



Factors associated with low levels of Birth & Death Registration in Kieni East District of the Central Province of Kenya

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SUMMARY

Objective: To determine the factors associated with low levels of registration of births and deaths in Kieni East district.

Methods: This was a cross-sectional study that adopted a convergent parallel mixed method design. The qualitative study was conducted through in-depth interviews held with District Civil Registrar and Assistant Chiefs. The quantitative study was conducted through a semi-structured questionnaire administered to 373 randomly selected heads of households.

Results: Registration of births was found to be significantly associated to the mother's level of educational attainment, age of the child, attendance to early childhood education, and the income level of the household head, while the Age of the deceased predicted death registration. The level of awareness on the need to register events was high; however, knowledge of the required duration for registration, the process of registration and the importance of registration was found lacking. Costs associated with registration and lack of property to inherit were the most cited reasons for failure to register birth and death occurrences respectively. Certain segments of the residents of the district were internally displaced persons of the 2007 post election violence who were facing challenges in the acquisition of the registration documents and replacement of lost registration documents.

Conclusion: The study identified potential areas of intervention in improving birth and death registration in the district.

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Introduction

Civil registration is the process by which vital events occurring to the population are continuously recorded, thus forming a civil/population registry. The United

Nations defines it as *"the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population as provided through decree or regulation in accordance with the legal requirements of a country"*.



There are ten vital events recommended for registration as per the United Nations. These primarily include births, deaths, marriages and divorces [12].

In accordance with the United Nations handbooks on Civil Registration and Vital Statistics Systems (CRVS), civil registration is carried out primarily for the purpose of establishing the legal documents provided for by the law. The essential function of the civil registration system is to provide documentation of all vital events, and to maintain a permanent file of these records for legal purposes. Thus, the registration process *inter alia*, records the civil status of individuals and defines the relationship between individuals in the family organization based on: the facts of a birth, from which a person's civil status and other rights and obligations originate; the facts of a death, which extinguishes certain rights of the individual and creates inheritance rights and other obligations; and the facts of a marriage, divorce, separation, adoption, or legitimation, which create, modify, or extinguish civil status or other rights and obligations [6].

Secondly, the civil registration system serves as an important data source for the compilation of national vital statistics [2]. The system provides the most comprehensive and reliable source of information on birth, deaths and causes of deaths pertaining to all members of the population. The continuous recoding of vital events particularly births and deaths provide crucial information on the population, which in the main, cannot be met by other means of data collection such as population censuses and surveys due to their periodic nature [16].

Why civil registration and vital statistics matter for Africa

As of 2009, the African continent was home to about 15% of the world's population. According to World Bank reports [11], a significant number of these populations (48.5% in Sub-Saharan Africa) live on less than 1.25 dollars a day. High levels of morbidity and mortality, especially among women and children, further characterize African countries. Disease outbreaks and epidemics are common phenomena on the continent [15]. Harsh socio-cultural practices exposing children to abduction, child labour, forced enrollment into armed militia, child prostitution, early marriage and other social vices that threaten life are common [7]. Political instability arising from electoral fraud is a regular occurrence and an expectation for most countries undergoing a transition in political leadership [5].

In working to address the above challenges, African governments, Civil Society Organizations, Non-governmental Organizations, United Nations agencies and other international organizations are all faced with a fundamental constraint of defining the populations they serve, understanding the needs of these populations, and delivering the required services. This is due to the fact that most countries on the continent lack a systematic flow of adequate and timely information of the number and characteristics of their population since Civil Registration and Vital Statistics (CRVS) Systems, the most adequate sources of such data are not functioning properly in majority of countries. The Working Group on Monitoring of Vital events has referred to the later as a 'scandal of invisibility'. The group reports that: "*Most people in*



Africa and Asia are born and die without leaving a trace in any legal record or official statistics making it difficult for the public sector to manage and monitor its human capital."

The absence of comprehensive CRVS systems has been and is continuously counteracting development efforts on the continent. Most African Governments have committed to the realization of the Millennium Development Goals (MDGs). However the measurement of state and progress in these remains a big challenge. Countries are not able to account on any improvement/lack of in reducing Maternal Mortality, Infant Mortality or Child Mortality without a proper record of deaths occurring to the population as well as the Causes of death. Accurate measurement of progress in the other non-health related indicators such as the Eradication of extreme poverty, the attainment of Universal primary education, and gender parity are also dependent on the availability of an all inclusive population base denominator, which is accurate and up-to-date.

Civil registration, vital statistics and the health sector

The health sector is a key role player and beneficiary of the products of the CRVS system [10]. The occurrence of life, sustenance of and the end of life all rest within the health sector. This makes health systems an important avenue for improving the operation of the CRVS systems, particularly the registration of births, deaths and accurate documentation of causes of death. The health sector is also a fundamental user and beneficiary of vital statistics derived from the civil registration system. Health programming and planning

and health related interventions largely depend on accurate vital statistics and records on causes of death [16].

Birth registration records from civil registration are the basis for ensuring that a child and its mother are reached by essential post-natal public health programmes which dictate the survival of the child in its early years of life and its mother as well. Such include follow up of; vaccination and immunization for infants and children, low birth weight and pre-mature infants, children born with defects, physically handicapped children and attending to delivery complications. By providing proof of age, identity records and documents derived from birth registration protect children from life and health threatening events resulting from abuse, exploitation, and harmful traditional practices such as forced and early marriage and circumcision of girl children [6].

Records of death and causes of death form the core of life preservation. Accurate records on death and causes of death ensure evidence based planning and action for all public health programmes [13]. With proper records of the dead, a country has the benefit of monitoring and controlling the spread of infectious diseases including taking measures to find cases of epidemics and all possible contacts for intervention purposes. Important also is the ability to monitor whether or not health programmes put in place have made any difference or achieved the desired impact.

Civil registration and vital statistics in Kenya

In Kenya, the CRVS system has been existent since 1904. Unfortunately like in many other countries, this



system has not been adequate in coverage and completeness. Currently, close to half of all birth and death occurrences in Kenya go unregistered. According to the 2010 annual civil registration statistics report, birth and death registration coverage rates nationally, were estimated at 58.9% and 49.5% respectively. Regional differentials in registration coverage range from as low as 21.25% to 86.78% for births and from 0.6% to 18% for deaths, with Nairobi province leading in registration coverage of both events and North Eastern province recording the lowest coverage rates. Though regional differentials rank Central Province as having the second highest birth and death registration coverage rates in the country, the registration levels are still far from satisfactory with 40% and 32% of birth and death occurrences not registered respectively. According to the 2010 annual civil registration statistics report, Kieni East District of Central Province records among the lowest birth and death registration coverage rates in the country (30.7% and 27.8% respectively).

The result of the above is that vital statistics from the civil registration system though important, have not been optimally useful in informing Kenya's health systems. Targets to lower the under-five mortality rate, maternal mortality rates and the reduction of the HIV prevalence rate are among the MDGs that Kenya has committed itself to achieve. The progress on these and many other national targets cannot be monitored in the absence of accurate and timely civil registration data. Furthermore, the establishment of a Kenya's national population register as targeted in Kenya's "Vision 2030" heavily depends on the completeness of the CRVS systems [3].

The general objective of this study is to identify the factors associated with the low levels of birth and death registration in Kieni East District, a district which records low registration levels despite being in Central Province where birth and death registration coverage is known to be relatively high.

Materials and Methods

The study adopted a convergent parallel mixed method design. In this design the qualitative and quantitative strands of research are conducted separately yet concurrently and merged at the point of interpretation. Equal Priority was given to each strand. The rationale for mixing was that both quantitative and qualitative methods complement each other and allow for more complete analysis [8], which is crucial in reviewing the factors influencing the service supply and demand aspects of birth and death registration.

Quantitative research

The study adopted a cross-sectional quantitative study design. The quantitative study used semi-structured questionnaires to collect information from 373 heads of households. The sample size was computed from Fisher's et al., 1998 model adopting a prevalence of 30%. The sample size was broken down to cover five distinct administrative areas (locations) from which the clusters were constructed. One cluster was randomly selected from each of the five locations. An exercise to number households in each of the clusters was conducted. From this list, households to be interviewed were randomly selected. Clusters of an average of 74 dwellings each based on $373/5$, were constructed. The data was entered and analysed on SPSS. The chi-



square was used to test for associations between the variables. The binary logistic regression was used to model the dependent variable (registration of births and deaths) using selected independent variables. The level of significance was set at $p < 0.05$. Odds ratios (OR) and adjusted odds ratios together with their 95% confidence intervals were determined.

Qualitative research

The study adopted a cross-sectional qualitative study design. The qualitative study was conducted through key informant interviews held with District Civil Registrar and Assistant Chiefs who serve as local registration agents at community level. Five Assistant Chiefs were randomly selected to participate in the study. The rationale for selecting the five was that a point of saturation was reached in which no new information was collected from every next interview. Key informant guides were used to direct the discussions. The information was collected by note taking and using a tape-recorder. The information collected was transcribed and translated and then summarized into major thematic areas. This was then followed by an analysis to extract key findings as set out by the objectives of the study.

Results

Background characteristics of respondents

A majority of the respondents were female (58.2%). Fifty five percent (55.8%) were mothers, 30.8% fathers, 2.1% were guardians while the rest were heads of single headed households. Age group (25–34 years) had the largest proportion of respondents (34.0%), followed by those in age group (35–44) at 20.9%. Seventeen percent (17.2%) of the respondents were aged between 15 and 24 years. Most respondents, (72.4%) were married/ living together with their 'spouses'. Sixty one percent (61.4%) had attained primary education, 33.8% had attained secondary and 3.4% tertiary education. Forty three percent (43.5%) were earning an income of less than Ksh.2, 400. Forty two percent (42.5%) had an income ranging between Ksh. 2,400 and Ksh. 10,000 while 14% earned above Ksh.10, 000. The respondents were predominantly Christian.

Knowledge and awareness on birth registration

Seventy eight percent of knew that birth registration is only complete upon the acquisition of a certificate. The government pre-defined duration for current registration was known to only 14% of the respondents.

Figure 1: Awareness on birth registration

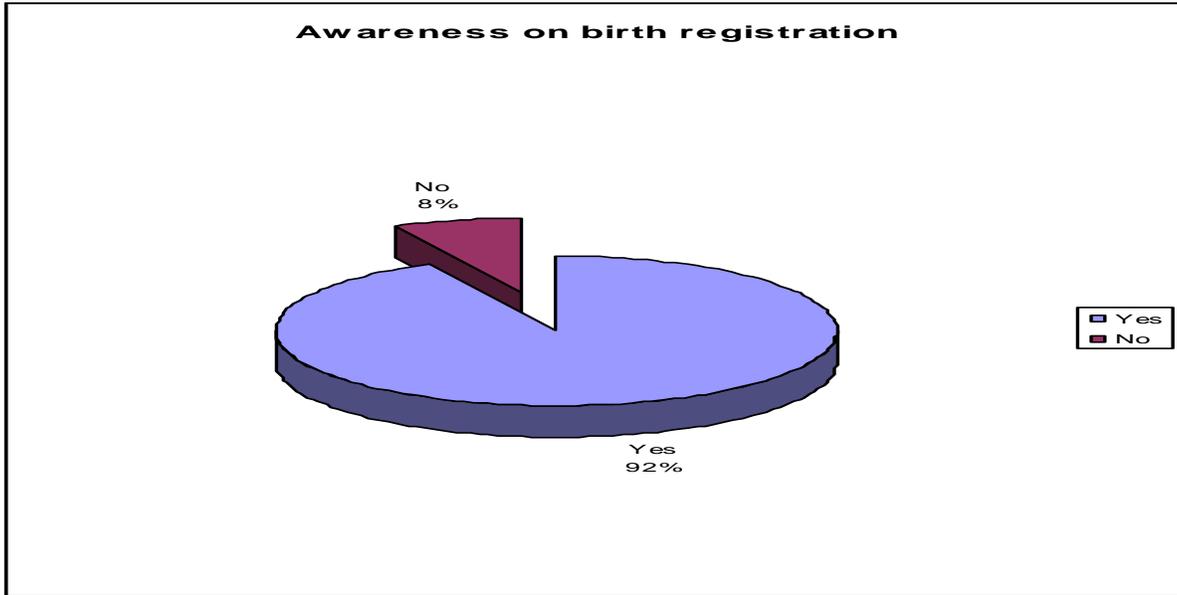


Figure 2: Source of awareness on birth registration

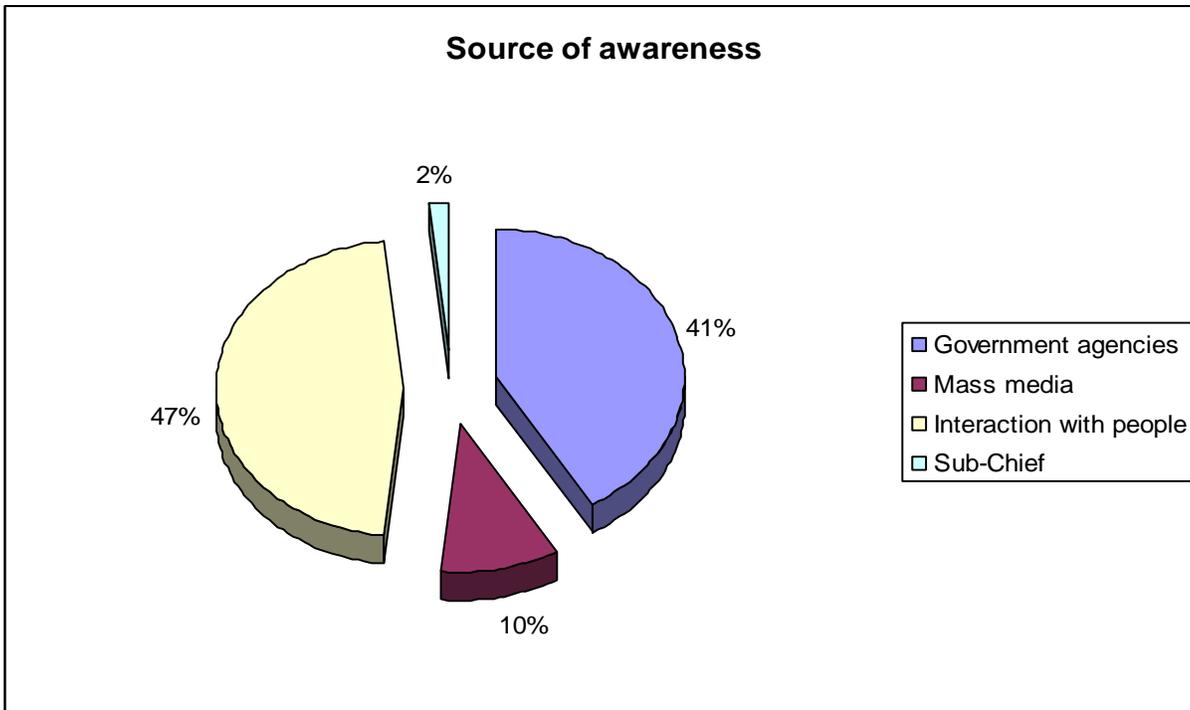
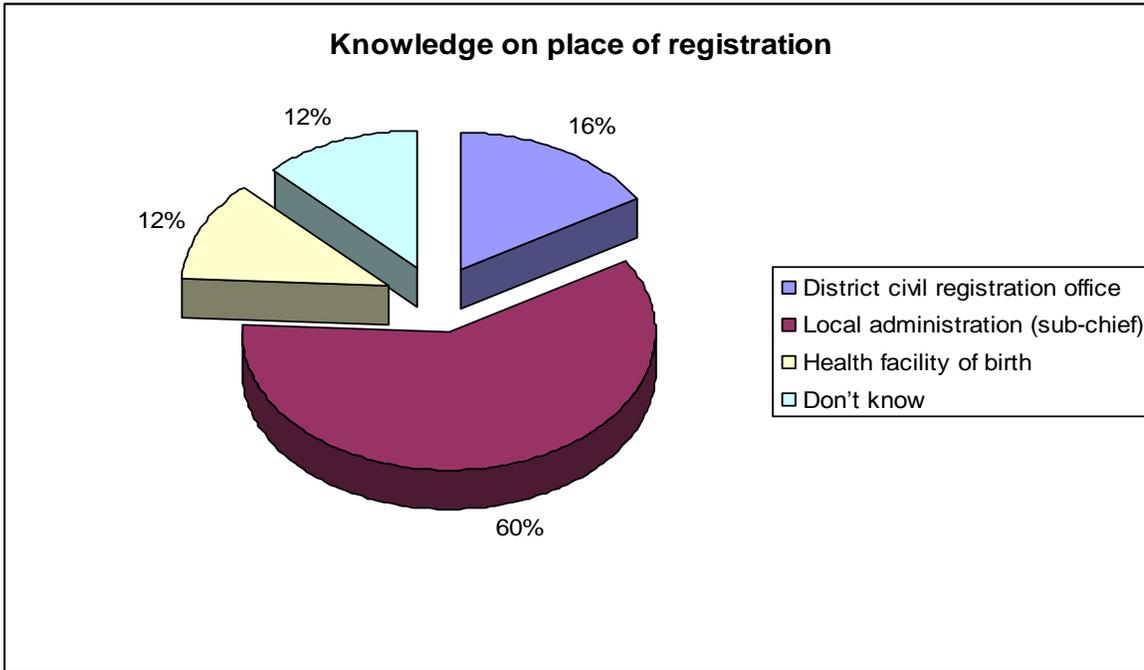


Figure 3: Knowledge on where to register births



Knowledge and awareness on death registration

Fifty nine percent (59.1%) of the respondents were knowledgeable about the complete death registration process. The remaining forty percent (40.9 %) perceived death registration to be complete upon the

acquisition of a burial permit. Only 30% of the respondents were aware of the government pre-defined duration for current registration of deaths.

Figure 4: Awareness on death registration



Figure 5: Source of awareness on death registration

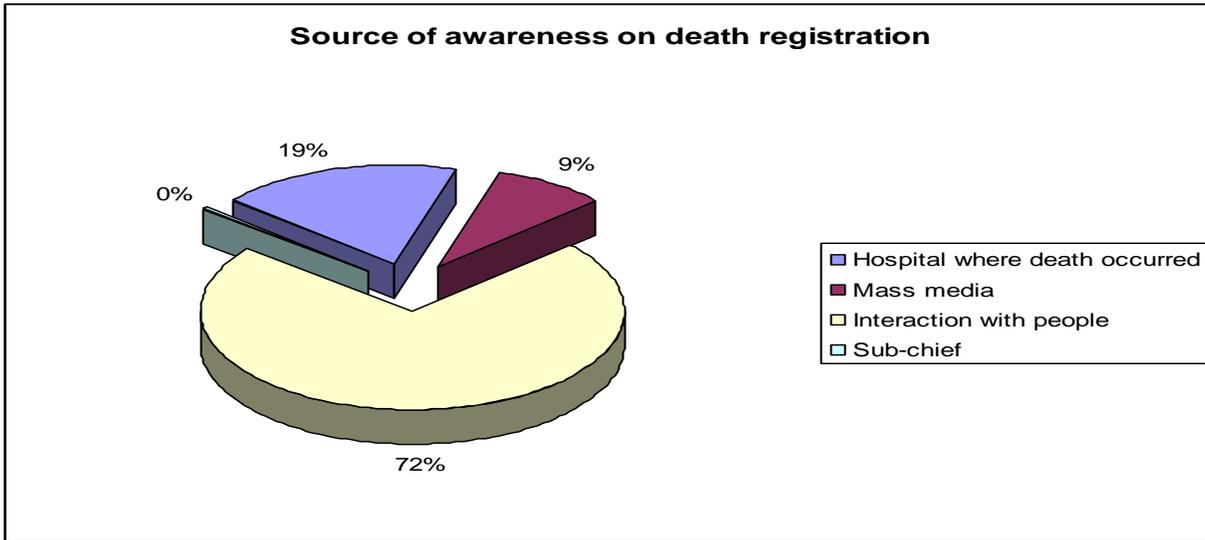


Figure 6: Knowledge on where to register deaths

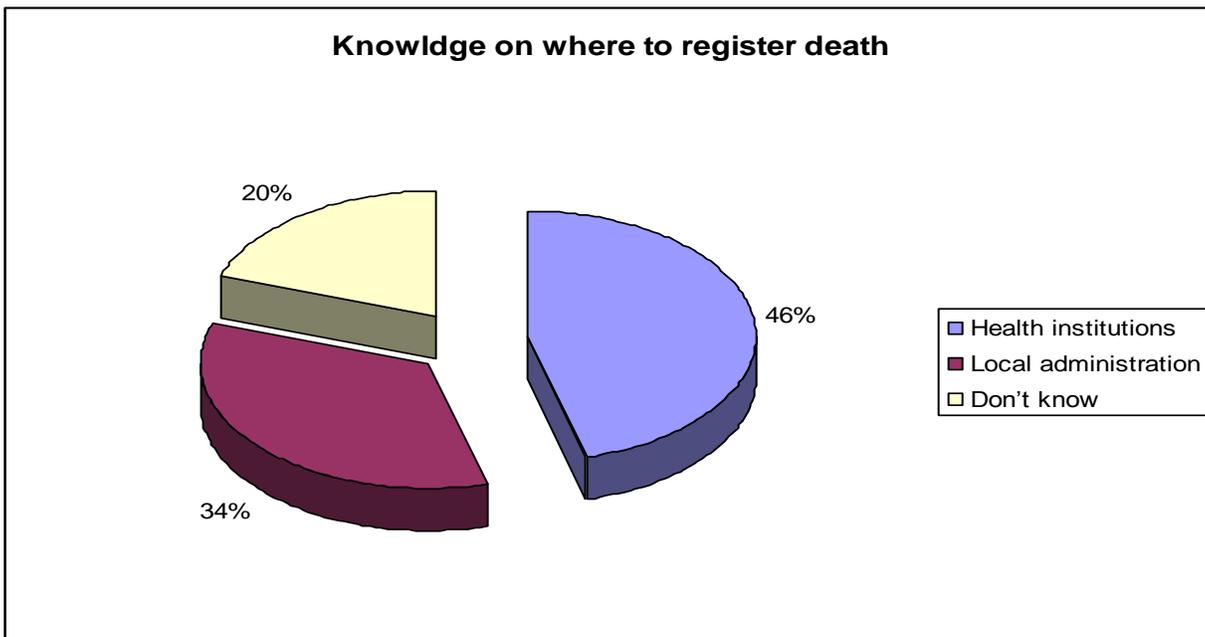


Figure 7: Perceived reasons for birth registration

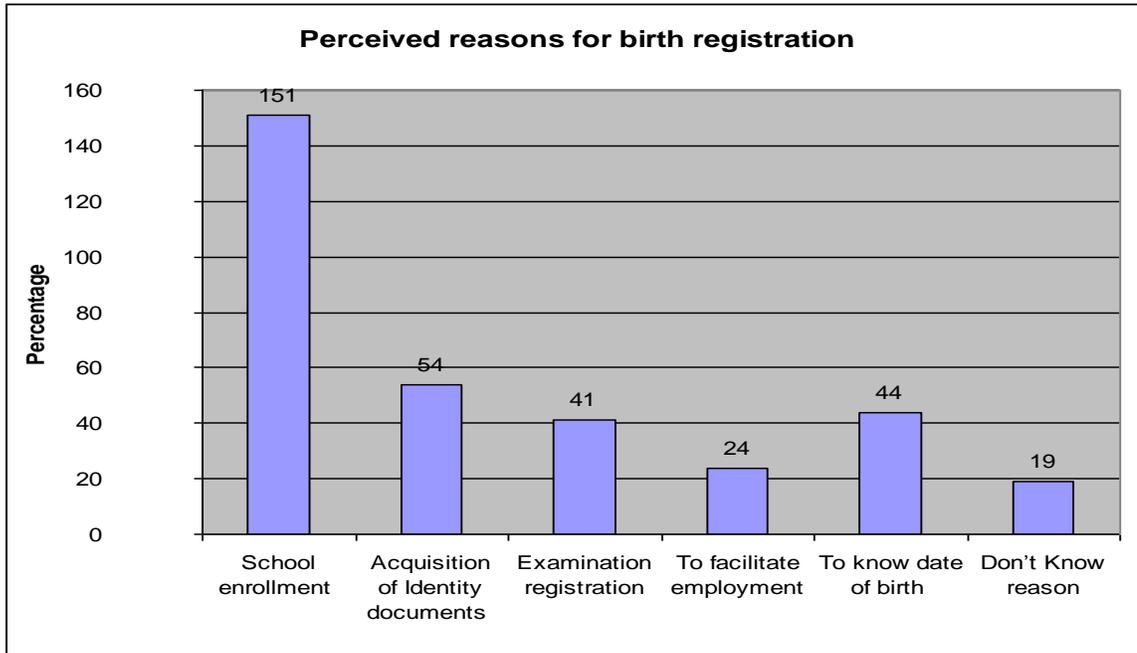
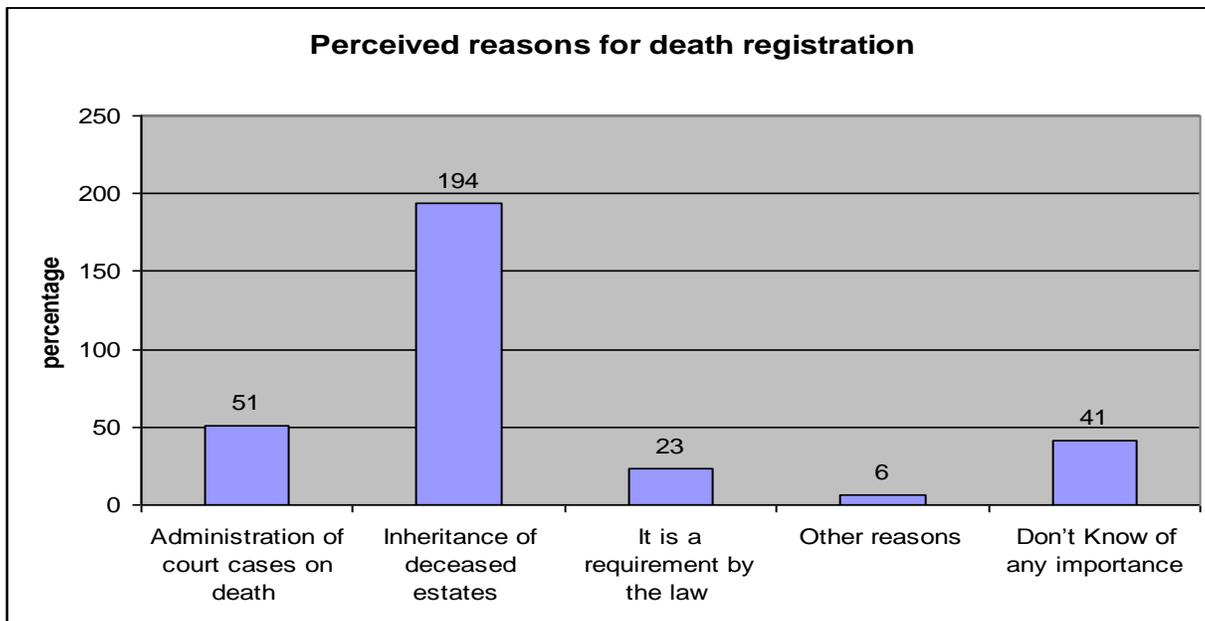


Figure 8: Perceived reasons for death registration



The practice of birth registration

Out of the 373 households interviewed, 268 (71.8%) had children aged below 11 years. Most of the children

were male (55.6%). Twenty eight percent (28.7%) were aged between one and three years. Majority of the children (82.8%) had been born within health



facilities. Eighty six percent had their birth occurrences reported and a birth notification form issued amongst all. However, only 109 (40.3%) of these children had birth certificates at the time of the interview.

Various reasons were given for failure to register births. Forty four percent (44.4%) of parents/guardians cited high costs while 30.6% felt that registration was not of any benefit to them and their children. Long distance traveled to the registration point was cited by 11.3% of the respondents. Other reasons cited for non-registration was the lack of a pressing need for a birth certificate (7.5%). Most of these respondents felt that their children were still very young and would only require a certificate when enrolling at school. Two respondents cited disability of the child, while 5% of the respondents were not aware of the practice of registering births.

Among the persons interviewed were internally displaced persons (IDPs) who had been resettled by the government in Kieni East District (Naromoru location) following the 2007 post election violence in Kenya. The respondents expressed frustration in the efforts to acquire registration documents since they were required to obtain birth notification forms from the place of birth of child as required by the law. The distances, cost involved and fears of returning to their earlier places of residence were considered great disincentives for registration. Those who had lost their documents during the skirmishes were also required to follow a similar process in order to acquire a birth notification form for their children.

The practice of death registration

Ninety-eight households (26.7%) reported to have recorded deaths in the household within the last 10 years. Of these, 92.7% had reported the death occurrence to registration agents and thus had been issued with a burial permit. Only 42.9% of these households had however acquired a death certificate for the event. Twenty five percent (25.5%) of the respondents reported that they failed to acquire a death certificate since the deceased had no property to be inherited. Twenty nine percent failed to register death occurrence since the death had occurred to a young person. The lack of importance of death registration was the reason given by 31.9% of the respondents. High costs associated with the registration process were cited by 6.4% of the respondents. The lack of knowledge of death registration practice was the reason given by 2.1% of the respondents.

Birth registration by selected background characteristics

The registration of a child's birth was found to be significantly associated with the age of child, child's attendance of early childhood education, the mother's age, mother's level of educational attainment and the income level of the child's parent/guardian. These associations were found to be highly significant with the p value being less than 0.05. The proportion of children registered was found to increase among older children, children attending school, children of older mothers, children of mothers with higher levels of education and those from high-income households. Table 1 presents the associations between characteristics of the respondents/their children and the registration of birth.



Table 1: Birth registration by selected characteristics of respondents

Background Characteristic	n (%)	Total
Sex of Child	60 (55.6)	
Male	48 (44.4)	149
Female		119
Chi-square test $\chi^2=0.030$	p=0.545	df=1
Age of Child	19 (17.6)	74
< 1 year	27 (25.0)	77
1-3 years	22 (20.4)	45
3-5 years	40 (37.0)	72
5 years +		
Chi-square test $\chi^2=15.800$	p=0.001	df=3
Place of birth of child	95 (88.0)	
Hospital	13 (12.0)	222
Home		46
Chi-square test $\chi^2=3.345$	p=0.067	df=1
Early Childhood education	64 (59.3)	
Yes	44 (40.7)	118
No		150
Chi-square test $\chi^2=17.026$	p=0.000	df=1
Mothers Age	21 (19.4)	64
15-24	38 (35.2)	100
25-34	33 (30.6)	63
35-44	16 (14.8)	41
45+		
Chi-square test $\chi^2=8.947$	p=0.030	df=3
Mothers Education level	5 (4.60)	10
No formal education	48 (44.5)	163
Primary education	55 (50.9)	95
Secondary+		
Chi-square test $\chi^2=20.255$	p=0.000	df=2



Background Characteristic	n (%)	Total
Parents /guardian's income level		
<2400	32 (29.6)	117
2,400–10,000	52 (48.2)	105
10,000+	24 (22.2)	46
Chi-square test $\chi^2=14.564$	p=0.001	df=2
Location of residence		
Thigu	31 (28.7)	65
Gakawa	18 (16.7)	54
Naromoru	16 (14.8)	48
Kabaru	25 (23.1)	63
Kiamathaga	18 (16.7)	38
Chi-square test $\chi^2=4.219$	p=0.377	df=4
Living arrangements		
Child living with both parents	97 (89.8)	243
Child living with single parent/guardian	11 (10.2)	25
Chi-square test $\chi^2=0.157$	p=0.424	df=i

Death registration by selected background characteristics

As presented in table 9, the registration of deaths was found to be significantly associated with the sex of the deceased and the age of the deceased at death. Registration of death among males was higher (68.6%) as compared to female deaths registered (38.4%). Deaths occurring to older persons were also more likely

to be registered as compared to those of younger persons. Registration was lowest among persons aged below 20 years (9.8%) and highest among those aged 40 years and above (56.8%). These findings were significant as the p value for the respective variables read below 0.05.



Table 2: Death registration by selected characteristics of respondents

Background Characteristic	n%	TOTAL
Sex of deceased		
Male	35 (68.6)	40
Female	16 (31.4)	58
Chi-square test $\chi^2=3.826$		p=0.048
		df=4
Age at death		
< 20 years	5 (9.8)	22
20–30 years	6 (11.8)	22
30–40 years	11 (21.6)	14
40 years +	29 (56.8)	40
Chi-square test $\chi^2=23.638$		p=0.000
		df=3
Education level (Household head)		
Primary education	23 (59.0)	47
Secondary+	16 (41.0)	32
Chi-square test $\chi^2=0.009$		p=0.926
		df=1
Respondent's income level		
<2400	18 (35.3)	42
2,400–10,000	22 (43.1)	36
10,000+	11 (21.6)	20
Chi-square test $\chi^2=2.676$		p=0.262
df=2		

Multivariate analysis

Multivariate analysis using a binary logistic regression model was performed to predict birth and death registration from selected predictors that were found significant during bivariate analysis. Five predictor variables included in the birth registration model were: Age of child, place of birth of child, attendance of early childhood education, mother's age, mother's level of education the income level of the household head. The results of the logistic regression analysis show that the

full model which considered all the six independent variables together was statistically significant $\chi^2=670.58$, $p=0.000$. The analysis revealed that the likelihood of birth registration in the District significantly increased with the age of the child, attendance of children to some level of schooling, higher levels of mothers education and with higher levels of income. This finding was also highly significant at $p<0.01$.

Table 3: Logistic Regression predicting Likelihood of Birth Registration

Predictors	Odds Ratios (Exp (β))	95% Confidence Interval for Exp (β)	
		Lower	Upper
Age of child			
< 1year			
1-3 years	***6.060	1.802	20.381
4-5 years	2.843	0.858	6.125
5 years+	2.076	0.704	1.016
Attendance of Early Childhood Education			
Yes			
No	*0.325	0.104	1.106
Mother's Age			
15-19			
20-24	0.223	0.027	1.842
25-29	1.156	0.265	5.046
30-34	1.162	0.234	5.770
35-39	0.592	0.139	2.522
40-44	0.655	0.129	3.326
45-49	0.782	0.158	3.869
49+	2.665	0.498	14.250
Mother's education			
No education			
Primary education	1.008	0.199	5.103
Secondary education	***2.720	1.342	5.513
Income			
Less 2400			
2,400-10,000	***3.560	1.190	10.656
10,000+	**1.220	0.425	3.502
KEY			
Level of significance	***p<0.00	**P<0.01	*P<0.05
Reference category			



For death registration, three variables were included in the model namely: the sex of the deceased, age of deceased at death, and the respondent's income level. The model was statistically significant with a $\chi^2=40.645$, and $p= .000$. Table 4 presents a summary of

the findings. The likelihood of a death being registered was observed to increase with the age of the deceased at death. Though the findings were not statistically significant, deaths occurring to males were more likely to be registered as compared to female deaths.

Table 4: Logistic Regression Predicting Likelihood of Death Registration

Predictors	Odds Ratios (Exp (β))	95% Confidence Interval for Exp (β)	
		Lower	Upper
Age of deceased			
Below 20 years			
20–30 years	3.641	0.234	5.653
30–40 years	**14.369	1.258	20.311
40+	***22.920	2.786	30.219
Sex of deceased			
Female			
Male	1.275	0.930	1.855
Respondents income level			
Less than 2,400			
2,400–10,000	0.278	0.027	2.523
10,000–20,000	0.453	0.158	3.326
KEY			
Level of significance	*** $p<0.00$	** $P<0.01$	** $P<0.05$
Reference category			

Findings of the qualitative study

The qualitative study sought to establish the service organizational factors that are likely to influence registration of births and deaths in the district. These were mainly;

- a) **Inadequate staff versus a relatively large clientele:** The assessment found the district civil registration offices not adequately staffed to perform

its duties. The office serves a population of close to 175,812 people as per the 2009 Kenya Population and Housing census, within a radius of approximately 86 Kilometers. This number is inclusive of residents of Kieni West District who do not have a Civil Registration office in their District. The office registration services are performed by two staff namely the Deputy registrar and a Clerk besides the District Civil Registrar.



b) Inadequately trained and non-motivated registration agents:

The study found the registration agents not motivated to perform their duties. This was mainly due to the fact that they are charged with undertaking other mainstream duties, being civil servants. Most of their duties entailed settling disputes within their sub-locations, a duty that is quite involving and time consuming. The second reason for their low motivation was the fact that they do not receive special remuneration for performing registration services. In addition to their low motivation, the registration agents were also found to be inadequately trained to perform their duties.

c) Lack of a well established health facility in the district:

The low levels of registration were mainly attributed to the lack of well-established health facilities in the District. This implies that events occurring to residents of the district are mostly registered in the neighboring districts and thus the expected number of births and deaths for registration is not met. *“Kieni East District has got only one well-established hospital. The rest of the health facilities are dispensaries, clinics and health centers. This implies that health service delivery associated with both births and deaths is only available in one hospital in the entire District. Residents of the District thus have a tendency to seek health care in well-established health facilities in the neighboring Districts. Births and death occurrences are therefore often registered to have taken place in the neighboring Districts and not in*

Kieni East.” (Officer at the District Civil Registration office).

Discussion

Registration of births and deaths is associated to selected demographic and socio-economic characteristics of the residents of Kieni East District. These are: the level of education of the mother, the age of child, the child’s attendance to any form of schooling, the income level of the household, the age of the mother and the age of the deceased at death. The Low registration levels are associated with the low demand for the registration documents. Besides school enrollment and the administration of the properties of the deceased for inheritance, registration of births and deaths is not found urgent. Most of the residents of the district prefer postponing the registration process until they find an immediate need for use of the certificates.

The Low registration levels are also associated with the low levels of knowledge of the government’s pre-defined duration for registration, knowledge of the complete registration process and the importance of registration. However, knowledge on the requirement to register is close universal. The lack of adequate staff and infrastructure at the District civil registration office has a possible negative impact on the efficiency of delivery of registration services. The findings of this study are similar to those of many other studies such as UNICEF’s study on birth registration conducted in 2005, Safa Ibrahim et al., 2007, Patama Vapattanawong, 2011 and Akande and Jewkes et al among others. These studies found registration of either births or deaths to be associated with most of the above-defined characteristics of the population and



similarly a number of incentives linked to whether or not an event was registered.

Recommendation

Programmatic response towards improvement of the levels of registration in Kieni East District should target persons that are not likely to be registered as identified in the study. Community awareness campaigns on the processes of registration, place of registration, importance of registration and the required timing for registration should be prioritized. It may be important to provide mobile registration services to reach persons who live a long distance away from the registration points and to cater for those with special needs such as the IDPs. There is need to strategize on how to increase the demand for registration, particularly for children below school going age and for deaths occurring to persons who do not own any properties. Such may involve collaborating with other institutions to ensure that registration documents are required for service delivery. In addition it is important to ensure that registration services are delivered as efficiently as possible to eliminate any hindrances to registration. There is need to provide: additional staff to the office, a vehicle to facilitate supervisory visits by the registrar, regular training of registration agents and an adequate office space.

Conclusion

The study identified potential areas of intervention in improving birth and death registration in the district. It may be important to conduct similar studies in other communities in the country, which should serve as

sources of knowledge while designing strategies for improvement of registration.

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