Islam, Polygyny and Modern Contraceptive Use in Francophone sub-Saharan Africa

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Introduction

Francophone sub-Saharan African countries have some of the highest fertility rates and lowest contraceptive prevalence rates in the world. As of the latest Demographic Health Survey (DHS) available for each country, total fertility rates range from 4.2 births per woman (Gabon 2000) to 7.0 births per woman (Niger 2006). Modern contraceptive prevalence rates range from a low of 3.2% (CAR 1994) to a high of 13.4% (Gabon 2000). In response to the increasing concern at the international level regarding persistent high fertility in this region, as evidenced by the Ouagadougou Initiative, multiple parties – donors, governments, and NGOs – have renewed their interest in identifying the potential levers of change in relation to contraceptive use in this group of countries.

The objective of this study is to examine characteristics associated with modern contraceptive use in each of the Francophone sub-Saharan African countries which have DHS data available. Worldwide, a well-known set of socio-economic factors – education, urban/rural residence, number of living children, and age – are key determinants to contraceptive use (Bongaarts, 2006; Cleland, Ndugwa, & Zulu, 2011; Kirk & Pillet, 1998; Romaniuk, 2011). This analysis includes these same factors but also explores two less-researched variables as determinants of contraceptive use in this region: being Muslim and being part of a polygynous union.

Islam per se is not a deterrent to contraceptive use, as evidenced by Indonesia and Morocco – two predominantly Muslim countries that have modern contraceptive prevalence rates of 57% and 52%, respectively. Indeed, it is well documented that Islamic law does not oppose the use of contraception (Roudi-Fahimi, 2004). However, the extremely low contraceptive prevalence rates throughout francophone West Africa and the widespread adherence to Islam has led to an association between the two.

"Religion is the 'alpha and omega' of African social institutions" (Gyimah, 2012). In Francophone sub-Saharan African countries Islam often influences law and socio-cultural factors that dictate attitudes of high fertility. Traditional Islam supports a patriarchal society where women assume the subservient gender role. In cases such as Niger, women are not seen as man's equal. They are not allowed to own property, inherit money, or marry without permission (Cooper, 2010). Although it varies in degree, this situation is not uncommon in other Francophone sub-Saharan African countries. Young women of these countries elevate themselves from these "low status" through piety, pleasing their husbands, and achieving

reproductively (Johnson-Hanks, 2006).

Traditional Islam encourages this elevation through motherhood by discussing a mother's nobility and kindness in the Quran (Noble Quran 46:15). In addition to Islam, Muslim women have many reasons to encourage high fertility. In economic terms, children provide a free source of labor, especially boys who guarantee the continuation of the family line and claim inheritance (Wall 1988). Eventually these boys will assume the responsibility of caring for their aging mothers. Girls are also desirable for their domestic value but not seen as future income earners and therefore are not as important. Economically, producing children is one of the only ways for a woman to solidify her financial security in her old age because her children will act as the primary income earners. To cite the example of neighboring Burkina Faso and Mali, one explanation for the slightly greater acceptance of family planning in Burkina Faso than Mali is the lower percentage of the population that is Muslim in the former.

Polygyny is also a potential determinant of high fertility desires that result in low contraceptive use. Ezeh (1997) has cited the role that polygyny plays in determining reproductive behavior, including preferences for ideal family size, desire for more children, and current contraceptive use, based on data from Kenya. VanDeWall (2001) describes children become more important when the woman enters into a polygamous marriage; co-wives must compete in a polygamous marriage for their husband's attention and resources. It is not uncommon that these marriages are rife with conflict between wives and the children of each wife, who must also compete for resources (Romaniuk 2011). Having a large number of children provides women in polygamous marriages with greater protection in arguments with other family members and helps to win their fathers' favor.

This paper examines the relative importance of four "conventional" determinants of modern contraceptive use – education, urban-rural residence, number of living children, and age – as well as two factors hypothesized to influence CPR in francophone sub-Saharan Africa: religion and polygyny.

Methods

The data for this analysis of characteristics associated with modern contraceptive use come from the Demographic and Health Surveys (DHS) in francophone countries of Western and Central Africa. We downloaded these publicly available datasets from www.measuredhs.com. This analysis includes 13 Francophone countries in West and Central Africa that have DHS data, including the variable "religion." (We eliminated two other countries – Burundi [1987] and Mauritania [2000] – because data were not collected on religion.)

All analyses of the factors associated with modern contraceptive use were limited to married women of reproductive age (MWRA). The independent factors included variables available

from the DHS datasets in their original form, as well as those recoded for purposes of this analysis (e.g., women's age was grouped as 15-24, 25-34, 35+). Similarly, some variables with existing categories were collapsed due to small sample sizes or to improve clarity of interpretation (e.g., respondents with secondary education or a higher level of education were grouped into "secondary or higher.") For the variable "desire for more children," the responses "wants more children within two years, wants more after two years, and wants more children but unsure of timing" were all grouped into a single "wants more children" category.

The outcome of interest, modern contraceptive use, included oral contraceptives, IUD, diaphragm, injections, implants, male/female condoms, female/male sterilization, lactational amenorrhea [LAM], and foam/jelly. Users of folkloric/traditional methods (including periodic abstinence/rhythm, withdrawal, and "other" methods) or no contraceptive method were categorized as non-users of modern contraception. Although in some countries the DHS has classified LAM as a traditional method, for the sake of consistency, we have included it as a modern method across all countries in this analysis.

A single logistic regression model was created for each of the 13 countries, using modern contraceptive use as the dependent variable and six socio-economic factors as explanatory variables. The same set of variables was included in each of the logistic regression models in order to compare directionality of the effect as well as significance for each factor across countries.

Results

Table 1 presents the socio-demographic characteristics of married women of reproductive age in each country, based on the most recent DHS for each country. These data reflect widely known trends: the majority of women in Francophone West and Central Africa have low levels of education, tend to live in rural areas, and desire to continue childbearing.

Table 2 presents descriptive data for the 13 countries on the two factors of key interest in this analysis: religion (percent Muslim) and type of marital union (polygynous vs. monogamous); in addition, it shows the bivariate relationships between these two factors and place of residence (urban/rural). The percentage of MWRA who were Muslim ranged widely, from 1.3% in DRC to 98.2% in Niger. The percentage of women reporting to be in a polygynous union varied from 21.3% in Gabon to 52.3% in Guinea. Polygynous unions were more common in rural than in urban areas for both Muslims (in 9 of 13 countries) and for non-Muslims (in all 13 countries).

We then conducted a multivariate analysis to test the relative importance of the widely recognized determinants of contraceptive use (education, age, urban/rural residence, and number of living children) among MWRA in comparison to the two variables thought to play a special role in this region: religion (Muslim or not) and type of marital union (polygynous or not). We created a separate logistic regression model for each of the 13 countries, using modern contraceptive use as the outcome.

As expected, education level, urban/rural residence, age and number of living children were significant for most countries in predicting modern contraceptive use (see Table 3). Specifically, MWRA with a secondary or higher education were much more likely to use modern contraception than those with no education. Also, with the exception of Chad, married women in urban areas were significantly more likely to use modern contraception than those living in rural areas. All countries except Guinea showed the commonly found curvilinear relationship between age and contraceptive use, with the highest use among women 25-34. With only one exception (DRC), the number of living children was a statistically significant predictor of modern contraceptive use, with a greater number of living children being associated with a higher likelihood of modern contraceptive use. The pattern is less clear with desire for more children, although where significant results were found, the trend was in the expected direction: those wanting more children had a lower likelihood of using modern contraceptives.

The main variables of interest in this analysis were religion and polygyny. In multivariate analyses that controlled for the factors cited above, polygyny was significant in only 3 of the 13 countries (Benin, Burkina Faso and Senegal) but in the opposite direction of what was anticipated. That is, in these three countries MWRA in a polygynous union were more likely than those in a monogamous union to use a modern contraceptive method. Religion was significant in only 4 countries (CAR, Cameroon, Chad and Senegal), but the direction of the relationship was inconsistent. In two countries (Cameroon and Senegal) Muslim MWRA were more likely than non-Muslims to use a modern contraceptive method, while in the other two countries (CAR and Chad), the opposite was true. Results for Senegal may be spurious as 96.6% of married women are Muslim in that country; however, this does not explain the unexpected result in Cameroon, where only 21.4% of married women are Muslim.

In short, this analysis did not confirm the hypothesis that being Muslim and being in a polygynous union contribute to explaining the low modern contraceptive prevalence in francophone countries in West and Central Africa.

Discussion

As with any analysis which utilizes secondary data, this analysis has its limitations. The standard DHS questions may not capture all correlates of modern contraceptive use in this region of the world. For example, this analysis did not capture male attitudes toward contraceptive use or measure of the social status of women (relative to local norms). Subsequent analysis could include a gender empowerment variable.

One possible explanation for the lack of evidence that Islam and polygyny influence modern contraceptive use is the high degree of correlation between the known correlates of contraceptive use (especially education and urban-rural residence) and these two factors. In a multivariate analysis that includes education and urban-rural residence, Islam and polygyny provide little additional explanatory power.

The programmatic implications of the findings in this analysis are that programs must continue to work within the constraints of known socio-demographic determinants of contraceptive use, but also attempt to affect prevalence through other mechanisms, such as increasing access to contraception, improving quality of services, and influencing social norms related to family size.

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Table 1. Socio-demographic Profile of Married Women of Reproductive Age in 13 Francophone African Countries

		Education			Residence	Age Group			# Living Children	Desire for More Children	Contraceptive Use
Country	**Last DHS**	% None	% Primary	% Secondary or higher	% Urban	% 15-24	% 25-34	% 35+	Mean	% Want no more	% Using modern method
Benin	2006	73.5	17.8	8.7	36.4	21.5	44.6	33.9	3.31	28.4	6.2
Burkina	2003	87.6	8.1	4.3	15.2	28.4	35.8	35.8	3.22	23.7	8.8
CAR	1994	56.5	32.7	10.9	37.3	32.9	37.3	29.8	2.85	12.9	3.2
Cameroon	2004	28.7	40.3	31.0	48.8	33.4	36.2	30.4	3.02	21.2	13.0
Chad	2004	78.5	17.2	4.2	18.4	31.7	37.8	30.5	3.42	9.0	9.9
Cote	1998	65.7	25.5	8.8	34.3	28.7	37.9	33.4	3.14	21.7	7.3
DR-Congo	2007	24.0	41.5	34.5	40.3	29.3	37.6	33.1	3.29	20.5	5.8
Gabon	2000	7.9	38.7	53.4	76.3	28.4	38.5	33.2	3.12	23.3	13.4
Guinea	2005	85.3	8.0	6.6	26.1	23.4	35.5	41.0	3.15	23.1	5.7
Mali	2006	82.1	10.3	7.5	30.8	32.1	35.6	32.4	3.14	20.2	6.9
Niger	2006	87.6	9.0	3.4	15.0	30.7	37.2	32.1	3.35	9.0	9.7
Senegal	2010	70.8	19.8	9.4	41.1	26.7	38.2	35.1	3.15	22.0	12.1
Togo	1998	58.3	30.7	11.0	29.9	20.9	44.0	35.1	3.24	29.4	7.0

*Burundi (1987) and Mauritania (2000) were excluded because religion was not collected

Table 2. Married women of reproductive age by country: percent Muslim and percent in polygynous unions in urban and rural areas

				% Women in polygynous unions					
				of Muslims			of non-Muslims		
Country	**Last DHS**	**% Women that are Muslim**	**% Women in Polygynous Union**	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**
Benin	2006	23.2	43.0	43.0	52.5	48.9	33.1	45.7	41.2
Burkina	2003	62.2	48.4	35.6	55.3	52.1	13.8	46.8	42.3
CAR	1994	9.1	28.5	38.8	37.2	37.9	24.4	29.3	27.5
Cameroon	2004	21.4	30.3	38.9	43.8	41.6	18.5	35.8	27.1
Chad	2004	57.5	39.1	36.9	41.3	40.4	31.0	38.5	37.3
Cote	1998	40.9	34.9	32.6	51.0	43.3	17.4	33.7	29.0
DR-Congo	2007	1.3	22.8	38.9	27.8	34.1	17.4	26.1	22.7
Gabon	2000	8.1	21.3	23.2	24.0	23.2	19.3	26.6	21.1
Guinea	2005	86.8	52.3	42.8	59.1	54.7	25.7	38.8	36.9
Mali	2006	92.0	39.7	27.7	45.5	39.9	21.5	40.6	37.9
Niger	2006	98.2	35.8	36.5	35.5	35.7	21.5	42.5	40.1
Senegal	2010	96.6	34.6	28.5	39.8	35.2	8.4	25.7	17.1
Togo	1998	11.4	42.8	48.5	54.1	51.4	30.7	46.0	41.8
*Burundi (1987) and Mauritania (2000) were excluded because religion was not collected									

Table 3. Logistic regression: factors related to modern contraceptive use in 13 Francophone West and Central African countries

		Model parameters													
				Education Level (reference = No education)				Residence (reference = Rural)		Age group (reference = 15-24)					
Country	**Last DHS**	**Intercept**		**Secondary or higher**		**Primary**		**Urban**		**25-34**		**35+**		**Number of living children**	
Benin	2006	-2.91	***	0.65	***	0.03	NS	0.19	***	0.09	NS	-0.06	NS	0.10	***
Burkina	2003	-2.66	***	0.84	***	0.01	NS	0.74	***	0.09	NS	-0.36	***	0.24	***
CAR	1994	-4.47	***	1.42	***	0.13	NS	0.48	**	0.17	NS	-0.60	**	0.37	***
Cameroon	2004	-3.17	***	1.30	***	0.41	***	0.46	***	-0.07	NS	-0.36	***	0.08	**
Chad	2004	-2.94	***	0.79	***	-0.37	*	-0.07	NS	0.32	***	-0.66	***	0.22	***
Cote	1998	-3.11	***	0.64	***	0.07	NS	0.48	***	0.13	NS	-0.31	NS	0.18	**

		Model parameters													
				Education Level (reference = No education)				Residence (reference = Rural)		Age group (reference = 15-24)					
Country	Last DHS	Intercept		Secondary or higher		Primary		Urban		25-34		35+		Number of living children	
DR-Congo	2007	-3.24	***	0.53	***	-0.04	NS	0.49	**	-0.03	NS	-0.03	NS	-0.02	NS
Gabon	2000	-2.85	***	0.68	***	0.01	NS	0.38	***	0.14	NS	-0.55	***	0.10	**
Guinea	2005	-2.50	***	0.70	***	-0.12	NS	0.37	***	0.16	NS	-0.40	**	0.12	*
Mali	2006	-2.45	***	0.68	***	0.08	NS	0.49	***	0.19	**	-0.53	***	0.15	***
Niger	2006	-2.57	***	0.52	***	0.03	NS	0.43	***	0.22	***	-0.46	***	0.20	***
Senegal	2010	-2.45	***	0.47	***	0.21	**	0.51	***	0.24	***	-0.13	NS	0.19	***
Togo	1998	-3.13	***	0.66	***	0.08	NS	0.24	**	0.04	NS	-0.27	*	0.23	***

***p-value<0.001, **p-value<0.01, *p-value<0.05, NS=not significant

Table 3 (cont'd). Logistic regression: factors related to modern contraceptive use in 13 Francophone West and Central African countries

		Model parameters							
		Desire for more children- (reference=Wants no more)				Marriage (reference = Monogamous union)		Religion (reference= non-Muslim)	
Country	Last DHS	Wants more		Undecided		Polygynous		Muslim	
Benin	2006	-0.02	NS	-0.37	*	0.13	**	0.02	NS
Burkina	2003	0.39	**	-0.81	**	0.24	***	-0.11	NS
CAR	1994	-0.13	NS	0.09	NS	-0.02	NS	-0.46	**
Cameroon	2004	0.05	NS	-0.34	*	-0.02	NS	0.20	*
Chad	2004	0.13	NS	-0.06	NS	0.14	NS	-0.31	*
Cote	1998	0.19	NS	-0.58	NS	0.05	NS	0.18	NS
DR-Congo	2007	-0.39	*	-0.06	NS	-0.02	NS	0.27	NS
Gabon	2000	-0.27	*	0.00	NS	-0.01	NS	0.08	NS
Guinea	2005	-0.57	***	0.42	NS	0.04	NS	-0.07	NS
Mali	2006	-0.30	*	-0.24	NS	-0.04	NS	0.12	NS
Niger	2006	0.10	NS	-0.26	NS	0.00	NS	-0.16	NS
Senegal	2010	0.16	NS	-0.57	*	0.22	***	0.29	**

		Model parameters							
		Desire for more children- (reference=Wants no more)				Marriage (reference = Monogamous union)		Religion (reference= non-Muslim)	
Country	Last DHS	Wants more		Undecided		Polygynous		Muslim	
Togo	1998	0.08	NS	-0.24	NS	0.09	NS	-0.08	NS

***p-value<0.001, **p-value<0.01, *p-value<0.05, NS=not significant