SOCIO-DEMOGRAPHIC PROFILES AND CIRCUMSTANCES OF DEATH AMONG UN-REGISTERED DEATHS IN RURAL AREAS OF GUJARAT

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ABSTRACT

Background: *With the on-going epidemiological transition, information on the pattern of mortality is important for health planning. Therefore, it is vital to search for un-registered mortality, especially among rural areas. The circumstances and profiles of the deceased should also be evaluated.*
Objectives:
  I. *To study the profiles and characteristics of the deceased in rural areas of Dabhoda PHC.*
  II. *To study the circumstances of death for the same.*
Materials and Methods: Settings: *Population covered by Dabhoda Primary Health Centre, Gandhinagar district, Gujarat. A cross-sectional study was conducted by trained multi-purpose health workers & ASHA workers through Verbal Autopsy questionnaire tool. A total of 178 unregistered deaths (which took place during January to December 2013) were interviewed. The respondents were either member of the same home or a close relative.*
Observation: *A total 59.6% of deaths occurred among males. More than half (56.2%) of the deaths occurred among those aged ≥60 years & about 1.69% deaths occurred among infants. Majority (69.7%) of the deaths occurred among "other backward class" (OBC); while most (82.6%) of the total deceased were "Below Poverty Line". Majority (n=109, 61.2%) of them died at home. "Natural death "(n=38) was the most common cause of death according to the respondents, followed by senility (n=21).*
Conclusion: *Deaths of poor and under-privileged persons are more likely not to get registered. Deaths at home are also more likely to miss registration.*

Keywords: *Un-registered deaths, Socio-demographic profiles, Verbal Autopsy, Cause of death*

INTRODUCTION

In India, practice of death registration as well as death certification has been poor since the independence. Secondly, many developing countries including India are undergoing epidemiological transition, thus shifting of cause of deaths must be sorted out carefully.[2] The mortality data related to the cause of death has not been perfect; especially for the geriatric, maternal and infant deaths. Over two-third of the total deaths occurred at home according to a national estimate. [1] Many developing countries have so far relied on estimations cause-specific mortality for health planning, by and large.[3,4] Recent data has showed that death registration varies from 30-80% in various areas of Gujarat. [5] On the other hands, knowledge regarding causes of death is vital for public health planning.[6] This is more common among rural parts, where most of the deaths are likely to take place at home or on the way to hospitals. The World Health Organization estimates that nearly 52% of deaths and 38% of total disease burden in the South-East Asian Region are related to non-communicable diseases (NCDs) underscoring the need for reliable country data in the region. [7] It is also to remember here that developing countries like India are in the phase of epidemiological transition [8]. Therefore, the health system must be up-to-date with the actual causes of deaths in the community to prevent wastage of costly health resources. Further, it must be borne in minds that birth and death registration are mandatory under the Registration of the Birth and Death Act, 1969.[9] It is also vital to look for un-registered deaths among such population to know the circumstances of death and their profiles; so that preventive action could be taken for future. A study would be fruitful if a rural area is surveyed using verbal autopsy tool by conducting a house to house survey of the deceased.

OBJECTIVES

I. To study the profiles and characteristics of the deceased in the rural areas of Dabhoda PHC.
II. To study the circumstances of death of the dead.

MATERIALS AND METHODS

A cross-sectional study was conducted among the rural populations covered by Dabhoda Primary Health Centre (PHC) of Gandhinagar district, Gujarat state. The Accredited Social Health Activist (ASHA) and the Multi-purpose Health Worker (MPHW) were involved for finding out un-registered deaths in the villages. The inclusion criterion was to find deaths during the period of one year i.e. from January to December 2013. The project was approved by the Institutional ethical committee beforehand.

The un-registered deaths among village residents were identified during health workers' routine house visits through a network of key informants which inlcuded the village headman, the Panchayat people (village governing body), religious leaders-priests and cremation staff. Based on such information, each house was surveyed which had witnessed a death of a family member during one year. The national death rate is around 9 per 1000 populations per year and death registration coverage is about 61-70% for Gandhinagar district [5]. Therefore, it was estimated that about 140-185 (probable sample size) un-registered deaths could be found for the duration of one year, after considering about 51,100 of total population served by the Primary Health Centre. The respondents were either member of the same house/family or a close relative; who had the desired information regarding the circumstances of death of the deceased. The only exclusion criteria would be those deceased persons, for whom a death certificate was found. A pre-test was carried out to find out the feasibility of the questionnaire of verbal autopsy. The data were obtained with the help of the paramedical staff, multipurpose workers of the PHC as well as from the ASHA worker/facilitator of the concerned villages. The ASHA facilitator was trained by the physician beforehand for filling up the Verbal Autopsy questionnaire.

A total of 178 un-registered deaths were found out from the villages with valid respondents. The data were evaluated for finding the causes of death using the International Classification of Diseases version 10 (ICD-10) guidelines for the cause of death, by the physicians involved in the study. The symptoms and circumstances before the death were also evaluated to find out the likely cause of death from the respondents. The other information regarding background data, common symptoms and knowledge regarding death registration were also analysed using appropriate statistical tests. Respondents' characteristics were also noted.

RESULTS

During the past one year period (January 2013 through December 2013), a total of 178 unregistered deaths were identified in the study area. This means the proportion of un-registered deaths in that year was about 38.69%, which is in the range of 30-40% for the district. [5] The results showed that 100 (56.2%) deaths occurred at ≥ 60 years age and 3 (1.69%) deaths among infants .Mean age of death is 62.97 + 18.9 years. The age group wise distribution is shown in table 1. The commonest age group for death was found to be 60-80 years for both the sexes, followed by the age group of 40-60 years. (Table 1).

Table 1: Age wise distribution of the deceased among unregistered deaths during past one year

Age group (in years)	Frequency (N, %)		Total (N, %)
	Male	**Female**	
< 1	01 (0.9)	02 (2.8)	03 (1.7)

1- 20	03 (2.8)	00 (0.0)	03(1.7)
20 – 40	09 (8.5)	09 (12.5)	18 (10.1)
40 – 60	40 (37.7)	14 (19.4)	54 (30.3)
60 – 80	40 (37.7)	32 (44.4)	72 (40.5)
> 80	13 (12.3)	15 (20.8)	28 (15.7)
Total	106 (100)	72 (100)	178 (100)

Premature deaths (death <60 years) were found more commonly among males than among females. More than half of deaths (61%) were among males. (Table 2). Most of the deceased (n=174, 97.8%) deaths were found among Hindus which may be due to Hindu predominate areas. It was interesting to note that almost all (n=164, 92.1%) of the deceased were currently married at the time of death, yet their deaths were not registered. More than one third (n=64, 36.6%) of the deceased were not literate. It was also seen that 147 (82.6%) deaths were in BPL (Below Poverty Line) family.

Table 2: Characteristics of the deceased persons among the un-registered deaths for the past one year

Variable	Categories	Frequency	Percent
Sex	Male	106	59.6
	Female	72	40.4
Religion	Hindu	174	97.8
	Muslim	4	2.2
	Others	0	0.0
Category	General	47	26.4
	Other Backward Class	124	69.7
	Scheduled Caste	7	3.9
Marital status	Married	164	92.1
	Unmarried	13	7.3
	Divorced	1	0.6
Education	Illiterate	64	36.6
	Primary	58	33.1
	Secondary	43	24.6
	Higher	19	5.7
BPL/APL	BPL	147	82.6
	APL	31	17.4
Informer for the deceased	Son	85	47.8
	Spouse	20	11.3
	Brother	16	9.0
	Daughter in law	9	5.0
	Neighbor	7	3.9
	Others	41	23.0
Total		**178**	**100.0**

The commonest occupation among the deceased was related to agriculture (n=35, 19.7%); followed by occupations like laborer (n=30, 16.9%), home based work (n=22, 12.4%), retired (n=17, 9.6%) and housewives (n=16, 9%). Interestingly, none of the maternal deaths was found to be un-registered. This would possible due to various maternal and child health schemes implemented in the state. The most common type of informer was son (n=85, 47.8%), followed by spouse (n=20, 11.3%), brother (n=16, 9%) and daughter-in-law (n=9.5%). Majority (n=109, 61.2%) of the un-registered deaths occurred at home. (Table 3). This finding supports the report of the national findings, which shows that almost two-third of the deaths in India occurs at home.[1] This was followed by deaths at hospital (n=56) and unknown

place (n=7). Lack of awareness, female deaths, infant deaths and lack of interest among family members could be the possible reasons why the deaths were not registered. On asking the possible causes of death to the respondents, it was found that majority were not aware (n=77, 43.3%) about the cause at all; followed by "natural death" (n=38, 21.3%) as the most common perceived reason for death. (Table 3). This was followed by the causes like "old age" (n=21, 11.8%) and "heart attack" (n=10, 5.6%). It could be seen that among those deceased where cause of death was

"judged" by the respondents (n=101); 18 % of them (n=18) contributed it to conditions like "heart attack" and "chronic diseases". This finding supports the results of a study from south India where Non-communicable disease contributed as a leading cause of deaths. [10]. It was also seen that about 3.37% (n=6) deaths were preceded by an illness of a week's duration. On the other hand, about 2.8% (n=5) deaths were preceded by an illness of a month's duration. Rest of the deaths had a brief duration of illness (in few days' time).

Table 3: Circumstances of death among un-registered mortality for the past one year

Variable	Categories	Frequency	Percent
Place of death	Home	109	61.2
	Hospital	56	31.5
	On the way	02	1.1
	Others	04	2.2
	Unknown	07	3.9
Cause of death according to the respondents	"Natural death"	38	21.3
	Senility –Old age	21	11.8
	"Heart attack"	10	5.6
	Chronic illness	8	4.5
	Others	24	13.4
	Not known	77	43.3
Total		**178**	**100.0**

CONCLUSION AND RECOMMENDATIONS

The study highlights the social characteristics of the deceased where the death registration has not been done. Below poverty line, low education level and backward class were some of the social characteristics found more commonly among those un-registered deaths. Deaths at home are more likely to be missed. Men are more likely to die at a younger age. The prevalence of heart diseases as a cause of death was also perceived significant by the respondents of the deceased. The findings should further be explained by tools such as verbal autopsy to find out the possible causes of death. The socially and economically backward class group should be encouraged for the importance of civil registration.

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