

Original article:

Assessment and Comparison of the Causes of Death in a Rural Setting (Loni): Observational study

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Abstract

Long-term mortality measurement by cause, gender and geographic area has been the requirement of every country. With this in view, Medical Certification of Causes of Death (MCCD) was introduced in the country by providing statutory backing under Section 10 of the Registration of Births and Deaths Act, 1969.

The gap was bridged to an extent by the 'Survey of Causes of Death' undertaken in sample villages of selected Primary Health Centres (PHC) in rural areas. Since then, a system of Verbal Autopsy under the domain of SRS has been in operation. In order to effect improvement in the system, the Office of the Registrar General, India (ORGI) in collaboration with the Centre for Global Health Research (CGHR) has been trying to establish a reliable system to measure the causes of death in the country.

Key Words: Assessment, Causes of Death, Rural Setting, Statistics, Frequency Tables, Pie Charts, Forensic Medicine, Post Mortem Autopsy

Introduction

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Forensic Medicine (a.k.a. Legal Medicine) is the branch of science that aims at using medical and paramedical knowledge for the administration of justice in the courts of law.¹It has proven to be extremely helpful in determining or confirming the true cause and manner of death in cases where there is suspicion of foul play.

The primary tool of forensic medicine has always been the Post Mortem Autopsy. Frequently used for identification of the dead, autopsies may also be conducted to determine the cause of death by careful dissection and observation of the dead body which may further include chemical analysis and histopathology examinations.⁴

The following study intends at assessing and determining the various causes of deaths in a rural setting, helping officials to adopt methods of control, educate the people about the various repercussions and its fruitful statistical impacts.

Aims and Objectives

The study will be conducted in the Post Mortem Centre of a rural tertiary care and teaching hospital.

Aim:

The following study aims at collecting data and using it to assess and compare the causes of deaths in a rural setting (Loni) and statistically arranging them.

Objectives:

1. To find out the highest cause of death in a rural setting.
2. To compare the number of deaths based on Manner of Death i.e. Natural and Unnatural causes in a rural setting.
3. To compare the number of Deaths due to Unnatural causes by further categorising them into homicidal, suicidal and accidental cases in a rural setting.

Methodology

1. Study Design

The following study will be a Cross-Sectional Prospective (Observational) Type of study

2. Study Setting

The following prospective study will be conducted at the Post Mortem Centre of Pravara Rural Hospital, Pravara Institute of Medical Sciences, Loni, in collaboration with the Department of Forensic Medicine and Toxicology.

The Post Mortem Centre of Pravara Rural Hospital is a specialised centre to carry out medico-legal autopsies to find out or confirm the cause of death.

3. Study Population

All bodies coming to the Post Mortem Centre during the said study period will be included.

a. Inclusion Criteria- All Medico-Legal Cases will be included.

b. Exclusion Criteria- Ongoing police investigations where cause or manner of death is not known or confirmed will be excluded.

4. Study Conduct

Attested xerox copies of forms mentioning the cause of death for all bodies will be maintained in a file for future reference and analysis.

5. Study Variables

All bodies satisfying inclusion and exclusion criteria would be studied under the following variables-

- i. The Manner of Death i.e. Natural or Unnatural cause.
- ii. The Manner of Unnatural Death i.e. Homicidal, Suicidal or Accidental.

6. Study Period

3 months, after approval from IEA, PIMS-DU

(May 2017-August 2017)

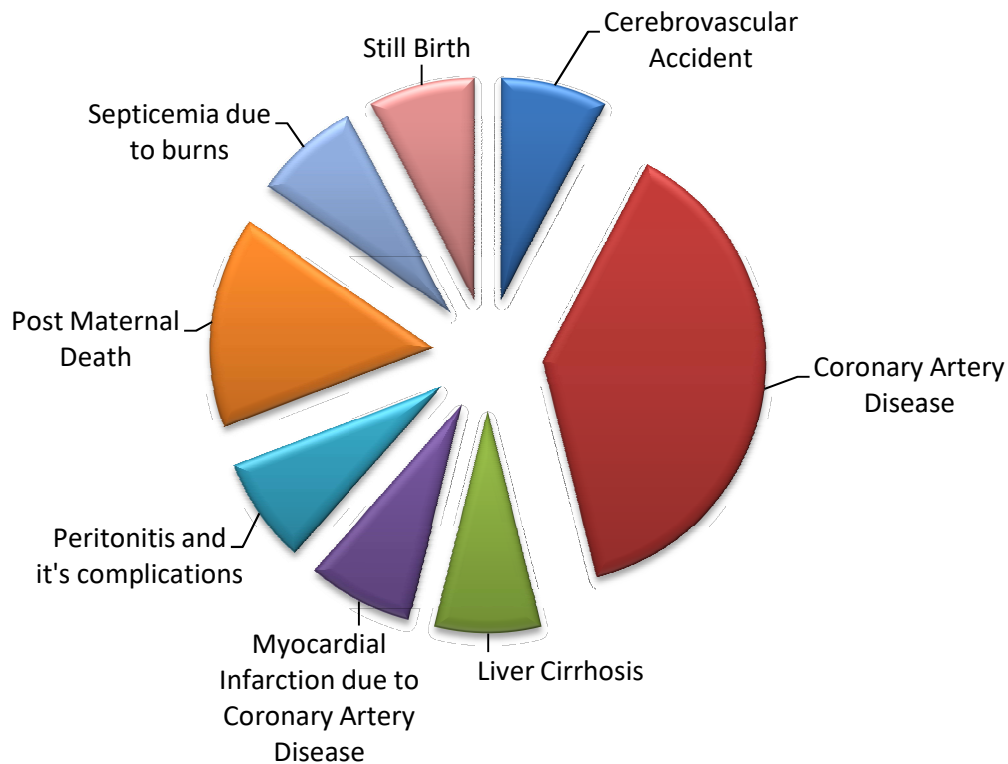
7. Study Analysis

All data collected during the said study period will be compiled and organised statistically in the form of frequency tables and pie charts.

Observation and Result

1. Number of Deaths Due to Natural Causes

Natural	13
Coronary Artery Disease	5
Post Maternal Death	2
Cerebro Vascular Accident	1
Liver Cirrhosis	1
Myocardial Infarction due to Coronary Artery Disease	1
Peritonitis and it's complications	1
Septicemia due to burns	1
Still Birth	1



1. Number of Deaths due to Unnatural Causes

Unnatural	41
Unknown Poisoning	9
Burns	7
Drowning	5
Polytrauma	4
Hanging	3
Electric Burn and it's Complications	2
Haemorrhagic shock due to injuries to vital organs	2
Head Injury	2
RTA-Head Injury due to Hard and Blunt Force	2
Cut Throat, Multiple Stabs	1
Scalds	1
Snake bite	1
Thoracic Injuries	1
Throttling	1

2. Number of Cases in each Cause of Death with corresponding Age Group and Sex

Cause of Death	Age Range	Female	Male	Grand Total
Burns	11 - 20 years	1	1	2
	21 - 30 years	2		2
	0 to 10 years	1		1
	51 - 60 years		1	1
	61 - 70 years		1	1
Cerebrovascular Accident	31 - 40 years	1		1
Coronary Artery Disease	41 - 50 years		1	1
	51 - 60 years		2	2
	61 - 70 years	1	1	2
Cut Throat, Multiple Stabs	21 - 30 years		1	1
Drowning	11 - 20 years		3	3
	21 - 30 years	2		2
Electric Burn and it's Complications	31 - 40 years	1	1	2
Hemorrhagic shock due to injuries to vital organs	21 - 30 years	1	1	2
Hanging	21 - 30 years	1	1	2
	61 - 70 years		1	1
Head Injury	11 - 20 years		1	1
	31 - 40 years		1	1
Liver Cirrhosis	21 - 30 years		1	1

Myocardial Infarction due to Coronary Artery Disease	51 - 60 years		1	1
Peritonitis and it's complications	21 - 30 years		1	1
Polytrauma	21 - 30 years		1	1
	31 - 40 years		1	1
	51 - 60 years	1		1
	61 - 70 years		1	1
Post Maternal Death	21 - 30 years	2		2
RTA-Head Injury due to Hard and Blunt Force	21 - 30 years		1	1
	51 - 60 years		1	1
Scalds	0 to 10 years	1		1
Septicemia due to burns	0 to 10 years		1	1
Snake bite	61 - 70 years	1		1
Still Birth	0 to 10 years	1		1
Thoracic Injuries	51 - 60 years		1	1
Throttling	21 - 30 years	1		1
Unknown Poisoning	11 - 20 years		1	1
	21 - 30 years	1		1
	31 - 40 years	1	1	2
	41 - 50 years		2	2
	51 - 60 years		1	1
	61 - 70 years		2	2
Grand Total		20	34	54

3. Number of Males and Females Under Each Cause of Death

Count of Name of Deceased	Column Labels		
	Female	Male	Grand Total
Burns	4	3	7
Cerebro Vascular Accident	1		1
Coronary Artery Disease	1	4	5
Cut Throat, Multiple Stabs		1	1
Drowning	2	3	5
Electric Burn and it's Complications	1	1	2
Haemorrhagic shock due to injuries to vital organs	1	1	2
Hanging	1	2	3
Head Injury		2	2

Liver Cirrhosis		1	1
Myocardial Infarction due to Coronary Artery Disease		1	1
Peritonitis and it's complications		1	1
Polytrauma	1	3	4
Post Maternal Death	2		2
RTA-Head Injury due to Hard and Blunt Force		2	2
Scalds	1		1
Septicemia due to burns		1	1
Snake bite	1		1
Still Birth	1		1
Thoracic Injuries		1	1
Throttling	1		1
Unknown Poisoning	2	7	9
Grand Total	20	34	54

4. Number Of Cases Under Various Age Groups and Sex

Count of Name of Deceased	Column Labels		
Row Labels	Female	Male	Grand Total
Natural	5	8	13
0 to 10 years	1	1	2
21 - 30 years	2	2	4
31 - 40 years	1		1
41 - 50 years		1	1
51 - 60 years		3	3
61 - 70 years	1	1	2
Unnatural	15	26	41
0 to 10 years	2		2
11 - 20 years	1	6	7
21 - 30 years	8	5	13
31 - 40 years	2	4	6
41 - 50 years		2	2
51 - 60 years	1	4	5
61 - 70 years	1	5	6
Grand Total	20	34	54

Discussion

A total of 54 Post Mortem Examinations were conducted in the Post Mortem Centre. Cases were divided into two categories viz. those who died due to natural causes and those who died due to unnatural causes.

Out of 54 cases, 13 died due to natural causes.

8 natural causes of death were recorded of which:

- a. 5 died due to Coronary Artery Disease(CAD)
- b. 2 died due to Post Partum Death
- c. 1 died due to Cerebrovascular Accident
- d. 1 died due to Septicemia due to Burns
- e. 1 died due to Liver Cirrhosis
- f. 1 died due to Myocardial Infarction due to CAD
- g. 1 died due to Peritonitis
- h. 1 case was a Still Birth

Out of 54 cases, 41 died due to unnatural causes. 14 unnatural causes of death were recorded of which:

- a. 9 died due to Unknown Poisoning
- b. 7 died due to Burns
- c. 5 died due to Drowning
- d. 4 died due to Polytrauma
- e. 3 due to Hanging
- f. 2 died due to Electric Burn and its Complications
- g. 2 died due to Haemorrhagic Shock due to Injury to Vital Organs
- h. 2 died due to Head Injury
- i. 2 died due to Road Traffic Accident(RTA)
- j. 1 died due to Scalds
- k. 1 died due to Snake Bite
- l. 1 died due to Thoracic injuries
- m. 1 died due to Throttling
- n. 1 died due to Cut Throat with Multiple Stab Injuries

A majority of Male deaths were recorded i.e. 34 out of 54 deaths. 7 out of a total of 34 Males died due to Unknown Poisoning. 4 out of a total of 20 Females died due to Burns. Age Group 21-30 years ranked highest among those who died due to Natural causes. Age Group 21-30 years ranked highest among those who died due to Unnatural causes.

Conclusion

1. Age group with the highest number of Unnatural Deaths is 21-40 years.
2. Coronary Artery Disease (CAD) ranks highest among natural causes of death followed by Post-Partum Death.
3. Age group with the highest number of Natural Deaths is 21-40 years.
4. Males died predominantly due to Unknown Poisoning i.e. 7 out of a total of 34 Males.
5. Females died predominantly due to Burns i.e. 4 out of a total of 20 Females.

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