proportion of female youths that has given birth to at least a child and $\gamma = 0$ if otherwise. The independent variables are x_is (i=1 to n) and β_is (i=1 to n) are regression parameters to be estimated. The odds ratio (e^β) and 95% confidence interval of e^β were thereafter determined.

RESULTS

Univariate: Socio-demographic characteristics

The data as shown in Table 1 depict that in all the analysed countries, majority of the Unmarried Female Youths (UFY) were aged 15 to 19 years and we found highest percentage of such young women in Malawi (85.1%). Higher number of UFY was observed in rural areas of Nigeria (53.8%), Malawi (76.4%), Rwanda (80.9%) and Namibia (54.8%) whereas in Senegal and Congo DR, higher percentage of UFY was found in urban areas, 53.7 and 58.4% respectively. Majority of the young women consisted those with secondary education in 4 out of the 6 selected countries (Nigeria, Senegal, Congo

DR and Namibia) while those with primary education were found mostly in Malawi and Rwanda.

The data also show that percentage of UFY increases with increasing wealth quintile and this pattern is similar among all the countries analysed except Senegal, which was slightly at variance with the pattern. In three of the four countries with information on contraceptive use, majority of the UFY had never used any contraceptive method. For instance, in Nigeria, 78.1% of UFY had never used any contraceptive method as against 48.7% in Namibia. Classification of the respondents by religious affiliations depicts that in all the countries, majority of the UFY are Christians. Also, above half of the youths had never had sexual intercourse in five of the analysed countries, these are; Nigeria, Senegal, Malawi, Rwanda and Congo DR. Very few UFY had their first sexual initiation at ages 20 to 24 years.

As shown in Figure 1, the age at first birth is approximately normally distributed in all the six analysed countries and the mean value varies across the countries; Nigeria (18.46±2.43 years), Senegal (19.13±2.57 years), Malawi (17.69±2.03 years), Rwanda (19.79±2.11 years), Congo DR (18.49±2.13 years) and Namibia (19.17±2.33 years). It is evident in the figure that clear variation exists in age at first birth between the countries. In addition, the majority of the young women had their first birth at age 15 to 19 years. Early childbearing was mostly common in Malawi with 4.5 and 78.0% of young women having their first birth at ages 10 to 14 and 15 to 19 years. In Rwanda, none of the young unmarried women had their first birth at age 10 to 14 years (Figure 2).

Bivariate analysis results

Table 2 shows the percentage distribution of PC by

Table 1. Frequency distribution of the unmarried females aged 15 to 24 years in Nigeria, Senegal, Malawi, Rwanda, Congo DR and Namibia.

Background characteristics	Nigeria		Senegal		Malawi		Rwanda		Congo DR		Namibia	
	n	%	n	%	n	%	n	%	n	%	n	%
Total	6940	100.0	3582	100.0	4341	100.0	4476	100.0	2145	100.0	3530	100.0
Age												
15-19	4586	66.1	2572	71.8	3693	85.1	2863	64.0	1532	71.4	2122	60.1
20-24	2354	33.9	1010	28.2	648	14.9	1613	36.0	614	28.6	1408	39.9
Residence												
Urban	3205	46.2	1924	53.7	1024	23.6	854	19.1	1254	58.4	1594	45.2
Rural	3735	53.8	1658	46.3	3317	76.4	3622	80.9	892	41.6	1936	54.8
Education												
None	319	4.6	1043	29.1	84	1.9	170	3.8	229	10.7	57	1.6
Primary	803	11.6	812	22.7	2729	62.9	3067	68.5	701	32.7	651	18.4
Secondary	5208	75.1	1693	47.3	1404	32.3	1191	26.6	1126	52.5	2686	76.1
Higher	610	8.8	34	0.9	125	2.9	48	1.1	89	4.2	135	3.8
Wealth Quintile												
Poorest	520	7.5	470	13.1	675	15.5	670	15.0	279	13.0	585	16.6
Poorer	849	12.2	713	19.9	637	14.7	795	17.8	266	12.4	662	18.8
Middle	1412	20.3	993	27.7	736	17.0	867	19.4	363	16.9	649	18.4
Richer	1930	27.8	742	20.7	825	19.0	891	19.9	435	20.3	782	22.1
Richest	2228	32.1	664	18.5	1468	33.8	1253	28.0	802	37.4	852	24.1
Contraceptive use												
Never used	5420	78.1	NA	NA	3706	85.4	NA	NA	1498	69.8	1719	48.7
Folkloric	23	0.3	NA	NA	3	0.1	NA	NA	13	0.6	11	0.3
Traditional	166	2.4	NA	NA	19	0.4	NA	NA	305	14.2	23	0.6
Modern	1330	19.2	NA	NA	613	14.1	NA	NA	330	15.4	1778	50.4
Religion												
Christianity	5323	76.7	241	6.7	2095	48.3	3839	85.8	2100	97.9	9617	98.1
Islam	1554	22.4	3335	93.1	118	2.7	524	11.7	22	1.0	0.0	0.0
Traditional	27	0.4	5	0.1	309	7.1	57	1.3	4	0.2	0.0	0.0
Others	35	0.5	1	0.0	1348	31.1	56	1.3	19	0.9	187	1.9
AFSI												
None	4404	63.4	3137	87.6	3090	71.2	3699	82.6	1161	54.1	2673	27.3
8-14	352	5.1	95	2.7	343	7.9	165	3.7	246	11.4	608	6.2
15-19	1729	24.9	307	8.6	821	18.9	469	10.5	681	31.7	5023	51.2
20-24	455	6.6	38	1.1	87	2.0	143	3.2	50	2.4	1500	15.3

AFSI: Age at first sexual intercourse; NA: Not available during the survey.

socio-demographic characteristics among female youths in Nigeria, Senegal, Malawi, Rwanda, Congo DR and Namibia. The data show that PC among youths was mostly common in Namibia (25.5%) than any of the countries considered in the analysis, but the least prevalence of PC was found in Nigeria (4.8%). Across all the 6 countries, PC was higher among UFY in age group 20 to 24 years than those in the younger age group (15 to 19 years). PC was predominantly higher in rural areas than urban in Nigeria (6.3%), Senegal (6.2%), Congo DR (8.6%) and Namibia (27.7%) but the reverse is the case for Malawi and Rwanda.

The data further show that in 3 of the analysed countries, PC was more prominent among women with
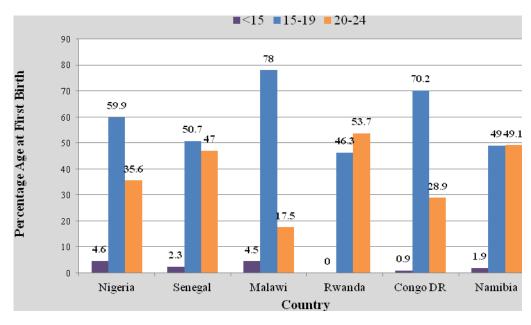
Figure 2. Bar charts of patterns of age at first birth.

Table 2. Premarital childbearing and socio-demographic characteristics among female youths in Nigeria, Senegal, Malawi, Rwanda, Congo DR and Namibia.

Background variables	Percentage of Premarital Births					
	Nigeria	Senegal	Malawi	Rwanda	Congo DR	Namibia
Total	4.8(330)	6.1(219)	6.6(286)	6.7(299)	7.0(150)	25.5(900)
Age	p=0.000	p=0.000	p=0.000	p=0.000	p=0.000	p=0.000
15-19	2.8(130)	3.0(76)	4.0(149)	2.5(73)	3.7(57)	9.8(207)
20-24	8.5(200)	14.2(143)	21.1(137)	14.0(226)	15.2(93)	49.2(693)
Residence	p=0.000	p=0.930	p=0.000	p=0.048	p=0.012	p=0.001
Urban	2.9(93)	6.1(117)	7.1(73)	8.2(70)	5.8(73)	22.8(363)
Rural	6.3(237)	6.2(102)	6.4(212)	6.3(229)	8.6(77)	27.7(537)
Education	p=0.000	p=0.001	p=0.000	p=0.000	P=0.548	p=0.000
None	1.6(5)	5.3(55)	4.8(4)	16.5(28)	7.9(18)	54.4(31)
Primary	9.7(78)	8.9(72)	5.4(148)	6.9(211)	6.3(44)	32.4(211)
Secondary	4.5(235)	5.4(92)	9.3(130)	4.9(58)	7.5(84)	23.9(643)
Higher	2.0(12)	0.0(0)	3.2(4)	4.2(2)	4.4(4)	10.4(14)
Wealth Quintile	p=0.000	p=0.000	p=0.162	p=0.071	p=0.278	p=0.000
Poorest	10.2(53)	8.3(39)	5.6(38)	8.8(59)	10.0(28)	30.6(179)
Poorer	7.2(61)	8.0(57)	5.3(34)	7.3(58)	7.1(19)	25.4(168)
Middle	5.9(83)	6.9(69)	5.7(42)	5.9(51)	5.8(21)	29.7(193)
Richer	4.4(85)	4.9(36)	7.9(65)	5.4(48)	7.1(31)	28.4(222)
Richest	2.2(49)	2.7(18)	7.2(105)	6.6(83)	6.5(52)	16.2(138)
Contraceptive use	p=0.000	NA	p=0.000	NA	p=0.000	p=0.000
Never used	3.2(176)	NA	3.7(136)	NA	3.5(53)	6.8(116)
Folkloric	17.4(4)	NA	33.3(1)	NA	0.0(0)	9.1(1)
Trad. meth	8.4(14)	NA	15.8(3)	NA	16.1(49)	18.2(4)

Table 2. Contd.

Modern method	10.3(137)	NA	23.7(145)	NA	14.2(47)	43.8(778)
Religion	p=0.000	p=0.000	p=0.001	p=0.070	p=0.563	p=0.175
Christianity	5.9(312)	15.8(38)	5.4(114)	6.5(249)	7.1(149)	25.5(884)
Islam	1.0(15)	5.4(180)	14.4(17)	7.1(37)	0.0(0)	0.0(0)
Traditional	11.1(3)	20.0(1)	5.2(16)	14.0(8)	0.0(0)	0.0(0)
Others	0.0(0)	0.0(0)	6.5(87)	0.0(0)	5.6(1)	47.1(17)
AFSI	p=0.000	p=0.0341	p=0.000	p=0.000	p=0.000	p=0.000
8-14	22.2(78)	48.4(46)	16.0(55)	12.7(21)	18.4(45)	51.3(96)
15-19	12.3(213)	49.8(153)	26.0(213)	45.6(214)	14.1(96)	43.7(702)
20-24	5.3(24)	44.7(17)	9.2(8)	40.6(58)	5.9(3)	29.9(59)

NPBC: Number of premarital birth cases; NA: Not available during the survey.

no formal education as found in Rwanda (16.5%), Congo DR (7.9%) and Namibia (54.4%). In Nigeria and Senegal, proportion of women who had experienced PC was mostly reported by those who had primary education; 9.7% and 8.9% respectively. According to wealth quintile, the proportion of UFY who had given birth to at least a child reduces with an increasing wealth quintile as observed in Nigeria, Senegal, Rwanda, Congo and Namibia. In all the four countries with available data on contraceptive use, the prevalence of PC was higher among ever users than never users. Also, comparison of PC between the two most popular religion (Christianity and Islam), PC was higher among Christians in Nigeria and Senegal than Muslims but a reverse pattern in Malawi and Rwanda.

Multivariate analysis results

As shown in Table 3, the data show that in Senegal, Malawi, Rwanda, Congo DR, Namibia women in age group 15 to 19 years were 0.252 (CI=0.158 to 0.402), 0.207 (CI=0.142 to 0.302), 0.299 (CI=0.205 to 0.437), 0.259 (CI=0.174 to 0.387) and 0.136 (CI=0.108 to 0.171) less likely to experience PC than those in age group 20 to 24 years respectively. Residing in urban areas in Nigeria (OR=0.373; CI=0.280 to 0.497) and Congo DR (OR=0.660; CI=0.447 to 0.975) reduces the risk of PC among the UFY. There was a variation in pattern of relationship between PC and levels of education in the countries. The data show that the risk of PC was higher among UFY with no formal and primary education than those with higher education. The odds of having premarital birth significantly reduces as the level of wealth quintile increases as observed in Nigeria, Rwanda and Namibia.

For contraceptive use, Nigeria is the only country where a significant relationship exists between contraceptive use and PC. In Nigeria UFY who had never used any contraceptive method were 1.283 (CI=0.977 to 1.685) times more likely to have had at least a child out of wedlock than those who had ever used contraceptive method. The odds of PC was also significantly lower among Muslims (OR=0.305: CI=0.173 to 0.538) in Nigeria than Christians, whereas Muslim UFY in Malawi were 3.771(CI=1.862 to 7.639) more likely to be at risk of PC than Christians.

In 4 out of the 6 countries, UFY who began sexual initiation at younger age were at higher risk of PC than those who started later. For instance, in Nigeria, UFY who were aged 8 to 14 and 15 to 19 years at the time they encountered first sexual intercourse were 5.767(3.345 to 9.944), 2.665(CI=1.674 to 4.241) more likely to have had at least a child than those who began in ages 20 to 24 years respectively. Similar pattern exists for Senegal, Congo DR and Namibia.

DISCUSSION

Globally, increasing prevalence of PC among young women has been widely reported (Perelli-Harris and Gerber, 2009; Meekers, 1993; Gage, 1998). While previous studies have suggested that unmarried African women sometimes use childbearing as a strategy to fast-track transition to marriage and other benefits, PC has a strong negative effect on an unmarried female youth's chances of first marriage (Kearney and Phillip, 2012; Calvès, 1999). Aside its substantial contribution to rapid population growth (Bongaarts, 1994), the victims and their children are often faced with numerous social and health challenges (Gage, 1998; Calvès, 1999; Jensena and Thornton, 2003).

Our study has revealed that aside from a few notable exceptions, there remains a very high case of PC in sub-Saharan Africa. It is evident that in all the studied countries particularly Malawi, most of the UFY clustered around ages 15 to 19 years and higher proportion are residents in rural areas of Nigeria, Malawi, Rwanda and Namibia. Also, the young women mostly had at least

Table 3. Multiple logistic regression of PC and socio-demographic characteristics.

Background variables	OR(95% CI)					
	Nigeria	**Senegal**	**Malawi**	**Rwanda**	**Congo DR**	**Namibia**
Age (years)						
15-19	0.845 (0.611-1.168)	0.252* (0.158-0.402)	0.207* (0.142-0.302)	0.299* (0.205-0.437)	0.259* (0.174-0.387)	0.136* (0.108-0.171)
20-24 *(RC)*	1	1	1	1	1	1
Residence						
Urban	0.373* (0.280-0.497)	NSAB	0.823 (0.558-1.215)	0.838 (0.526-1.335)	0.660*** (0.447-0.975)	0.789 (0.590-1.054)
Rural *(RC)*	1	NSAB	1	1	1	1
Education						
None	2.800**** (0.858-9.134)	1.000(R.C)	9.433*** (1.436-61.946)	21.033** (2.444-181.037)	NSAB	8.399* (3.209-21.984)
Primary	8.199* (4.117-16.329)	0.927 (0.518-1.657)	9.509* (3.117-29.008)	14.118*** (1.774-112.333)	NSAB	7.071* (3.620-13.813)
Secondary	2.769* (1.498-5.118)	0.425** (0.245-0.737)	6.204** (2.108-18.259)	9.786*** (1.226-78.123)	NSAB	3.410* (1.854-6.272)
Higher *(RC)*	1	1	1	1	NSAB	1
Wealth Quintile						
Poorest	3.522* (2.073-5.982)	0.586 (0.586-3.228)	NSAB	2.241** (1.287-3.903)	NSAB	1.991** (1.283-3.091)
Poorer	2.765* (1.693-4.516)	0.678 (0.678-3.382)	NSAB	2.197** (1.229-3.928)	NSAB	1.760 (1.153-2.685)
Middle	1.921** (1.237-2.983)	0.628 (0.628-3.014)	NSAB	1.341 (0.775-2.319)	NSAB	1.828** (1.267-2.637)
Richer	1.445**** (0.970-2.153)	0.534 (0.534-2.955)	NSAB	1.140 (0.668-1.944)	NSAB	1.455** (1.076-1.969)
Richest *(RC)*	1	1	NSAB	1	NSAB	1
Contraceptive use						
Never used	1.283**** (0.977-1.685)	NIA	1.023 (0.735-1.423)	NIA	1.268 (0.796-2.019)	0.860 (0.637-1.160)
Folkoric	1.526 (0.477-4.887)	NIA	0.000 (0.000)	NIA	0.377 (0.016-8.706)	0.633 (0.038-10.533)
Traditional	0.714 (0.384-1.327)	NIA	0.759 (0.115-4.996)	NIA	1.356 (0.845-2.177)	0.403 (0.112-1.444)
Modern *(R.C)*	1	NIA	1	NIA	1	1
Religion						
Christian *(RC)*	1	1	1	1	NSAB	NSAB
Islam	0.305* (0.173-0.538)	0.874 (0.502-1.522)	3.771* (1.862-7.639)	0.901 (0.553-1.470)	NSAB	NSAB
Traditional	1.790 (0.405-7.908)	1.076E5 (0.000)	0.983 (0.536-1.801)	3.365*** (1.118-10.133)	NSAB	NSAB
Others	0.000 (0.000)	200.768 (0.000)	1.393**** (0.986-1.968)	0.000 (0.000)	NSAB	NSAB
AFSI						
8-14	5.767* (3.345-9.944)	2.936*** (1.224-7.044)	4.326** (1.792-10.443)	0.359** (0.187-0.688)	10.132** (2.654-38.682)	5.395* (3.306-8.802)

Table 3. Contd.

15-19	2.665* (1.674-4.241)	2.032**** (0.974-4.238)	6.497* (2.895-14.581)	1.667*** (1.081-2.572)	5.691** (1.558-20.793)	3.007* (2.120-4.265)
20-24 *(RC)*	1	1	1	1	1	1
-2 LogL	1647.299	555.602	993.251	865.076	757.846	2279.864
Cox&Snell R²	0.097	0.260	0.097	0.178	0.129	0.369
Nagelkerke R²	0.184	0.709	0.151	0.242	0.332	0.549

*, **, ***, **** Significant at 0.1, 1.0, 5.0 and 10.0%, respectively; NSAB: Not significant at bivariate; NIA: Not included in the analysis; CI: Confidence Interval; RC: Reference category; AFSI: Age at first sexual intercourse.

secondary education in Nigeria, Senegal, Congo DR and Namibia while those with primary education constituted the majority in Malawi and Rwanda. The proportion of the UFY increases as the level of wealth quintile increases in all the countries but Senegal a country from the West Africa exhibits a slight discrepancy from this pattern. Too often, in Senegal as in the rest of West and Central Africa, poverty is a massive challenge and it may result in taking or keeping female children out of school. For instance, of the 10 countries worldwide with the lowest ratio of girls to boys in school, eight are located in West and Central Africa. In Senegal, almost two-thirds of women aged 15 years and above are illiterate, and 16% finish elementary school and proceed to secondary school (UNICEF, 2005).

Information on contraceptive use was available for four countries. The countries are Nigeria, Malawi, Namibia and Congo DR; the majority of UFY were 'never used any contraceptive method' except in Namibia. We expect this finding since the mainstream of the UFY studied had never had sexual intercourse; it was only in Namibia where 72.8% of the young women ever had sexual intercourse. The age at first sexual intercourse has been found in previous studies as an important factor influencing contraceptive use (Martinez et al., 2011; Abma and Dawson, 2005). It is understandable that a woman who has not

begun sexual initiation will not use contraceptive either to prevent fertility or sexually transmitted diseases.

Mother's age at first birth is one of the important determinants of fertility and one of the key determinants of maternal and child's health. If a woman starts child bearing at a very young age, she is more likely to bear many children at the end of her reproductive age, especially in a country where there is a low prevalence of contraceptive use and relatively short birth intervals (Adebowale et al., 2011). The pattern of mean age at first birth was similar across the countries but shows a slight disparity ranging from 17.7 in Malawi through 19.8 years in Rwanda. This is an indication of early PC in Malawi than other countries studied and the finding is in agreement with the result from a previous study conducted in Malawi (National Statistical Office - UNICEF, 2008). In the 6 countries, higher prevalence of PC was observed among UFY in age 20 to 24 years than the younger women. A longer period of exposure to sexual intercourse is an important factor to reckon with in this regard.

Our study further revealed that, the prevalence of PC (PC) was highest in Namibia (Southern Africa) and least in Nigeria (West Africa). This observation is in agreement with the finding by Tawiah (2002) when he observed that adolescent fertility is highest in Zambia and lowest in Ghana,

two countries from west and southern Africa respectively. Highest PC in Namibia could be linked with early sexual initiation experienced by majority of young women in the country (Gage, 1998; Maletsky, 2005). Also, a considerable number of Nigerians are Muslims, a religion which has been found in literature as pro-early marriage. Early marriage reduces the risk of premarital births and might be a contextual link to least PC experienced by UFY in Nigeria.

Higher prevalent of PC was observed in rural than urban areas of Nigeria, Senegal, Congo DR and Namibia, but as for the selected countries from East Africa (Malawi and Rwanda) the reverse pattern was recorded. The finding for the patterns observed for Malawi and Rwanda is in agreement with studies conducted in Poland and Nigeria. For example, in the Poland study, it was revealed that since the probability that a premarital conception leads to a "shotgun marriages" has remained higher in villages than in the towns, out-of wedlock births were spreading at higher pace in urban than in rural areas (Anna, 2011; Oyefara, 2012). In Rwanda, Congo DR and Namibia, PC was more prominent among women with no formal education. However, in Nigeria and Senegal, proportion of women who had experienced PC was highest among UFY who had primary education.

With respect to wealth quintile, the proportion

of UFY who had experienced PC increases with reduction in wealth quintile as observed in Nigeria, Senegal, Rwanda, Congo and Namibia. In these countries being poor is associated with increased risk of PC. This is in agreement with findings from other various studies that show that economic factors have a significant role in young women's sexuality and childbearing (Katherine et al., 2009; Kathryn and Kefalas, 2005). For instance, Katherine and colleagues in their study found that the association between age at first birth and wealth quintile was negative (Katherine et al., 2009). It is often said that young girls particularly those from the poor family enter into sexual relationship with older and wealthy men to meet their school related expenses in addition to their daily needs. Whereas, others engage in premarital sex with men of important personality in order to establish a long term relationship for future assistance either for self or members of their families.

In all the four countries with available data on contraceptive use, we found that the prevalence of PC was higher among ever users than never users. This finding is striking in the sense that one would have expected a reverse pattern since the use of contraceptive tends to protect fertility and indirectly reduces the risks of premarital births (Gage, 1998; Martinez et al., 2011). In a China study for instance, contrary to our finding, it was found where it was concluded that only a small proportion of those who were unmarried were using contraception, so induced abortion was often the outcome of unprotected premarital sex (Zhenzhen et al., 2001). However, a possible justification for our finding is that young women who have earlier experienced PC might be cautious of having unprotected sex, thus increase in the prevalence of contraceptive use among such women is likely.

Religion has the potential to influence the acceptance and use of contraception by young women in very distinct ways. Within religions, different sects may interpret religious teachings on contraception in varying ways, and individual women and their partners may choose to ignore religious teachings (Jones and Dreweke, 2011; Amirrtha and Robert, 2008). Finally, our study revealed that the likelihood of PC was higher among Christians than their Muslim counterparts particularly in countries in West Africa (Nigeria and Senegal) while in East African countries (Malawi and Rwanda) the reverse pattern was observed. Nigeria and Senegal have large Muslim population and among the religion, it is evidenced that early marriage was more common among Muslims than Christians (Adebowale et al., 2012). Early marriage is known to be a strong protective factor against premarital sex and PC.

Multivariate analyses identified age, education, age at first sexual intercourse and wealth quintile as the most important explanatory variables of PC in virtually all the countries examined. In Sub-Saharan Africa, literature is consistent with reduction in the level of age at first sexual

intercourse (Nigeria Demographic and Health Survey, 2008; Kenya Demographic and Health Survey, 2010; Malawi Demographic and Health Survey, 2004; Garenne and Zwang, 2006). The implication is that episode of high level of PC might surface in the region in the future except if fertility control measures are constantly utilized. The study also shows that the educational level of the respondent is one of the major factors influencing PC. This indicates that raising the level of education is one effective strategy of discouraging PC in sub-Saharan Africa.

Limitations of the study

The study was based on data obtained through cross-sectional examination of the respondents and as such, the data are susceptible to response bias, as some of the unmarried female youths who had given birth might not disclose their true status at the time of the survey. This tends to reduce the number of cases of premarital pregnancy. In addition, age misreporting which is peculiar to African survey data is also likely to be a problem. Moreover, differences exist in the number of variables used in the analysis for the countries. This is because of absence of these variables in some of the countries analysed. For instance, region was not included in the analysis because it is not a variable that has common nomenclature among all the countries and its classification is different between countries.

Conclusion

This study shows that PC among UFY is still a common problem and the level varies greatly within countries in sub-Saharan Africa. The hardest hit country is Namibia and those with no formal education. Government in this region should begin campaign on the adverse effect of PC on female youths at early years of life. This will reduce the prevalence of premarital births and its associated socioeconomic and health effects on UFY.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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