FACTORS ASSOCIATED WITH UNDER FIVE MORTALITY IN IGANGA/MAYUGE DISTRICTS, UGANDA.

PRESENTED TO THE INDEPTH SCIENTIFIC CONFERENCE (ISC) ADDIS ABABA, ETHIOPIA

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BACK GROUND TO THE STUDY

- The dramatic decline in preventable child deaths over the past quarter of a century is one of the most significant achievements in human history.
- The global mortality rate has declined by nearly half (49 per cent) since 1990, dropping from 90 to 46 deaths per 1,000 live births in 2013.
- Despite this admirable accomplishment worldwide, African counties are still struggling with high child mortality rates.

Back ground continued

- The risk of a child dying before completing 5 years of age in Africa is 95 per 1000 live births, about 7 times higher than in Europe (17 per 1000 live births).
- There are great inequities in child mortality between high-income and low-income countries. The child mortality rate in low-income countries is 76 deaths per 1000 live births – almost 13 times higher than the average rate in high-income countries (6 deaths per 1000 live births).
- According to Uganda demographic and health survey 2011, the under 5 mortality rate in Uganda was 90 deaths per 1000 live births.

Background continued

- Reducing these inequities across countries and saving more children's lives by ending preventable child deaths are important priorities.

- To be able to reduce preventable mortality it is important to know determinants for death among children in Uganda for policy and health system planning.

Background continued

- Research has shown that a number of factors affect under 5 mortality. These include access to electricity, country's expenditure on health, household income, vaccination status of child, mother's behaviors, personal characteristics of child and community characteristics.

- These formed a basis of the study at Iganga/Mayuge HDSS where no such a study had ever been under taken.

Background continued

- Iganga-Mayuge Health and Demographic Surveillance Site (IMHDSS) was established in 2004 by Makerere University in collaboration with Karolinska Institute funded by the Swedish International Development Agency (Sida).
- The aim of the site was to register and monitor key health and demographic dynamics to produce policy relevant population data, to serve as a platform for community based research and to provide research training for students and researchers in and outside of Uganda.

Background continued

- The site is located in the two districts of Iganga and Mayuge in Eastern Uganda.
- This area is mainly rural and was selected as a research site because the demographics are fairly representative for the country as a whole, making the results transferrable to Uganda and even other countries in Africa.

Background continued

- The null hypotheses were: That the above factors do not affect under 5 mortality, and that there is no relationship between under 5 mortality and child age.

OBJECTIVES OF THE STUDY

- The Main aim of the study was to determine socio-economic factors associated with under five mortality in Iganga/Mayuge HDSS
- To establish the relationship between under five mortality and child age

METHODOLOGY

- A total of 1,098 children who died between 2008-2013 with in Iganga Mayuge HDSS were recruited as cases
- For every case recorded each year, a corresponding control was randomly selected from live children of the same age within the HDSS at that very time of death
- Mortality data was collected using verbal autopsy method supplemented by a longitudinal bi-annual survey that monitors births, deaths and migrations.

METHOD CONT…..

- The verbal autopsy team interviews relatives present at the sickness of the diseased individuals using a verbal autopsy questionnaire with closed and open-ended questions on the events leading up to the death of their family member.

METHOD CONT…..

- For this study verbal autopsy data was complemented with data from the IMHDSS bi-annual survey including information about sex of child, place of residence, presence of father, multiple delivery, place of birth, mother education, mother marital status, access to improved sanitation facility, access to safe drinking water, access to electricity, mother age, house hold asset variables and child age.

METHOD CONT…..

- For both cases and controls, information about sex of child, place of residence, presence of father, multiple delivery, place of birth, mother education, mother marital status, access to improved sanitation facility, access to save drinking water, access to electricity, mother age, house hold asset variables and child age were analyzed

Method continued

- Data on asset variables in the IMHDSS is available for the years 2006, 2008,2011 and 2014

- The social economic status was calculated for every year for which asset variable data is available using the first principle component analysis score of the wealth asset covariates

Method continued

- These asset variables(depending on the year) were attached to the cases and controls according to the corresponding or the nearest year of data collection.

- Access to improved sanitation was based on the world health organization definition. Families with waste disposal facilities that connect to public sewage, septic system, have flush systems, VIPs and simple pit latrines were used to define sanitation.

Method continued

- Sanitation access also encompassed use of pits to dump rubbish, availability of hand washing facility with soap or ash.

- Access to safe drinking water was defined by use of protected borehole water, piped water, taps, protected dug wells and protected spring and rain water collection.

Method continued

- A logistic regression model was applied to determine the factors associated with under five mortality
- This analysis was done using Stata version 11

Summary findings

- Adjusting for all factors show that father living with child (P_value = 0.000, 95%CI (0.00-0.01)), mother education (secondary and higher education (P_value =0.02, 95%CI (1.07-2.04)) and P_value = 0.03, 95%CI (0.88-7.8)) respectively and access to improved sanitation facilities (P_value = 0.000, 95%CI (1.2-2.46)) are together significantly associated with under five mortality at 5% level of significance.

TABLE OF FINDINGS

Variable		n	%	Cases	Controls	Unadjusted OR	Unadjusted 95%CI	Unadjusted p-value	Adjusted AOR	Adjusted CI(95%)	Adjusted p-value
Gender	FEMALES	1067	48.6	529	538	1		1			
	MALES	1129	51.4	569	560	0.97	(0.83-1.14)	0.733	0.95	(0.78-1.15)	0.59
Place of residence	Peri_urbarn	501	22.8	226	275	1		1			
	Rural	1695	77.2	872	823	0.8	(0.65-0.97)	0.022	0.91	(0.67-1.23)	0.53
Father present	Yes	1688	77	591	1097	1		1			
	No	508	23	507	1	0.0009	(0.0001-0.0066)	0.000	0.00	(0.00-0.01)	0.00
Multiple delivery	No	2103	96	1048	1055	1		1			
	Yes	93	4	50	43	0.85	(0.57-1.27)	0.437	1.10	(0.65-1.86)	0.73
Place of birth	Health facility	1672	76	846	826	1					
	Home	349	16	171	178	1.14	(0.91-1.42)	0.245	0.94	(0.72-1.22)	0.65
	Others	175	8	81	94	1.32	(0.98-1.78)	0.07	1.21	(0.84-1.74)	0.31
Social economic status	Poorest	581	26.5	306	275	1		1			
	Very poor	526	24	269	257	1.02	(0.82-1.29)	0.82	0.96	(0.73-1.27)	0.80
	Poor	478	21.8	234	244	1.09	(0.87-1.38)	0.46	1.06	(0.8-1.42)	0.67
	Less poor	419	19.1	195	224	1.19	(0.94-1.53)	0.15	1.13	(0.8-1.58)	0.49
	Least poor	192	8.7	94	98	1.05	(0.77-1.45)	0.76	1.02	(0.6-1.73)	0.95
Mother Education	Primary	1856	84.5	926	930	1		1			
	Secondary	307	14	156	151	1	(0.79-1.26)	0.99	1.48	(1.07-2.04)	0.02
	Higher education	33	1.5	16	17	1.15	(0.6-2.22)	0.67	2.62	(0.88-7.8)	0.03
Mother Marital status	Married	2044	93.1	994	1,050	1		1			
	Single	92	4.2	55	37	0.7	(0.47-1.04)	0.08	0.75	(0.45-1.23)	0.25
	Never married	60	2.7	49	11	0.3	(0.17-0.51)	0.000	1.37	(0.5-3.72)	0.54
Access to improved sanitaion facility	No	1901	86.6	896	1,005	1		1			
	Yes	295	13.4	202	93	0.6	(0.48-0.75)	0.000	1.71	(1.2-2.46)	0.00
Access to safe drinking water	No	515	23.5	239	276	1		1			
	Yes	1681	76.5	859	822	0.9	(0.74-1.08)	0.250	1.05	(0.83-1.32)	0.70
Access to electricity	No	1869	85.1	924	945	1		1			
	Yes	327	14.9	174	153	0.9	(.71-1.12)	0.31	0.85	(0.61-1.2)	0.36
Mother age		2196				1.01	(1-1.03)	0.014	1.01	(0.99-1.02))	0.38
Child age		2196				1.75	(1.62-1.89)	0.000			

Findings continued

- The above results shows that children not living with own fathers have very high chances of not surviving through the first five years of their lives.
- Mother's education is also an important aspect that affects under five mortality, mothers attending secondary school increases the chances of under 5 survivals by 48%. This increase can be as low as 7% and as high as 104%.

Findings continued

- A mother attaining an education higher than secondary also increases chances of under five survival by 162%. This increase can be as high as 680%.
- The research also proved that children or households having access to improved sanitation facilities like hand washing facilities, good toileting habits, using soap or ash , having rubbish pits are 71% more likely to survive compared to those with no access. This likelihood to survive can be as low as 20% and as high as 146%.

Findings continued

- Another important discovery of this research is that under five mortality is related to child's age. Every year a child spends living increases that child's survival by 75%. This increase can be as low as 62% and as high as 89%.

Findings continued

- Factors that were not associated with under five mortality were access to electricity, Access to safe drinking water, Mother marital status, social economic status, place of birth of child, multiple delivery and sex of child.

RECOMMENDATIONS

- It is important for health system planners to put extra focus on households with children orphaned by fathers, or children not living with fathers.
- Creating employment opportunities to mothers will ensure continuity of support to a family even when a father passes on.

RECOMMENDATIONS CONTINUE

- Encouraging future mothers to attain education and providing quality free education to all will have a higher impact on the reduction of under five mortality in Iganga/Mayuge HDSS

- Encouraging access to hygiene and sanitation facilities will contribute to higher child survival in Uganda.

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