



Contraceptive Effectiveness on Fertility Reduction among Women of Reproductive age in Southwest, Nigeria

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Abstract

Contraceptive use among females within the reproductive ages has been identified as a factor for fertility reduction globally. This paper examined the effectiveness of female contraceptive use on fertility rate in Southwest Nigeria. Data was sourced from responses from a questionnaire distributed to 524 women within the reproductive age of 15-49 in Southwest Nigeria. The result from descriptive and logistic regression revealed that knowledge about contraceptives is high, but, the appropriate use of contraceptives and their working nature is low; thus, retarding the pace of effectiveness of contraceptive use on fertility reduction. The use of the alternative methods was found to reduce the probability of giving birth to 3-4 children but not as higher as the rate of contraceptive use. The study, therefore, recommends that there should be an increase in the level of awareness of the different methods of contraceptives through quarterly seminars and workshops across both rural and urban communities in the Southwest region of Nigeria.

Keywords: *contraception, fertility, women of reproductive age.*

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I. Introduction

The number of contraceptive users has increased tremendously among women of reproductive age globally. In 2019, about 49% of the women of reproductive age (15-49) were using some kind of contraception, compared to only around 42% in 1990. Also, 29 percent of women of reproductive age in Sub-Saharan Africa were using contraception, compared to 28 percent in Oceania, 34 percent in Western Asia and Northern Africa, 42 percent in Central and Southern Asia, and 58 percent in Latin America and the Caribbean (U.N. 2020). In Nigeria, however, the contraceptive prevalence was reported at only 16.6% in 2018 (World Bank, 2019). This figure is far lower than the global average of 49%, and also lower than the SSA average of 29%, thus signifying an urgent need for the country to step up the campaign for contraceptive use among women of childbearing age.

High fertility is a major cause of many socioeconomic and health problems in a number of developing countries around the world; it puts children's development at risk, mothers' health at risk, human capabilities at risk, growth and development at risk, and increases the use of unclean energy sources, all of which exacerbate environmental threats (World Bank, 2017). Countries with high fertility rates lack basic infrastructure, and as a result, they lag behind in terms of progress toward the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) (SDG). These nations are frequently faced with poorer development support for health care services for women and children than industrialized and advanced countries, limiting their ability to transition through fertility drop (World Bank, 2017). Over population has long been identified as a major impairment to Nigeria's economic growth and inability to provide basic amenities that will make lives better for citizen of Nigeria. Nigeria's high fertility rate is due to low contraception use, as well as other variables such as spouse disapproval, religious attitudes, partner bias, gender disparity, and religious mindset, all of which are influenced by misinformation (Blackstone&Iwelunmor, 2017). According to Fayehun (2017), contraception use in Nigeria remains low, with no significant improvement in recent years and this could be attributed to low access to health facilities. Despite substantial resources dedicated to family planning initiatives by stakeholders, Nigerians use contraception at an alarmingly low rate (Durowade, 2017). Although, Nigeria has been committed to improving and investing in contraception use via different programs (such as FP,2020) to reduce the fertility rate among women of reproductive age, improve women's health and their socio and economic wellbeing but the estimated cost committed to achieving the set goal is low (Gutmacher institute, 2019).Nigeria failed to meet

a global pledge it made in 2012 to achieve a modern Contraceptive Prevalence rate of 27% among all women as at 2020, this is attributed to poor budget allocations (Adebowale & Onyeji. 2020). At the expiration of the deadline given, Family Planning 2020 target indicators show that one in four married women age 15-49 have unmet need for contraception (Adebowale & Onyeji. 2020).

Contrary to what obtains in Asia, where 10.2 percent of women of reproductive age have unmet contraception needs, 24.2 percent of African women of reproductive age have unmet contraception needs (UNDESA, 2015). The contraceptive prevalence, which promotes access to women's reproductive health services, family planning issues, and the improvement of maternal care and education in the 2030 Agenda for Sustainable Development under target 3.7, is a key indicator for determining improvement in access to reproductive health systems (U.N. 2019).

The necessity to reduce the fertility rate in developing countries is not only a macro-level but also a micro-level solution to a plethora of socio-economic problems associated with it. Controlling one's fertility, for example, is not just a fundamental sign of personal autonomy for women, but it also has implications for social mobility and socioeconomic standing (Ekert-Jaffe & Stier 2009; Korinek et al. 2006). Furthermore, individual female fertility decisions have a tremendous impact on society, as delayed childbearing and a lower fertility rate are two of the most important markers of a country's economic success (Korinek et al. 2006). Not only that, but it also has an impact on GDP and GNICP (Gross National Income per Capita) (Lee & Mason, 2010). With regard to contraceptive use in Nigeria, this research examines how effective contraceptive use has been in reducing fertility rates among women of reproductive age in Southwest Nigeria, utilizing a primary field survey conducted in three states in the southwest area of the country.

II. Literature Review

Many studies have been conducted on the effectiveness of contraceptive use on fertility reduction globally. In United State of America, a study by Bailey (2012), using event study regression framework found that establishments of Federal Family Planning Programs reduced child bearing in U.S.A. On the other hand, Kearney & Levine's (2009) using data from National Surveys of Family Growth regarding sexual activity and contraceptive examined subsidized contraception, fertility and sexual behavior in U.S.A. Using ordinary least square regression models, the duo found that the decline in fertility rate is attributed to greater use of contraceptive and also, allowing higher –income women to receive federally funded family planning averted birth.

In addition, Stover and Winfrey (2017) examined the effect of family planning on the rate of fertility in four developing countries, using the proximate determinants of fertility framework (developed by Bongaats), and found that (i) Mali has a low use of contraception and a high fertility rate (ii) Kenya has a moderate use of contraception and a medium fertility rate (iii) Indonesia has a high use of contraception but a low fertility rate. They came to the conclusion that increased contraceptive use led to a decrease in fertility.

Also, in the research done by Bongaarts & Casterline, (2013) on the effect of contraception on fertility in sub-Saharan Africa using pooled OLS and fixed effect regression, he found that an increase in contraceptive prevalence among fecund women gives similar weight on women fertility in sub-Sahara Africa.

Furthermore, Adeyemi, Bello, and Agbaje (2016) used multi-stage sampling strategies to investigate contraceptive prevalence and its determinants among women of reproductive age in Ogbomoso, Oyo State, Nigeria. The data reveal that different contraceptive methods have varying benefits, and that contraceptive use is low among women. Similarly, according to Blackstone & Iwelunmor (2017)'s study on the determinants of contraceptive usage among Nigerian couples based on information from the 2013 Demographic and Health Survey, some women's contraceptive choice is influenced by their male partner (spouse). The findings suggest that women use contemporary or any kind of contraception or family planning at a relatively low rate.

Similarly, Onwujekwe, Ogbonna, and Ndyabangi (2012) examine the influence of increased access to contemporary contraceptives on the possible role of community solidarity through altruistic contributions in six Nigerian states spanning six geographical zones. Their findings suggest that charitable contributions boost community access to modern contraception, particularly for the poor. Asekun-Olarinmaye et al (2013), paper attested to the barriers to modern contraceptives use among women in the city of Oshogbo, Osun State, Nigeria using a multistage random sampling technique. They discovered that the fear that the use of contraceptives might have an adverse effect on them reduces the usage of contraception among women in the city. They also found out that, low access, superstition, ignorance and misinformation contribute to barriers to the usage of modern contraception.

III. Methodology

In this study, data were sourced from the distribution of 524 copies of questionnaires to women of reproductive age (15-49) in Southwest Nigeria using Yamane Todaro formula ($n = \frac{N}{1 + Ne^2}$) for determining the sample size. The total population of women in southwest Nigeria was estimated to be 13,641,275 in 2006.

Where: n=Corrected samples size

N=Population size

e= Margin of error (0.05).

Therefore: $n = 13641275 \sqrt{(1+13641275(0.05^2))}$

n = 400.

Econometric Methods

The study employed descriptive statistics and logistic regression on data from 524 women in Southwest Nigeria on the examination of how contraceptive use and its awareness affects issues of fertility in Southwest Nigeria. The model for the study is stated below:

$$TFR_t = a_0 + a_1AG + a_2AGB + a_3MCU + a_4HY + U.$$

TFR = Total fertility rate

AGM = Age at marriage

AGB = Age at first birth

MCU = Method of contraceptive used

HY = Household income

U = Error term

Logistic regression was employed in this study to analyze the effect of contraceptive use on fertility rate. The determinant variables are from raised questions: (are you aware of the method of contraceptive use (cuf1); sterilization method(cuf11); condom (cuf12); IUD, implant, and Pills use (cuf13); present method use (cuf2); which method (cuf21); were you told about side effects or problems you might have with the method (cuf3); does the form of contraception you are using have any negative effect on your health (cuf4); were you told what to do if you experienced side effects or problem (cuf5); do you think the use of contraception causes a delay in pregnancy (cuf6); do the use of contraceptive reduce your sex urge (cuf7); does your use of contraceptive allow you to space your children (cuf8); does it work for you to reduce the number of unwanted pregnancy (cuf9); and do you think that contraceptive use causes infertility among women who are using family planning (cuf10)) were generated from the survey and employed in the regression.

IV. Result and Discussion of Findings

Descriptive Statistics

Table 1: Descriptive Analysis of the Socio-demographic variables.

	Variables	Frequency	Percentage
Age	15-20	20	3.8
	21-30	243	46.3
	31-40	146	27.9
	41-50	90	17.2
	51-60	20	3.8
	61-75	5	1.0
Total		524	100
Marital Status	Married	377	71.9
	Single	100	19.1
	Married but living separately	25	4.8
	Widow	9	1.7
	Divorced	13	2.5
Total		524	100
No of children	1-2	254	48.5
	3-4	140	26.7
	More than 4 children	55	10.5
	No child	75	14.3
Total		524	100
Level of educational attainment	None	3	6
	Primary	15	2.9
	Secondary	69	13.2
	Higher	437	83.4
Total		524	100

Source: *Authors computation*

The distribution as presented in table 1 from the selected sample across the 18 local government area of the sample states shows that majority of the respondents are within the age group below 40 years, with about 78% are at their reproductive age and are currently using one method of contraception or the other to avoid pregnancy while respondents between the age of 51-60 and 61-75 have unmet need for contraception because majority of them are no more at their reproductive age. 71.9% as indicated in table 1 are married and less than

29% of the respondent are single, widow, divorced and some are married but are living separately, this indicate that majority of the respondents living with their husband have tendency of high fertility rate i.e. having unwanted pregnancies. The statistics shows that majority of the respondents have 1 – 2 children representing 48.5%, 3 – 4 children are 26.7%, more than 4 children are 10.5% and no child is 14.3%. The table shows that majority of the respondents are post-secondary graduates accounting for 83.4% of the total sample. Also, respondents who are holders of primary school certificate, secondary school certificate and no certificate are 2.9%, 13.2%, 0.6%, respectively. This indicate that most respondent with higher qualification have the knowledge of the use of contraception while those with secondary education have little knowledge of contraception use. Educations of women have a vital role to play in fertility reduction with the use on contraceptive.

Table 2: Distribution of Response on Contraceptive Use and Fertility rate

s/n	Variables					Yes	No	No Response		
1	Are you aware of any ways or methods (contraceptives) that a couple can use to delay or avoid a pregnancy?					476 (90.8%)	48 (9.2%)	-		
1i	Sterilization (Male/Female)					297 (56.7%)	87 (16.6%)	140 (26.7%)		
1ii	Condom (Male/Female)					394 (75.2%)	63 (12%)	67 (12.8%)		
1iii	IUD, Implants, Pills					362 (69.1%)	73 (13.9%)	89 (17%)		
2a	Are you/partner currently doing something or using any method or delay or avoid getting pregnant					345 (65.8%)	179 (34.2%)	-		
		IUD	Pill	Condom	Implant	Vasectomy	Pill and Condoms	Implants, Vasectomy	Condoms, Implants, Vasectomy	No response
2b	If yes	42 (8%)	111 (21.2%)	150 (28.6%)	41 (7.8%)	12 (2.3%)	9 (1.7%)	3 (0.6%)	2 (0.4%)	154 (29.4%)
	Variables					Yes	No	No response		
3	At that time, were you told about side effects or problems you might have with the method?					365 (69.7%)	159 (30.3%)	-		
4	Does the form of contraception you are using have any negative effective on your health?					179 (34.2%)	345 (65.8%)	-		
5	Were you told what to do if you experienced side effects or problem?					353 (67.4%)	171 (32.6%)	-		
6	Do you think the use of contraceptive causes delay in pregnancy?					339 (64.7%)	185 (35.3%)	-		
7	Do the use of contraceptive reduce your sex urge?					207 (39.5%)	317 (60.5%)	-		
8	Does your use of contraceptive allow you to space your children?					417 (79.6%)	107 (20.4%)	-		
9	Does is it work for you to reduce the number of unwanted pregnancy?					419 (80%)	105 (20%)	-		
10	Do you think that contraceptive use causes infertility among women who are using family planning?					234 (44.7%)	290 (55.3%)	-		

Source: Author's Computation

The distribution presented in table 2 shows that there is awareness of different methods of contraceptive use to delay or avoid pregnancy as majority of the respondents responded positively. That is, the responses to the level of awareness of contraceptives method shows that 90.8% of the respondents are aware of contraceptive use. Breaking it further shows that 56.7% are aware of sterilization while 16.6% are not and 26.7% did not respond. Also, 75.2% of the respondents are aware of the use of Condoms while 12% are not aware and 12.8% did not respond. The result also shows that 69.1% are aware of IUD, Implants and pills while 13.9% are not aware and 17% did not respond.

The table also shows contraceptive use distribution by the respondents. The results show that about 28% use condoms, 21.4% use pill, 8% use IUD, 7.8% use implants, 2.3% use vasectomy, 1.7% use pills and condoms, 0.6% use implant and vasectomy and 0.4% use condoms, implants and vasectomy. The table also shows that majority of the respondents agree that the use of contraceptive allows for space children, they also believe that the use of the method to reduce the number of unwanted pregnancy and contraceptive use among

women who are using family planning while majority of respondents affirmed that contraceptive have negative effect on health, they also responded that the use of contraceptive reduces sex urge. They further also opined that contraceptive use causes infertility among women who used it for family planning.

Table 3: Logistic regression Result of Contraceptive Use and Fertility Rate in Nigeria

Dependent Variable: Fertility Rate	3 – 4 children		More than 4 children		No Child	
Independent Variables: 1-2children (base variables)	Coefficient	Std Error	Coefficient	Std Error	Coefficient	Std Error
Contraceptive Use and Fertility (CUF) Rate1	-0.464	0.539	-1.169**	0.560	-1.398***	0.505
Sterilization method (CUF11)	0.328	0.234	-0.221	0.296	-0.707***	0.273
Condom (CUF12)	-0.109	0.264	0.272	0.353	-0.026	0.341
IUD, implant and Pills use(CUF13)	0.068	0.266	0.322	0.341	0.558	0.326
Alternative method use (CUF2)	-0.145	0.361	-0.097	0.429	-0.405	0.388
Delay cause by contraceptive use (CUF6)	-0.871***	0.264	-0.774**	0.373	-0.848**	0.348
Contraceptive use and sex urge (CUF7)	0.665***	0.248	0.706**	0.348	0.658**	0.322
Contraceptive use and children spacing (CUF8)	0.695	0.435	0.885	0.566	0.446	0.491
Nature of job and unwanted pregnancy (CUF9)	0.466	0.449	-0.693	0.522	-0.592	0.471
Contraceptive use and infertility CUF10	-0.132	0.243	0.183	0.341	0.321	0.316
Constant	-0.109	1.202	-0.650	1.435	1.003	1.208
Obs = 524 LR Chi2 (42) = 116.75 Prob > Chi2 = 0.0000 Log likelihood = -580.11	Pseudo R2 = 0.0914					

Source: Author's Computation

V. Discussion of Findings

Table 3 shows the logistic regression result of independent variables of types and perception of contraceptive use on fertility rate measured by number of children. The table shows the expected probability of having no child, three to four children and more than four children to having one to two children. From the table, the negative value of CUF1 indicates that there is probability of decrease in fertility rate that is, not having more children, if there is increase in the awareness of the method of avoiding pregnancy. This depicts that negative CUF1 coefficient shows that an increase in awareness of method of delaying pregnancy will reduce the probability of having 3-4 children by -0.46, significantly reduce the probability of having 1-2 children by -1.17 and significantly reduce the probability of having no child by -1.39.

For the sterilization method, an increase in the use of sterilization method will increase the probability of having 3-4 children by 0.33, reduce the probability of having 1-2 children by -0.22 and reduce the probability of having no child by -0.71. For the use of condom method, increase in the use of condom will reduce the probability of having 3-4 children by -0.11, increase the probability of having more than 4 children by 0.27 and reduce the probability of having no child by -0.03. For the use of IUD, Implant and Pill, an increase in the use of IUD, Implant and Pills will increase the probability of having 3-4 children by 0.07, increase the probability of having more than 4 children by 0.32 and increase the probability of having no child by 0.56.

For the use of alternative method, the use of this method will reduce the probability of giving birth to 3-4 children by -0.15, more than 4 children by -0.09 and with no child by -0.41. For those that are adopting the method, there is significant reduction in the probability of giving birth to 3-4 children by -0.23, compare to probability of giving birth to more than 4 children and no child with an increase by 0.09 and 0.05 respectively, than having 1-2 children.

For the knowledge of side effects of these methods, an increase in the knowledge of the alternative method's side effect may bring about significant increase in probability of giving birth to no child by 0.39, to more than 4 children by 0.11 and reduction in the probability of having 1-2 children by -0.01, than having 1-2 children. For the knowledge of negative effect of a method used, the result shows that there is a significant increase in the probability of having no child by 1.06 and increase in the probability of having more than 4 children and 3-4 children by 0.54 and 0.25, respectively, than having 1-2 children.

For the knowledge of contraceptive use and delay in pregnancy, the table further shows that the use of contraceptive brings about a significant decrease in the probability of giving birth to 3-4 children, more than 4 children and no child by -0.87, -0.77 and -0.85 respectively, than having 1-2 children. The use of contraceptive to reduce sex urge, shows that the use brings about an increase in the probability of having 3-4 children by 0.67, more than 4 children by 0.71 and no child by 0.66, than having 1-2 children.

VI. Conclusion

In conclusion, the research work shows that women of reproductive age who are using contraceptives were found to be associated with having more than 2 children while an increase in awareness of method of delaying pregnancy reduces the probability of having high number of children significantly. This indicates that within the reproductive ages most women using contraceptives have given birth to about 3-4 children before their choice of contraceptive use. By implication, it shows that the level of knowledge about the contraceptive use are high, but, the knowledge does not give appropriate use of the contraceptives to reduce fertility rate in southwest, Nigeria. Premising on our finding affirming the belief that contraceptive is use for spacing children, there should be adequate orientation on the use of contraceptives and when to be use to achieve optimum effectiveness. Also, awareness of the use of contraceptive and confirm that health practitioners should collaborate with the media houses to keep sharing information on the benefits of the use of contraceptives with the view to reduce the fertility rate among the women of child bearing age.

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