

INDIVIDUAL AND SHARED BACKGROUND CHARACTERISTICS INFLUENCING COUPLES USE OF CONTRACEPTIVES IN NIGERIA

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Abstract

Africa in particular Nigeria has remained one of most populous country in the world. The report of 2016 population reference bureau ranked Nigeria as the 7th most populous country and projected that by 2050 Nigeria will be the 4th populous country in the world. Nigeria with a population of over 180 million, and a total fertility rate (TFR) estimated at 5.5 with contraceptive prevalence rate (CPR) of 15%. Although several measures have been implemented to enhance the adoption of contraceptives in Nigeria but it has not yielded the expected result because Nigeria is yet to achieve a demographic dividend and its low utilization of any method of contraceptive is one of the key indicators of high fertility in Nigeria. Therefore this paper examines the individual and shared background factors influencing contraceptive use among couples in Nigeria using 2013 Nigeria Demographic and Health Survey Couples' Dataset. The study shows that the explained variance (Nagelkerke R^2) was 20.9% when only married women's variables were considered in Model I, it was 13.1% when only men's variables were included (Model I), 21.4% when shared variables were employed (Model II), and explained variance increased to 27.1% in the full model which added individual and shared explanatory factors (Model III). Findings suggest that the effects of married men's individual factors were not significant in the full model except education, which implied that women's individual background factors and couples shared background characteristics were more significant ($P < 0.000$) in explaining contraceptive use in Nigeria. These findings suggest that policies and programs that will empower women to make decision among the sub-groups will go a long way to improve contraceptive use. We recommend that increase in women individual background characteristics (education, occupation e.t.c) and couples shared characteristics (wealth, place of residence e.t.c) will increase the adoption of contraception and reduce the increasing population growth in Nigeria.

Keywords: couples, contraceptive, individual, shared, Nigeria

1. INTRODUCTION

Africa in particular Nigeria has remained one of most populous country in the world (PRB, 2015). The report of 2016 Population Reference Bureau ranked Nigeria as the 7th most populous country and projected that by 2050 Nigeria will be the 4th populous country in the world¹. Nigeria is a country with a population of over 180 million (world population data sheet 2016, 2015), and have a total fertility rate (TFR) estimated at 5.5 with contraceptive prevalence rate (CPR) of 15%. Although several measures have been implemented to enhance the adoption of contraceptives in Nigeria but it has not yielded the expected result because Nigeria is yet to achieve a demographic dividend Igbodekwe, Oladimeji, Oladimeji, Adeoye, Akpa & Lawson (2014); Esere, Yusuf & Omotosho (2011) and its low utilization of any method of contraceptive is one of the key indicators of high fertility in Nigeria.

The effect of low usage of contraceptives includes high risk of unwanted pregnancies, abortions, maternal morbidity and death. The benefit of utilization of contraceptives includes reduction in high risk of maternal and prenatal morbidity, high rate of new-born, and child survival, fertility reduction by facilitating both the spacing and limiting of pregnancies in women of reproductive age and also drastic reduction infant, child and maternal death. Studies in Africa Yue, O'Donnel & Sparks (2010); Bogale, Mekite, Tizta & Eshetu (2010); Olalekan & Olufunmilayo (2012) have identified factors associated with contraceptive adoption in Nigeria.

While studies have indentified background factors as significant factors that influence contraceptive use, there are no significant studies on the individual and shared background factors of couples that influence contraceptive use. Unfortunately existing couple studies on background factors that influence contraceptive use have often merged the socio-demographic background factors and have also not been able to specify the effect of individual variables and the shared variables Adeoti, Oni, Alonge & Akintunde (2009); Arbab, Bener & Abdulmalik (2011); David & Paul (2012) on contraceptive adoption. Also in Nigeria most couple studies were based on merged men and women data and not a couple data where both wife and husbands data were collected in the same household Odusina, Akinyemi & Bisiriyu (2015); Ogunjuyigbe, Ojofeitimi & Liasu (2009). Therefore this study tests the hypothesis that there is no significant relationship between individual and shared socio-demographic factors and contraceptive use.

2. MATERIALS AND METHODS

2.1 Study design

The study used the most recent Nigeria Demographic and Health Survey (NDHS) 2013 Couple dataset. The data consists of men and women of reproductive age. The dependent variable in this analysis is whether or not a couple uses contraceptives. It is a dichotomous variable (Yes = 1 and No = 0). The independent variables are individual (age, level of education, number of living children, occupation) and shared variables (religion, place of residence, region, wealth index, and type of union (i.e., monogamous or polygamous)). All the variables used were as classified in the NDHS, except for wealth index and occupation variables which were reduced to three categories in this study: wealth index (poor status, middle and rich status); Occupation (civil servant, self-employed and not working). Data were analysed using STATA 13 data analysis computer software and the data was weighted using appropriate weighting factor.

2.2 Data analysis

The method of data analyses involved three level of analysis. The univariate analysis used frequency distribution; the bivariate analysis employed cross tabulation and chi-square statistic to test for significant relationship between socio-demographic variables and couples use of contraceptive. At multivariate level, binary logistic regression was adopted to estimate the pseudo maximum likelihood of the combined effect of individual and shared socio-demographic variables on contraceptive use. Three models were fitted. The first model used binary logistic regression technique to explore the individual socio-demographic correlates of contraceptive use. The second model was fitted to determine the shared background variables that influence contraceptive use. The third model was fitted to determine both the direct and indirect effect of individual and shared background variables that determine contraceptive use. The outcome variable was dichotomized into Yes (Nigeria Demography and Health Survey) contraceptive use and No (Nigeria Demography and Health Survey) non-contraceptive use. The description of logistic regression is:

$$\log\left(\frac{p}{1-p}\right) = \sum_{i=1}^{13} \alpha + \beta_i X_i + e.$$

3. RESULTS

The percentage distribution of individual and shared background characteristics of couples as shown in table 1 below indicates that the average (mean) age of the wife is 29 years old with a standard deviation of 7 while, their spouses' shows a mean age of 37 years old and a standard deviation of 9. Three out of every ten female and male respondents are between 15-24 years (30 percent) and over the age of 41 and above (32 percent) respectively. The percentage distribution of level of education shows that 50 percent of the female respondents and 35.3 percent of their spouse have no education. Among the proportion of couples with formal education 19 percent of the women and 21.4 percent of the men have primary education. Data shows that approximately two out of every ten female respondent and three out of every ten male respondent have secondary education and only 7 percent of women and 13.5 percent of men have tertiary education. The distribution by work status reveals that three out of every ten female respondent are working and majority of them are self employed while the remaining, 34 percent were not working at the time of survey. Approximately 47 percent of the female respondents and 35.7 percent of the men have one or two living children while, 40.5 percent of the female and 36.6 percent of their spouses have between 3 and 5 living children.

The shared characteristics profile indicates that seven out of every ten study population are in monogamous union (70 percent) while the remaining are in polygamous union. Furthermore, the data shows that majority of the respondents live in rural areas (67 percent) compared to urban areas (33 percent). Islam is the dominant religion; approximately 64 percent of the couples are Muslims, while 33.6 percent of couples are Christians. In terms of regional variation about 40 percent are from North West region of Nigeria, 13 percent were from South West and 5.8 percent are from South Eastern part of Nigeria. The percentage distribution by wealth status shows that approximately 47 percent of the couples are in the low wealth quintile index, 34 percent are classified as middle class while the remaining are in the high class (rich).

Table 1: Percentage distribution of respondents' by socio-demographic characteristics

Selected Variable	Frequency N=8797	Percentage %	Selected Variable	Frequency N=8797	Percentage %
Wife Characteristics			Husband Characteristics		
Age			Age		
15-24 years	2710	30.8	<31 years	2249	26.0
25-34 years	4030	45.8	31-40 years	3699	42.0
35+ years	2057	23.4	41+ years	2849	32.0
Mean 29			Mean 37		
Standard deviation 7			Standard deviation 9		
Education			Education		
No education	4373	49.7	No education	3103	35.3
Primary	1667	19.0	Primary	1883	21.4
Secondary	2141	24.3	Secondary	2628	29.8
Tertiary	615	7.0	Tertiary	1183	13.5
Occupation			Occupation		
No occupation	2850	33.8	No occupation	109	1.2
Civil servant	415	4.9	Civil servant	1114	12.7
Self employed	5172	61.3	Self employed	7573	86.1
Number of children			Number of children		
<= 2 children	4129	46.9	<= 2 children	3138	35.7
3-5 children	3563	40.5	3-5 children	3220	36.6
6 or more children	1105	12.6	6 or more children	2439	27.7
Shared Characteristics					
Religion			Wealth index		
Christians	2962	33.7	Low	4127	46.9
Muslim	5674	64.5	Medium	3025	34.4
Traditionalist/ others	159	1.8	High	1644	18.7
Region			Place of residence		
North central	1337	15.2	Rural	5856	66.6

North east	1522	17.3	Urban	2941	33.4
North west	3535	40.2	Type of union		
South east	513	5.8	Monogamy	6221	70.7
South south	738	8.4	Polygamy	2576	29.3
South west	1152	13.1			

Source: Authors compilation, 2017

3.1 Distribution of individual selected socio-demographic characteristics, by contraceptive use

The result in table 2 shows that majority of wives between the ages 15-24 do not use contraceptives at 94.7 percent. Only 5.3 percent of wives in the young age group (15-24 year olds) currently use contraceptives. There exists a slight percentage increase in the use and non-use of contraceptives among the age group 25-34 with 16.1 percent of respondents currently using contraceptives and 83.9 percent not using any methods of contraceptives. Similar trend was observe across the husband ages, where 9.7 percent of husband age 31 years or fewer, 15.4 percent between 31-40 years and 16.9 percent age 41 years or more use contraceptive. The result shows that there is a significant relationship between age and contraceptive use at P-value = 0.000.

Data analysis shows that 97.9 percent of female respondents with no education do not use contraceptives. Approximately 82 percent of respondents with primary education do not use contraceptives. For respondents with secondary and tertiary education, results suggest that a small difference exists among respondents currently using or not using any methods of contraceptives. This indicates that respondents with low levels of education do not use contraceptives, while respondents with high levels of education use contraceptives. Hence there is a significant relationship between education and use of contraceptives at P-value =0.000

Looking at the association between respondents' occupation and contraceptive use, the result shows that only wives who are civil servants reported higher percentage of contraceptive use (36.1 percent) when compared with those in other categories. Similar trend was observed among husband occupation and contraceptive use, where the larger percentage of use of contraceptive was found among the civil servant. Hence, occupation is significantly associated with contraceptive use at P-value= 0.000.

Of female respondents who have two or fewer living children, 90.2 percent do not use contraceptives and only 9.7 percent are currently using any method of contraceptives. Wives with 3-5 living children and those with 6 and/or more children have similar results in which slightly two out of every ten are currently using contraceptives (19.2 percent and 13.7 percent) and the remaining are not currently using any forms of contraceptives 80.8 percent and 86.3 percent respectively. Among the husband with 3-5 living children approximately 20 percent are using any method of contraceptives and there is a drop in the use of contraceptive with those with 6 or more children (10.0 percent). Hence, the result shows that there exists a significant relationship between number of living children and use of contraceptive at P-value = 0.000. In summary the result in table 2 indicates that individual age, education, occupation and number of living children are all significant predictors of contraceptive use at the 0.05 level of significance.

Table 2: Percentage distribution of individual background characteristics and contraceptive use

Individual Variable	Contraceptive Use		Chi-square	P-value
	Yes (%)	No (%)		
Wife				
Age				
15-24 years	143 (5.3)	2566 (94.7)		
25-34 years	650 (16.1)	3380 (83.9)		
35 ⁺ years	446 (21.7)	1612 (78.3)	271.7447	0.000
Education				
No education	91(2.1)	4283 (97.9)		
Primary	300 (18.0)	1367 (82.0)		
Secondary	617(28.8)	1524 (71.2)		
Tertiary	231 (37.5)	385 (62.5)	1152.9723	0.000
Occupation				
No occupation	182 (6.4)	2668 (93.6)		

Civil servant	150 (36.1)	265 (63.9)		
Self employed	805 (15.6)	4367 (84.4)	310.1251	0.000
Number of living children				
<= 2 children	403 (9.7)	3726 (90.2)		
3-5 children	684 (19.2)	2879 (80.8)		continued
6 or more children	151 (13.7)	954 (86.3)	134.7508	0.000
Husband				
Age				
15-24 years	186 (8.3)	2063 (91.7)		
25-34 years	571 (15.4)	3128 (84.6)		
35+ years	482 (16.9)	2368 (83.1)	83.0341	0.000
Education				
No education	51 (1.6)	3052 (98.4)		
Primary	252 (13.4)	1631 (86.6)		
Secondary	587 (22.4)	2041 (77.6)		
Tertiary	349 (29.5)	834 (70.5)	744.6253	0.000
Occupation				
No occupation	7 (6.1)	103(93.8)		
Civil servant	313 (28.0)	802(72.0)		
Self employed	920 (14.1)	6654 (87.9)	119.4511	0.000
Number of living children				
<= 2 children	378(12.1)	2760 (87.9)		
3-5 children	618 (19.2)	2602 (80.8)		
6 or more children	242 (10.0)	2197 (90.0)	110.1603	0.000

Source: Authors compilation, 2017

3.2 Distribution of Contraceptive use by couples' shared socio-demographic characteristics

The result in table 3 shows that majority of respondents who live in rural areas do not use contraceptives (92.4 percent) as opposed to 7.6 percent who use any method of contraceptives. About one quarter of couples that live in urban areas do use any method of contraceptives (26.9 percent) when compared to 73.1 percent not using. Low percentage of contraceptive adoption was observed in the North-East, North-West and North Central region of Nigeria. The result across all regions further shows that contraceptive use is high in South West region (39.9 percent) when compared with other regions. Hence, there is a significant relationship between region and contraceptive use at P-value = 0.000.

In addition, the results in table 3 reflects that three out of every ten Christians use any method of contraceptives (30.6 percent) , while 69.4 percent do not use any method. Hence there is a significant relationship between religion and contraceptive use at P-value = 0.000. Also, 18.1percent of couples in monogamy union are currently using contraceptives while 81.9 percent do not use contraceptives while majority in polygamous union do not use contraceptive (95.6 percent). The result by wealth status shows that 96.7 percent of couples classified as poor do not use contraceptives with only 3.3 percent using contraceptives. Among those in intermediate class 82.5 percent do not use contraceptive as oppose to 17.5 percent using contraceptives. The distributions further indicate that the highest percentage of contraceptive use is found among couples in the rich class where 34.9 percent are using contraceptives.

Table 3: Percentage distribution of shared background characteristics and contraceptive use

Shared Variable	Contraceptive Use		Chi-square	P-value
	Yes (%)	No (%)		
Place of residence				
Rural	447 (7.6)	5409 (92.4)		
Urban	792 (26.9)	2150 (73.1)	574.8400	0.000
Couples religion				
Christian	906 (30.6)	2057 (69.4)		
Muslim	315 (5.6)	5360 (94.5)		
Traditional/Others	18 (11.4)	142 (88.6)	963.5066	0.000

Region				
North central	192 (14.4)	1145 (85.6)		
North east	40 (2.7)	1482 (97.3)		
North west	181 (5.1)	3353 (94.9)		
South east	147 (28.7)	366 (71.3)		continued
South south	218 (29.6)	519 (70.4)		
South west	459 (28.7)	693 (60.1)	1211.8360	0.000
Type of union				
Monogamy	1125 (18.1)	5096 (81.9)		
Polygamy	113 (4.4)	2462 (95.6)	268.9649	0.000
Wealth Index				
Poor	136 (3.3)	3992 (96.7)		
Intermediate	529 (17.5)	2497 (82.5)		
Rich	574 (34.9)	1070 (65.1)	972.0082	0.000

Source: Authors compilation, 2017

3.3 Logistic Regression Estimating the Odds of Contraceptive Use

Table 4 gives the odds ratio for the logistic models. In this hypothesis interrelationship between individual and shared socio demographic variables and couple's use of contraceptives was tested to identify socio demographic correlates of couple's use of contraceptive. Three models have been used in order to examine the effect of individual and shared (control) variables independently on contraceptive use. Reduced model I have been conducted at the bivariate level and the full model at the multivariate level of analysis. All the regression models fit the data given that the prob>F is 0.0000 and has been analyzed at the 0.05 level of significance.

The classification table (Table 4) shows the accuracy of the simple prediction and the model summary gives useful statistics. The R_2 indices indicate the variation in the predicted variable that is explained by the predictor. In this regard the full model in table 4 shows pseudo (R_2) of 0.2705 implies that 27.5 percent of the variations are being explained by the independent variables. In this hypothesis the predictors are wife education, wife number of living children, husband education, place of residence, region, religion, and wealth index. The coefficients for these predictors variable (i.e independent variables) show how the probability (the odds) of the dependent variable is increasing or decreasing with a unit change (increasing or decreasing) in the predictor variable. The basic interpretation of the (***) is that any P-value less than 0.05percent is a very useful variable in predicting the dependent variable.

Therefore, as revealed in table 4, some individual variable and all the shared variables were significantly related with contraceptive use. The analysis indicates that wives ages 35 years and above have higher odds of contraceptive use compared to those in other age groups. As expected, results demonstrate that as the level of education increases, the likelihood of using contraceptives increases. For example, wives education showed that wives with higher education and husbands in the same category are 4.32 times and 2.00 times more likely to use contraceptives when compared with other categories. The observation in table below shows that husbands and wives with six or more children are more likely to use contraceptives compared to others. This implies that as the number of living children increases, the use of contraceptives also increases.

The result in table 4 indicates that respondents living in urban areas are 1.38 times more likely to be using contraceptives than those living in rural areas. Result by region shows that respondents in North Central and South West are 1.00 and 1.75 times more likely to use contraceptives when compared with others. Table 4 below shows that religion is a significant predictor of contraceptive use at 5% level of significance. Result shows that couples who are Christians are more likely to be using contraceptives when compared with other religious groups. Also, couples in monogamous union are more likely to use contraceptive than those in the polygamous union. Wealth is a significant predictor of contraceptive use at the 5% level of significance. As expected, results indicate that intermediate class and rich people are 1.71 and 2.09 times more likely to subscribe to contraceptives compared to the poor.

The overall effect of the individual and shared background variables on contraceptive use was given by the log-likelihood value of 2335.0875 with a chi-square value of 1731.32 (Pro- $\chi^2 = 0.000$) on a degree of freedom (d.f) of 29. This result indicates good-fit of the model.

Table 4: Logistic Regression and odds of contraceptive use controlling for demographic variables

Variables	Reduced Model 1	Reduced Model 1	Reduced Model 2	Model 3
Age (Wife Characteristics)				
15-24 years	R.C			R.C
25-34 years	1.52***	na	na	1.07
35+ years	2.09***			1.32
Education				
No education	R.C			R.C
Primary	7.69***	na	na	2.67***
Secondary	16.37***			3.49***
Tertiary	29.75***			4.32***
Occupation				
No occupation	R.C			R.C
Civil servant	1.07	na	na	.80
Self employed	1.51***			1.17
Number of living Children				
<= 2 children	R.C			R.C
3-5 children	2.16***	na	na	2.42***
6 or more	1.81***			2.47***
Age (Husband Characteristics)				
<31 years	na	R.C		R.C
31-40 years		1.55***	na	.96
41+ years		1.94***		.86
Education				
No education		R.C		R.C
Primary	na	7.63***	na	1.56*
Secondary		13.65***		1.64**
Tertiary		17.16***		2.00**
Occupation				
No occupation		R.C	na	R.C
Civil servant	na	1.54		1.46
Self employed		1.36		1.32
Number of living Children				
<= 2 children		R.C		R.C
3-5 children	na	1.70***	na	1.06
6 or more		0.90		1.19
Residence				
Rural			R.C	R.C
Urban	na		1.48***	1.38***
Region				
North Central			R.C	R.C
North East			.36***	.38***
North West	na	na	.481***	.55***
South East			.90	.87
South South			.83	.80
South West			1.74***	1.75***
Religion				
Christians			R.C	R.C
Muslim	na	na	.39***	.51***
Traditional/Others			.52*	.66
Type of union				
Monogamy	na	na	R.C	R.C
Polygamy			.75***	.69**
Wealth Index				
Poor			R.C	R.C
Intermediate	na	na	2.76***	1.71***
Rich			3.731***	2.09***
-Log likelihood	2531.7991	2967.7283	2685.6224	2335.0875
R²	20.90 (df=9)	13.16 (d.f=9)	21.41 (d.f=11)	27.05 (d.f=29)
Prob > chi2	0.0000	0.0000	0.0000	0.0000

Notes: RC= Reference Category na= not applicable * p<0.05 **p<0.01 ***p<0.001

4. DISCUSSION

In validating the hypothesis, the result of the test failed to accept the null hypothesis and this showed that there exists a significant relationship between background characteristics of couples (individual and shared) and their use of contraceptives. This also showed that the model has a line of best fit and is statistically significant at $p = 0.000$. It specifically indicated that wife that has attained a higher education is more likely to adopt birth control methods than those with little or no education with significant p-values of 0.000s. This was also experienced among the husbands with higher education. Therefore since more adoption of contraceptives is expected among the highly educated husbands and wives (couples), it will not be statistically incorrect to expect more knowledge on the advantages of contraceptive use. This is considered to support the literature which found education as a one of the key indicator of increase in contraceptive use Igbodekwe *et al* (2014); Anyanwu, Ezebe & Eskay (Nigeria Demography and Health Survey); Agha, Hutchinson & Kusanthan (2006); Babalola, John, Ajao & Speizer (2015); Gebremariam & Addissie (2014).

The religious influence on couple's adoption of contraceptive use cannot be overemphasized. The result showed that couples that are Christian are more likely to practice contraception than those in the other religious groups. The result further showed that there is a significant relation between wives' and husband's religion and use of contraceptives. This findings support literature by Laili, Epeizere & Jean-christophe (2014); Islam, Alam & H (2016); Izugbara & Ezeh (2010); Ijanuola, Abiona, Ijadunola, Afolabi, Olapeju & Olaoloren (2010); Sangi-Haghpeykar (2006); Agha *et al* (2006). Among profound characteristics of this study is that couples usual place of residence significantly have a relationship with the adoption of contraceptives. The result showed that couples in the urban areas are 1.38 times more likely to use contraception with a p-value = 0.000 this result was validated by previous researches Bogale *et al* (2011); Olalekan & Olufunmilayo (2012); Arbab *et al* (2011); Odusina *et al* (2015). Also regional variation showed a significant relationship with the odds of contraceptive adoption and the couples in the south west region have the highest odds of contraceptive adoption compared to other regions in Nigeria. Type of union among the couples shared characteristics reflect a significant relationship at p-value = 0.001 with the adoption of contraceptives. The result showed that couple in monogamous union are more likely to adopt family planning and this was in line with studies by Baschieri (Nigeria Demography and Health Survey); Okafor (2007); Togunde & Newman (2005). Furthermore, wealth status of couples showed a significant association with the adoption of contraceptives. The result showed that as household incomes increases couples's adoption of contraceptives also increases. The result showed that couples that are rich are 2.10 times more likely to adopt contraceptives when compared with others. This result conforms to literature by David & Paul (2012); Adeoti *et al* (2009).

5. RECOMMENDATION AND CONCLUSION

This study confirms the influence of individual and shared socio-demographic characteristics on contraceptive adoption. Thus, there is a need for policies that seek to increase the uptake of contraceptives by improving women's standard of living through investment in education, and by increasing the economic empowerment programs. Most importantly, efforts should be made to address widespread poverty in the communities which to a large extent determines their preferences, for a large family and also provide incentives for couples with lesser preference for children so as to encourage others to have smaller families. We recommend that increase in women individual background characteristics (education, occupation e.t.c) and couples shared characteristics (wealth and place of residence) will increase the adoption of contraception, reduce poverty, reduce the increasing population growth, help in achieving Sustainable Development Goals and increase the economic growth of the nation

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DECLARATION

The authors declare no competing interest in this work.

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