

Determinants of Vital Events Registration among Residents of Dessie City, Ethiopia, 2019: Case Control Study

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ABSTRACT

Background: Ethiopia started four vital events (birth, death, marriage, and divorce) since July/2016, but its performance is still low. However, factors influencing weak performance were not well known.

Objective: The aim of this study was to determinants of vital events registration among Dessie city residents, 2019. In

Methods: A case-control study was conducted from May 16 to April 02/2019 in Dessie city. Before the any further quantitative study, a qualitative study was performed to explore variables for designing tools to run a quantitative study. Cases were selected using a simple random technique from a list of registered events in each sub-city. The elder person from Neighbor households to cases was taken as control. Data entered using Epi Info version 7.1 and to analyzed using STATA version 14.1. In a multi-variable analysis, variables with P-value<0.05 were taken as statistically significant. Result: Socio-demographic, information sources, bureaucracy, knowledge, attitude and wealth of their respondents were theme of variables explored as possible determinants. Among these variables able to read and write [AOR=6.77, CI=(1.794, 25.537)], gave birth at governmental [AOR=2.97, CI=(1.173, 7.554)], and privatives [AOR=3.05, CI=(1.378, 6.738)] health institutions, deaths occurred during night time [AOR=0.31, CI=(4.5) CI=(0.112, 0.840)], had previous experience of being requested of certificate by anybody [AOR=14.61, CI=(4.3) CI=(2.928, 72.926)], had good knowledge [AOR=9.98, CI=(3.797, 26.241)], and good attitude [AOR=12.95, CI=(7.105, 23.621)] were significantly associated with vital events registration.

Keywords: Socio-demographic; Information sources; Bureaucracy; Knowledge; Attitude

INTRODUCTION

Vital events are the occurrence of live birth, death, fetal death, marriage, divorce, adoption, legitimation, and recognition of parenthood, annulment of marriage or legal separation. Civil or vital registration is the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events and other civil status events on the population. It is provided by declaration, law or regulation, following the legal requirements of each country [1].

Civil registration systems are used to record vital events and serve as the main source of national vital statistics. Vital events registration is the cornerstone of a country's health information

system. But there are no well-organized and functional registration systems in many developing countries as a result, a continuous and updated demographic indices are not avail [2]. Contrasting of censuses and household surveys, vital events registration system permits to account population dynamics, health, and inequities of service delivery continuously for the country as a whole and local administrative subdivisions. It also helps to facilitate access to essential services, such as health, education, gaining formal employment, and transferring property [3].

Civil registration and vital statistics system have been little progress only around one-third of all World Health Organization (WHO) member countries has systems that are considered to be

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essentially complete and producing reliable data. The registration system and data obtained are incomplete or non-existent in many developing countries [4]. The lowest levels of birth registration are found in 44% sub-Saharan Africa and 39% South Asia but this region has the largest overall number of births and children under five [5].

Unless every vital event is registered and related statistics are collected, compiled, produced and disseminated regularly and consistently, Africa as a continent cannot fulfill its dream of achieving Agenda 2063. Similarly, we should know who we are, how many we are, where we live, work and what we need to improve our living conditions [6].

The historical attempt to establish vital events registration system in Ethiopia started during the reign of Minilik. After a time, the other effort to establish the conventional vital events registration system in Ethiopia was mainly associated with the inclusion of the civil registration provisions (about 100 Articles) in the Civil code of 1960. Until 2016, the sources of vital events information have been the population census and household surveys conducted by Central Statistical Agency (CSA) and municipalities registration and issuing of certificates by major cities like Addis Ababa, Gondar, Hawasa, and Diredawa [7]. The health service system also tried to access the health of the community by undergoing institution based medical records [8]. For example, the proportion of complete medical registration by health extension workers in Ethiopia is only 28% [9]. The governments of Ethiopia currently started vital event registration since July 2015, but it is going with slow progress. The system is being conducted based on only by declaration and with less or no presence of scientific pieces of evidence. The possible determinants of the problem for why not populations are not being registered were not identified. Therefore, this study was aimed to seek out determinants for a good insight into taking the corrective measures of these vital events registration in Dessie city, 2019.

METHODS

Study area and period

The study was conducted in Dessie city administration from May 16 to April 02/2019. Dessie is the main city of South Wollo Zone, Amhara regional state, which is located 401 kilometers to the North of Addis Ababa, Capital of Ethiopia. It has five sub-cities with eight rural and sixteen urban Kebeles (*Kebele: lowest admin level in Ethiopia*) and an estimated population of 218,471.

Study design and populations

Unmatched case-control study design was conducted after qualitative data analysis for sketching variables to do quantitative data collection. All households in which one or more vital event/s occurred were source populations. The study populations, those selected household members in which one or more vital events occurred and registered were cases and those selected households in which vital events happened but did not take registration until the data collection period were controls.

Sample size determination and sampling procedure

The sample size was determined for quantitative study using epi info software taking the assumptions of; proportion ($p=50\%$) for controls since there was not any study done before upon our knowledge, 95% confident level, 1:1 cases, and controls ratio, 80% power gives a total sample size of 302. Since the sampling procedure was two stages, it was multiplied by 1.5 design effects to minimize sampling errors. Therefore, after adding a 10% non-response rate, the final sample used for the study was 498. By using a simple random sampling technique, two among five sub-cities, and from these, two rural and two urban Kebeles were selected for actual data collection. The number of households (HH) in each Kebele allocated proportionally. One member from each household; father, mother, grandmother/father or elder person present during data collection was selected by lottery method for interview. This is because in Ethiopian culture, decision making is more mandated by elder people and for vital registration, they may have a role for either. Lists of cases were taken from the respective vital events registration providing office. Study subjects were selected by simple random sampling, lottery method. The nearest household to a case in which vital event/s occurred but did not till register was taken as control.

Data collection tools and procedures

A qualitative study was conducted before as a baseline for the developing questionnaire to collect quantitative data. But, a qualitative study was not for triangulation rather tool development and as a comparison as well as supportive in the discussion part of this study. Data were collected by a face-to-face interview technique through an interviewer-administered structured questionnaire by four grade twelve completed trained data collectors.

Data quality control

The questionnaire was developed in the English language and translated to local (Amharic) language again back-translated to English to check its consistency. Supervisors and data collectors were trained for one day about the objective of the study, how to approach participants and take consent. Qualitative data collection was guided by the principal investigator and used both text writing and tape recorder for increasing consistency and accuracy. The quantitative tool was pre-tested on 25 subjects in Buanbua Wuha sub-city, Dessie town. Then necessary modifications were done according to the result. Daily based supervision was done by supervisors and principal investigators. Finality data were entered using EPI INFO version 7.1 and analyzed using STATA version 14.1.

Data processing and analysis

After collecting, qualitative data were organized thematically. The theme was based on the nature of the issues raised by the members of focus group discussion and key informants. Then quantitative data were collected and entered in EPI INFO version 7.1 and exported to STATA version 14.1 for advanced analysis. The results presented by frequency, graphs and

summary measures were computed for the description of the study population. The bi-variable analysis was done to test the association of each independent variable with the outcome variable. Then variables with P-value<0.2 were fitted to the multivariable logistic regression model. Finally, statistical significance was determined using a p-value<0.05.

RESULT

Socio-demographic characteristics

Four hundred ninety-two respondents with an equal partition of cases and controls participated in the study with a 98.8% response rate. The respondents' mean age (SD) was 37.2 (+13.9) among cases and 31.3 (+6.7) among controls, ranging from 19 to 69 years. Major, 168 (68.3%) of cases and 105 (42.7%) of controls were between 25-34 year age groups. Women constitute 185 (54.6%) of cases and 154 (45.4%) of controls. High numbers, 204 (82.9%) of cases and 211 (85.8%) of controls were urban residents separated and widowed are included.

Occurrence of events and registration status of the study participants

Less than half 186 (44.2%) of 421 currently married individuals were registered. Ninety-nine (44.2%) of 224 children under one year of age have registered the birth. Majority 58 (43%) of children were born and notified by government health facilities. Only three divorced respondents among 27 were registered for vital events registration in this study, whereas from 107 total deaths occurred more than half, 59 (55.1%) were registered.

Variables	Frequency (%)		
Current marital status	Married (421)	Registered	186 (44.2)
	Not married	Not registered	235 (55.8)
	Yes (N=224)		71 (14.4)
Do you have <12months infant/s?		Registered	99 (44.2)
	No	Not registered	125 (55.8)
	Home/other places		268 (54.5)
Where born?		Registered	17 (38.6)
	Government health HIs	Not registered	27 (81.4)
		Registered	58 (43)
	Private HIs	Not registered	77 (57)
		Registered	24 (53.3)
Any divorce in the previous two years?	Yes (N=30)	Not registered	21 (46.7)
		Registered	3 (10)
	No	Not registered	27 (90)
Any death in the previous two years?	Yes (N=107)		462 (83.9)
		Registered	59 (55.1)
	No	Not registered	48 (44.9)
Where was death occurred?	Home *		385 (78.3)
	Hospital		34 (31.8)
When was death occurring?	Day time		73 (68.2)
	Night time		34 (31.8)

When was death occurring?	Night time	34 (31.8)
	Day time	73 (68.2)

Table 1: Vital events registration for the determinants of vital events registration, Dessie city, 2019.

Knowledge related variables of study participants

Small numbers, 90 (36.6%) of cases and 24 (9.8%) of controls knew that there are four vital events implemented in Ethiopia. Respondents who knew on-time birth and death registration were 148 (60.2%) among cases and 58 (23.6%) among controls. A majority, 187 (76%) of cases, but only 55 (22.4%) of controls knew that they should notify and registered if any of the vital events occurred in their home and the community. One hundred eighty-eight (76.4%) of cases, however only 38 (15.5%) controls had good knowledge of vital registration.

Attitude of respondents towards Vital Events registration

Regarding the attitude of the study participants, 164 (67%) of cases and 109 (43%) of controls disagreed with vital event registration is a political issue. Small numbers of 24 (9%) of cases; but high, 120 (46%) of controls agreed that registering died person is a taboo. A high percentage, 163 (67%) of cases disagreed, whereas 94(38%) of controls agreed that vital events registration is an obstacle to get the deriving license (**Table 2**).

Variables	CASES/CONTROLS				
	Strongly agree	Agree	Neither	Disagree	Strongly disagree
Does VER political issue?	8 (3%)	21 (8%)	12 (5%)/	164 (67%)	41 (17%)
	26 (11%)	61 (26%)	21 (9%)	109 (43%)	29 (12%)
VER is one means of collecting money for government	7 (3%)	19 (7%)	20 (9%)	166 (68%)	34 (14%)
	20 (8%)	72 (30%)	14 (5%)	125 (50%)	15 (6%)
It is taboo to register died person	10 (4%)	24 (9%)	22 (9%)	167 (69%)	23 (10%)
	19 (8%)	120 (46%)	12 (5%)	85 (34%)	20 (8%)
It is not good to register new baby	1 (0%)	4 (1%)	20 (8%)	177 (73%)	44 (18%)
	41 (17%)	55 (23%)	12 (5%)	121 (48%)	17 (7%)

Table 2: Attitude towards vital events registration among respondents in the determinants of vital events registration, Dessie city, 2019.

Determinants of vital event registrations

Age, sex, educational status, place of delivery, time of death occurrence, having the identification card, previously being asked of any of vital events certificate at anywhere, knowledge and attitude of respondents were eligible variables to be entered into the multivariable logistic regression model. Among these eight variables, six were statistically significant to vital events registration.

The odds of respondents able to read and write were 6.77 times more likely to be registered compared to respondents who unable to read and write [AOR=6.77, CI=(1.794, 25.537)]. Parents who gave birth at governmental and private health institutions were approximately 3 times more likely to register their new birth than those families who delivered at home/anywhere [AOR=2.97, CI=(1.173, 7.554), [AOR= 3.05, CI=(1.378, 6.738)] respectively. Those households in which deaths occurred during night time in health service setting were about 70% less likely to register the dead person compared to those occurred during day time [AOR=0.31, CI=(0.112, 0.840)]. Those respondents had previous exposure of requested with any one of vital events certificate by anybody (anybody is like; school, court, emigration affairs office, and others) were 14.61 times more likely to make vital events registration than their counterparts [AOR=14.61, CI=(2.928, 72.926)]. Similarly, respondents who had good knowledge about vital events registration were around 10 times more likely to be registered than those who had poor knowledge [AOR= 9.98, CI=(3.797, 26.241)].

DISCUSSION

Before quantitative data collection, the authors explored variables by using qualitative ways. During qualitative study knowledge (awareness), accessibility of information, bureaucracy, vital event-related factors were repeatedly raised as reasons on none registration of vital events by FGD discussants and key informants during the qualitative study.

Educational status, place and time of birth/death, being asked previous vital events registration certificate anywhere, knowledge and attitude were significantly associated factors with vital event registration during the quantitative study.

Respondents who able to read and write were seven times more likely to significant association with vital events registration among Dessie town residents. In contrast, in the qualitative result, those individuals whose education levels higher were neglected to be registered, while the lower levels were because of a lack of understanding of the importance of being registered. This might be stakeholders' advocate and information dissemination on vital event registration to the population parts that they perceived may have no information to low-level educational status.

This study revealed that deaths that occurred during night time in health service settings were about 70% less likely to be registered than deaths occurred during day time. It is consistent with FGD and in-depth interview reported in this study. This might be because of work overload, absence of enforcing rules

and reluctance on health care providers or because of relatives' grief situation. But it was in contrast to the citizenship rights African initiative, in which all citizens have a right to register every event occurred there in the other way, those deaths occurred at home were not being missed registering for vital events registration system. This might be because of the good activity of volunteer vital event registration notification workers and a message from local social organizations like; Idir. Deaths that occurred at health facilities may situate in different service units that give care may not be addressed by VER advocates.

Women who gave birth in governmental and private health institutions were 3 times more likely to be registered their new birth babies than those women who delivered at home/anywhere. It was consistent with studies in Lao PDR and Nigeria.

Those respondents who had previous exposure to requesting about any one of the vital events registration certificates by anybody were 15 times more likely to make vital events registration than their counterparts. This is a good government current initiative of asking children of birth certificate at school, for deaths at the court, emigration office, etc. Similarly, respondents who had good knowledge about vital events were around 10 times more likely to be registered than those who had poor knowledge. This is similar to studies in Lao PDR and Nigeria in which knowledgeable women make more birth registration. Attitude towards vital events registration also had a significant association. Those respondents who had a good attitude were 13 times more likely to register vital events. This finding is in line with the FGD and in-depth interview of this study.

There were also segments of the population who believe that vital events registration is a political issue, registering a dead person is a taboo, registering new baby is not good by God, and event registration is means of gathering money for the government. The prevalence of a good attitude of cases was highest, 224 (91.06%), but in opposite to this highest prevalence of poor attitude 156 (63.42%) were controlled. This was similar to the FGD and key informant interviews. This study had limitations of the inability of identifying factors related to institutions; like budget allocation to registration providers and stakeholders' mobilization as well as coordination.

CONCLUSION

Educational status, place and time of birth, previous vital events registration certificate asked anywhere, knowledge and attitude were significantly associated factors with vital event registration. Authors recommended that create awareness by using different methods to bring behavior change, strengthen events notification system using voluntary advocates be continued and strengthen stakeholder organization, coordination as well as their linkages.

ETHICAL APPROVAL

Written permission letter from Wollo University and Dessie city vital events registration department, verbal consent from each study participants were obtained. Data were kept confidentially and used only for this research purpose.

CONSENT FOR PUBLICATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

All the required data has been included in the manuscript. But as necessary the qualitative audio recorded and quantitative are available at the corresponding author.

COMPETING INTERESTS

The author declares that there is no competing interest.

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