

Family type, domestic violence and under-five mortality in Nigeria.

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Abstract

Background: Nigeria still showcases unacceptably high under-five mortality despite all efforts to reduce the menace. Investigating the significant predictors of this occurrence is paramount.

Objective: To examine the interplay between family setting, domestic violence and under-five death in Nigeria.

Methods: Cross-sectional secondary data, the 2013 Nigeria Demographic and Health Survey, (NDHS) women dataset was utilized. Subset of 26,997 ever married and ever had childbirth experience respondents were extracted from the nationally representative women dataset. Dependent and Independent variables were recoded to suit the statistical analysis for the study.

Results: The study revealed that 33.7% of the respondents were in polygyny family setting; one-quarter of the ever married women reported ever experiencing one form of domestic violence or the other. The results of the logistic regressions indicate that family type and domestic violence were significant predictors of under-five children mortality in Nigeria.

Conclusion: The study concludes that women who belong to polygyny family setting and who ever experienced sexual domestic violence are highly susceptible to experience under-five children mortality than their counterparts. The study recommends that strategies and policies aimed at improving child survival should strengthen women empowerment initiatives, discourage multiple wives and campaign against domestic violence in Nigeria.

Keywords: Polygyny, monogamous, domestic violence, Nigerians.

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Introduction

Polygyny has a lot to do with peoples' culture and values^{1,2}. It has been observed as a complex and multifaceted social dynamic union in marriage institution, that no single research could be an exhaustive resource to cover all it contains³. Though, polygyny is seen to be the norm

in most African societies with nearly 45% to 55% of women living in a polygyny family setting,^{4,5,6} its practices and studies have generated lots of debates, arguments and conflicting reports over a long period of time⁷. Many studies have concluded that polygyny has many diverse negative effects (socially, economically and health-wise) on women and the children of the arrangement^{7,8,9,10}, is full of strife and disharmony which is bristling with discord, rivalry, heartache, and even rebellion, reduction in the sexual and emotional availability of men for individual women and shortage of resources and care for women and their children^{11,12,13}. Some other reports conclude with benefits accrued to both men and women who participate in polygyny marital union and children of this family system^{14,12,15,16}. They see a period of long post-partum abstinence (to give chance for other co-wives) as advantageous for long breastfeeding period for the child^{17,18} and this period also encourages longer birth interval which is advantageous and important for child survival⁷.

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It was stated in "My Great Ordeal" that "Polygamy is not against God's ordinance. But it is against the ordinance of economic happiness and against the dictates of a happier social order. All those who run foul of that ordinance and those dictates of today pay for it with hypertension not only in themselves but in their women. And, only too often, in the painful inadequacies suffered by the children of the arrangement"⁸.

Domestic violence

In Nigeria, as in many other African countries, reports reveal a "shockingly high" level of violence against women¹⁹. Domestic violence which is defined as a confrontation between family or household members that typically involves physical harm, sexual assault, or fear of physical harm²⁰ is common in both urban and rural families in Nigeria²¹. But it is rather unfortunate that domestic violence has been a neglected public health problem by researchers, policymakers and practitioners until recently²². There is great need to further inform and educate the population about the problem²¹. Domestic violence is widely understood as any form of abusive behavior which could result in physical, sexual or psychological harm to women and children alike. In other words, it is any act that subjects women and their young children to pain, injury or distress, thus depriving them of their human rights and fundamental freedom; which could invariably limit or put a barrier to their socio-economic, demographic and healthy performances and development.

As observed, principal among the factors that make women and young children susceptible to domestic violence is a polygyny family setting²³. This claim was equally supported that pervasive negative attitudes such as jealousy, rivalry and hatred among others²⁴ (these are risk factors for domestic violence) are usual actions and common patterns of life among co-wives in a polygyny family setting.

Child health within polygyny family structure

Though responsibility has no family type boundary, but more often than not, men with multiple wives have been observed as only using the family structure as a way of achieving their sexual and fertility desire but are mostly found wanting in the family responsibility, most especially when care and investment over children arises. Since men are typically the bread winners of the family, supporting numerous children most times in polygyny family settings

does generate extreme difficulty for them. Though the empirical evidence showing the effect of polygyny on children is still unclear, while some researchers found no sufficient significant relationship between plural marriage family system and children's development and survival²⁵, some others discovered that children in diverse ways have been at the negative receiving end of this family system^{26,27,28,29,30}. While some studies in Mali and Northern Nigeria have found and reported higher infant mortality rates and poor child health outcome in polygynous family settings than what was recorded among their monogamous counterparts^{26,29,30}, many other researchers are still not convinced of the negative outcome of a multi-wives family setting. In trying to explain the negative relationship, emphasis has been laid on the adverse effect of this category of family structure on children particularly the male child considering the rivalry among co-wives that has often led to animosity and poisoning of each others' children²⁹. In another instance, possible explanation was the likelihood of many people living together which may increase the risk of been exposed to infectious diseases and invariably sickness and death most especially among the infants^{38,39}.

Under-five mortality in Nigeria

Considering the trend and unacceptably high rate of under-five mortality in Nigeria and meeting the targets of the Sustainable Development Goals by 2030, many nations of the world (Nigeria inclusive) have set out to ensure healthy lives and promote well-being for all at all ages³¹ and some international bodies have come up with series of efforts and programmes to put a stop or reduce death at early stages of life. As reported in the recently published 2013 Nigeria Demographic and Health Survey, infant and under-5 mortality rates in the past five years preceding the survey are still 69 and 128 deaths respectively per 1000 live births in the country. At these levels, one in every 15 Nigerian children die before reaching age 1 year and one in every eight do not survive to their fifth birthday²⁰. Age of mothers, maternal age at marriage, educational level, region and place of residence and some other socio-economic and demographic differentials were observed as factors influencing these rates^{32,33,34} but the fact remains that the rates are on the high side especially when compared with other nations of the world. While some other sub-regions of the globe are making serious progress in reducing under-five mortality and meeting

the target of Sustainable Development Goals, sub-Saharan African countries are not recording much appreciable results towards this goal³⁵. Searching for the hidden risk factors of this particular threat to the country, particularly the future generation is a concern of all that cannot be over emphasized.

Justification for the study

The unacceptably high infant and under-five mortality in Nigeria, which stand at 69 and 128 per 1000 live births respectively calls for concerted efforts from all quarters to lowering the death rates at these early stages of life. Considering the following assertions: 1. that women and children of polygyny family structure are at an elevated risk and are more generally vulnerable to domestic violence than those in a monogamous family; 2. that children can adversely be affected by domestic violence which brews from rivalry between co-wives; 3. that more children in the family may mean less time, attention and supervision from parents, especially their fathers; and lastly 4. that polygyny families may be less inclined or able to pay for treatments for childhood illness; Laying the four (4) assertions above as the premises, hence, the present study hypothesized that a polygyny family structure would engender more domestic violence and thereby lower probability of under-five children survival among Nigeria polygyny households than what would be obtained in a monogamous family setting in the country.

Material and methods

This paper used data extracted from the 2013 Nigeria Demographic and Health Survey, (NDHS) women dataset. Out of the total sample of 38,948 women of 2013 NDHS, the study population comprised of a subset of 26,997 respondents after weighting. The inclusion criteria was ever married, ever had childbirth experience and women who were interviewed for domestic violence.

Ethical approval

The ethical approval and clearance was obtained by Measure DHS from National Ethics Committee of the country before the commencement of data harvest. Also, after describing the theme of the study to them, informed consent was equally obtained from all the individual participants. No trace of identification of the respondents was left in the process of the data collection.

Data analysis

We employed a three levels analysis in the study. The first being univariate analysis, which presents a description of the socio-demographic characteristics of the respondents, bivariate analysis was employed to examine the relationship between the independent variables and dependent variable. The Chi-Square at p-value of less than 0.05 statistical test was employed to determine the significance of such relationship. Lastly, in the third level we examined the impact of family type and domestic violence on the occurrence of under-five mortality, using binary logistic regression, based on the fact that the dependent variable was dichotomized.

Key variables and measurements

Dependent/outcome variable

The dependent variable in the analysis of this study is mother's experience of under-five mortality. Questions on the survival of every child from the first to the last birth were captured in DHS dataset. Mothers were asked for the survival status of each and every child. In the case of child death, age at death was inquired and reported. This made it possible to calculate for every child's death that occurred if it was under-five or above five years. Allocating 0 for mothers whose children died at age five years or more and 1 for those whose children died at ages less than five years, we were able to sort for mothers' individual experiences as regards ever and never experienced under-five children death in the dataset.

Independent variables

The main independent variables in this study were family types and domestic violence. Family type (monogamy and polygyny) was conceptualized from a typical African society of patrilineality of either one man one wife or one man many wives. The DHS respondents were asked to provide answer to the question "number of other wives" and through this variable, we were able to categorize respondents to either monogamy or polygyny family type. Those that answered 0 to the question belonged to monogamous while those that answered 1 or more were grouped into polygyny family type. Domestic violence was measured under three different sub-headings, 1. Emotional violence, 2. Physical violence, and 3. Sexual violence. DHS examined these three different types of violence asking not less than thirteen different questions.

Experience of physical violence was determined by saying a “yes” to at least one of the seven subtypes of physical violence: whether or not spouse ever pushed, shook or threw something; spouse ever slapped; spouse ever punched; spouse ever kicked or dragged; spouse ever attempted to strangle or burn; spouse ever threatened with knife, gun or other weapon and whether or not ever had arm twisted or hair pulled by spouse. Each item was given a score of 1 if she experienced the abuse and 0 if she did not experience the abuse. The total scores of all the items were pooled, if a respondent scored a 0, such respondent was categorized as never experienced physical violence otherwise any score between 1 and 7 would be regarded as respondent who ever experienced physical violence. The emotional violence variable comprised three sub-variables: ever been humiliated (0=No, 1=Yes); ever been threatened with harm (0=No, 1=Yes) and ever been insulted or made to feel bad (0=No, 1=Yes). Final emotional violence variable was obtained by summing up the three items and for any respondent to have a total score of 0 meant that such respondent had never experienced emotional violence while any score within 1 and 3 signified ever experiencing emotional violence. The sexual violence also consisted three variables: ever been physically forced into unwanted sex (0=No, 1=Yes); ever been forced into unwanted sexual act (0=No, 1=Yes) and ever been physically forced to perform sexual act (0=No, 1=Yes). These three variables were also summed and categorized into two based on the total score of each respondent. Those that had 0 in total were grouped into

never experienced sexual violence and any other score from 1 to 3 were grouped into the category of ever experienced sexual violence.

A number of other selected background variables, most especially those that have been found by previous studies to be significantly associated with under-five deaths were included in the analysis. A number of these variables (age, age at marriage, educational level, household wealth, region and place of residence) were controlled for in the analysis of the study.

Results

Socio-economic and demographic background of the respondents as displayed in Table 1 shows that more than half of the 26,997 ever married women were in the age group 25-39 years (56%). Age at first marriage with mean age of nearly 18 years reflects a prevalence of high early age at first marriage among women in Nigeria. Six out of every ten respondents were sampled from the Northern region. Result on distribution of respondents by wealth index showed that less than four out of ten (38.2%) were able to cross the “rich” category. Place of residence indicated no less than six out of every ten were residents of rural areas. As depicted in Table 1, more than one-third of the ever married women ever experienced under-five children death. More women experienced emotional violence (19.7%) followed by those who experienced physical violence (15.1%) and the least experience was found among those who reported to ever have been exposed to sexual abuse (4.6%).

Table 1: Percentage distribution of respondents' by selected socio-economic and demographic variables

Variables	Categories	Frequencies	Percentages
Current age (years)	15-24	5106	18.9
	25-39	15123	56.0
	40-49	6768	25.1
Mean age	32.4		
Standard Deviation	8.7		
Age at marriage (years)	Less than 18	15630	57.9
	18-24	8934	33.1
	25 or more	2433	9.0
Mean age at marriage	17.6		
Standard Deviation	4.6		
Highest Education attained	None	12699	47.0
	Primary	5515	20.4
	Secondary or more	8783	32.5
Region	Northern	17456	64.7
	Southern	9541	35.3
Family wealth	Poor	11625	43.1
	Middle	5067	18.8
	Rich	10305	38.2
Place of Residence	Urban	10125	37.5
	Rural	16872	62.5
Experience of under-five children death	Never	17497	64.8
	Ever	9500	35.2
Total		26997	100.0
Experience of Emotional violence♦	Never	16610	80.3
	Ever	4082	19.7
Total		20692	100.0
Experience of Physical violence♦	Never	17536	84.9
	Ever	3115	15.1
Total		20651	100.0
Experience of Sexual violence♦	Never	19735	95.4
	Ever	947	4.6
Total		20682	100.0
Family type♦	Monogamy	16746	66.3
	Polygyny	8504	33.7
Total		25250	100.0

♦The variables do not add up to 26,997 because the variables had missing values but only the valid responses were reported here.

Bivariate analysis

Further analysis of the selected respondents' characteristics by experience of under-five children death showed a direct significant relationship between women's age and ever experiencing under-five children mortality. On the other hand, considering age at first marriage, educational level and family wealth, (Table 2) revealed an indirect significant relationship, as more under-five children death were observed among women who entered marriage at

much younger ages, who had low educational level and women who were poorer than their other counterparts respectively. It was further revealed in Table 2 that family type has a significant association with experience of under-five deaths among ever married women in Nigeria with more occurrence of under-five death among ever married women in polygyny family type than those in monogamous ones. Of the three forms of domestic violence (Emotional, Physical and Sexual) as indicated

in Table 2, occurrence of under-five children death was found to be significant only among women who had ever experienced sexual violence. Under-five children death

occurrence was almost the same among women who experienced emotional and physical violence and those ever married women who had never had exposure to both emotional and physical violence.

Table 2: Bivariate relationship between some selected background characteristics of the respondents and experience of under-five death among ever-married women.

Variables/Characteristics		Ever Experienced child under-5 death			
		%	N	Total	Chi-Square (<i>p-value</i>)
Age (years)	15-24	18.3	933	5107	1170.250 (0.001)
	25-39	34.9	5283	15124	
	40-49	48.5	3285	6768	
Age at marriage (years)	<18	43.1	6740	15630	1066.011 (0.001)
	18-24	25.8	2304	8934	
	≥25	18.7	456	2433	
Educational level	None	45.5	5783	12699	1497.479 (0.001)
	Primary	35.7	1969	5515	
	Secondary +	19.9	1748	8784	
Region	Northern	40.4	7044	17456	577.756 (0.001)
	Southern	25.7	2456	9542	
Family wealth	Poor	46.9	5452	11625	1399.173 (0.001)
	Middle	33.5	1699	5067	
	Rich	22.8	2349	10305	
Place of Residence	Urban	26.6	2689	10125	529.197 (0.001)
	Rural	40.4	6811	16872	
Any emotional violence	No	33.2	5510	16610	0.010 (0.919)
	Yes	33.3	1358	4082	
Any Physical Violence	No	33.0	5782	17536	2.059 (0.151)
	Yes	34.3	1068	3115	
Any Sexual Violence	No	32.9	6496	19735	11.043 (0.001)
	Yes	38.1	361	947	
Family type	Monogamy	29.8	4997	16746	628.961 (0.001)
	Polygyny	45.8	3894	8504	

Multivariate analysis

Table 3 presents the results of logistic regression analyses on under-five mortality in Nigeria. Three models were used. The first model shows the relationship between under-five mortality and polygyny in the country. While the

second model shows the relationship between under-five mortality and polygyny and domestic violence, the third model shows the relationship between under-five mortality and polygyny controlling for all the independent variables.

Table 3: Odds of ever experienced under-five mortality among ever-married 15-49 years old women in Nigeria

Variables	Categories	Model 1	Model 2	Model 3
Family type	Monogamy	0.503***	0.528***	0.781***
	Polygyny	RC	RC	RC
Any Emotional Violence	Never	n.a	1.090	0.986
	Ever	n.a	RC	RC
Any Physical Violence	Never	n.a	0.946	0.830***
	Ever	n.a	RC	RC
Any Sexual Violence	Never	n.a	0.770***	0.875
	Ever	n.a	RC	RC
Age	15-24	n.a	n.a	0.162***
	25-39	n.a	n.a	0.516***
	40-49	n.a	n.a	RC
Age at marriage	< 18	n.a	n.a	2.936***
	18-24	n.a	n.a	1.622***
	≥25	n.a	n.a	RC
Educational level	None	n.a	n.a	1.619
	Primary	n.a	n.a	1.491
	Secondary or more	n.a	n.a	RC
Region	Northern	n.a	n.a	0.954
	Southern	n.a	n.a	RC
Wealth Index	Poor	n.a	n.a	1.921***
	Middle	n.a	n.a	1.240***
	Rich	n.a	n.a	RC
Place of Residence	Urban	n.a	n.a	0.958
	Rural	n.a	n.a	RC
-2log likelihood		32142.133	21721.236	21721.236
Chi-square (df)		620.043(1)	2852.994(14)	2852.994(14)
Sig.		0.000	0.000	0.000

RC means Reference Category

***significant at $P < 0.01$

The first model which is the logistic regression of the interaction between family type and likelihood of occurrence of mothers' experience of under-five mortality showed that family type played an important role in the occurrence of under-five mortality. Model 1 in Table 3 revealed that women in a monogamous family setting had lower odds (about 50%) of experiencing under-five children mortality (OR = 0.503, $p < 0.001$). The second model showed that family type and sexual abuse play a significant role in influencing under-five mortality. Women in monogamous families were 47.2% less likely to experience under-five children mortality when compared with their counterparts in polygyny family settings. Women who had never experienced sexual violence were 23% less likely to experience under-five children mortality than mothers who ever experienced sexual abuse. The third model revealed that family type, physical violence, age, age at marriage and family wealth status were the most important predictors of under-five children mortality among the respondents in the study area.

Women in a monogamous family arrangement were 22% less likely to experience under-five children mortality than women in polygyny family setting. The likelihood of occurrence of under-five mortality among women who never experienced physical violence was about 17% lesser than those who ever experienced physical violence. Women's ages reflected a positive association with experience of under-five children death, the more the age, the more the likelihood of occurrence of under-five children death that is odds ratio of under-five mortality increased with increasing age. Those in group 15-24 years and 25-39 years were 84% and 48% respectively less likely to experience under-five mortality than their senior counterparts in age group 40-49 years.

Age at marriage, which in most societies, marks the point in a woman's life when childbearing first becomes socially acceptable²⁰ shows a negative positive association with likelihood of under-five children death in the study area. Women who marry before age 18 years and those who marry within 18-24 years were 3 times and 1.5 times more likely to experience under five mortality respectively than women who marry after age 25 years of age. Odds ratio of under-five death occurrence decrease with increasing age at marriage indicating a decline in under five mortality as age at marriage increases. Women who were poor were

1.92 times more likely to experience under-five mortality than women who are from rich households, whereas women in the middle income category were 1.24 times more likely to experience under-five mortality than rich women. Odds ratio decreased with increasing wealth indicating a negative relationship between under-five mortality occurrence and women's wealth status.

Discussion

Though the empirical evidence showing the effect of polygyny on children is still very unclear, while some studies found no sufficient significant relationship between this type of family system and children's development and survival²⁵, some other researchers discovered that children (socially, economically and health-wise) have been at the negative receiving end of such marriages and family system^{26,27,28}. The development of children within this type of family structure when compared with monogamous family setting have been shown as adversely and negatively affected^{36,37}.

The relationship between polygyny and under-five mortality is not very clear yet. On the one hand some studies have found that under-five mortality rate is higher in polygynous families than in their monogamous counterparts^{26,29,30,38,39}. There are several plausible explanations for this relationship. First explanation was the likelihood of many people living together which may increase the risk of been exposed to infectious diseases and invariably sickness and death most especially among infants^{38,39}. Many other researchers are still not convinced of this negative relationship and on the other hand for instance, a study among Ghanaians reported a reduced likelihood of childhood mortality among polygyny family setting and the existence of multiple mothers in polygyny family arrangement as a great advantage of care for children¹⁶. The differential in these research outcomes and the state of infants' survivorship in Nigeria call for this present study.

Using nationally representative individual women recoded data of 2013 Nigeria Demographic and Health Survey, this present empirical study investigated the influence of family type and domestic violence on under-five mortality experience in Nigeria. Despite the disturbing rate of under-five mortality in Nigeria (128 deaths per 1000 live births)²⁰, our extensive literature search for the solution

for the menace in the country revealed a dearth of literature focusing this subject matter (polygyny, domestic violence and under-five death), hence our study deserves great attention.

Findings from further analysis in the study showed that age at marriage varies significantly in opposite direction to the likelihood of incidence of under-five mortality. While bivariate analysis showed no scientifically significant individual correlation between emotional and physical violence and the incidence of under-five mortality, current age of mothers and all other tested variables (educational attainment, region and place of residence, wealth status, sexual violence and family type) displayed individual significant association with the occurrence of under-five children death among the study population. Likewise in the analysis of the relationship between family type and experience of under-five mortality, respondents from polygyny family type were significantly found to have experienced more of under-five mortality than those women from a monogamous family setting. This finding corroborated what has been found in some other location within the sub-region of the world^{26,29,30}.

The fact remains that all these variables cannot operate in isolation of other variables, therefore a multivariate analysis of the data was done and our study further confirmed some risk factors as important significant predictors of under-five deaths. With the aid of a three nested model binary logistic regression of under-five death (the likelihood of under-five mortality in Nigeria) by some maternal socio-demographic variables, family type and domestic violence, the study found in the first model that the frequency of under-five mortality was significantly higher among women with early marriage (less than 25 years), low maternal educational level women, whose family was of low and middle wealth quartile, and residents of rural areas.

The study showed that early age at marriage predisposed ever married Nigerian women to high under-five mortality which is 2 to 3 times likely to occur among mothers who entered into marriage before age 25 when compared with their counterparts who entered into marriage after their 25th birthday. This result is in consonant with previous literature⁴⁰.

The nested interaction of family type and the three cat-

egories of domestic violence show a significantly higher likelihood of occurrence of under-five death among polygyny family settings, this was in consonant with findings from previous studies^{26,29,30,41,42}. Controlling for other variables, the lonely interaction of family type revealed in the significantly higher tendency of under-five death among women in a polygyny home than the likelihood among women in monogamous family settings (Model 3).

Conclusion

Going by all the afore mentioned findings, the study found a significant relationship between early marriage, low educational level, middle or low wealth status, rural residence, polygyny family type and occurrence of under-five children mortality. The study concludes that women who belong to polygyny family settings and who ever experienced sexual domestic violence are highly susceptible to experience under-five children mortality than their counterparts in monogamous family settings. The study recommends that policy makers need to consider the two subject matters in outlining solutions to the menace of this under-five children mortality in Nigeria.

Declaration

We the authors do hereby declare that the work contained in this manuscript has not been previously published or submitted for publication elsewhere and will not be submitted unless it is formally withdrawn for consideration or rejected by this journal editor.

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Conflicting of interest

The three authors declare that they have no competing interest in any form.

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