Original Research Article

Key predictors of modern contraceptive use among women in marital relationship in South-West region of Nigeria

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ABSTRACT

Background: Nigeria's population is the seventh largest in the world and is projected to be the fourth largest by 2050. The demographic scenario is akin by persistent high fertility and low contraceptive use. This paper examined factors influencing contraceptive use among women in marital relationship in south-west region which has the highest percentage of use compared to other regions.

Methods: A sub-sample of 3,784 women in marital relationship in the south-west region aged 15-49 was extracted from the 38,945 nationally representative samples of the 2013 Nigeria Demographic and Health Survey (NDHS). The dependent variable was contraceptive use, and key predictors include fertility behavior, employment, agents of modernity, and background factors. Logistics regression techniques were used in modeling the multivariate relationships.

Results: Results showed that contraceptive use varied significantly by state of residence. It increased (odds = 3.6, p-value=0.000) for respondents with higher education compared to the uneducated. Also it increased (odds = 2.84, P-value=0.000) for the richest sub-group compared to the poorest/poorer category. The odds of using contraceptive increased (odds=2.20, P-value=0.000) for respondents who preferred no other child compared to their counterparts who preferred to have additional; and it decreased (odds=0.37, P-value=0.000) for those who had two or fewer children compared to those who had three or more.

Conclusions: Policies and programme intervention should consider education, wealth status, and preference for additional child, and number of living children as key to increasing contraceptive uptake in the region.

Keywords: Agents of modernity, Contraceptive use, Fertility preference, Number of living children, Women in marital relationship

INTRODUCTION

Nigeria's population of 187 million is among the fastest growing with a potential to increase to 398 million making it the fourth largest in the world by year 2050.[1] The fast growth inertia of Nigeria's population is mainly due to a persistently high fertility rate which was 5.7 in 2003 and slightly dropped by 0.2% in 10 years to 5.5 in 2013.[2,3] Coupled with high fertility rate is the paradox of low modern contraceptive use, along with high level of knowledge about the device.[3-7] In 2003, only 8.2% of married women used modern contraceptives whereas 78.4% reported knowledge about it, and in 2013 only 10% used while 82.8% reported knowledge.[2,3] All regions and states of the country have similar statistics though at various degrees. This study examines factors influencing contraceptive use in south-west region of Nigeria which has lower total fertility rate (4.6) than the national

average and has the highest modern contraceptive use rate (24.9%) as well. The aim is to use the findings from this study to shed more insight on strategies to bring about decline in the region, and other regions of the country.

Evidence in the literature showed that contraceptive use is influenced by socioeconomic and demographic factors.[4,8-11] In this study, socioeconomic and demographic factors (classified as background factors) include age, residence (both state, and rural-urban), education, religion, wealth status, number of siblings, and birth order. Contraceptive use has a positive relationship with age i.e. older respondents are more likely to use than their younger counterparts.[12-15] Also, studies suggest that at younger ages 35 and below which is the beginning of reproductive life, age differentials in contraceptive use may not be that significant.[6]

Studies show that contraceptive use varies significantly by ethnicity, and by location which may be regional or rural-urban residence.[8,12,14,16,17] A key consistent determinant of contraceptive use in the literature is education.[4,8,16,18,19] Evidence show that women with higher level of education use contraceptive more than those with lower or uneducated.[12,14,17,19-25] The positive impact of education on contraceptive use is more when both husband and wife are educated.[15]

Religion significantly influences contraceptive use in diverse ways.[4,8,9,11,12,15,26] Religious influence on contraceptive use are often context and location specific like in Malawi where evidence showed that Catholic were more likely than Muslims or Pentecostals to use contraceptive, and in rural western Kenya, evidence showed that religion had no effect on contraceptive use.[19,27] Another socioeconomic factor with significant relationship with contraceptive use is wealth status.[4,25,28] The literature suggest that women with high socioeconomic status use contraceptives more than those with low wealth status.[11,12,17,23] Contraceptive use is influenced by work status that is women who worked used contraceptive more than their counterparts who did not work.[20,23,28] The effect of work on contraceptive use is more with paid employment, which empowers women to exercise their right to determine contraceptive use.[8]

The literature showed that key agents of modernity that may influence behaviour change include electricity television, mobile phone.[29-32] These agents of modernity were included in models designed to examine factors influencing contraceptive use in the region. The literature confirms strong positive relationship between contraceptive use and number of living children.[13,15,17,23,26] Women who have more living children are often more likely to have attained or close to attaining their reproductive goals, and thus use contraceptive more. Another key determinant of contraceptive use suggesting spacing or stopping fertility behavior is preference for another child.[16,33]

This paper examines the relationships between background factors of women and their husbands/partners, intermediate factors such as employment and fertility behaviour factors and contraceptive use with the aim of providing more insight on ways of reducing fertility levels further, and increase contraceptive use in the region, and other regions in the country.

METHODS

The paper analyzed the Nigeria Demographic and Health Survey (NDHS) nationally representative cross-sectional data, was conducted in 2013 in the entire 36 states, and the Federal Capital territory (FCT) of Nigeria. The NDHS was designed to provide population and health related information and serve as a platform for health systems development planning efforts in Nigeria. The 2013 NDHS used three-staged stratified cluster design with sampling and data collection conducted at three levels i.e. the State, Local Government Authority (LGA), and Community or Enumeration Area (EA). About 39,902 women aged 15-49 were eligible for the study and 38,945 (98%) successfully completed the survey questionnaire.

The fieldwork of this study was conducted from February to July 2013 and it represents 3784 women in marital relationship aged 15-49 located in south-west region of Nigeria. The NDHS was conducted at the same period simultaneously in the six geopolitical regions of the country and the Federal Capital Territory (FCT).

The total representative sample for the NDHS was 38,945 women aged 15-19. The 3784 women on marital relationship included in this study was a sub-sample extracted from the nationally representative sample. These are women aged 15-49 who were either married or living with a man at the time that the NDHS was conducted.

The ultimate dependent variable in this study is contraceptive use (using vs. not using), and the intermediate dependent variable is fertility behavior, measured by (1) number of living children, and (2) fertility preference (want another child or not). Number of living children is defined as children of women aged 15-49 alive during the survey, and fertility reference is measured by a question that asked whether respondent preferred to have another child.

The second intermediate dependent variable is employment measured as; work status (working vs. not working), type of work (either not working/others, technical/services, agricultural, or skilled/unskilled manual labour), and earnings from work (not working vs. cash/kind, or cash only). The agents of modernity included in this study are availability of electricity, radio, television (TV), cable TV, house telephone and mobile phone. The independent variables are background

characteristics of the women and selected background characteristics of their husband/partner. Background characteristics of the respondent include age, state of residence, urban-rural residence, education, religion, wealth index (status), number of respondents' siblings, and birth order of respondent, and husband's background factors are age, education, and type of work.

Statistical analysis

Analysis employed SPSS Version 20 and it involved univariate, and multivariate models. The Univariate analysis ran frequency distribution of all the variables used in the study thus suggesting skewness or normality. And the multivariate analysis presents two models using logistic regression techniques which provide information on direct and indirect relationships among the dependent and independent variables.

RESULTS

Background factors of respondents and their spouse

Table 1 below shows that the majority of the respondents were aged 30 and older (68%), lived in urban areas (71%), had secondary or higher education (64%), were Christians (67%), and of the richer/richest wealth category (78%).

Also, the Table shows that respondents were fairly distributed across the six south-west states with the largest in Lagos state (24.2%), followed by Oyo (17.8%), Osun (16.1%), Ondo (13.7%), Ekiti (13.7%), and Ogun (12.9%). Most respondent (Table 1) were working at the time of study (90%), with the majority in technical/services profession (71%) and were paid cash for work (83%).

Results in Table 2 above show that the majority of respondents (90%) were from families of at least three siblings and were not first-born (79%). Most husband/partners of respondents were aged 35 years or older (75%), had at least secondary education (70%), and were either agricultural or skilled/unskilled laborers (57%).

Descriptive statistics on agents of modernity, fertility, and contraception

Table 2 shows that most respondents had electricity (80.4%), radio (79.7%), TV (76.4%), and mobile phone (92.6%), and smaller proportion had cable TV (14.2%) and telephone (1.5%). Results in Table 2 below show that most respondents (79.4%) reported that they had three or more agents of modernity.

Table 2 shows that the majority of respondents reported listening to radio less than once a week (62%) and watched TV at least once a week (61%). The table also shows that less than half (41%) of respondents had at

most two living children, the majority (62%) reported preference for another child, and about a third (36%) used contraceptives.

Table 1: Background characteristics of women in marital union aged 15-49 and that of their husbands in South-West region of Nigeria.

Variables		Total, (N)=3784	%
Respondents' background			
Age group of respondents	24 or less	434	11.5
	25-29	784	20.7
	30-34	803	21.2
	35-39	743	19.6
	40+	1020	27.0
State of residence	Oyo	674	17.8
	Ogun	490	12.9
	Lagos	917	24.2
	Osun	611	16.1
	Ekiti	518	13.7
	Ondo	574	15.2
Place of residence	Rural	1082	28.6
	Urban	2702	71.4
Level of education	No education	440	11.6
	Primary	918	24.3
	Secondary	1751	46.3
	Higher	675	17.8
Religion	Islam/traditional	1267	33.5
	Christianity	2510	66.5
Wealth index (status)	Poorest/poorer	347	9.2
	Middle	480	12.7
	Richer	1145	30.3
	Richest	1812	47.9
No. of respondent's siblings	2 or less	395	10.4
	3-5	1873	49.5
	6 or more	1513	40.0
Birth order of respondent	First child	778	21.0
	Second or third child	1434	38.7
	Forth child or higher	1490	40.2
Work status	Not working	377	10.0
	Working	3398	90.0
Type of work	Not working/others	363	9.6
	Technical/services	2687	71.1
	Agricultural	335	8.9
	Skilled/unskilled manual	394	10.4
Earnings from work	Not working	364	9.6
	Cash or kind	285	7.5
	Cash only	3135	82.8
Husband's background Husband's age in group	34 or younger	959	25.3
	35-49	1966	52.0
	50 or older	859	22.7
Husband's education	No education	386	10.2
	Primary	765	20.2
	Secondary	1729	45.8
	Higher	899	23.8
Husband's type of work	Not working/others	62	0.6
	Technical/services	1570	41.6
	Agricultural	806	21.4
	Skilled/unskilled man	1333	35.3

Table 2: Frequency distribution of agents of modernity, frequency of exposure, fertility behavior and contraceptive use in South-West region of Nigeria.

Variables	Total (N) = 3784	(in %)
Agents of modernity		
Household has electricity		
No	742	19.6
Yes	3038	80.4
Household has Radio		
No	768	20.3
Yes	3015	79.7
Household has TV		
No	894	23.6
Yes	2888	76.4
Household has cable TV		
No	3238	85.8
Yes	538	14.2
Household has telephone		
No	3711	98.5
Yes	57	1.5
Has mobile phone		
No	279	7.4
Yes	3466	92.6
Cumulative index of modernity		
None	138	3.6
One item	226	6.0
Two items	417	11.0
Three or more items	3003	79.4
Frequency of exposure to agents of modernity		
Frequency listened to radio		
Not at all	522	13.8
Less than once a week	918	24.3
At least once a week	2341	61.9
Frequency watched TV		
Not at all	604	16.0
Less than once a week	869	23.0
At least once a week	2309	61.1
Fertility behaviour		
No of living children		
Three or more	2253	59.5
Two or less	1531	40.5
Preference for another child		
Favorable to another child	2345	62.1
Not favorable to another child	1429	37.9
Contraceptive use		
Not using	2417	63.9
Using	1367	36.1

Multivariate results

Reduced model I and full II

The benchmark for interpreting logistic regression results is 1, and values more than 1 are interpreted as increased odds while values less than 1 are interpreted as decreased odds. In Table 2, Model I examined the medicating effects of fertility behaviour factors, and Model II is the full model including all predictors in the equation. Clearly the best fitted of the two models is Model II with the lowest -2 log likelihood of 4122.27 and explained

variance (Nagelkerke R2) of 20% compared to Model I with -2 log likelihoods of 4137.36 and explained variance of 19%. The strong mediating effects of fertility behavior were evident in both models which produced similar results in terms of significant predictors and direction of effects, thus, this paper explains only Model II results.

Table 3: The odds that women in marital relationship in south-west region of Nigeria used contraceptives according to respondents' background factors, agents of modernity, employment, and fertility behaviour factors.

Variables	Reduced Model I	Full Model II
Respondents' background **Age (in single years)**	0.93	0.93
State of Residence Oyo (ref.)		
Ogun	0.49***	0.48***
Lagos	1.12	1.12
Osun	0.69**	0.69**
Ekiti	0.61***	0.61***
Ondo	0.70*	0.69*
Residence		
Rural (ref.)		
Urban	1.13	1.13
Education		
No education (ref.)		
Primary	2.55***	2.60***
Secondary		2.66***
Higher	2.59***	3.63***
Religion		
Islam/traditional (ref.)	3.53***	1.01
Christianity wealth index		
Poorest/poorer (ref.)		
Middle	1.02	2.00**
Richer	2.02**	2.09*
Richest	2.10*	2.84***
No of siblings of respondent		
2 or less (ref.)	2.86***	
3-5	1.10	1.11
6 or more	1.11	1.12
Birth order of respondent		
1st child (ref.)		
2nd or 3rd child	1.15	1.14
4th child or higher	1.06	1.05
Variables	**Model I**	**Model II**
Husband's background		
Husband's Age (in single years) Husband's Education No education (ref.)	0.98***	0.98***
Primary	0.79	0.79
Secondary	0.74	0.74
Higher	0.81	0.81
Husband's type of work not working/others (ref.)		
Technical/services	1.64	1.67
Agricultural	1.66	1.68
Skilled/unskilled manual	1.78	1.84
Agents of modernity household has electricity **No (ref.)**		
Yes	1.16	1.16
Household has Radio No (ref.)		

Variables	Reduced Model I	Full Model II
Yes	0.99	0.99
Household has TV No (ref.)		
Yes	1.24	1.24
Household has cable TV		
No (ref.)		
Yes	1.09	1.10
Has telephone phone No (ref)		
Yes	1.40	1.43
Has mobile phone No (ref)		
Yes	0.95	0.94
Cumulative index of modernity none (ref.)		
One item	1.86	1.87
Two item	1.92	1.93
Three or more	1.27	1.29
Frequency of exposure to agents of modernity		
Frequency listened to radio not at all (ref.)		
Less than once a week	1.13	1.11
At least once a week	1.24	1.23
Employment factors work status not working (ref.)		
Working	-	1.15
Technical/services	-	2.09
Agricultural	-	2.05
Skilled/unskilled manual	-	1.87
Earnings from work not working (ref.)		
Cash or kind	-	0.51
Cash only	-	0.42
Number of living children three or more (ref.)		
Not favorable to another child	2.19***	2.20***
At most two	0.36***	0.37***

Ref. = reference category, Significance level: * = 0.05, ** = 0.01, and *** = 0.001 levels of significance. Model I: Contraceptive status by background factors, agents of modernity, fertility behavior factors: Total N = 3784, -2 Log Likelihood = 4137.36, Nagelkerke R^2 = 0.19, (explained variance = 19%). Model II: Contraceptive status by background factors, agents of modernity, employment, and fertility behavior factors: Total N = 3784, -2 Log likelihood = 4122.27, Nagelkerke R^2 = .20 (explained variance = 20%).

Factors influencing contraceptive use among women in marital relationship

Table 3 shows the relationships between contraceptive use and background factors of women in marital relationships and that of their husbands, agents of modernity, employment, and fertility behaviour factors.

Findings in Table 3, Model II show that respondent's state of residence, education, wealth status, husband/partner's age, fertility preference and number of living children had consistent significant effects on contraceptive use. The odds of contraceptive use decreased to 0.48 times (P-value = .000) for respondents in Ogun state compared to their counterparts in Oyo state, and for respondents in Osun, Ekiti, and Ondo states, the odds decreased to 0.69 (P-value = 0.008), 0.61 (P-value = 0.001), and 0.69 (p-value = 0.014) times respectively compared to the reference category. As presented in Table 3, the odds of contraceptive use increased by 2.60 times (P-value = .000) for primary level educated

respondents compared to their uneducated counterparts, and for those with secondary, and higher levels, the odds increased to 2.66 (P-value = 0.000), and 3.63 (P-value = 0.000) times respectively compared to their uneducated counterparts. Likewise, the odds of contraceptive use increased significantly by wealth status from 2.00 times (P-value = 0.006) for those in the middle level wealth status, to 2.09 times (P-value = 0.014) for those in the richer, and 2.84 times (P-value = 0.001) for those in the richest category compared to their counterparts in the poorest/poorer referenced category. The results show that the odds of contraceptive use for respondents decreased to 0.98 times (P-value = 0.000) with additional unit increase in husband's age.

Results in Table 3 shows that the effects of fertility behaviour factors on contraceptive use were strong and consistent in both Models I and II (Table 2). In Model II, the odds of contraceptive use increased significantly by 2.20 times (P-value = 0.000) for respondents who had no preference for another child compared to those who had

preference. As expected in a high fertility regime, the odds of contraceptive use decreased significantly to 0.37 times (p-value = 0.000) for respondents who had at most two children compared to those who had three or more (Table 2).

DISCUSSION

In a region that is currently experiencing signs of fertility decline partly due to increased contraceptive use (NDHS, 2013), it is important to examine enabling factors that will ensure sustained continuous increase in the future. This may serve as a reference point for neighboring regions in the country. The study included 3784 women in marital relationship in the south-west region of Nigeria extracted from the NDHS of 2013.

Findings of this study showed specific significant variations in contraceptive use in the region. The odds of contraceptive use were higher among Oyo state respondents compared to their counterparts in Ogun, Osun, Ekiti, and Ondo states. Factors influencing state specific variations in contraceptive use need to be teased out and tackled to increase use in all the states of the region. Similar to results of other studies in the region, religion has no significant effects on contraceptive use.[22] Likewise; employment factors do not have significant effects on contraceptive use. Reasons may be partly due to weak instruments used to capture employment in the NDHS. Questions on employment status i.e. working or not working, or on type of work i.e. professional/service, skilled/unskilled manual work do not have opportunity cost imbued in them to reflect decisions or actions in favor of contraceptive use. In order for employment variables to significantly impact fertility behaviors and contraceptive use, monetary value and/or status symbol such as cadre or position e.g. managerial, middle level, or years of work experience etc., must be implicit in any effective measure of the employment variable.[34]

This study corroborates evidence in the literature on the positive effects of mother's education on contraceptive use.[12,14,16,17,20-25] Results of this study showed that the odds of contraceptive use almost tripled for respondents with primary and secondary level education, and were about four times for those with higher education compared to the uneducated. Policies that strengthens girls' education will eventually yield the desired results of replacement level fertility in the region in the long-run. Over 10 years evidence from the NDHS suggest that women with the highest level of education used contraceptive more than those with lower or no education.[2,3] In addition, the odds of contraceptive use favor those in the middle and high socioeconomic status.[11,12,17,23] It looks like the wealthy class contrary to pro-natalist behavior of the past have over the years, become more embracing of family planning programs.

Interestingly, while the effects of respondents' age on contraceptive use were not significant, that of husband/partners' age was negatively significant. The result is not unexpected in a society underpinned by male hegemony and the influence of husband/partners in decision-making on crucial household issues like contraceptive use.[6,10] As the study results suggest, male influence is probably more among the older generation of husband/partners than the younger generation and thus, age differentials in policies and programs geared towards increase contraceptive use should be pursued vigorously in the region.

Findings of this study established the positive relationships between contraceptive use and fertility behavior. Respondents who reported non-preference for another child used contraceptives more, perhaps for spacing of births rather than for limiting since the odds for using were far reduced for respondents who had two or fewer children.[6,16,35] These results of fertility behavior may suggest potential or latent unmet need for spacing of births that could transition to increased contraceptive use, and perhaps liming behavior in the future especially with concerted program effort in the region.

The only possible effects of agents of modernity observed in the analysis reflected in the best-fitted models with more explained variance. Since electricity, radio, TV and telephones among others are agents of massive transformation they might hold the key to ideational change in thinking and behavior towards massive increase in contraceptive use if well appropriated as vehicle of change by family planning policies stakeholders and program implementers.[29-32]

CONCLUSION

This study was conducted to shed more light on the key predictors of contraceptive use in the south-west region of Nigeria with a view to increasing use among women in marital relationships and thus, reduce high fertility in the region. Evidence of this study showed that effective and successful policies and programming strategies on family planning would need to take into consideration differences among states, level of education, wealth status, husband's age, number of living children, and women's fertility preference, and number of living children for it to have positive impact on contraceptive use and reduce fertility in the region. The study suggests possible increase contraceptive use in the region if these factors are applied in designing family planning programs taking into consideration agents of change that may be instrumental in driving contraceptive uptake to a conclusive end.

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