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Differentials in girl-child marriage and high fertility in Nigeria

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Abstract

In a patriarchal and natural fertility society like Nigeria, girl-child marriage is synonymous with early sexual debut and a prolonged childbearing period, ultimately affecting fertility outcomes and behaviours. This study explored the differentials in child marriage in Nigeria across socio-economic and regional groups, and its association with fertility. The study analysed secondary data pertaining to women aged 15-49 who were currently or previously married from the 2018 Nigeria Demographic and Health Survey. About 54 percent of Nigerian women married before their eighteenth birthday. The prevalence of child marriage was high in the rural areas (61 percent), in the North West (78 percent) and the North East (70 percent) of Nigeria. Child-brides have higher fertility than women who entered marital life as adults (TFR 6.8 vs 5.9). The early entry into marriage by most women in Nigeria has a profound influence on overall fertility, given that an overwhelming majority of births in Nigeria take place within marriage. Through advocacy and social mobilization, families, communities, and religious leaders will understand the hazards of child marriage and their role and responsibility in eradicating it and empowering the girl-child through formal education. (*Afr J Reprod Health* 2022; 26[9]: 103-117).

Keywords: Girl-child, child-bride, marriage, fertility, Nigeria

Résumé

Dans une société patriarcale et de fertilité naturelle comme le Nigeria, le mariage des filles est synonyme de débuts sexuels précoces et d'une période de procréation prolongée, affectant en fin de compte les résultats et les comportements en matière de fécondité. Cette étude a exploré les différences dans le mariage des enfants au Nigeria entre les groupes socio-économiques et régionaux, et son association avec la fécondité. L'étude a analysé les données secondaires relatives aux femmes âgées de 15 à 49 ans qui étaient actuellement ou ont été mariées à partir de l'enquête démographique et sanitaire de 2018 au Nigeria. Environ 54 % des femmes nigérianes se sont mariées avant leur dix-huitième anniversaire. La prévalence du mariage des enfants était élevée dans les zones rurales (61 %), dans le nord-ouest (78 %) et le nord-est (70 %) du Nigeria. Les enfants-épouses ont une fécondité plus élevée que les femmes entrées dans la vie conjugale à l'âge adulte (ISF 6,8 vs 5,9). L'entrée précoce dans le mariage de la plupart des femmes au Nigeria a une profonde influence sur la fécondité globale, étant donné qu'une écrasante majorité des naissances au Nigeria ont lieu dans le cadre du mariage. Grâce au plaidoyer et à la mobilisation sociale, les familles, les communautés et les chefs religieux comprendront les dangers du mariage des enfants ainsi que leur rôle et leur responsabilité dans son éradication et l'autonomisation des filles grâce à l'éducation formelle. (*Afr J Reprod Health* 2022; 26[9]: 103-117).

Mots-clés: Fille-enfant, enfant-épouse, mariage, fécondité, Nigeria

Introduction

Child marriage is any formal or informal union between a girl-child below 18 years and an adult male or another male child¹. It constitutes a fundamental violation of the human rights of women with adverse consequences such as social isolation, early pregnancy, higher risk of unplanned pregnancies, pregnancy termination, and short inter-pregnancy intervals¹⁻⁸. Many studies confirmed that there is a relationship between girl-

child marriage and fertility outcomes and behaviours, given that more extended periods in the childbearing years typically result in higher lifetime fertility^{6,8-11}. For example, in a study exploring the association between child marriage and fertility outcomes in 34 sub-Saharan Africa countries, women who entered the union as a child were eight times as likely to have more than three children (lifetime fertility) relative to those who married at 18 years or above⁸. Globally, one out of every five girls marries before 18 years; one out of twenty girls

marries before 15 years, and more than 120 million girls are at the risk of being married as child brides by 2030¹². The prevalence of child marriage is exceptionally high in South Asia and Sub-Saharan Africa, where about 45% and 39% of girls are married before 18 years, respectively¹². Although there is some progress in the efforts to eradicate the practice globally by 2030 through legislations toward meeting the Sustainable Development Goals, most of the rapid reductions in the prevalence of child marriage are from countries in South Asia. Sub-Saharan African (SSA) countries are experiencing relatively slower progress than South Asia¹². Specifically, Nigeria as the most populous country in SSA has the highest estimate of 22 million child marriage and 40 % of the region estimate¹³. There are also regional differences estimated in another study: north-west at 76% while south east at 10%¹⁴. While the National Strategic Plan to End Child Marriage in Nigeria (2016-2021) identified multi and collaborative activities that can end child marriage by 2030, it remains intractable in different parts of the country¹⁵.

In a patriarchal society and Nigeria's natural fertility situation, girl-child marriage is synonymous with early initiation of childbearing, which ultimately affects fertility outcomes and behaviours. Depending on puberty, it ensures that a girl starts sexual relations early, thereby exposing her to a long childbearing period, leading to high fertility. The practise of child marriage is deeply rooted in culture and religion that tends to blind society to its adverse effects. For example, female children are usually betrothed to adult males among the Hausa-Fulani ethnic group¹⁵. Such arranged marriages could take place before a girl turns ten years; she may be betrothed either to an older man or young male-child slightly older. This phenomenon, deeply entrenched through religious beliefs, ethnic values, poverty and lack of education, is a challenge for Nigeria which has achieved only a decline of 1% in over three decades¹⁶⁻²⁰. Also, child-brides are more likely to experience early and frequent pregnancies²¹ because of intense social pressure to prove their fertility. This study, therefore, examined the prevalence of child marriage in Nigeria, the socio-economic and regional differentials and its association with fertility, using recently available national data.

Method

The study data

The data used for the analysis were derived from the 2018 Nigeria Demographic and Health Surveys (NDHS), implemented by the National Population Commission with technical assistance from the ICF International, USA. The nationally representative 2018 NDHS was a two-stage stratified sample of households in the country. Details of the methodology for the 2018 NDHS were provided in the technical report²². All women of reproductive age (15-49) in the selected households were interviewed, with an overall response rate of 99%. Additionally, the 2017/18 Multiple Indicator Cluster Surveys (MICS), supported by the United Nations Children's Fund (UNICEF), was used to generate the indicator of early marriage state-wide, or the child-bride index, which reflects the extent to which a state conforms to the child-child phenomenon.

Variables

The outcome of interest is fertility, measured as births in the last three years for bivariate analysis and children ever born for multivariate analysis. These are measures of woman's lifetime fertility experience. The key independent variable is the age at marriage, which is defined as the respondent's age at first cohabitation or birth, subdivided into two: women who entered into the marital union at below the 18th birthday (the child-bride group), and those who married at 18 years or above (adult-bride group). The relationship of this with childbearing is the subject matter of this study.

Social and demographic characteristics of women identified in previous similar studies were included in the analysis. The variables are age, education, marital status, exposure to family planning message, household socio-economic status or wealth index, religious affiliation. Women's status was measured by their participation in household decision-making, women's sexual autonomy and working status. The community-related factors in this study are State child-bride index, place of residence, the region of residence. State child-bride index was extracted from the Nigeria's Multiple Indicator Cluster

Survey 2017/2018 based on the percentage of girls in the state that married before age 18. It was categorized into four: less than 20.1%; 20.1%-50.0%; 50.01-65%, and 65.01% and above.

Women's educational status has values of "no education," "primary education," "secondary," and "post-secondary education." Respondents' religious affiliation was grouped into Muslim, Catholic, and other Christians. Those in traditional religion and people with no religions were combined because of their small cell size. Women's employment status was grouped into "currently working", and "not working".

A composite score of media exposure was created from women's responses to the questions on the use of mass media: (i) read newspapers more than once in a week (ii) listened to radio more than once in a week. (iii) watched television more than once in a week. Responses in the affirmative were scored as 1 while otherwise as 0. The scores on media exposure for all the women were aggregated, with a range from 0 and 3. Thereafter, a binary variable was created for media exposure, coded as "0" if the woman scored 0, and "1" if the woman scored 1 or higher.

Women's autonomy represents their involvement in household-level decision-making process such as decisions about own health care, household purchase, visit to family members or relatives. Women who made decisions on these four either alone or jointly with their spouses were considered to have full autonomy, and those who were not involved in any decision-making were coded as having no autonomy²³⁻²⁴. In addition, data on the ability of a woman to refuse sex or ask for condom use from her husband or partner was included because of likely effect on childbearing. Sexual autonomy was coded as "can refuse sex or ask for condom"; "can refuse sex and ask for condom", or none, if the woman does not have the ability to negotiate for both with her husband or sexual partner."

Household wealth was classified as the poorest (1), poorer (2), middle (3), richer (4) and the richest (5). The type of marital union grouped as monogamous and polygynous was included in the analysis. Women in polygynous relationships are more likely to have higher fertility because of potential competition among co-wives in such relationships²⁵. Another fertility-related variable

included in the analysis was the contraceptive use status of women, coded as "currently using modern family planning methods"; "not using any methods", or "using traditional methods."

Three community-level attributes were included namely, the index of prevalence of child marriage in the state, residence and geopolitical region. Residence was categorized into urban and rural. There are six geopolitical regions: north-central, north-east, north-west, south-east, south-south and south-west. The inclusion of these socio-cultural, residential and spatial variables was to moderate their possible influence in the relationship between child marriage and fertility.

Statistical analysis

The STATA module developed by Schoumaker²⁶ for computing fertility rates and total fertility from birth histories was used to construct the age specific fertility rates and total fertility rates for two sub-groups of women, namely, those married before their 18th birthday (child-brides) and those who entered into marriage at 18 years or older.

The relationships between children ever born and age at first marriage were estimated using descriptive statistics and multivariate Tobit regression models. The coefficient and 95% confidence interval were derived using Tobit regression models on the dependent variable (CEB). Three models were fitted to examine the predicted number of children ever born for the two groups of women: those who married as child-brides, at age less than 18 years, and those who married as adult, at age 18 years and above. Model 1 included variables that pertain to women's individual attributes and household factors. In Model 2, variables that relate to fertility behavior and women empowerment were added. Finally, Model 3 included spatial and community factors. The results of the analysis were reported in the form of coefficients, with negative coefficients indicating that the woman have lower CEB and positive coefficient indicating a higher level CEB than the reference category.

The computation of the standard errors of the estimates through the use of "svy" procedures in STATA 16 was done to account for the complex sample design of the 2018 Nigeria Demographic and Health Survey. The additional parameters in

models 1 to 3 were explored, using intraclass correlation (ICC), Akaike's information criterion (AIC) and the Bayesian information criterion (BIC), to estimate the significant contribution to the fit of the zero model.

Results

Respondents' profile

Table 1 presents the background characteristics of the respondents. The analysis was restricted to 31,152 women of reproductive age who are currently or previously married with reported age of cohabitation. Nearly two-fifth (37.9%) of the women were aged 25 – 34 years, with a mean age of 32.3 years. About three in every ten (27%) women resided in the North-west zone, six in every ten lived in rural areas, and four in every ten had no formal education. For those with some formal education, the average number of years of schooling was 9.9 years.

Three-fifths (60.2%) of the women had participated in critical household decision making. This is a relatively high level of female autonomy given the prevailing patriarchal tradition in the country. In addition, there was a high level of sexual autonomy among married Nigerian women, with about three-fifths (61.6%) reporting that they could either refuse sex or ask their husband to use a condom or both. Seven in ten (70.9%) of the women were currently working, and about two-thirds (63.9%) are from households that falls into the three lowest wealth quintiles. The state child-bride index, a measure of the extent to which the phenomenon of child-bride prevails in the states, showed that more than 70% of the women resided in states where the child-bride index, or early marriage index, was above 20%. This implies a high prevalence of early marriage in Nigeria. About 44% of the women lived in states where more than 50% of marriages occurred during childhood. Only about 12% of the women were currently using modern family planning methods as at the time of the survey.

Prevalence and differentials in child marriage

We estimated cohort-specific prevalence of girl-child marriage in Table 2 to show the trend in child

marriage over time in Nigeria. Overall, the prevalence of child marriage among the study population was 54.4 percent. This implies that about one out of two girls married as a child-bride. However, the age-specific prevalence rates show that the incidence of child marriage ranged from more than 93 percent for women age 15-19 to 44 percent for those aged 35-39. Thus, the current age of women has a somewhat inverse pattern with child marriage prevalence rates. In other words, the prevalence of child-marriage tends to be higher among younger women relative to their older counterparts, an indication, perhaps, that older women tend to rationalize their age at marriage.

Table 3 presents the prevalence and differentials in child marriage among all women according to different demographics and social groups. The practise of child marriage was high among women in rural areas (61%), women in the North West (78%) and in the North East (70%) regions of Nigeria. Among the states, the prevalence of child marriage was highest in Bauchi, Jigawa, Katsina Gombe, Yobe, Kano, Kebbi, Sokoto and Zamfara, with at least seven in ten women married before the age of 18 (Figure 1). By contrast, some states in southern Nigeria had child marriage prevalence of two in ten women. It is noteworthy from Figure 1 that the thirteen Northern states had a prevalence rate of about 60 per cent and above, with Katsina, Jigawa and Bauchi above 80%.

There were socio-economic differentials in child marriage prevalence in Nigeria. For example, whereas a very high proportion of women with no formal education (75.3%) experienced child marriage, only about 10% of those with post-secondary education had a similar experience. In addition, Child marriage was more dominant among women of the Islamic faith relative to Christians; 69.3% of the former married as child-brides compared with 29.3% of the latter. Prevalence of child marriage also varied by household economic status measured by household wealth index; 75.7 of those from the poorest households were married before age 18 relative to about 19 percent of those from the wealthiest households.

Table 1: Background characteristics of married women of reproductive age in Nigeria, N = 31,152

Characteristics	Number	Percent
Women's Age:		
15- 24 years	6,381	20.5
25 – 34 years	11,804	37.9
35 years and above	12,967	41.6
Mean age:	32.3	
Type of marital union;		
Monogamous	20,105	64.5
Polygamous	8,783	28.7
Previously married or separated	2,264	7.3
Women's education:		
None	13,328	42.8
Primary	5,448	17.5
Secondary	9,584	30.7
Post-secondary	2,792	9.0
Mean number of years in school among those who reported attended school (years)	9.9	
Religious affiliation:		
Catholic	2,979	9.6
Other Christians	10,771	34.6
Muslims	17,144	55.0
Traditionalist/No religion	258	0.8
Region of residence:		
North-Central	5,696	18.3
North-East	6,019	19.3
North-West	8,433	27.0
South-East	3,662	11.8
South-South	3,364	10.8
South-West	3,978	12.8
Place of residence:		
Rural	19,648	63.1
Urban	11,504	36.9
Working status and type of earning		
Not working	9,052	29.1
currently working	22,100	70.9
Women's autonomy in household decision-making:		
Participated in decision-making	18,745	60.2
Not Involved in decision-making	12,407	39.8
Women's sexual right autonomy:		
None	11,000	38.4
can refuse sex and/or ask for condom use	17,788	61.6
Household wealth quintile:		
First	6,687	21.4
Second	6,724	21.5
Third	6,476	21.0
Fourth	6,093	19.5
Fifth	5,172	16.6
Mass media exposure to family planning message:		
No exposure to family planning message	20,803	66.8
Exposed to family planning message through mass media	10,349	33.2
State child-bride index:		
Less than 20.1%	8,772	28.2
20.1 to 50.0%	8,607	27.6
50.01 to 65%	6,630	21.3
65.01% and above	7,143	22.9
Modern family planning use:		
Current users	3,582	11.5
Not using or using traditional methods	27,570	88.5

Table 2: Cohort specific estimates of prevalence of girl-child marriage in Nigeria

Current Age group	Prevalence of girl-child marriage
15-19	93.4
20-24	66.7
25-29	51.8
30-34	49.6
35-39	44.0
40-44	49.1
45-49	50.6
ALL	54.4

Fertility pattern among child-brides in Nigeria

Age-specific fertility rates (ASFR) were estimated to show the age pattern of fertility by women's age at first union using information from their reproductive history within thirty-six months preceding the survey in Table 4 and Figure 2. The fertility of women was highest at age 20-24 with child-brides having higher fertility, 320 children per 1000 women, than those married as adults, 298 children per 1,000 women. Also, there are higher rates in the first three age groups for women who married as child-brides than those who married at 18 years or older. The total fertility rate among child-brides was 6.83, while 5.93 for those who married as adults. This is a difference of 0.9 births lower than child-bride group. In addition, there is a lower mean age at childbearing among child-brides (16.77 years) than adult-brides (23.28 years), a difference of 6.5 years in the average age at childbearing between the two groups.

Figure 2 shows that the significant difference between the two curves is their heights at the beginning, the 15-19 age group. The age-specific fertility rate for child-brides at 15-19 was 281 per 1000 compared with 106 per 1000 for those married at 18 years or older, more than two and half times higher. The results indicate that Nigeria is characterized by high adolescent birth rates that are in tandem with cultural norms that expect those who enter into marriage to start bearing children immediately. Therefore, policy-makers and implementers of sexual and reproductive health programs in Nigeria should seriously address the practice of child marriage to reduce adolescent birth rates. Also, the prevailing high adolescent birth rate presents a bleak future for Nigeria in meeting the SDG 3 by 2030. Adolescent fertility is a key

indicator for measuring progress in SDG 3 which aims to ensure healthy lives and promote well-being at all ages. It is not only that those who marry earlier have higher fertility rate than their late-marrying counterparts, but there is also a higher probability of repeated pregnancies or births, which may contribute to increased morbidity and mortality for child-brides.

Child marriage as a predictor of fertility in Nigeria

To demonstrate fertility predictors in Nigeria, the multivariate Tobit regression models were fitted among currently married women (Table 5). The regression analysis consists of three models on the predicted number of children born for two groups of women based on whether they married as child-brides or as adults. Duration of marriage was excluded from the analysis because it was highly correlated with age at marriage. The coefficients predicted the value of CEB compared to the reference category, a positive value implying a higher number of children ever born relative to the reference category, while the negative value means otherwise.

In model 1, education, age, religious affiliation, household wealth and working status were significant fertility predictors for child and adult marriages. Women who had post-secondary education had significantly fewer children than those who had no formal education for both the child- and adult-marriage groups. However, the differences were more pronounced among the adult-marriage group. For example, the coefficient estimates for women with tertiary education in the two groups showed a significantly lower number of children relative to those who had no education, about twice lower among women who married as adult marriage (-1.37) than those who married as a child (-0.67).

There is a positive relationship between women's age and the number of children. The relationship between age and the number of children ever born was similar between the two groups of women. However, older women had a higher number of children than younger women. Older women who married before their 18th birthday had about 48 percent chance of having more children (5.87) than older women married at

Table 3: Prevalence of Child marriage by background characteristics, N=31,152

Background factor	Frequency	Percent married before 18 years	Mean age at marriage/cohabitation before 18years
Age at first cohabitation:			
Married before 18 years	16,050	51.5	14.7
Place of residence:			
Rural	19,648	60.9	14.7
Urban	11,504	35.4	14.8
Region of residence:			
North Central	5,696	45.4	14.9
North-east	6,019	70.1	14.8
North-west	8,433	77.7	14.5
South-east	3,662	22.1	15.0
South-south	3,364	30.5	14.8
South-west	3,978	21.6	15.1
Educational attainment:			
None	13,328	75.3	14.6
Primary	5,448	53.8	14.8
Secondary	9,584	29.2	15.2
Post-secondary	2,792	10.5	15.1
Religious affiliation:			
Catholic	2,979	29.1	14.9
Other Christians	10,771	29.6	15.0
Muslims	17,144	69.3	14.7
Traditional or no religion	258	46.9	14.6
Household Wealth-index:			
Poorest	6,687	75.5	14.6
Poorer	6,724	66.7	14.7
Middle	6,476	50.5	14.8
Richer	6,093	37.3	14.9
Richest	5,172	18.9	15.1
All women	31,152	51.5	

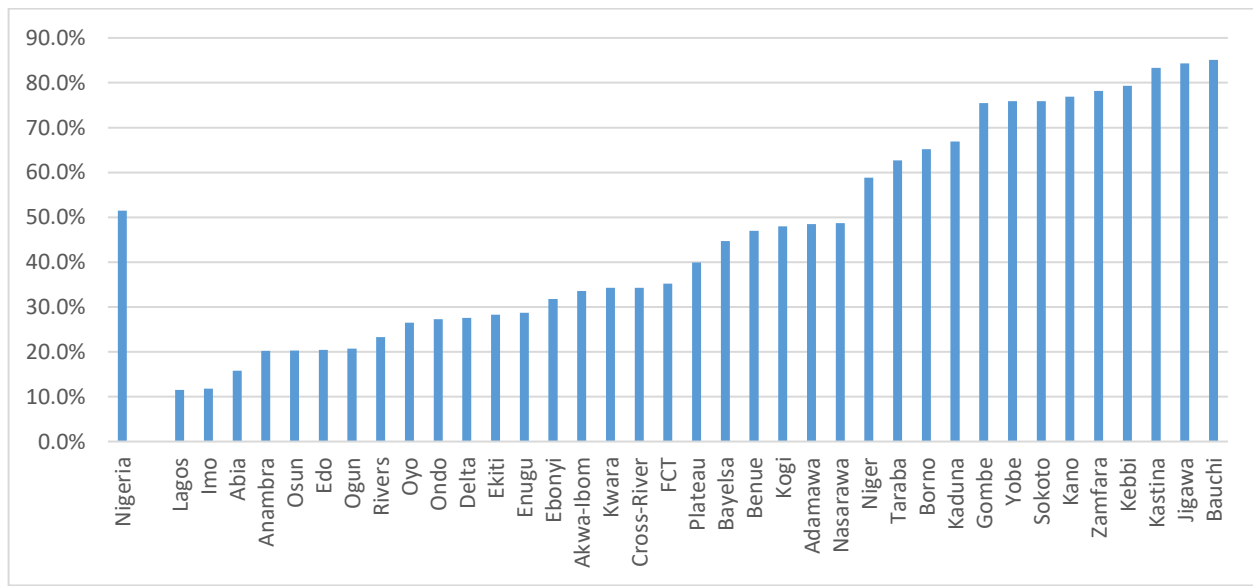


Figure 1: Prevalence of child marriage by States in Nigeria

Table 4: Age-specific fertility rates for the three calendar years preceding the survey among child-brides and adult-brides, Nigeria 2018 DHS

Age group	Women married at 17 years or younger	Women married at 18 years or older
15-19	.281	.106
20-24	.320	.298
25-29	.288	.281
30-34	.226	.239
35-39	.157	.162
40-44	.072	.066
45-49	.021	.003
Total Fertility Rate	6.83	5.92
Mean Age at Childbearing	16.77	23.28

18 years or above (3.96). Religious affiliation indicates that belonging to the Islam religion is a strong predictor of fertility in Nigeria. Irrespective of the age at marriage, Muslim women had a higher number of children than Catholics and other Christians.

The number of children ever born decreases with higher household economic status. Households in the upper wealth indexes (fourth and fifth) had significantly fewer children than other household wealth groups among the child marriage group. The inverse relationship between the number of children ever born and household wealth is significant for the most affluent adult marriage group. Also, work status is a strong predictor of fertility in Nigeria across all ages at marriage groups; rather unexpectedly, women who currently worked at the time of the survey had more children than those who were not working. The possible explanation of this is that the majority of the working women were engaged in informal activities such as trading, farming and provision of services which are not necessarily incompatible with having a large number of children. It could also be, among some women, that their large number of children was a motivating force to work to fend for the children.

Including individual variables in Model 2, such as media exposure, modern contraception use and women’s autonomy, slightly increased the variance estimates for fertility among variables in Model 1. However, the inverse relationship of education and household wealth on fertility

persisted for the child and adult-marriage groups with marginal differences. Also, the age of women, work status and religious affiliation remained strong predictors of fertility, with child-brides having more children than adult brides, as observed in Model 1. Among the added variables (media exposure, use of contraception and women’s autonomy) in Model 2, only modern contraceptive use is a significant predictor of fertility among the child-brides. Women’s autonomy in household sexual decision-making and sexual rights did not significantly influence fertility among child brides in Nigeria. This is contrary to the situation among women married at 18 years and above; media exposure, modern contraception use, and women’s autonomy significantly influenced their total number of children born. For instance, women who married as adults and had autonomy on household decision making and sexual rights had higher chances of fewer children than those who did not have such autonomy.

Table 5 shows that the use of modern family planning has a positive relationship with fertility. This can be explained by the fact that at the incipient stages of family planning, women with more children have a higher tendency to access contraception relative to those with one child or no child at all. A kind of reversed causation is at play here, where a large family size becomes a predisposing factor for contraceptive use. In Nigeria, after having some children, couples consider the use of family planning for spacing or termination of childbearing; scarcely do married women with one child consider the use of contraceptives. On the contrary, the first child is expected nine months after marriage, with the second one following quickly. It is perhaps after this that contraceptive use makes sense.

Model 3 included the three community characteristics, residence, region of region and state index of early marriage. The influence of household and individual variables on the number of children ever born in Model 2 did not vary after including the community variables. Among women who married as child-brides, only residence and geopolitical regions significantly influenced fertility. State early marriage index and geopolitical region were significant fertility predictors among women who married at age 18 and above.

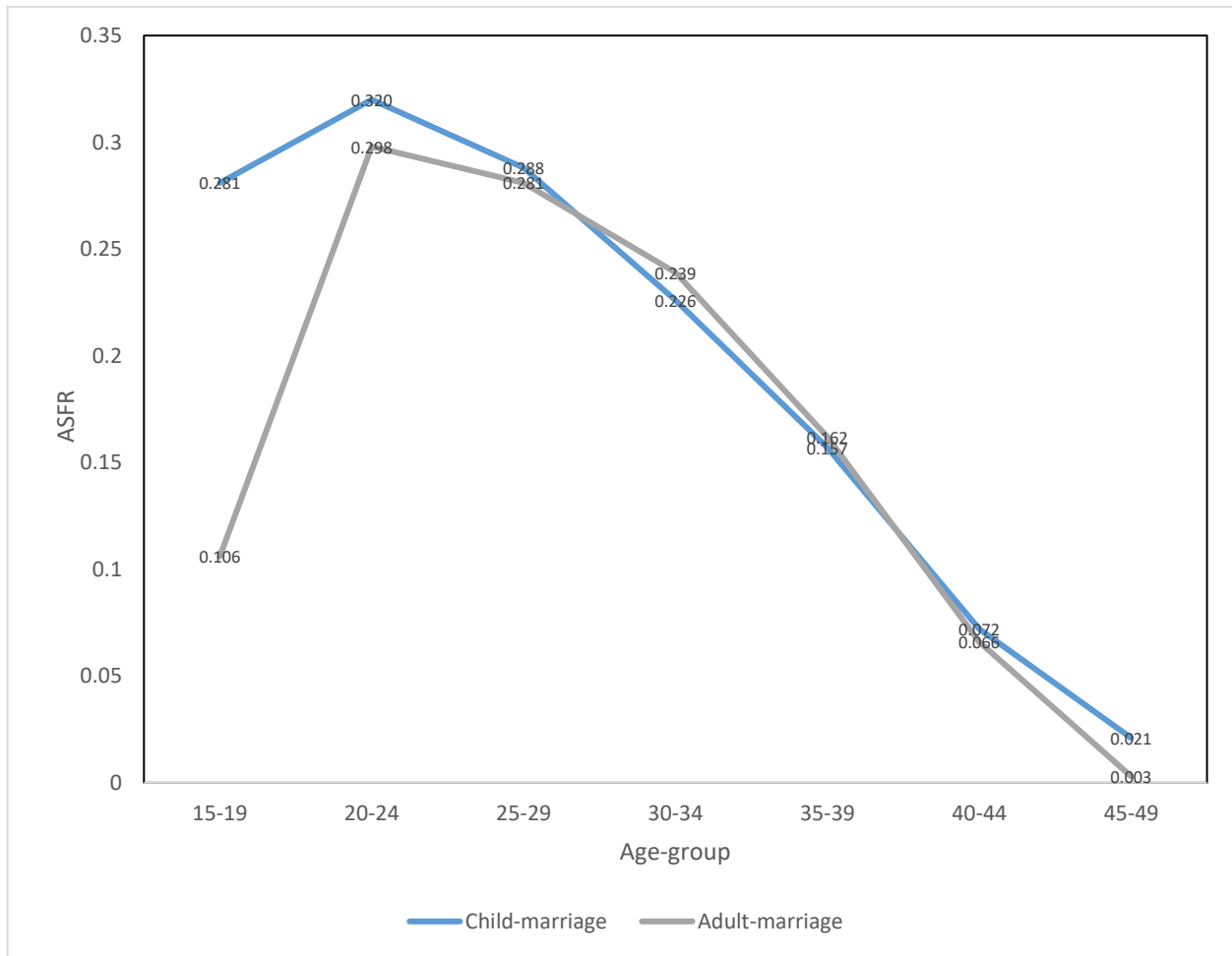


Figure 2: Age-specific fertility rates for the three calendar years preceding the survey for child-bride and adult-bride Nigeria 2018 DHS

Discussion

This study examined the prevalence of child marriage in Nigeria, the socio-economic and regional differentials in child marriage, and the association between child marriage and fertility. Marriage in Nigeria is regarded as a religious obligation and is virtually universal. It, therefore, remains a topic of discussion among social scientists in the country, especially anthropologists, demographers and sociologists²⁷⁻²⁸. Past and present demographic data indicate that Nigerian women enter the nuptial life at a very young age¹³. Our results show that child marriage is highly prevalent in Nigeria, with considerable variations among the constituent regions of the country. About 54 percent of Nigerian women were married before

their 18th birthday. This is inconsistent for a country with a Constitution that outlaws female marriage before 18 years. Rural areas remain the bastion of early marriage in Nigeria. Early marriage is also common for women of Muslim background and comes from poverty-stricken and illiterate households. In addition, the prevalence of 54 percent child marriage among women of reproductive age who are currently or previously married with reported age of cohabitation in the NDHS 2018 was lower than 64% of women aged 20–24 years in Nigeria²⁹. The menace of child marriage will continue to be on increase in Nigeria as UNICEF predicted that there will be 29 million child marriage in Nigeria by year 2050¹³.

We examined the prevalence of child marriage from the perspective of the voluntary

Table 5: Multivariate Tobit analysis presenting coefficient (SD) for predicting the number of children ever born according to the women's characteristics in Nigeria

Characteristics	Child marriage (less than 18 years)			Adult marriage (18 years and above)		
	Model I	Model II	Model I11	Model I	Model II	Model I11
Women's education:						
None (ref)	ref	ref	ref	ref	ref	ref
Primary	0.07(0.06)	0.05(0.05)	0.06(0.05)	-0.21(0.09)*	-0.24(0.10)*	-0.21(0.09)*
Secondary	-0.13(0.07)*	-0.12(0.06)*	-0.11(0.06)	-0.69(0.09)***	-0.73(0.09)***	-0.71(0.09)***
Post-secondary	-0.67(0.14)**	-0.70(0.16)***	-0.71(0.15)***	-1.37(0.09)***	-1.38(0.09)***	-1.36(0.08)***
Women's age						
15-24 years	Ref	Ref	Ref	Ref	Ref	Ref
25-34 years	3.25(0.09)***	3.24(0.10)***	3.25(0.10)***	2.06(0.13)***	2.06(0.14)***	2.07(0.14)***
35 years and above	5.87(0.24)***	5.96(0.24)***	5.96(0.24)***	3.96(0.24)***	4.03(0.25)***	4.02(0.25)***
Religious affiliation:						
Catholic	-0.65(0.18)***	-0.63(0.19)**	-0.58(0.20)**	-0.27(0.09)**	-0.29(0.10)**	-0.26(0.09)**
Other Christians	-0.67(0.14)***	-0.65(0.14)***	-0.59(0.15)***	-0.41(0.06)***	-0.44(0.07)***	-0.41(0.06)***
Muslims (ref)	Ref	Ref	Ref	ref	Ref	Ref
Household wealth quintile:						
First (ref)	ref	ref	ref	ref	ref	ref
Second	-0.10(0.06)	-0.10(0.06)	-0.10(0.06)	-0.06(0.08)	-0.11(0.10)	-0.10(0.10)
Third	-0.08(0.08)	-0.10(0.09)	-0.12(0.08)	-0.03(0.08)	-0.03(0.09)	-0.01(0.09)
Fourth	-0.24(0.08)**	-0.25(0.10)*	-0.30(0.10)**	-0.20(0.12)	-0.21(0.13)	-0.19(0.12)
Fifth	-0.46(0.14)**	-0.51(0.17)**	-0.58(0.16)***	-0.41(0.10)***	-0.46(0.12)***	-0.45(0.12)***
Work status						
Not working	Ref	ref	ref	Ref	Ref	ref
Currently working	0.29(0.05)***	0.33(0.05)***	0.34(0.05)***	0.16(0.04)***	0.23(0.04)***	0.24(0.04)***
Mass media exposure to family planning message:						
No exposure (ref)		ref	ref		ref	ref
Exposed to the mass media		0.02(0.08)	0.01(0.07)		-0.12(0.06)*	-0.12(0.06)*
Modern family planning use:						
Current users		0.42(0.08)***	0.42(0.08)***		0.65(0.05)***	0.65(0.05)***
Not using or using traditional methods (ref)		Ref	Ref		Ref	Ref
Women's autonomy in household decision-making:						
Participated in decision-making		-0.09(0.11)	-0.08(0.11)		-0.16(0.05)**	-0.15(0.05)***

Characteristics	Child marriage (less than 18 years)			Adult marriage (18 years and above)		
	Model I	Model II	Model I11	Model I	Model II	Model I11
Not Involved in decision-making (ref)		Ref	Ref		Ref	Ref
Women's sexual right autonomy:						
None (ref)		ref	ref		ref	ref
Can refuse sex and/or ask for condom		-0.01(0.05)	-0.01(0.05)		0.14(0.06)*	0.15(0.06)*
State child-bride index:						
Less than 20.1%			-0.07(0.20)			-0.46(0.17)**
20.1 to 50.0%			-0.21(0.18)			-0.59(0.14)***
50.01 to 65%			-0.15(0.14)			-0.59(0.11)***
65.01% and above (ref)			Ref			Ref
Place of residence:						
Rural (ref)			ref			ref
Urban			0.14(0.05)**			0.01(0.07)
Region of residence:						
North-West (ref)			ref			ref
North-Central			-0.37(0.10)***			-0.33(0.07)***
North-East			-0.12(0.08)			0.05(0.07)
South-East			-0.10(0.20)			-0.19(0.15)
South-South			-0.32(0.16)*			-0.34(0.10)**
South-West			-1.06(0.16)***			-0.61(0.12)***
Constant	-1.28(0.12)***	-1.31(0.13)***	-1.68(0.16)***	-1.52(0.17)***	-1.53(0.17)***	-2.14(0.20)***
State Level						
Variance (_cons)	0.15(0.04)	0.16(0.04)	0.04(0.01)	0.12(0.03)	0.13(0.04)	0.02(0.01)
Var(e.CEB)	4.46(0.16)	4.33(0.15)	4.32(0.15)	3.56(0.26)	3.40(0.24)	3.39(0.24)

social action theory, which emphasizes the constraint of individuals within particular customs and values, and argues for the importance of society over the individual. The findings suggest that in the northern parts of Nigeria, where girl-child marriage is highly prevalent (more than 60% in most states), young people, even when they may consider it antithetical, would most likely succumb to the weight of the tradition. Thus, the custom of child marriage is deemed to be supra-individual to the extent that actors have little or no choice about it. Conversely, the rational choice theory could explain the relatively low prevalence of girl child marriage in most southern states, urban areas, and educated, wealthy and Christian households, which views social phenomena as outcomes of individual actions construed as rational. The marked departure from the tradition of early marriage among most communities in southern Nigeria (prevalence rate below 20%) reflects a decision made after assessing the benefits of delayed marriage, acquisition of higher education and getting along in a modernizing society as opposed to the demerits of early marriage and lack of educational pursuit. Also, as opposed to the situation in northern Nigeria, the emergence of the gender revolution in the south enables the individual to rationally get involved in the public sphere³⁰.

In its bid to stamp out the practice of child marriage, the Nigerian government signed and ratified the UN Convention on the Rights of the Child in 1991 and the African Union's Charter on the Rights and Welfare of the Child in 2003, and went further to incorporate both instruments into the Child's Right Act in 2003¹⁵. Additionally, the 2016 launching of the National Strategic Plan to End Child Marriage in Nigeria 2016-2021 was lauded as the scheme to deal a lasting blow on the menace of child marriage. But the practice persists, especially in the North-west and North-east regions dominated by the Hausa-Fulani ethnic group who are also predominantly Muslim and generally operate the Sharia law in their penal code.

The Child's Right Act was seen as a step in the right direction toward ending child marriage, but it provides insufficient protection for victims of child marriage¹⁵. Furthermore, fundamentally the Act runs contrary to the Sharia law, which provides that an individual reaches adulthood at puberty and

can, therefore, be contracted into marriage by parents. This is advantageous for low-income families in rural areas and reduces family responsibilities¹⁵. Also, the cultural norms in the Muslim north associate a girl's virginity with family honour; early marriage is presumed to prevent sexual assault and out-of-wedlock pregnancies, which diminish family dishonour^{31,32}. For instance, 10 of Nigeria's 36 States mainly from the northern region, are still lagging in enacting Child Rights Laws. The refusal of these states is making exceptions to child marriage on religious ground. Thus, on the basis of legal backdrops, the prospects of ending child marriage are bleak and will prevent Nigeria to attain SDG 5. Yet, child marriage decreases a girl's development by resulting in early pregnancy and social isolation and interrupts her education, limiting her career and vocational advancement opportunities and effective participation in the labour force. A 2017 World Bank report estimates that child marriage costs Nigeria USD7.6 billion in lost earnings and productivity every year³³. The socio-cultural conditions that support child marriage discourage formal education, whereas later marriage might have preceded post-secondary education.

On the association of child marriage with fertility, this study shows that child-brides have higher fertility than those who married as adults. The age at marriage has a profound influence on overall fertility, given that an overwhelming majority of births in Nigeria take place within marriage. Early age at marriage gives rise to a long reproductive span and higher fertility, especially in low contracepting populations such as Nigeria. Conversely, as age at first marriage increases, there is a corresponding reduction of the reproductive period, decreasing fertility. The results provide a consistent significant relationship between child marriage and children ever born, with child-brides having a least one additional child relative to those who married after age 18. This corroborates Yaya and his colleagues⁸ finding that women who experienced child marriage were eight times as likely to have more than three children ever born compared to those who marry later than 18 years. Many studies have confirmed the association between child marriage and fertility outcomes, which is explained by their long periods in the

childbearing age, which usually results in higher lifetime fertility^{6,9,10}.

Although there are social and health factors that could hinder fertility among child-brides, especially poor nutrition, inadequate care and adverse health consequences of early motherhood, on balance, early marriage is associated with higher fertility. Child-brides also have higher risks of unplanned pregnancies, pregnancy termination, and short inter-pregnancy intervals due to child marriage^{7,8}. Some of the key ailments child-brides are exposed to, which may also moderate their fertility, include Vesico-vaginal Fistula (VVF), Anaemia, High Blood Pressure (HBP), Premature Birth, Malnutrition, Sexually Transmitted Diseases (STDs) and Postpartum depression (PPD), and even suicide¹⁴. Also, marriage poses a grave risk of intimate partner violence for child wives who obviously can't refuse sex, nor can they negotiate condom use^{23,34}. This result has implication for nutrition program in Nigeria as child malnutrition may easily occur in situations where child mothers cannot breastfeed their children because their mammary glands are yet to mature.

Other socio-demographic and household variables included in the regression models support previous studies on their relationship with fertility. The level of education manifests the characteristic inverse relationship with fertility, and current age is positively related to fertility as expected. Christians have lower fertility than Muslims, which is a function of their more progressive attitude toward family life, more egalitarian relationships in the home, and human development prioritizing Nigerian Christians.

However, Muslims in the South-West tend to differ from those in the North in their family life preferences, reproductive culture and lifestyle³³. The finding is consistent with the pattern of unintended childbearing among Muslim women in the South-West, similar to their Christian counterparts but remarkably different from Muslim women in the Northern regions³⁵. The household wealth index shows an inverse relationship with fertility, as found elsewhere^{36,37}. Working women have higher fertility than those not working, and those currently using a modern contraceptive also have higher fertility than those not using. Women's nature of work is important here; working as traders or farmers, which is the preoccupation of most

working women, may not necessarily depress fertility. Also, women with a large family tend to initiate family planning to space or terminate childbearing, which may be outside the purview of those with small family sizes or just starting their home. Women who participated in household decisions or have sexual autonomy exhibit lower fertility than those who do not. This indicates that women in higher status categories tend to have different values and aspirations, including family size preferences.

The state early marriage index clearly shows that women from states with a high prevalence of child marriage have higher fertility relative to those with a lower prevalence. States with high prevalence tend to have higher poverty levels and more traditional and conservative cultures, all of which may support high fertility. Related to the above, the three geopolitical zones in the south have lower fertility than the three in the north. Also, the association between women's age at first marriage and children ever born depended on the women's level of education. Controlling for all the variables in the models did not diminish the significant level of the positive influence of child marriage on fertility despite myriads of factors that could reduce child-brides' child-bearing potentials.

Conclusion

Child marriage in Nigeria is a social malaise. The conflict of religion and civil law is demonstrated in Nigeria's constitution which prohibits child marriages and yet protects the freedom of states to enact the Sharia penal code that supports child marriage. Ending child-marriage requires long term sustainable efforts by all stakeholders across state, traditional and religious hierarchies. Through advocacy and social mobilization, families, communities, and religious leaders need to understand the hazards of child marriage and their role and responsibility in eradicating it and empowering the girl-child through formal education. Ending child marriage will accelerate efforts to achieve a safe, healthy, and more prosperous future for Nigerian girls and women and accelerate the reduction of maternal fertility. Another strategy for stemming the menace of child marriage in Nigeria is to ensure the implementation of existing laws of universal, compulsory and free

basic education that governments at all levels failed to implement. Further, the implementation of existing laws that recommends universal, compulsory and free basic education, which only emphasize nine years of school, it imperative to enforce girl-child schooling beyond basic education as affirmative action, especially in the North-west and North-central regions. The implementation of education beyond basic level will help keep the girl-child in school after 18 years.

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