Birth-Cohort Analysis of Child Marriage among Women in Nigeria, 1954-1998

[1,2]Adebowale Ayo S., [1]Olowolafe Tubosun A., [1]Fagbamigbe Adeniyi F., [2]Palamuleni Martin E.

[1]Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria; [2]Population Training and Research Entity, North-West University, Mafikeng, South Africa

Extended Abstract

Introduction

Child Marriage is a marriage between a child under the age of 18 years and an adult or another child. This harmful practice is a human rights violation and one of the consequences of deep-rooted gender inequality, making girls unduly affected by the practice. It increases the risk of intimate partner violence, school drop-out, stigmatization from peers and family, and poor economic and health outcomes[1,2]. The 1994 International Conference on Population and Development (ICPD) and Millennium Development Goals (MDGs) emphasized gender equality, the provision of more opportunities for girl children, and improving maternal health[3]. The United Nations Sustainable Development 5.3, calls for global action to end child marriage by 2030[4]. In Nigeria, the Violence Against Persons Prohibition Act which aims to eliminate all forms of violence was passed into law in 2015[5]. Sexual abuse is an offense under several sections of Chapter 21 of the Nigerian criminal code[6]. Despite all the efforts to eliminate child marriage in Nigeria, the country is home to over 24 million child brides; 3 in 10 young women were married in childhood[7]. In addressing the child marriage challenge in Nigeria, several studies have been conducted to explore the determinants of child marriage and its drivers at the national level[7-9]. However, examining the dynamics of child marriage at the national level might hide the effect of regional disparity in the characteristics associated with the practice. Consequently, this study examined the birth-cohort decomposition analysis of child marriage among Nigerian women in each of the six regions in Nigeria. The specific objectives are to; determine the level of child marriage and examine regional differences in the level of child marriage across eight 5-year birth cohorts from 1963 to 1998, identify sociodemographic factors that contribute to changes in the trajectory of child marriage across the birth cohorts in each of the six regions in Nigeria. This study was conducted as part of the concerted efforts to eradicate child marriage practices by 2030.

Methods

This study was conducted in Nigeria, the most populous African country. According to the 2023 projection, the Nigerian population figure was 225 million[10]. There are six regions in Nigeria, these are North Central, North East, North West, South East, South-South, and South West. Each of these regions has predominantly homogenous cultural and socioeconomic characteristics. The three main ethnic groups in Nigeria are Hausa/Fulani, Igbo, and Yoruba. While people of Hausa/Fulani origin who are mostly Muslims dominate the regions in the North, the Igbo and Yoruba ethnic groups live in the South and are mainly Christians. Literacy level and cultural practices that promote child marriage are mostly prevalent in the North.

Secondary data were used for the study, these are the 2008, 2013, and 2018 rounds of the Nigerian Demographic and Health Survey (NDHS)[11]. Each round of the survey was nationally representative. The surveys aim to provide up-to-date estimates of basic demographic and health indicators. These estimates are expected to assist policymakers and programme managers in designing programmes and strategies for improving population health. Administratively, Nigeria is divided into states, each state is subdivided into Local Government Areas (LGAs), and each LGA is subdivided into non-overlapping subsets called census Enumeration Areas (EAs). The primary sampling unit (PSU), which is a cluster was defined based on the EAs. In each of the survey rounds, a two-stage stratified cluster sampling technique was used for sample selection. Sampling weights were calculated based on sampling probabilities separately for each sampling stage and cluster (see www.measuredhs for further information about the sampling procedure). The total number of women sampled in each survey round was 33,385, 38,948, and 41,821 in 2008, 2013, and 2018, respectively. In this study, only women who provided complete information about their marital status and timing were included in the data analysis. The date of birth was used to generate the variable called birth cohort of women.

Data were cleaned to ensure no woman was included in the sample more than once. The sample distribution of women according to birth cohort by region of residence is presented in Table 1.

Table 1: Frequency distribution of women according to birth cohort by region of residence

Birth-Cohort	Nigeria	North Central	North East	North West	South East	South South	South West
1994-1998	6844	1330	1414	1811	739	740	810
1989-1993	7203	1442	1355	1726	883	830	967
1984-1988	5997	1031	1048	1415	810	795	898
1979-1983	5406	990	917	1142	766	720	871
1974-1978	4057	696	685	930	577	569	600
1969-1973	3891	686	559	852	730	497	567
1964-1968	3555	447	580	954	482	521	571
1959-1963	2905	521	545	702	359	346	432
Total	**39858**	**7143**	**7103**	**9532**	**5346**	**5018**	**5716**

The dependent variable was child marriage which was created from age at first marriage/cohabitation. Women who married/cohabited at ages below 18 years were considered as child marriage (1) and otherwise, those who either married/cohabited at ages of at least 18 years or who by age 18 are yet to be married/cohabiting (0). The main independent variable was the birth cohort stratified by region of residence. Other independent variables included in the analysis were place of residence, level of education, religion, ethnicity, wealth index, age at first sexual intercourse, and female genital mutilation (FGM). Data were analyzed using descriptive statistics, the Cox regression model, and Kitagawa decomposition techniques. The researcher ensures that the underlying assumptions of Cox regression were not violated. Kitagawa's decomposition method was used to establish how much of the difference (Δ) in the change in the level of child marriage in each region is attributable to differences in the age cohorts.

National Ethical Review Committee approved the conduct of the surveys and informed consent was obtained from the study participants. Approval to use the data was sought and granted.

Results:

The data as presented in Figure 1 showed that the intergeneration level of child marriage reduced in each region across each birth cohort, however, the level of child marriage was higher in the North East and North West regions compared to any other regions in Nigeria. The levels of child marriage in the North West and North East were consistently above the observed pattern for Nigeria across the birth cohorts. The highest change in the level of child marriage across the birth cohort was observed in the South East (β= -4.4643) and the least in the North East (β= -1.5155). In the South East, the level of child marriage reduced from 40.0% among the 1959-1963 birth cohort to 10.8% among the 1994-1998 birth cohort, whereas in the North-East, the level of child marriage declined from 73.6% among the 1959-1963 birth cohort to 59.2% among the 1994-1998 birth cohort.

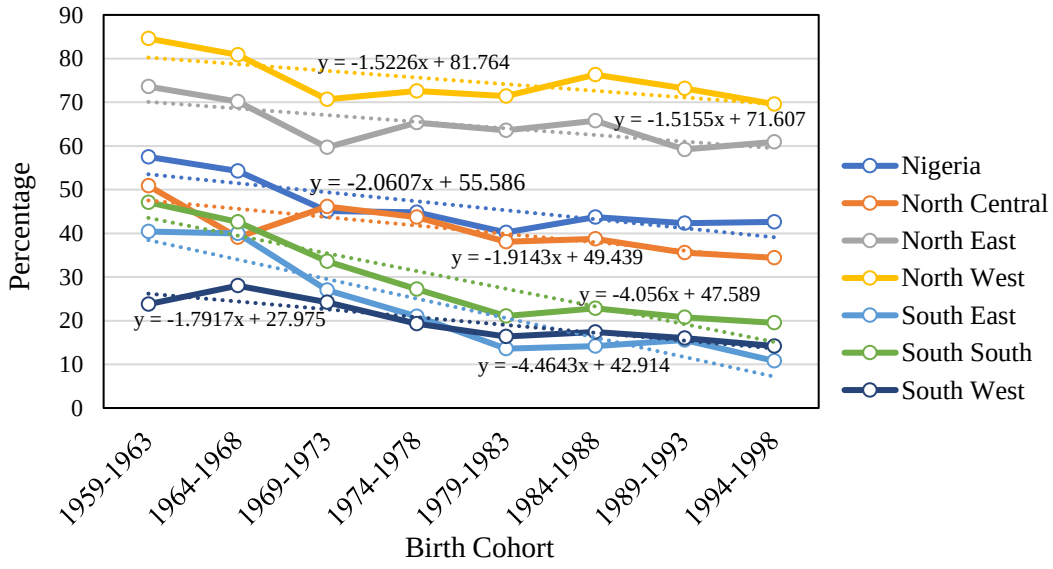


Figure 1: Percentage distribution of women by birth cohort according to regions in Nigeria

The level of child marriage in Nigeria falls consistently from 57.5% among the 1959-1963 birth cohort to 42.6% among the 1994-1998 birth cohort. The comparison of median and mean age at first marriage can only be made at the aggregate level for each region or between the same birth cohort but not by different birth cohorts. This is because marriage can take place at any time irrespective of the women's age and unmarried younger cohorts are more prevalent than the older cohorts. The median age at first marriage ranges between 16 and 19 years in Nigeria among women born from 1959 to 1998. In Nigeria, the median age at first marriage was (19 years [Range 8-38 years]) among the 1978-1983 birth cohort. In the North West, the median age at first marriage was 14 years among the birth 1959-1963 and 1964-1968 birth cohorts, but barely increased to 15 years in 1969-1973 and consistently maintained this level among the cohort born in 1994-1998. In the South East and South West, the median age at first marriage ranged from 19 years to 20 years. Across the birth cohorts, the mean age at first marriage was lowest among the women in the North West (15.97±3.74 years) and highest in the South West (21.45±5.17). Among the cohort of women born from 1994 to 1998, the mean age at first marriage was 18.74±2.51 years in the South West, 18.67±2.78 years in the South East, 17.83±2.93 years in the South South, 17.33±2.70 years in the North Central, 15.89±2.30 years in the North East, and 15.55±2.35 years in the North West.

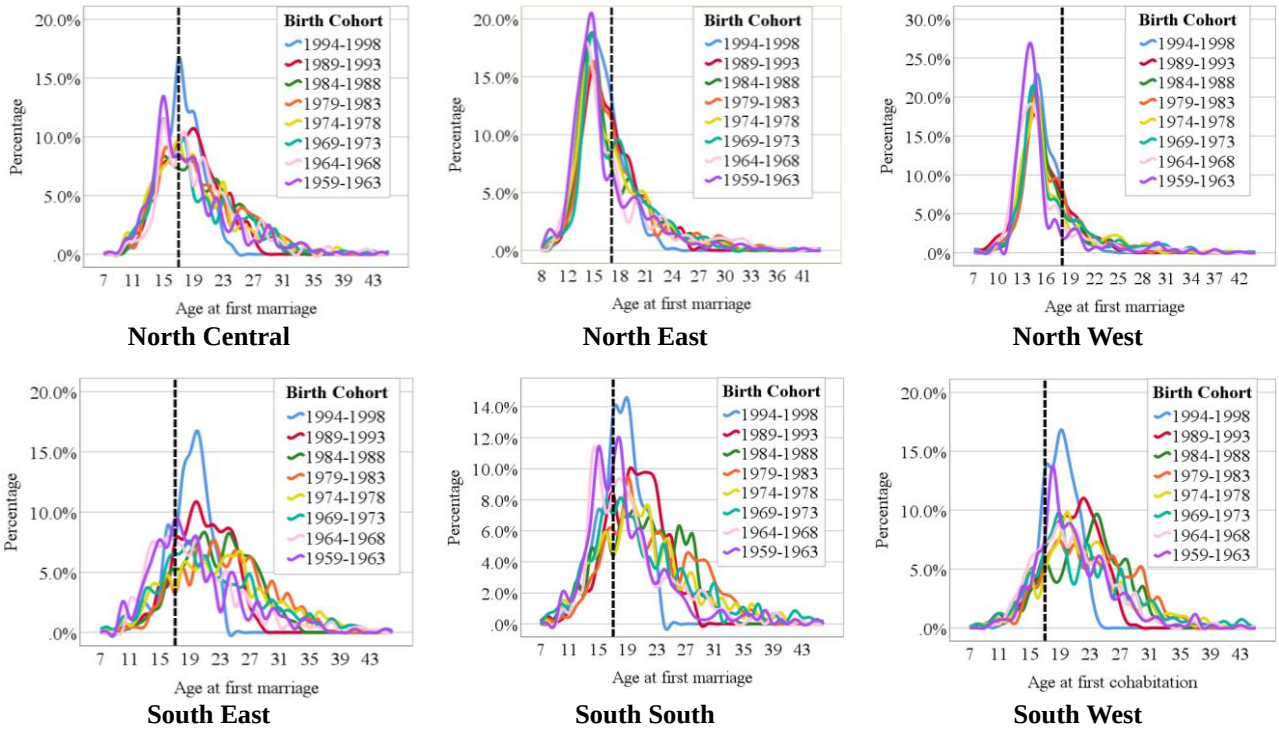
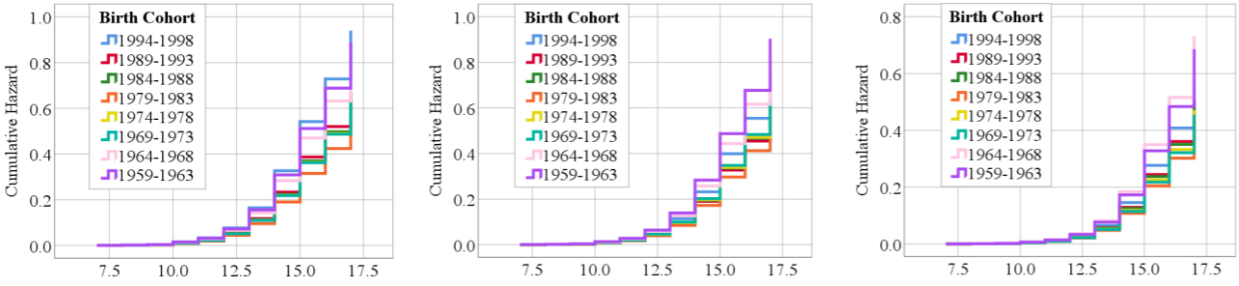


Figure 2: Age at first marriage according to women's birth cohort in each of the six regions in Nigeria

The Kitagawa decomposition method showed that the birth cohorts contributed 5.19%, 15.21%, 19.56%, 7.12%, and 6.2% to the difference between child marriage in South West (a region with the least level of child marriage in Nigeria) and North Central, North East, North West, South East, and South South, respectively. In the North Central, across all the birth cohorts, women that were born in 1959-1963 contributed the highest percentage to the difference (2.41%), while the birth cohort 1964-1968 contributed 1.53%. Education contributed 15.5% to the difference in the level of child marriage between the South West and North Central. The contribution to the difference between the level of child marriage in the South West and North Central consistently reduced as the level of education increased. More results from the decomposition outputs are available in the full paper.

Three models were used to explain the relationship between child marriage and birth cohort. Model 1 is the unadjusted model in which only child marriage and birth cohort were included. In Model 2, the relationship between child marriage and birth cohort was adjusted by including region, while Model 3 is the full model where all variables found to be statistically significant at 20% at the bivariate level of analysis were included. However, in the full model, the significant level was set at the p-value of less than 5.0%. The data showed that the hazard of child marriage was consistently lower among the

cohorts of women born in 1964-1968 (HR=0.918; 95% C.I=0.860-0.981, p<0.001), 1969-1973 (HR=0.708; 95% C.I=0.662-0.757, p<0.001), 1974-1978 (HR=0.712; 95% C.I=0.666-0.761, p<0.001), 1979-1983 (HR=0.616; 95% C.I=0.578-0.657, p<0.001), 1984-1988 (HR=0.723; 95% C.I=0.680-0.769, p<0.001), 1989-1993 (HR=0.756; 95% C.I=0.712-0.802, p<0.001), compared to women who were born in 1959-1963. This pattern of hazard of child marriage and birth cohort was sustained even when region and other variables (full model) were included in the model. In the full model, there was no significant difference in the hazard ratio of child marriage between the women in the South South and South West. The hazard ratio of child marriage was significantly higher among women in the North Central (HR=1.306; 95% C.I=1.184-1.440, p<0.001), North East (HR=1.641; 95% C.I=1.482-1.819, p<0.001), North West (HR=1.843; 95% C.I=1.661-2.045, p<0.001), and South East (HR=1.419; 95% C.I=1.202-1.675, p<0.001) compared to their counterparts in the South West.



Model 1: ***-2LogLikelihood=366338.786***

Model 2: ***-2LogLikelihood=359865.630***

Model 3: ***-2LogLikelihood=346407.217***

Figure 3: Proportional hazard of child marriage by birth cohort

Conclusion

Child marriage in Nigeria is high but follows a declining trend. The common contributory factors that facilitated the difference in the level of child marriage in the South West and each other regions in Nigeria were higher education, Christianity, having no experience of FGM, and living in the urban area. This pattern was observed across the regions in Nigeria. A regional difference exists in the child marriage level across birth cohorts in Nigeria with the highest level consistently found among women in the North East and North West regions. Therefore, regional-specific intervention programs will further reduce child marriage in Nigeria.

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