

## Fertility Behaviour of Men and Women in Three Communities in Kaduna State, Nigeria

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### Abstract

The UN Millennium Project aims to reduce poverty, hunger, and disease while promoting education, health, gender equity, and environmental sustainability. Fertility is not mentioned anywhere within the eight goals, but population growth rates profoundly impact the achievability of all goals by increasing the budgets required to meet the population's basic needs. This paper describes the fertility patterns of men and women in three communities in Kaduna State, Nigeria. The findings reveal a total fertility rate (TFR) of 7.97, which surpasses the TFR of 7.3 reported from northwest Nigeria in the 2008 NDHS. Among both men and women, desired family size was high, with 37% of women citing 5-9 children as ideal and 32% citing 10-14 children as ideal. Fewer than 20% of women wanted less than five children, but as education increased, desired fertility significantly decreased. Among men there were significant associations between age, educational status, number of current wives and religion with the mean number of children ever fathered (*Afr. J. Reprod. Health* 2010; 14[3]: 97-105).

### Résumé

**Comportement de fécondité chez les hommes et les femmes dans trois communautés dans l'état de Kaduna, Nigéria.** Le projet du millénaire des NU a comme objectif de réduire la pauvreté, la faim et la maladie tout en promouvant l'éducation, l'équité en matière des sexes et la durabilité de l'environnement. La fécondité n'a pas été mentionnée parmi les huit objectifs, mais le taux de croissance de la population influe beaucoup sur l'accomplissement de tous les objectifs en augmentant les budgets nécessaires pour répondre aux besoins essentiels de la population. Cette étude décrit les caractéristiques de la fécondité chez les hommes et les femmes dans trois communautés dans l'état de Kaduna, Nigéria. Les résultats ont révélé un taux de fécondité total (TFT) de 7,97 qui dépasse le TFT de 7,3 qui a été signalé au nord-ouest du Nigéria dans L'ENDS de l'année 2008. Parmi les hommes et les femmes, la taille familiale désirée est élevée, 37% des femmes citant 5-9 enfants comme étant le nombre idéal et 32% ont cité 10-14 enfants comme étant idéal. Moins de 20% voulaient avoir moins de cinq enfants, mais au fur et à mesure que l'éducation s'est accrue, la fécondité désirée s'est baissée de manière significative. Chez les hommes, il y avait des associations importantes entre l'âge, le niveau de l'instruction reçue, le nombre de femmes du moment et la religion avec le nombre moyen d'enfants qu'ils ont jamais engendrés (*Afr. J. Reprod. Health* 2010; 14[3]: 97-105).

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Key words: Male fertility, female fertility, fertility intentions, reproductive behaviour, polygamy, desired family size, northern Nigeria.

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### Introduction

Nigeria is the tenth most populous country in the world and the largest in sub-Saharan Africa, with an estimated population of 140 million from the 2006 census. Nigeria's population growth rate has been driven by high fertility, which has fallen in the last few decades but not as rapidly as the fall of the crude death rate<sup>1,2</sup>. The total fertility rate (TFR) declined modestly from 6.3 children per woman in 1981-1982 to 5.7 children per woman in 2008.

Understanding fertility desires and behaviour requires a careful examination of women's and men's attitudes and behaviours about reproduction within their economic, social and cultural context<sup>3,4</sup>.

High population growth is related to the socio-economic development of any nation<sup>5</sup>. Effects of rapid population growth include reduced per capita income, high rural to urban migration, heavy pressure on social services such as healthcare and education, high unemployment rates, poverty, land fragmentation and degradation, and communal clashes

over arable land<sup>4</sup>. Within families, elevated risks of maternal and child mortality and a higher risk of being trapped in poverty, are areas of concern as family size increases<sup>6</sup>.

High fertility is one of the primary determinants of rapid population growth, which can hinder socioeconomic development. Thus, efforts to reduce poverty and promote sustainable development have included an emphasis on strengthening family planning programs. To date, the majority of family planning programs have focused on methods to address women's family planning needs, as opposed to addressing both women and men as full partners in fertility decisions and responsibilities. At the International Conference on Population and Development (ICPD) in 1994, and the 1995 United Nations World Conference on Women, delegates raised the problems of gender imbalance, reproductive rights and responsibilities, abuse of reproductive rights, and sexual violence<sup>7,8</sup>. For the first time, the important issue of male responsibility and involvement in reproductive health issues was considered in depth.

## Methods

### *Study site*

This study was conducted in Tsibiri village in Giwa Local Government Area (LGA) with a population of 1490, Shika Dam in Sabon-Gari LGA with a population of 2660, and Dakace in Zaria LGA with a population of 3471, all within the Zaria Emirate council, located in the northern part of Kaduna State, Nigeria.

The three study communities have an estimated combined population of 7621 people, made up of predominantly Hausa-Fulani Muslim farmers of low educational status. The communities are patriarchal and polygamous. However, Dakace's sub-population of Christians from southern Kaduna state and Plateau state contributed a more diverse range of ethnic groups and subcultures.

The data on men and women were collected at two different time periods by the Population and Reproductive Health Partnership (PRHP) fellows of cohort 2007 and 2008, with an aim of understanding the male and female fertility patterns in three villages in Kaduna State.

The 2007 survey was a complete, cross-sectional demographic and reproductive health survey modelled after the 2003 NDHS. It included 1408 women of reproductive age (15-49). The 2008 survey also employed a cross-sectional design. The survey had a calculated sample size of 501 male heads of household, allocated among the three communities proportionate to population size: Dakace was allocated 228 household heads, Shika Dam was allocated 98 and Tsibiri was allocated 75.

Systematic random sampling with balloting was used to select the household heads. However, 180 of the selected respondents were either not interested or not available despite repeated visits. The final achieved sample size was 321 men. Men who were under 20 years of age, who were not household heads or who were not residing in the village in November 2008 were excluded.

The surveys were developed and administered by trained, post graduate researchers affiliated with the Ahmadu Bello University's (ABU) Department of Obstetrics and Gynaecology, Community Medicine, Sociology, Geography and Nursing. Supervisors were attached to each team to ensure the sampling technique was done correctly and questionnaires filled properly. They also resolved likely problems on the field, scrutinized questionnaires to ensure completeness, internal consistency, and accuracy. The data was analysed in SPSS version 17.0. Statistical measures such as bivariate and multivariate analysis were used in the analysis to determine associations between the socio-demographic variables and dependent variables such as mean number of children ever fathered, mean number of living children and median age at marriage. The association were assessed using t-tests, z-tests, F-tests and chi-square tests.

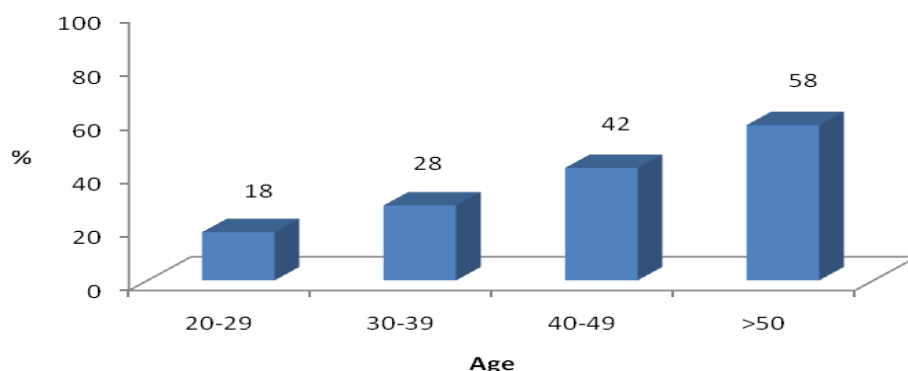
Ethical approval was obtained from the Ahmadu Bello University Teaching Hospital ethical and scientific committee. Permission was also sought from the Zaria emirate, the local government in which the study communities was located and the various village chiefs and ward heads. Informed consent of respondents was sought before administration of questionnaires using consent forms which respondents signed or used a proxy to sign if not literate.

## Results of Male Study

### *Socio-demographic Characteristics*

Table 1 shows the socio-demographic characteristics of the male study. They were pre-dominantly Muslim (88%), married (99.7%), in monogamous unions (66.8%), and farmers (53%). Over two-thirds of them reported only one wife, with a third reporting two wives. However some of the men who had only one wife at the time of the study may obtain a second wife as they get older, because results show that men's number of wives increases significantly with age (Figure 1).

In terms of educational attainment, the largest proportion of men (29%) had attended conventional primary schooling. The proportion who reported having no formal education (27%) and those who reported having attended secondary school (24%) were similar. Three fourths of the men were between 30 and 49 years of age, with only 15% under 30 years and only 11% over 50 years.



**Figure 1.** Proportion of male household heads who reported having more than one wife, by age, 2008 (n=319).

**Table 1.** Socio-demographic characteristics of male respondents, 2008 (n=319).

Age(yrs)	Frequency	%
20-29	49	15.4
30-39	148	46.7
40-49	84	26.5
>50	36	11.4
<b>Total</b>	<b>317</b>	<b>100</b>
<b>Educational level</b>		
No formal	84	26.5
Primary	92	29.0
Secondary	77	24.3
Tertiary	29	9.2
Others	35	11.0
<b>Total</b>	<b>317</b>	<b>100</b>
<b>Marital status</b>		
Married	318	99.7
Single	1	0.3
<b>Total</b>	<b>319</b>	<b>100</b>
<b>Current number of wives</b>		
1	213	66.8
2	93	29.2
3-4	13	4.0
<b>Total</b>	<b>319</b>	<b>100</b>
<b>Religion</b>		
Islam	279	88.0
Christian	38	12.0
<b>Total</b>	<b>317</b>	<b>100</b>
<b>Occupation</b>		
Farming	165	53.0
Profession als	55	17.7
Artisan	47	15.1
Petty trading	31	10.0
Others	13	4.2
<b>Total</b>	<b>311</b>	<b>100</b>
<b>Community</b>		
Dakace	142	44.5
Tsibiri	101	31.7
Shika dam	76	23.8
<b>Total</b>	<b>319</b>	<b>100</b>

#### *Median age of marriage among males*

Table 2 shows that the median age at first marriage for men is 23. Age of respondents, educational attainment, religion, and occupation influenced the median age at first marriage. It was higher for men who were: over 50 years, having tertiary education, Christian, or professional.

#### *Polygamy and Monogamy*

Among the males in this study, Table 3 shows that polygamy was more frequently reported among men who were: over 50, Muslim, having Quranic schooling only, or having primary schooling only. Monogamy was highest among men with a tertiary education or Christians.

The practice of polygamy found in this study among men compares with results from previous studies<sup>16,9</sup>. Polygamy is a common practise in predominantly Hausa and Muslim settings in Nigeria which seems to serve as an index of attainment and affluence as men grow older. Although this study found only 4% of men who had 3-4 wives, Islam allows a man to marry up to four wives at a time, which could have a profound effect on the number of children he fathers. Even for the majority of men, most of whom would have two wives by their late forties could easily be the father of 16 children if each wife gave birth to eight children. Table 4 demonstrates that the age of male respondents and the number of wives they had was found to be statistically significantly associated to the number of children they fathered ( $p < 0.05$ ). There were significant associations between age, educational status, the number of current wives and religion with the mean number of children ever fathered and the mean number of living children of men, as has been shown in other studies<sup>8,9,15,18</sup>.

#### **Results of Female Study**

##### *Socio-demographic Characteristics*

The socio demographic characteristics of respon-

**Table 2.** Median age at first marriage (MAFM) of male respondents, 2008 (n=319).

Age(yrs)	Frequency	MAFM
20-29	49	22.0
30-39	149	23.0
40-49	84	23.0
>50	36	24.0
Total	318	23.0
<b>Educational level</b>		
No formal	84	22.5
Primary	92	22.0
Secondary	77	24.0
Tertiary	29	28.0
Others*	35	21.0
Total	317	23.0
<b>Current number of wives</b>		
1	213	23.0
2	93	20.0
3-4	13	22.0
Total	319	23.0
<b>Religion</b>		
Christian	38	28.0
Islam	279	22.0
Total	317	23.0
<b>Occupation</b>		
Petty trader	31	21.0
Farming	165	22.0
Artisan	47	23.0
Professionals	55	23.0
Others	13	25.0
Total	311	23.0
<b>Community</b>		
Tsibiri	101	22.0
Dakace	142	25.0
Shika dam	76	20.5
Total	319	23.0

\*Others included Quranic and Arabic schools.

dents in the female study in the same three communities are shown in Table 5. The majority of the women fell within the age group 20-29 years. Nearly half had received Quranic education only (49.5%), while 22% had attended primary school and a surprising 25% reported having attended secondary school. Only 3.8% had attended tertiary education. Eighty-three percent of women were married, 7% cohabitating with a man, and 10% were not in any union. The majority of women were in polygamous marriages and only 8% of married women were in monogamous unions. The median age at marriage was 14.6 years, however when disaggregated, it was found that the median age of marriage was much lower in the two rural villages of Tsibiri and Shika Dam than it was in peri-urban Dakace (16.0).

### Measures of Women's Fertility

As would be expected, the Age Specific Fertility Rate (ASFR) rose starting from the age group 15-19 years and peaking at 25-29 years before declining (Figure 2). The Total Fertility Rate (TFR) was 7.97 children per woman, the Crude Birth Rate (CBR) was 34.8/1000 and the General Fertility Rate (GFR) was 188.9/1000 women.

#### Age at first childbirth among women

The age at first birth among women by type of education is shown in Figure 3. A significant association was found between type and level of schooling in relation to age at first marriage and the onset of childbearing. About 70% of women with Quranic education had their first birth between 15 and 19 years compared to 35% of those with conventional education who had their first birth at age 15-19 years.

#### Childbirth and Child Death

The majority of women in this study were in their twenties and thirties— their prime reproductive years. Nearly 40% of the women who were married before they were 18 already had at least five children. Data on the number of children ever born reflects the total number of births over a period and therefore have limited relevance to current fertility levels. The mean number of children ever born and the mean number of living children for all the women were 3.9 and 2.7 respectively. This reflects high rates of infant and child death. Of the 1408 female respondents, 17% reported having had a miscarriage, abortion or stillbirth.

#### Fertility Preferences of Women

Ideal family size is one indication of women's attitude towards childbearing, even though actual reproductive behaviour often differs from stated desires<sup>10,11</sup>. In this study, 100% of women who had at least four living children wanted to have another child. Figure 4 shows the distribution of female respondents by ideal number of children. Results indicate that 37% wanted 5-9 children and 32% wanted 10-14 children. Fewer than 20% wanted four or fewer children. The ideal number of children was significantly associated with a woman's educational attainment.

### Discussion

The TFR found in these study villages is extraordinarily high. The NDHS 2008 reports that the TFR for the nation is 5.7. Figure 5 shows how Nigeria compares with other African nations, with Niger's TFR of 7.0 being the highest in Africa. A closer look at

**Table 3.** Marriage type of male respondents in three communities, 2008 (n=319).

Age (yrs)	Monogamy	%	Polygamy	%	Total	%	p-value
20-29	40	81.0	9	18.0	49	15.4	F=7.0
30-39	108	72.5	41	27.5	149	46.9	df=3
40-49	49	58.3	35	41.6	84	26.4	P<0.05
>50	15	41.7	21	58.3	36	11.3	
<b>Total</b>	<b>212</b>	<b>66.7</b>	<b>106</b>	<b>33.3</b>	<b>318</b>	<b>100</b>	
<b>Educational level</b>							
No formal	56	66.7	28	33.3	84	26.5	chi <sup>2</sup> =15.6
Primary	55	59.8	37	40.2	92	29.0	df=4
Secondary	63	81.8	14	18.2	77	24.3	P<0.05
Tertiary	20	69.0	9	31.0	29	9.1	
Others	17	48.5	18	51.4	35	11.0	
<b>Total</b>	<b>211</b>	<b>66.6</b>	<b>106</b>	<b>33.4</b>	<b>317</b>	<b>100</b>	
<b>Religion</b>							
Islam	176	63.1	103	36.9	279	88.0	Chi <sup>2</sup> =5.5
Christian	35	92.1	3	7.9	38	12.0	df=1
<b>Total</b>	<b>213</b>	<b>66.6</b>	<b>106</b>	<b>33.4</b>	<b>317</b>	<b>100</b>	P<0.05
<b>Occupation</b>							
Farming	106	64.2	59	35.8	165	53.1	
Professionals	34	61.8	21	38.2	55	17.6	
Artisan	40	85.1	7	14.9	47	15.1	
Petty trader	19	61.3	12	38.7	31	10.0	
Others	8	61.5	5	38.5	13	4.2	
<b>Total</b>	<b>207</b>	<b>66.6</b>	<b>104</b>	<b>33.4</b>	<b>311</b>	<b>100</b>	
<b>Community</b>							
Dakace	110	77.5	32	22.5	142	44.5	
Tsibiri	52	51.5	49	48.5	101	31.7	
Shika dam	51	67.1	25	32.9	76	23.8	
<b>Total</b>	<b>213</b>	<b>66.8</b>	<b>106</b>	<b>33.2</b>	<b>319</b>	<b>100</b>	

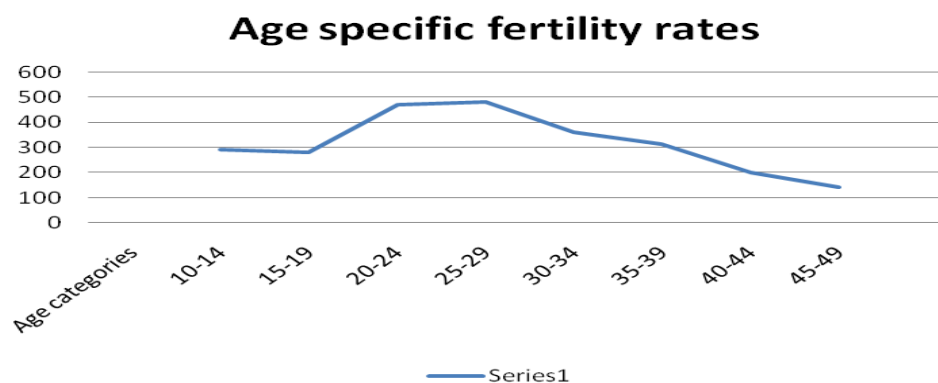
**Table 4.** Mean number of children ever fathered (MNCEF) by mean number of living children (MNOLC) of male respondents, 2008 (n=319).

Age (yrs)	MNCEF (SD)		MNOLC (SD)	
20-29	2.7(2.5)	F=44.8	2.4(2.1)	F=47.1
30-39	5.0(3.3)	df=3	4.0(2.2)	df=3
40-49	8.6(4.8)	p<0.05	6.8(3.9)	p<0.05
>50	11.5(6.8)		9.0(4.7)	
Total	6.3(5.0)		5.1(3.7)	
<b>Educational level</b>				
No formal	7.3(5.8)	F=5.3	5.4(3.9)	F=4.4
Primary	6.7(5.0)	df=4	5.4(3.9)	df=4
Secondary	4.4(3.5)	p<0.05	3.7(2.9)	p<0.05
Tertiary	5.8(4.1)		5.2(3.5)	
Others	8.0(5.0)		6.5(3.7)	
Total	6.3(5.0)		5.1(3.7)	
<b>Current number of wives</b>				
1	4.2(3.1)	F=95	3.5(2.3)	F=89.8
2	10.4(5.3)	df=2	7.8(3.8)	df=2
3-4	12.1(4.7)	p<0.05	10.4(5.3)	p<0.05
Total	6.3(5.0)		5.0(3.7)	

**Table 4.** Mean number of children ever fathered (MNCEF) by mean number of living children (MNOLC) of male respondents, 2008 (n=319) – (Continued).

<b>Religion</b>				
Christian	3.9(3.5)	Z=-4.2	3.4(2.9)	Z=-3.6
Islam	6.7(5.0)	df=60	5.3(3.7)	df=56
Total	6.3(5.0)	p<0.05	5.1(3.7)	p<0.05
<b>Occupation</b>				
Petty trader	6.0(3.5)		4.8(2.2)	
Farming	6.7(5.1)		5.1(3.7)	
Artisan	4.7(4.1)		3.9(3.1)	
Professionals	5.8(5.0)		5.0(4.2)	
Others	5.8(3.3)		5.1(3.1)	
Total	6.3(4.9)		5.0(3.6)	
<b>Community</b>				
Tsibiri	7.2(4.9)		5.8(3.8)	
Dakace	5.3(4.6)		4.5(3.7)	
Shika dam	7.0(5.4)		5.1(3.2)	
Total	6.3(5.0)		5.0(3.7)	

Key: sd= standard deviation  
Df=degree of freedom  
F=Analysis of variance



**Figure 2.** Age-specific Fertility Rate of Females, 2007 (n=1408).

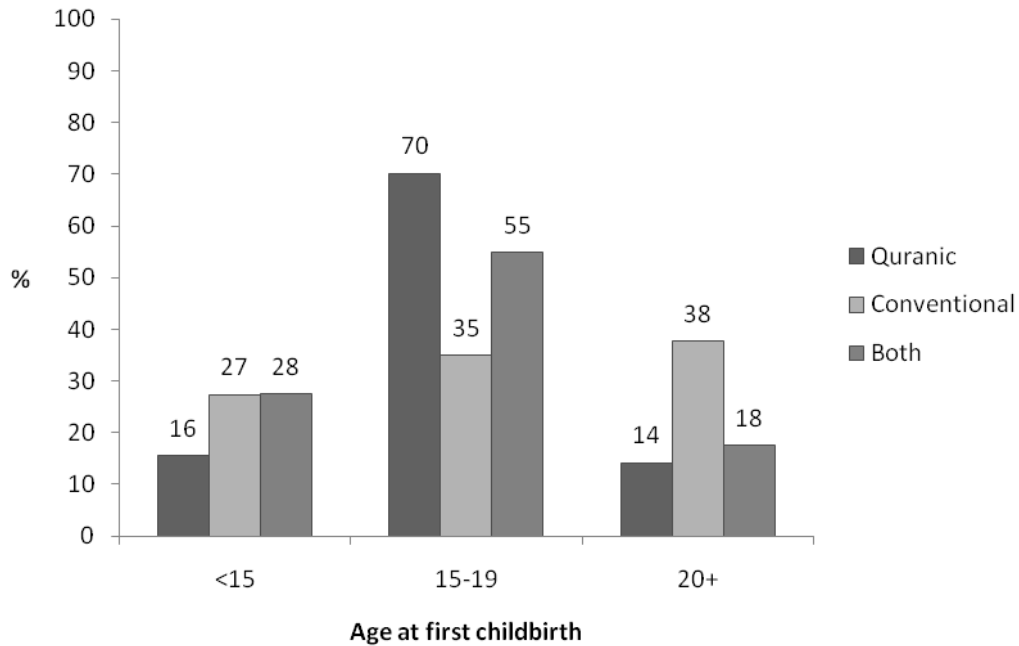
**Table 5.** Socio demographics characteristics of female respondents, 2007 (n=1408).

Age	Frequency	Percentage
15-19	252	17.9
20-24	318	22.6
25-29	308	21.9
30-34	202	14.4
35-39	162	11.5
40-44	96	6.8
45-49	58	4.9
<b>Total</b>	<b>1408</b>	<b>100</b>
<b>Education</b>		
Quranic	697	49.5
Primary	306	21.7
Secondary	352	25.0
Tertiary	53	3.8
<b>Total</b>	<b>1408</b>	<b>100</b>

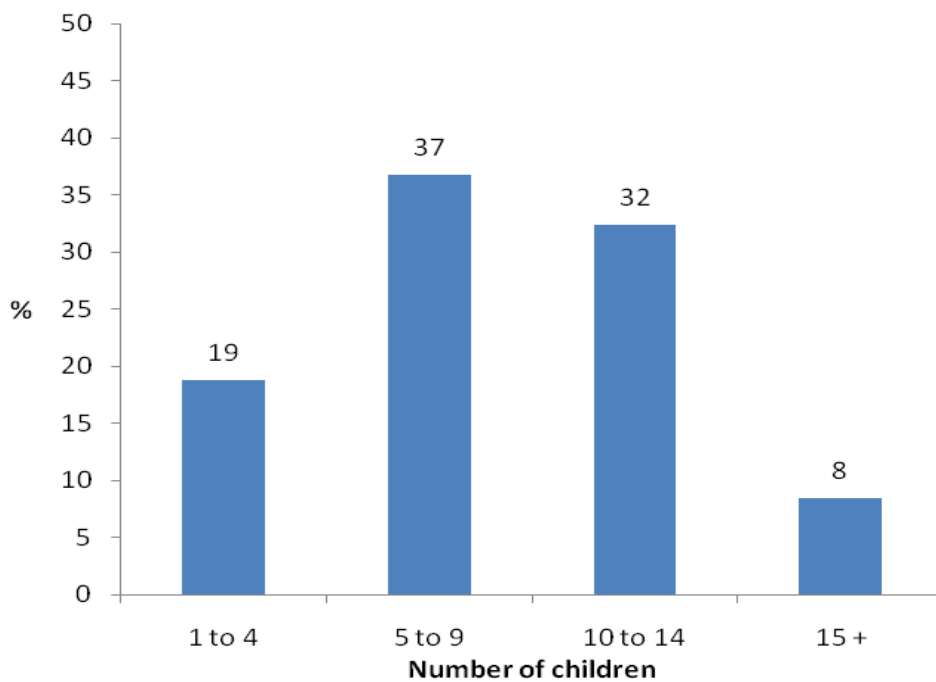
<b>Marital status</b>		
Currently married	1173	83.3
Living with a man	97	6.9
Not in union	138	9.8
<b>Total</b>	<b>1408</b>	<b>100</b>

Nigeria's TFR by region (Figure 6) shows that the TFR in Northwestern Nigeria (7.3) surpasses the national rate of Niger but the TFR in these study villages surpasses all others at nearly 8.

The strongest determinant of high fertility in this study was age. Early marriage, teenage pregnancy and teenage childbirth are the norm. As in most rural Nigerian communities, the population structure is youthful, with only a small proportion of elderly persons. This young age distribution, paired with early



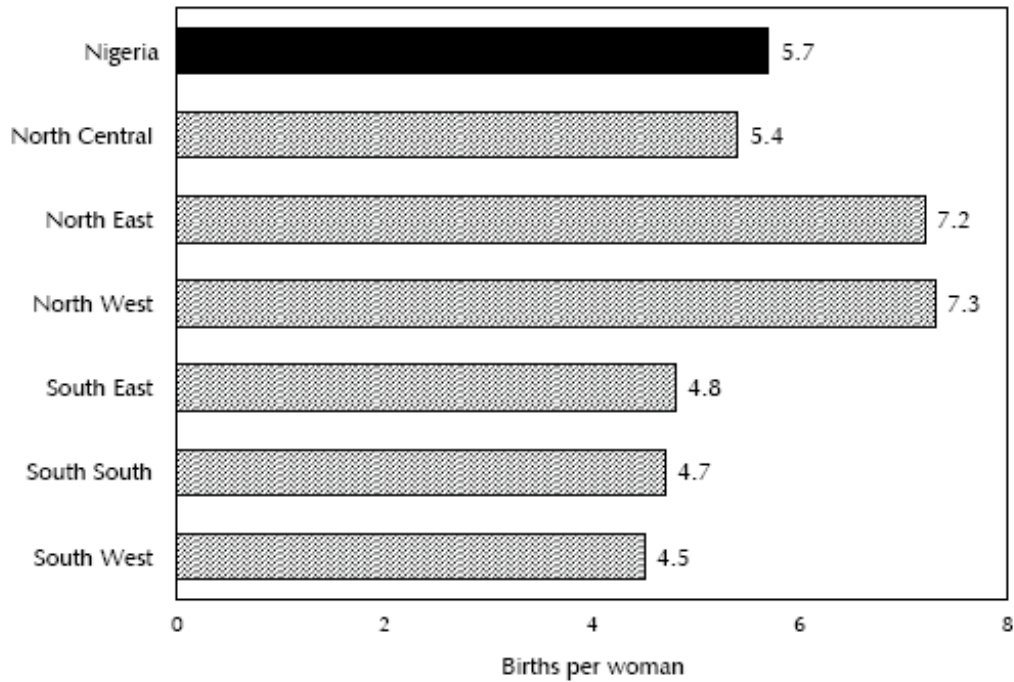
**Figure 3.** Age at first childbirth of females by type of school attended (n=322). (Note: in this question the number of years of schooling was not specified).



**Figure 4.** Ideal number of children desired by female respondents, 2007 (n=272).

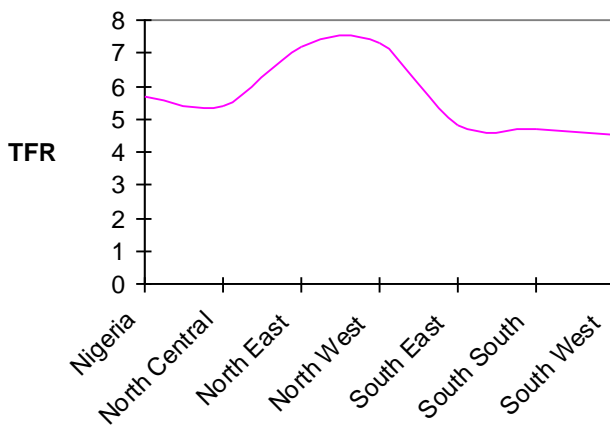
median ages of first marriage and first childbirth, meant that virtually every man and woman (who was not infertile) would be the parent of many children by the time they reached middle age<sup>8</sup>. The main concern with this situation is that adolescent pregnancy and childbirth are associated with increased maternal and perinatal mortality and morbidities<sup>12</sup>.

Furthermore, literature suggests that younger mothers are often less educated, poorer, and unemployed. Education can have a counter influence, however, because completion of primary school and/or attaining literacy has a strong influence on fertility behaviour, especially age of first marriage<sup>13</sup>. Having a secondary education even more profound-



NDHS 2008

**Figure 5.** Total Fertility Rate of selected African countries.



**Figure 6.** Fertility Differentials in Nigeria, by region (Courtesy: Nigerian Demographic and Health Survey, 2008).

ly affects the age of marriage, especially for young women<sup>14</sup>.

As a measure of reproductive performance, the indicator 'mean number of living children' provides only a momentary snap-shot of men's fertility behaviour. As men grow older; they tend to marry more wives and have more children. This reaffirms findings from two previous studies in similar settings<sup>9,15,16</sup>.

The mean ideal number of children, according to female respondents was 10, as compared 8 children

which were reported by women from the northwestern region in the latest DHS<sup>17</sup>. In the present study, nearly 37% of women wanted between 5 and 9 children and another 32% wanted between 10 and 14 children. Although it was beyond the scope of this study to investigate why women wanted such large families, studies on Nigerian women's preference for large families refer to possible motivations such as: perceived socio-economic benefits with additional children (greater property inheritance); continuation of the family name, and the tradition of child fostering, in which the responsibility for the task of bringing children up is seen as belonging to all members of the extended family<sup>3,8</sup>.

In Nigerian society, women tend to have little say about when they will begin child-bearing even though it is they who bear the burden of pregnancy and childbirth. Their personal views relating to the timing of subsequent births, the number of children to have, and when childbearing will end are rarely considered. Gender-based expectations strongly influence fertility intentions and fertility behaviour of women and male heads of household reserve the right to make all decisions related to reproduction<sup>18,19,20,21</sup>. At the same time, this study has the typical limitations associated with quantitative surveys: it could not assess underlying motivations of respondents and it remains difficult to assess what the true opinions of respondents may have been. Fertility is a sensitive, complex and difficult topic to



address in Hausa society. Within the context of a survey, it is virtually impossible to disentangle what women really feel from what they choose to reply based on what their society, or their husband, would like them to say or think.

## Conclusion

A conscious effort to increase the awareness and the educational status of both men and women could greatly improve health outcomes<sup>8</sup>. Religious and traditional leaders, whose opinions are highly respected in traditional Hausa society, may turn out to be the most effective advocates for improved family health and economic well being though delaying the age of marriage and by the promotion of birth spacing.

## Acknowledgements

The authors will like to acknowledge the communities of Dakace, Shika Dam and Tsibiri for their participation. This study was a collaboration of the Population Reproductive Health Program, Ahmadu Bello University Teaching Hospital Zaria and University of California, Berkeley, Bixby Center for Population, Health and Sustainability. This project was funded by the National Institutes of Health, Fogarty International Center and National Institute for Child Health and Development, Grant no. 5D43TW007696-04.

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