

Introduction

Poor child health outcomes including Under-five (U5) mortality have remained issues of concern across many low and middle income countries including Nigeria. In Nigeria, the most recent estimate of U5 mortality rate is 128 per 1000 live births in 2008-2013. Across the globe, the leading causes of U5 mortality are pneumonia and diarrhea among others. It was reported that illnesses related to unhealthy childcare practices such as pneumonia, diarrhea, malaria, measles and HIV/AIDS among others accounted for about 70 percent of U5 deaths. Apparently most of these illnesses are preventable through appropriate childcare practices. Mothers, in many developing countries however, whose traditional household responsibility bothers on reproduction and family care are embracing positions outside these confines leaving children vulnerable to unhealthy child care practices. This study therefore examined the extent to which the transitioning maternal household positions influence the risks of U5 mortality in Nigeria. This study was grounded in the Mosley and Chen's Analytic Framework for the Study of Child Survival in Developing Countries. The framework establishes the relationship between behavioural factors and childhood illnesses and mortality.

Data and Methods

This study drew from secondary datasets - the Nigeria Demographic and Health Surveys (NDHS). However, since cohort of women of reproductive years were surveyed in all the surveys, this study then followed a cohort panel design using the Birth Recode versions of the three most recent Nigeria Demographic and Health Surveys NDHS 2003, 2008 and 2013 datasets. Essentially, while the sample units in this study were births to women in preceding five years of each survey, there were 6868 births to 4167 women in 2003. While there were 31749 births to 20442 women in 2008, there were 34748 births to 21974 women in 2013.

Variables measurements and statistical analysis

The outcome variable is U5 mortality experience (U5 mortality) where its component variables are child's death and time of death. This is consistent with the data requirements for the adopted analysis technique – Survival Analysis. The key explanatory variable was maternal household position which was produced from index generated from four component variables including mothers' current work status, mothers' position in decisions relating to: health care; spending earnings; and large household purchases. Current work status was coded such that Not working=0 and Working=1. Other variables bothering on decisions were coded such that Mother was not

involved=1 and Mother was involved=2. Consequently, an index with possible minimum and maximum score of 3 and 7 was generated through the summation of these component variables and categorized such that mothers who scored between 3 and 4 were perceived to be in Poor Household Position; mothers in Fair Household Position scored between 5 and 6; while mothers who scored 7 were deemed to be in Good Household Position. Mothers in Good Household Position represented those who were working, and were involved in all decisions regarding their health care, spending their earnings; and large household purchases. As required in the analysis technique of measuring risks of child survival - Cox Proportional Regression Analysis – child’s death status was reversed such that dead children were coded 1 and those alive, who were later censored were coded 0 since they did not experience the event of interest during the study period.

Results

Table 1 shows the key variables in this study - experience of U5 mortality and maternal household position between 1998 and 2013. Improvement in child care was noticeable over the years as the proportion of mothers who experienced U5 mortality consistently dropped between 2003 (15%) to 9% (2013). Also, mothers who were poorly positioned at the household level were 9% in 2003, 15% in 2008 and 9% in 2013. Corresponding fairly positioned mothers were 74%, 56% and 59% respectively. Mothers in good household position were 17% in 2003, 29% in 2008 and 33% in 2013. These changes apparently confirm the presumed overtime transition of mothers’ position at household level.

Table 1 Distribution of mothers by experience of U5 mortality and maternal household position

Characteristics	2003		2008		2013	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Experience of U5 Mortality						
No	5863	85.4	28105	88.5	31531	90.7
Yes	1005	14.6	3644	11.5	3217	9.3
Total	6868	100.0	31749	100.0	34747	100.0
Maternal Household Position						
Poor	360	9.3	2549	14.9	1881	8.6
Fair	2871	73.9	9570	55.8	12888	58.9
Good	652	16.8	5028	29.3	7128	32.5
Total	3883	100.0	17247	100.0	21896	100.0

Table 4 Cox proportional hazard regression analysis results showing the effect of maternal household position and other selected background characteristics on risks of U5 mortality (2003, 2008 and 2013)

Characteristics	2003		2008		2013	
	Model 1 UHM1	Model 2 AHM1	Model 1 UHM2	Model 2 AHM2	Model 1 UHM3	Model 2 AHM3
Maternal Position						
Poor household position	1.00	1.00	1.00	1.00	1.00	1.00
Fair household position	0.89(0.61-1.32)	0.97(0.64-1.48)	1.24(1.06-1.45)*	1.29(1.10-1.52)*	1.00(0.82-1.26)	1.00(0.82-1.26)
Good household position	1.06(0.67-1.66)	1.28(0.77-2.14)	1.29(1.07-1.56)*	1.25(1.03-1.53)*	1.21(0.96-1.53)	1.12(0.88-1.43)
Age						
15-24 years		1.00		1.00		1.00
25-34 years		0.74(0.52-1.05)		0.86(0.73-1.02)		0.86(0.72-1.03)
35+ years		0.88(0.57-1.37)		0.77(0.62-0.94)*		0.80(0.64-1.00)*
Children ever born						
4 & below		1.00		1.00		1.00
5 & above		1.08(0.79-1.48)		1.09(0.94-1.27)		1.16(0.99-1.37)*
Educational level						
No education		1.00		1.00		1.00
Primary		1.22(0.94-1.59)		0.91(0.78-1.06)		1.03(0.87-1.23)
Post-primary		1.73(1.08-2.75)*		1.07(0.87-1.31)		1.29(1.03-1.59)*
Type of occupation						
Unemployed		1.00		1.00		1.00
Professional/Managerial		-		-		-
Sales/Agric/Clerical		1.43(0.63-3.27)		1.10(0.85-1.42)		0.81(0.62-1.04)
Labour & Others		1.37(0.57-3.30)		1.10(0.83-1.45)		0.85(0.64-1.14)
Wealth index						
Poorest		1.00		1.00		1.00
Poorer		1.04(0.77-1.40)		1.02(0.88-1.18)		1.02(0.88-1.18)
Middle		0.84(0.60-1.19)		1.10(0.92-1.31)		1.05(0.86-1.28)
Richer		0.64(0.43-0.94)*		1.12(0.91-1.38)		1.28(1.01-1.63)*
Richest		1.20(0.73-1.96)		0.80(0.60-1.07)		1.31(0.95-1.81)
Ethnicity						
Hausa		1.00		1.00		1.00
Igbo		0.78(0.44-1.39)		1.47(1.17-1.86)*		1.00(0.77-1.31)
Yoruba		0.92(0.55-1.54)		1.19(0.91-1.56)		0.82(0.61-1.10)
Others		1.18(0.93-1.51)		1.21(1.06-1.38)*		0.97(0.84-1.11)
Living arrangement						
Mother living with husband/partner		1.00		1.00		1.00
Mother not living with husband/partner		0.93(0.67-1.29)		1.13(0.92-1.38)		1.03(0.84-1.28)
Type of residence						
Urban		1.00		1.00		1.00
Rural		1.22(0.91-1.63)		1.05(0.89-1.25)		0.95(0.79-1.14)

* Significant at $p < 0.05$

As observed in Table 4, unadjusted hazard models (UHM) and adjusted hazard models (AHM) were fitted. Adjusted or otherwise, except in 2008 where both models showed that maternal household position significantly influence U5 mortality experience, models in 2003 and 2013 were weak on statistical significance of influence of maternal household position on U5 mortality experience. Regardless, in 2003 considering the UHM1 and AHM1, relative to children whose mothers were poorly positioned at the household level, children whose mothers are fairly positioned had 11

percent (CI=0.61-1.32;p>0.05) and 3 percent (CI=0.64-1.48;p>0.05) reduced risks of dying respectively. Whereas, children whose mothers were in good household position in the same year had 6 percent (CI=0.67-1.66;p>0.05) and 28 percent (CI=0.77-2.14;p>0.05) elevated risks of dying compared to children whose mothers were poorly positioned in the household. With a twist in 2008, compared to children whose mothers are poorly positioned in the household both UHM2 and AHM2 showed elevated risks of U5 mortality to children whose mothers were both fairly positioned (UHM2:24% CI=1.06-1.45;p<0.05, AHM2:29% CI=1.10-1.52;p<0.05) and those whose mothers were in good household position (UHM2:29% CI=1.07-1.56;p<0.05, AHM2:25% CI=1.03-1.53;p<0.05). In the most recent survey (2013), children whose mothers were fairly positioned in the household had the same risks of U5 mortality with those whose mothers were poorly positioned, however, compared to children whose mothers were poorly positioned in the household, children whose mothers were in good position in the household had elevated risks of U5 mortality in both UHM3 (21% CI=0.96-1.53;p>0.05) and AHM3 (12% CI=0.88-1.43;p>0.05).

Discussion, Conclusion and Recommendation

The thrust of this study rests on the background that improvement in women's capacity regarding empowerment would promote their children's wellbeing. However, in Nigeria and Africa at large - typically patriarchal societies – household positions of most mothers are rarely independent of men's dispositions although in recent times there have been gradual improvements. Therefore, involvement rather than absolute independence in key household decisions and economic activities is worthy of note. Ironically, as observed in this study, it appeared excessive economic liberation of women and involvement in key household decisions is inherently outlandish to what typically obtains in Nigeria and therefore did not inform positive outcomes on the children's survival. For instance, over the three survey periods, noticeable improvement was observed between 1998 and 2013 in maternal household position. There was an overtime increase in proportion of mothers in Good household position and consequent decline in that of mothers in Poor household position but these changes did not essentially culminate into significant effect on risks of U5 mortality. In general, it is noteworthy that children of mothers in Fair household position over the survey periods had either the same or better risks of U5 mortality while those of mothers in Good household position always had worse risks of U5 mortality however weak on significance. Therefore, this study concluded that extreme household positions of mothers had mild influence on children's risks of U5 mortality. It also recommended that programs aimed at empowering and improving women's household positions should be eclectic and flexible to accommodate their other family roles