Research Article

A STUDY ON INVESTIGATION OF CAUSE OF DEATHS AMONG INSURED MEMBERS IMPLEMENTED BY DEPARTMENT OF RURAL DEVELOPMENT AGENCY (DRDA) IN WEST GODAVARI DISTRICT.

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ABSTRACT

Background: Survey of Causes of Death had been merged with the Sample Registration System (SRS) from 1999. Since then, a system of Verbal Autopsy under the domain of SRS has been in operation. For the last two decades disease mortality trends in developing countries was noticed, cardiovascular mortality was tremendously increasing even in rural areas also. **Objectives:** 1. To find the socio demographic variables in relation to mortality among insured persons. 2. To study the various risk factors associated with mortality in selected villages of West Godavari district. **Materials & Methods:** A community based cross sectional study was conducted at some selected villages of west Godavari district during the period from July 2013 to August 2013. A sample size of about 289 study sample was taken from maximum death rate noticed villages. Relevant death related information was collected from family members, relatives and sometimes information also collected from neighbours using simple random method. **Results**: Out of 289 death persons, majority of the people about 137 people died between the age group of 45-50 years. Out of 137 people, 71.5% were males and remaining 28.5% were females. Those who were smoking more than 10 cigars per day, 28.5% people died from digestive system diseases, 27.6% people died from circulatory system diseases. There was significant association was found between digestive system diseases and > 10 cigars consumption (P<0.001). Among alcohol consumed more than 15 years duration, about 30% people died from digestive system diseases mainly from liver disorder. **Conclusions:** Based on the above study results, few people died between the age group of 25-30 years also that reflects pre mature deaths in the society. prevalence of Smoking and alcohol consumption habits in rural area was more and were resulted in pre mature deaths in the study population and indirectly reducing the life expectancy and economic loss to the family and country.

KEYWORDS: Age, cause of death, Occupation, Smoking, Alcohol consumption.

INTRODUCTION

Mortality data by cause of death for the entire cross-section of the population in the country is essential for informed decision making in the Health Sector. The statistics on causes of death are available from the Medical Certification of Causes of Death (MCCD) under the Civil Registration System (CRS) suffering from the problem of both the coverage and quality.[1] The present Report on Causes of Death carried out on the basis of deaths happened for the last 2 years in the west Godavari district and registered under various schemes running under district rural development agency (DRDA) and Indira Kranthi patham through Government of Andhra Pradesh. 10% of death sample selected from the death registry of 14 mandals and selection of mandals also based on interior background, difficulty in access the health care facility and where more number of deaths were happened for the last 2 years. It would certainly then not only bridge the gap but also serve as a benchmark for future studies.

The underlying causes of death in the Report has been determined through an advanced form of Verbal autopsy called the "RHIME" or Representative, Resampled, Routine Household Interview of Mortality with Medical Evaluation method. This classification confirms to the

World Health Organisation's (WHO's) classification of diseases to facilitate comparison with similar national and international estimates.[2]

The gap was bridged to an extent by the 'Survey of Causes of Death' undertaken in sample villages of selected 14 Mandals of West Godavari rural areas. However, the 'Survey of Causes of Death' had been merged with the Sample Registration System (SRS) from 1999, thus encompassing both rural and urban areas. Since then, a system of Verbal Autopsy under the domain of SRS has been in operation. In order to promote the effective improvement in the system, the Office of the Registrar General, India (ORGI) in collaboration with the Centre for Global Health Research (CGHR), University of Toronto has been trying to establish a reliable system to measure the causes of death in the country.[3,4] Keeping in view of the above facts and other factors, the present study was taken up to explore certain facts regarding cause of death and also to know the ground reality of the health problems and factors leading to cause early premature deaths in the society of West Godavari district.

OBJECTIVES
1. To find the socio demographic variables in relation to mortality among insured persons.

2. To study the various risk factors associated with mortality in selected villages of West Godavari district.

MATERIALS AND METHODS
A community based cross sectional study was conducted at some selected villages in 14 mandals of west Godavari district during the period from July 2013 to August 2013. A sample size of about 289 study sample was taken from maximum death rate noticed villages. In each mandal again visited some villages and ultimately 10% of deaths covered in their locality with the help of Bhima mitra and community co-ordinators and other paramedical staff. A study participants (already died individuals) were included between 25-50 yrs age group and relevant death related information was collected from family members, relatives and sometimes information also collected from neighbours also using simple random method. Details of death list was supplied by the Department of Rural Development Agency. Before proceeding the actual study, informed consent was taken from the informant. Data was entered in SPSS software 17.0 version and followed by analysis and interpretation was done and the final ICD-10 code was used for final diagnosis. Necessary statistical tests like simple proportions, chi square tests were applied to know the significance of certain variables and associations.

RESULTS
Table 1: Age and Sex wise distribution of deaths in study population

Age of the person	Male	Female	Total
25-30	7 (63.6 %)	4 (36.4 %)	11 (100%)
30-35	19 (61.2 %)	12 (38.8 %)	31 (100%)
35-40	27 (67.5 %)	13 (32.5 %)	40 (100%)
40-45	46 (65.7 %)	24 (34.3 %)	70 (100%)
45-50	98 (71.5 %)	39 (28.5 %)	137 (100%)
Total	197 (68.1%)	92 (31.9%)	289 (100%)

Chi-square(x^2) – 1.697, 4 d.f., p-value - 0.791.

Out of 289 death persons, majority of the people about 137 people died between the age group of 45-50 years. Out of 137 people, 71.5% were males and remaining 28.5% were females. Even 11 people died between the age group of 25-30 years also that reflects pre mature deaths in the society.

Table 2: Cause of Death in relation to occupation of the person

occupation of the person	Infections & parasitic diseases (A00-B99)	Circulatory system diseases (I00-I99)	Respiratory system diseases (J00-J99)	Digestive system diseases (K00-K99)	Injuries, poisoning & other (S00-T98)	Neo plasms(C00-D48)	Genito urinary diseases (N00-N99)	Nervous system diseases (G00-G99)	Skin problems & Burns (L00-L99)	Total
Unemployed	5 (10.8 %)	24 (52.1 %)	2 (4.3%)	1 (2.1 %)	3 (6.5%)	2 (4.3%)	3 (6.5 %)	6 (13 %)	0 (0 %)	46
Private	7 (20.5 %)	11 (32.3 %)	3 (8.8 %)	5 (14.7 %)	0 (0 %)	4 (11.7 %)	3 (8.8 %)	1 (2.9 %)	0 (0 %)	34
Agriculture	15 (13.8%)	42 (38.8 %)	13 (12 %)	15 (4.6 %)	4 (3.7 %)	6 (5.5 %)	9 (8.3 %)	2 (1.8%)	2 (1.8 %)	108
Retired	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0 (0 %)	0
Public sector	0 (0 %)	1 (50%)	0 (0 %)	0 (0 %)	0 (0 %)	1 (50 %)	0 (0 %)	0 (0 %)	0 (0 %)	2
Other	15 (15.1%)	35 (35.3 %)	5 (5.0%)	22 (22.2%)	7 (7.0 %)	4 (4.0%)	7 (7.0 %)	4 (4.0%)	0 (0 %)	99
Total	42 (14.5%)	113 (39.1%)	23 (11.0%)	43 (14.8%)	14 (4.8%)	17 (5.8%)	22 (7.6%)	13 (4.4%)	2 (0.6%)	289

Chi-square(x^2) – 43.584, 32 d.f., p-value - 0.083.

Out of 289 individuals, 108 people from agriculture occupation, of which majority of the people (38.8%) were died from circulatory system diseases (Myocardial Infarction and vascular problems), Unemployed occupation people nearly 52.1% were died from circulatory system problem. But, there was no significant association was found between different occupations versus different variety of causes of death.($P>0.05$).

Table 3: Cause of Death in relation to Quantity of Smoking

Quantity of Smoking	Infections & parasitic diseases (A00-B99)	Circulatory system diseases (I00-I99)	Respiratory system diseases (J00-J99)	Digestive system diseases (K00-K99)	Injuries, poisoning & other (S00-T98)	Neo plasms (C00-D48)	Genito urinary diseases (N00-N99)	Nervous system diseases (G00-G99)	Skin problems & Burns (L00-L99)	Total
> or = 10 cigars	14 (13.3%)	29 (27.6%)	12 (11.4%)	30 (28.5%)	7 (6.6%)	2 (1.9%)	6 (5.7%)	5 (4.7%)	0 (0%)	105
< 10 cigars	3 (15.7%)	8 (42.1%)	1 (5.2%)	3 (15.7)	1 (5.2%)	1 (5.2%)	2 (10.5%)	0 (0%)	0 (0%)	19
No	25 (15.5%)	76 (46.0%)	10 (6.0%)	10 (6.0%)	6 (3.6%)	14 (8.4%)	14 (8.4%)	8 (4.8%)	2 (1.2%)	165
Total	42 (14.5%)	113 (39.1%)	23 (7.9%)	43 (14.8%)	14 (4.8%)	17 (5.8%)	22 (7.6%)	13 (4.4%)	2 (0.6%)	289

Chi-square(x^2) – 39.423, 16 d.f., p-value - 0. 001.

Out of 289 individuals, 105 individuals were smoking more than 10 cigars per day, 19 people were taking less than 10 cigars per day and 165 individuals were not having smoking habit. Those who were smoking more than 10 cigars per day, 28.5% people died from digestive system diseases, 27.6% people died from circulatory system diseases. There was significant association was found between digestive system diseases and > 10 cigars consumption ($P<0.001$).

Table 4: Cause of Death in relation to Alcohol Duration

Alcohol Duration	Infections & parasitic diseases (A00-B99)	Circulatory system diseases (I00-I99)	Respiratory system diseases (J00-J99)	Digestive system diseases (K00-K99)	Injuries, poisoning & other (S00-T98)	Neo plasms (C00-D48)	Genito urinary diseases (N00-N99)	Nervous system diseases (G00-G99)	Skin problems & Burns (L00-L99)	Total
More than 15 years	10 (11.9%)	24 (28.5%)	9 (10.7%)	25 (29.7%)	4 (4.7%)	4 (4.7%)	4 (4.7%)	4 (4.7%)	0 (0%)	84

Less than 15 years	5 (14.7%)	8 (23.5%)	3 (8.8%)	11 (32.3%)	2 (5.8%)	1 (2.9%)	1 (2.9%)	3 (8.8%)	0 (0%)	34
No	27 (15.7%)	81 (47.3%)	11 (6.4%)	7 (4.0%)	8 (4.6%)	12 (7.0%)	17 (9.9%)	6 (3.5%)	2 (1.1%)	171
Total	42 (14.5%)	113 (39.1%)	23 (7.9%)	43 (14.8%)	14 (4.8%)	17 (5.8%)	22 (7.6%)	13 (4.4%)	2 (0.6%)	289

Chi-square(x^2) – 49.660, 16 d.f., p-value - 0. 0001.

In the study population, 84 people were consuming alcohol more than 15 years duration, 34 individuals were taking alcohol less than 15 years duration and 171 people were not consuming alcohol. Among alcohol consumed more than 15 years duration, about 30% people died from digestive system diseases mainly from liver disorder. Those not consumed alcohol, mortality from digestive system disease was only 4%. There was statistically significant association was found (P<0.001).

Table 5: Cause of Death in relation to Gutka (arecanut powder, tobacco & others) Chewing

Gutka Chewing	Infections & parasitic diseases (A00-B99)	Circulatory system diseases (I00-I99)	Respiratory system diseases (J00-J99)	Digestive system diseases (K00-K99)	Injuries, poisoning & other (S00-T98)	Neo plasms (C00-D48)	Genito urinary diseases (N00-N99)	Nervous system diseases (G00-G99)	Skin problems & Burns (L00-L99)	Total
> 15 yrs	0 (0%)	1 (33.3%)	0 (0%)	2 (66.6%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3
< 15 yrs	1 (33.3%)	0 (0%)	0 (0%)	1 (33.3%)	0 (0%)	1 (33.3%)	0 (0%)	0 (0%)	0 (0%)	3
No	41 (14.4%)	112 (39.5%)	23 (8.1%)	40 (14.1%)	14 (4.9%)	16 (5.6%)	22 (7.6%)	13 (4.5%)	2 (0.7%)	283
Total	42 (14.5%)	113 (39.1%)	23 (7.9%)	43 (14.8%)	14 (4.8%)	17 (5.8%)	22 (7.6%)	13 (4.4%)	2 (0.6%)	289

Chi-square(x^2) – 14.194, 16 d.f., p-value - 0. 584.

Out of 289 individuals only 6 members were chewing gutkha, of which 3 members were chewing gutkha more than 15 years and remaining 3 members were chewing less than 15 years.

DISCUSSION

The present study was conducted in the form of verbal autopsy through the involvement of trained health care professionals among 289 death persons information during the period from July 2013 to August 2013. Out of 289 death persons, majority of the people about 137 people died between the age group of 45-50 years. Out of 289 people, about 68.1% were males and 31.9% were females. Out of 289 individuals, 108 people from agriculture occupation, of which majority of the people (38.8%) were died from circulatory system diseases (Myocardial Infarction and vascular problems), Unemployed occupation people nearly 52.1% were died from circulatory system problem.

Cardiovascular diseases have assumed epidemic proportions in India as well. According to the World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability in India by 2020. India is predicted to bear the greatest CAD burden, according to the estimates from the Global Burden of Disease Study.[8] Of the more than 9 million deaths due to CAD in 1990 in developing countries, 2.4 million (25%) occurred in India.[6,8] In the same year, mortality rates in India due to acute myocardial infarction (MI) were 141 per 100,000 in males and 136 per 100,000 in females, which were much higher than in China (66 per 100,000 in males and 69 per 100,000 in females) and Latin American countries (81 per 100,000 in males and 76 per 100,000 in females). A matter of serious concern is that 52% of the CAD deaths in India occurred in people aged below 70 years, while the same was just 22% in developed countries.[9] A meta-analysis of the CAD prevalence based on the surveys conducted since 1990 suggested that the increase in prevalence of CAD in the urban and rural population were nine-fold and two-fold, respectively in India.[7]

In the study population, 84 people were consuming alcohol more than 15 years duration. Among alcohol consumed more than 15 years duration, about 30% people died from digestive system diseases mainly from liver disorder. Those not consumed alcohol, mortality from digestive system disease was only 4%. There was statistically significant association was found (P<0.001). In recent decades there has been increased concern about drinking behaviour as an aspect of gender roles, because in some societies gender differences in drinking behaviour. it has usually been most evident among adolescents or young adults (Grant et al., 2004; McPherson, Casswell, & Pledger, 2004; Mercer & Khavari, 1990; Plant et al., 1999). it may occur for some aspects of drinking behaviour but not others (Grant et al., 2004). In the present study not highlighted about sex difference intake of alcohol and also amount of alcohol not taken and importance given only duration of alcohol and its association with different diseases leading to cause the death based on verbal autopsy. Out of 289 individuals only 6 members were chewing gutkha, of which 3 members were chewing gutkha more than 15

years and remaining 3 members were chewing less than 15 years. Gutkha consumption habit is little more in south India. As the gutkha consumed sample was less and there was no significant association was found with cause of death.

Conclusions and summary

It was observed that large number of deaths in the study population have been occurring in early ages as well as in middle ages, which is suggestive that life style modifications at the early stage and avoiding risk factors like smoking and alcohol consumption to be avoided and public awareness to be strengthened through community participation.

There is, however, a need for a word of caution in the form of life style modifications inculcation at earliest age towards elimination of risk factors would control certain cardio vascular problems. There is a need to strengthen the national programme for control of cardiovascular diseases, cancers and stroke and diabetes Mellitus.

Conflict of interest: None.

Institutional ethical Committee clearance taken.

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