Trends and determinants of health facility delivery services utilization among mothers giving birth in urban slums of Nairobi, Kenya

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Abstract

High maternal mortality remains a challenge for the attainment of the third Sustainable Development Goal in Sub-Saharan Africa. In Kenya, maternal mortality remains high at 510 deaths per 1,000 live births. Utilization of health facility delivery services ensures safe birth and is vital for the reduction of maternal mortality. However, this can be greatly affected by socioeconomic and geographical inequalities. In this study, we assess the trends and determinants of health facility delivery service utilization among women giving birth in the urban slums of Nairobi, Kenya. Data was obtained from the Nairobi Urban Health and Demographic Surveillance System (NUHDSS) comprising 19,469 deliveries observed between 2003 and 2015. Generalized estimating equation (GEE) was used to assess factors associated with health facility delivery. About 81% of the deliveries occurred at health facilities with 19% occurring at home or outside a health facility. The results further indicated that, education, parity, and relationship to head of households were significantly associated with health facility delivery. Increasing awareness of the mothers about the benefits of institutional delivery service utilization and the risks of home delivery should be given extra attention during antenatal care visits follow up by health practitioners.

Keywords: Maternal mortality, healthcare delivery, slums, NUHDSS, Nairobi

1. Introduction

Globally, approxmmately 536,000 maternal deaths occur annually due to conditions related to pregnancy or childbirth. The maternal mortality ratio remains highest in sub-Saharan Africa accounting for more than half of maternal deaths worldwide [1]. Additionally, the lifetime risk of women dying from childbirth is 1 in 76 which contrasts sharply with a risk of 1 in 8,000 in developed countries thus making maternal mortality a social equity indicator [2,3].

Limited access to skilled health care services during delivery is a major reason for high maternal and infant mortality rates worldwide [4,5]. Since most maternal deaths and obstetric complications cluster around the time of delivery [6] and cannot be predicted a priori, utilization of facility-based delivery services during and after pregnancy remains the most effective health intervention in reducing maternal mortality and complications. Utilization of skilled birth attendance by women during childbirth is regarded as a significant pre-requisite for achieving Sustainable Development Goals 3.1 and 3.2 to ensure safe motherhood and child survival. Nonetheless, a large proportion of women in sub-Saharan Africa continue to give birth outside health facilities without any skilled attendance [7,8]. Despite major progress towards reducing maternal mortality over the last decade, it is still unlikely that many countries will achieve their Sustainable Development Goal of a maternal mortality ratio of less than 70 maternal deaths per 100,000 live births by 2030 [9].

Poor utilization of maternal health care services due to socioeconomic and geographical inequalities in many developing countries are well documented [10,11]. Previous studies suggest that user-fee removal for maternal healthcare services is linked with an increase in the use of skilled birth facilities [12–14]. Even with the introduction of subsidized maternal healthcare services in some countries, maternal health outcomes of women in the lowest wealth index remain persistently poor[2,11]. In most countries, approximately 75% of urban and 40% of the rural births take place at health facilities. However, rapid urban growth has led to an increase in the number of urban poor living in slums with limited access to health care services [15]. Furthermore, the cost of health services remains an important impediment to health care utilization in low-income countries [16]. Vulnerable urban communities such as slums continue to be poorly served. This is not only the result of under-provision but a product of unified variables such as poverty, inequitable distribution of healthcare services, poor referral systems, vertical programming, and management challenges

[17].

In Kenya, the proportion of facility-based deliveries has been evidenced to increase from 44% in 2008 to 61% in 2014 [18]. This increase has been partly attributed to the introduction of a flat fee for all primary health care services in 2004 and free deliveries in 2007. However, a number of studies have shown that residents of slum areas of Nairobi register poorer health outcomes than other urban residents, and even than the rural residents [19]. The prevalence of assisted skilled deliveries is low, with only 52% of the deliveries in Nairobi slums as compared to 78% citywide [20]. Furthermore, maternal mortality in these slums stands at 706 maternal deaths per 100,000 live births [21], far higher than the national average of 362 maternal death per 100,000 live births according to 2014 Kenya Demographic and Health Survey (DHS). While national level and regional level estimates of health facility delivery are available through KDHS, estimates for urban slums are lacking. The objectives of this study, are to examine the trends and determinants of health facility delivery service utilization among women giving birth in urban slums of Nairobi, Kenya, from 2003 to 2015.

2. Data and Methods

2.1 Data source and variables

The Nairobi Urban Health and Demographic Surveillance System (NUHDSS) was established in 2002 and covers two slums located in the heart of Nairobi. NUHDSS's community surveillance includes house to house visits that contribute to an ongoing and continuous registration of population events. As part of the activities of the NUHDSS, data on individual and household core demographic events including birth, pregnancy deaths, migrations as well as other health, livelihood and social indicators are collected bi-annually. Since its inception, the NUHDSS data has been collected on a population of about 65,000 individuals in 24,000 households yearly in two slum communities — Korogocho and Viwandani [22]. This study is based on 19,469 deliveries by women of reproductive age between 2003 and 2015.The main outcome variable is health facility service utilization at delivery, defined as deliveries that took place in health institutions and that were assisted by health professionals (doctors, health officers, nurses, midwives, or health assistants). The response is dichotomized into 'health facility' (1) and 'home/other' (0) - deliveries that took place at home or in other places (TBA facility/home or en route to a health facility), regardless of who attended the birth. The predictor variables included in the study are calendar

year (2003 – 2015), maternal age at delivery (below 20, 20 – 29, 30 – 39, and above 40 years), parity of mother at delivery (1, 2, 3, 4, 5+), highest level of education attained by the mother (never attended school, some primary, and some secondary or higher), marital status of mother (never married, married/living together, widow/separated/divorced, and refused/don't know), gender of household head (male, female), religion of mother (no religion/don't know, catholic, protestant, Pentecostal/charismatic, muslim, other religion), slum area (Viwandani, Korogocho), calendar-year, the mother's relationship to the household head (child, household head, wife, other), whether or not the mother had an income generating activity at the time of delivery (yes, no), and ethinicity (kikuyu, luhya, luo, kamba, kisii, other).

2.2 Data analysis

Descriptive analyses, including proportions and graphs were performed to understand distributional differences between mothers at delivery. Line graphs were used to visually examine unadjusted trends for health facility delivery service utilization over the study period. Bivariate relationships between categorical variables and health facility delivery service utilization were investigated using the Pearson's chi-square test. The time variable (calendar year) was modelled as continous. Collinearity among the study variables was quantified using (generalized) variance inflation factors (VIFs), but none of these VIFs were found to exceed 10, and as such no collinearity issues were identified for our statistical analyses [23]. Bivariate and multivariate parameter estimation was conducted using generalized estimating equations (GEE), to explore associations between key variables and the binary outcome – utilization of health facility delivery services. A GEE approach was preferred because of its strength in accounting for potential clustering due to multiple deliveries of a woman within the study period and in order to obtain correct standard error estimates for the population-averaged effects in the model [23]. We specified an exchangeable working correlation structure in the GEE analyses and considered robust standard errors for the estimated model parameters. Irrespective of the level of significance, all variables at the bivariate level were also included in the multivariate model. Odds ratios and their corresponding 95% confidence intervals were calculated as a measure of (the strength of) association between the independent variables and the outcome variable. All analyses were performed in Stata version 15.0 (Stata Corp, College Station, TX, USA).

3. Results

3.1 Descriptive findings

A total of 19,469 deliveries by 15,574 different mothers were recorded between 2003 and 2015. The majority of these deliveries, that is 15,706 (81%), took place at a health facility and 3,763 (19%) occurred at home or other location. Figure 1 shows the trends of the average number of deliveries by place of delivery over, with health facility deliveries steadily improving over the study period. This is also reflected in Table 1 which shows the prevalence of health facility deliveries by mother socio-demographic characteristics for select years. In general over the study period, the prevalence of health facility deliveries is increasing 68.3% in 2003 to about 95% in 2015. Similar trends were observed across all mother demographic characteristics, and across the two slum areas.

FIGURE 1 ABOUT HERE

For each of the selected years in Table 1, there was no statistically significant differences in prevalence of health facility deliveries by age of the mother, and gender of the household head. Similar observations are noted for the two slums of Korogocho and Viwandani in 2003 and 2015. However in 2009, the number of health facility deliveries in Korogocho were significantly higher than those in Viwandani ($p = 0.016$). In 2009 and 2015, mothers with an income-generating activity had significantly higher proportions of health facility deliveries when compared to those without an income generating activity ($p < 0.05$). We also observe statistically significant differences between ethinicities for the selected years, with the Kikuyu having higher proportions of health facility deliveries when compared to other ethnic groups ($p < 0.05$). Similar significant differences are observed for parity of mother at delivery, with mothers who are giving birth for the first time consistently having higher proportions of health facility deliveries. There seems to be no clear differences in proportions of health facility deliveries by a mother's religion, highest level of education attained, or the relationship of the mother to the household head.

TABLE 1 ABOUT HERE

3.2 Determinants of health facility delivery service utilization

Table 2 shows the fixed effects estimates (Odds Ratios and 95% Confidence Intervals) for the factors associated with health facility delivery from the GEE model. At the bivariate level, we observe that only slum area and gender of the household head are not significantly associated with health facility utilization. After adjusting for all mother characteristics in the multivariate model, we observe that the direction and significance of effects of slum area, mother's age at event and marital status have changed. A possible reason for this may be that at bivariate level, the effect estimates are not adjusted for the changes over time and as such, interpretation of the bivariate estimates is limited.

From the multivariate model, we observe that mother's age at delivery, marital status, and gender of the household head are not statistically significally associated with health facility delivery service utilization. However the time variable (calendar year) is statistically significant, with the odds of utilizing health facility delivery services at 1.17 times higher for an additional year lived in the slum (p-value < 0.001). However, the odds of health facility delivery service utilization for a mother living in Viwandani is 28% less when compared to the mother living in Korogocho, controlling for other factors (aOR = 0.72, 95% CI = [0.66 – 0.80]. The odds of delivering at a health facility for mothers who had achieved post-primary education were estimated to be 37% more than the odds of mothers who have never attained any formal education (aOR = 1.37, 95% CI = [1.09 – 1.72]). Further, mothers who did not have any income generating activity were 19% less likely to delivery at the health facility when compared to those with an income activity at the time of delivery (aOR = 0.81, 95% CI = [0.74, 0.88]. Ethinicity of the mother was found to be significantly associated with health facility delivery service utilization, with all other ethinicities less likely to delivery at health facilities when compared to the Kikuyu (p < 0.001). Multiparous mothers were also found to be significantly less likely to deliver at health facilities when compared to primaparous mothers, and this likelihood seems to increase with increase in additional deliveries. For instance, mothers whose delivery event was the 2^{nd}, 3^{rd}, 4^{th}, and 5^{th} or higher were respectively found to be 32%, 35%, 49%, and 54% less likely to deliver at the health facility when compared to primaparous mothers (p < 0.001). Lastly, mothers who at the time of delivery were household heads had a 24% less chance of delivering at the health facility when compared to mothers who were children of the household head (aOR = 0.76, 95% CI = [0.59 – 0.98]). Although not statistically significant, we also observe that mothers who at the time of delivery were wives

or other relatives to the household head also had less odds of delivering at the health facility when compared to mothers who were children of the household head.

TABLE 2 ABOUT HERE

4. Discussion and conclusions

The rapid urbanization in the urban settings of most developing countries has resulted in increased proportions of city dwellers living in overcrowded slums and register poor health outcomes. It's been observed that large sections of urban areas in Africa are more disadvantaged in aspects of health and social well-being as compared to rural areas [24,25]. Therefore it's imperative to greatly focus on understanding the health outcomes of the urban poor living in the urban centers. Progress towards achieving the 2030 Sustainable Development Goal may be hindered if the urban poor are not well-thought-out.

This study aimed to examine trends and determinants of health facility delivery service utilization. The findings of this study revealed that the proportion of health facility deliveries averaged at 81% in both Korogocho and Viwandani slums between 2003 and 2015. This estimate was higher than the 62% of the national average [26] but lower than the 88.5% of the 2012 Nairobi Cross-Sectional slum Survey [27]. In general, the prevalence of health facility deliveries increased from 68.3% in 2003 to about 95% in 2015. Comparatively, our findings were not consistent with other studies[28–31], where the majority of the births occurred at home and were attended to by untrained health practitioners, which is known to be the norm in urban slums. These differences might due to the improved health facility infrastructures and also the removal of user fees for delivery at all public health facilities services in Kenya. This could imply that the delivery fee exemption policy implemented by the Kenyan government encourages women to deliver in health facilities. On the hand, the present study found that mothers with no income generating activity were less likely to delivery from the health facilities. This may be intuitive, in a sense that although there may be no user fees for delivery at health facilities, mothers may still need some disposable income to cater for costs such as travel to health facilities. Further, time (calendar year) was found to be positively associated with delivering at the health facility, with increasing odds of any additional year. This is also intuitive, and as a result of national and international programs and/or policies targeting improved service delivery every other year.

Education is a significant indicator with regard to access and utilization of health care services. Generally, mothers who are more educated have better health outcomes. In the present study, mothers who had attained post-primary education were more likely to give birth at the health facility as compared to mothers who not attained any education. This finding is consistent with previous studies which had shown maternal education status to be the most significant factor associated with health facility delivery [32]. Attaining education enhances autonomy among mothers thus creating confidence and capability to make a decision on their own thus having an effect on their health-seeking behavior.

Parity was found to be another important predictor of health facility delivery service utilization. According to results of the present study, mothers who were not delivering for the first time were less likely to deliver at the health facility when compared to mothers who were delivering for the first time. In fact, as the number of parity increases, the likelihood to deliver from a health facility decreases, with mothers whose parity was 5 or more having over a 50% chance of not delivering at the health facility when compared to first time mothers. These findings are consistent with a study conducted in India, which revealed that grand multiparous mothers were less likely to give birth from health facilities as compared to the primiparous mothers [33]. The possible explanation for the low proportion of health facility deliveries among the grand multiparous mothers could be due to the fact that they feel more confident and perceive that there's no need to deliver from a health facility due to experience from previous births. Primiparous women are more likely to utilize health facility delivery services, perhaps due to to fear of complications that may arise during labor and delivery.

Maternal age had no significant association with institutional delivery utilization in this present study. Similar findings were also observed in the northern and southern Ethiopia[34,35], but they do contrast with findings from two other studies in Ethiopia which indicated that younger mothers aged 15 – 24 years are more likely to deliver from the health facility as compared to older mothers aged 35 years and above [34,36]. This was attributed to the fact that younger women are more likely to be educated than their counterparts and older mothers perceive home delivery as not as risky as they have previously given birth at home.

In conclusion, despite making significant progress towards improving maternal health, most countries in Sub-Saharan Africa are still struggling with high rates of maternal and child mortality thus making it difficult to meet the 2030 Sustainable development Goals. The reduction of maternal and child mortality mostly depends on the utilization of maternal health care services during and after pregnancy. Although the proportion of health facility deliveries has steadily improved in the urban slums of Korogocho and Viwandani in Kenya, and seem to be higher than the national average, the 19% of deliveries occurring at places other than health facilities, are a potential risk to the infants and mothers living in these two slums. The free maternal services offered by the Kenyan government is not sufficient alone to influence women living in slums to utilize delivery services. For instance, there is a need to improve on public health information and education that can influence women's knowledge on the benefits of maternal health care service utilization during and after pregnancy.

The present study has some limitations we wish to acknowledge. As far we are aware, this was the first analysis to assess trends and determinants associated with health facility delivery services in the urban slums of Nairobi. As such, external validity of the study findings from urban slums setting is limited. Further, the two urban slums of Korogocho and Viwandani may have benefited from several studies nested on the NUHDSS – some of which are interventional in nature. As this may not be case for other urban slums or informal settlements of Nairobi, and other cities in Kenya, generalizability of the present findings may be limited. Moreover, the present surveillance dataset did not have records on mothers' antenatal care attendance, actual household income and distance to the health facilities, factors that may be siginificant determinants for health facility delivery service utilization. In spite of these limitations, we believe the findings are still important as they demonstrate the trends on health facility delivery and some of the associated factors associated – which can help inform programing and policymaking especially for other urban slum areas in the country.

Declarations

Ethical consideration

The NUHDSS received ethical clearance from the Kenya Medical Research Institute (KEMRI) in 2002 and it's consequently renewed over the years. This study has used pre-existing data from the NUHDSS which had already received ethical clearance. The analysis was based on an anonymized dataset with no identifiable information on the study participants.

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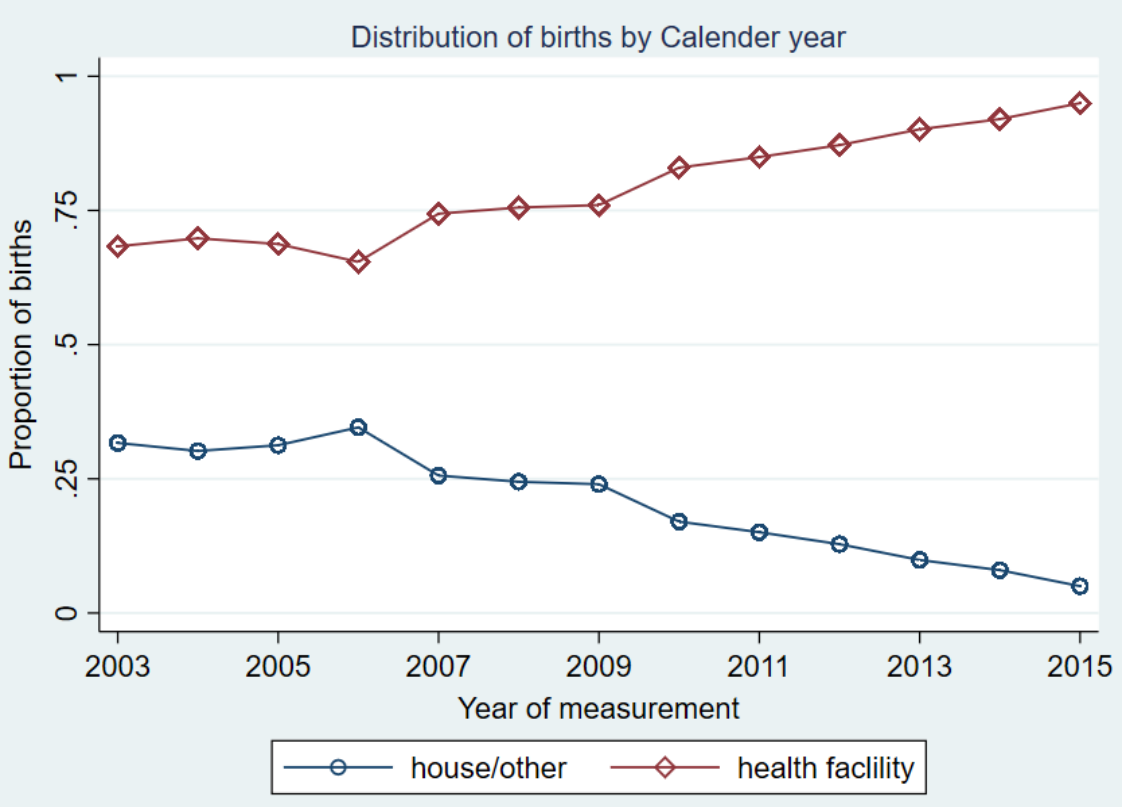

Figure 1: Proportions of deliveries by place of delivery in two urban slums of Nairobi, Kenya.

Table 1: Prevalence of health facility deliveries by monther socio-demographic characteristics for select years

Characteristic	2003			2009			2015		
	Freq (%)	p-value	Number	Freq (%)	p-value	Number	Freq (%)	p-value	Number
Slum area									
Korogocho	312 (69.5)	0.470	449	741 (78.5)	0.016	944	599 (94.8)	0.750	632
Viwandani	352 (67.3)		523	861 (74.0)		1,164	900 (95.1)		946
Age of mother at event									
Below 20	145 (75.9)	0.076	191	259 (76.2)	0.630	340	214 (96.0)	0.260	223
20-29	419 (67.0)		625	1,025 (76.7)		1,336	920 (95.5)		963
30-39	94 (63.9)		147	288 (73.7)		391	335 (93.1)		360
40 and above	6 (66.7)		9	30 (73.2)		41	30 (93.8)		32
Highest level of school ever attended									
Never attended school	49 (69.0)	0.056	71	67 (80.7)	0.003	83	74 (92.5)	0.016	80
Some primary	435 (66.0)		659	1,021 (73.7)		1,385	628 (93.5)		672
Some secondary or higher	180 (74.4)		242	514 (80.3)		640	797 (96.5)		826
Marital status of mother									
Never married	52 (85.2)	0.024	61	100 (73.5)	0.450	136	130 (94.2)	0.540	138
Married or living together	516 (66.6)		775	1,353 (76.5)		1,769	1,130 (95.4)		1,184
Widow or sepated or divorced	53 (70.7)		75	130 (72.2)		180	103 (93.6)		110
Refused to answer or don't know	43 (70.5)		61	19 (82.6)		23	136 (93.2)		146
Religion of mother									
No religion or don't know	352 (67.8)	0.092	519	48 (77.4)	0.003	62	42 (93.3)	0.720	45
Catholic	77 (60.6)		127	507 (78.6)		645	410 (94.0)		436
Protestant	47 (66.2)		71	284 (74.5)		381	368 (96.3)		382
Pentecostal or Charismatic	104 (71.7)		145	494 (76.4)		647	434 (94.8)		458
Muslim	35 (70.0)		50	136 (65.4)		208	126 (94.7)		133
Other religion	49 (81.7)		60	133 (80.6)		165	119 (96.0)		124
Mother has income-generating activity									
Yes	161 (66.8)	0.560	241	717 (78.8)	0.009	910	662 (96.9)	0.002	683

Characteristic	2003			2009			2015		
	Freq (%)	p-value	Number	Freq (%)	p-value	Number	Freq (%)	p-value	Number
No	503 (68.8)		731	885 (73.9)		1,198	837 (93.5)		895
Parity of mother at delivery									
1	250 (75.1)	0.011	333	644 (81.2)	<0.001	793	576 (96.3)	<0.001	598
2	192 (66.9)		287	432 (74.7)		578	466 (95.5)		488
3	103 (62.4)		165	256 (73.4)		349	226 (95.8)		236
4	62 (68.9)		90	111 (68.9)		161	109 (87.9)		124
5 or more	55 (59.8)		92	147 (69.7)		211	104 (91.2)		114
Ethnicity of mother									
Kikuyu	207 (81.8)	<0.001	253	500 (85.6)	<0.001	584	363 (96.8)	0.039	375
Luhya	82 (60.3)		136	245 (68.2)		359	273 (94.8)		288
Luo	123 (58.3)		211	209 (67.9)		308	196 (91.6)		214
Kamba	133 (59.6)		223	388 (73.8)		526	373 (96.4)		387
Kisii	34 (81.0)		42	73 (73.0)		100	104 (95.4)		109
Other tribe	85 (79.4)		107	187 (81.0)		231	190 (92.7)		205
Gender of household head									
Female	120 (69.0)	0.860	174	308 (76.4)	0.82	403	339 (93.4)	0.110	363
Male	544 (68.3)		797	1,294 (75.9)		1,705	1,159 (95.5)		1,214
Mother's relationship to household head									
Child	30 (83.3)	0.230	36	64 (85.3)	0.28	75	113 (99.1)	0.020	114
Household head (self)	117 (65.7)		178	304 (75.1)		405	233 (92.1)		253
Wife	505 (68.2)		741	1,199 (75.8)		1,581	905 (95.6)		947
Other relative	12 (70.6)		17	35 (74.5)		47	248 (93.9)		264
Overall	**664 (68.3)**		**972**	**1,602 (76.0)**		**2,108**	**1,499 (95.0)**		**1,578**

Table 2: Fixed effects estimates (Odds Ratios and 95% Confidence Intervals) for factors associated with health facility delivery from the GEE model

Characteristic	Unadjusted estimates		Adjusted Estimates	
	OR (95% CI)	P-value	aOR (95% CI)	P-value
Constant			4.65 (3.29, 6.58)	0.000
Calendar year	1.17 (1.16, 1.18)	0.000	1.17 (1.15, 1.18)	0.000
Slum area (ref = Korogocho)				
Viwandani	1.05 (0.97, 1.13)	0.229	0.72 (0.66, 0.80)	0.000
Age of mother at event (ref = Below 20)				
20-29	0.94 (0.85, 1.04)	0.212	1.01 (0.89, 1.14)	0.870
30-39	0.82 (0.73, 0.93)	0.002	1.00 (0.85, 1.19)	0.959
40 and above	0.69 (0.53, 0.90)	0.006	0.90 (0.66, 1.22)	0.497
Highest level of school ever attended (ref = None)				
Some primary	0.84 (0.70, 1.01)	0.058	0.92 (0.74, 1.14)	0.422
Some secondary or higher	1.62 (1.35, 1.95)	0.000	1.37 (1.09, 1.72)	0.007
Marital status of mother (ref = Never married)				
Married or living together	0.97 (0.84, 1.12)	0.670	1.19 (1.00, 1.43)	0.051
Widow or sepated or divorced	0.80 (0.66, 0.96)	0.018	1.07 (0.86, 1.33)	0.552
Refused to answer or don't know	1.14 (0.91, 1.43)	0.254	1.17 (0.91, 1.51)	0.213
Religion of mother (ref = No religion or don't know)				
Catholic	2.21 (1.97, 2.47)	0.000	0.97 (0.85, 1.11)	0.665
Protestant	2.53 (2.23, 2.86)	0.000	0.96 (0.83, 1.12)	0.599
Pentecostal or Charismatic	1.97 (1.77, 2.19)	0.000	0.89 (0.78, 1.02)	0.095
Muslim	1.75 (1.50, 2.03)	0.000	0.78 (0.65, 0.93)	0.007
Other religion	2.66 (2.22, 3.20)	0.000	1.08 (0.83, 1.41)	0.558
Mother has income-generating activity (ref = Yes)				
No	0.70 (0.65, 0.75)	0.000	0.81 (0.74, 0.88)	0.000
Parity of mother at delivery (ref = 1)				
2	0.69 (0.63, 0.75)	0.000	0.68 (0.61, 0.75)	0.000

Characteristic	Unadjusted estimates		Adjusted Estimates	
	OR (95% CI)	P-value	aOR (95% CI)	P-value
3	0.63 (0.56, 0.70)	0.000	0.65 (0.57, 0.74)	0.000
4	0.51 (0.45, 0.58)	0.000	0.51 (0.43, 0.59)	0.000
5 or more	0.45 (0.39, 0.51)	0.000	0.46 (0.38, 0.55)	0.000
Ethnicity of mother (ref = Kikuyu)				
Luhya	0.43 (0.38, 0.49)	0.000	0.41 (0.36, 0.46)	0.000
Luo	0.33 (0.30, 0.37)	0.000	0.35 (0.31, 0.40)	0.000
Kamba	0.53 (0.47, 0.59)	0.000	0.51 (0.45, 0.57)	0.000
Kisii	0.78 (0.65, 0.95)	0.013	0.67 (0.54, 0.83)	0.000
Other tribe	0.80 (0.68, 0.93)	0.004	0.81 (0.66, 0.99)	0.040
Gender of household head (ref = Female)				
Male	1.02 (0.93, 1.11)	0.728	1.04 (0.91, 1.19)	0.555
Mother's relationship to household head (ref = Child)				
Household head (self)	0.53 (0.42, 0.65)	0.000	0.76 (0.59, 0.98)	0.031
Wife	0.63 (0.51, 0.77)	0.000	0.92 (0.72, 1.18)	0.511
Other relative	0.88 (0.66, 1.16)	0.361	0.87 (0.65, 1.18)	0.380