

# Demographic Study of Unnatural Deaths in Paediatric Age Group in General Hospital, Khammam

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## Abstract

**Introduction:** The data regarding pediatric deaths are very limited particularly in developing countries due to lacunae in death registration system. The present study is a retrospective study regarding the causes which resulted in the deaths of children in pediatric age group from 0-12 yrs with an aim to know the overall incidence, the causes of death and manner of death. Unnatural childhood deaths are not only associated with intense trauma and distress, but also indicates a sense of self neglect to protect children from harm. The unnatural deaths may be due to unintentional or intentional acts.

**Materials and Methods:** This study is a retrospective demographic study of unnatural deaths among pediatric age group children between 0-12 years. All the unnatural deaths that were autopsied at the mortuary, General Hospital, Khammam of Telangana state for a period of 2 years from August 2012 to July 2014 were studied based on inquest, post mortem examination findings to know the profile of paediatric deaths.

**Results and Conclusion:** A total of 1283 cases were autopsied during the study period and out of that 2.4% of cases are unnatural deaths in pediatric age group of 0-12 years. The most commonly involved are male children in the age groups of the cases observed were between 3- 6 years and 9-12 years, the least involved age group was between 0- 3 years. Most common manner of death is accidental amounting to about 93.3%. Most common cause of death was due to road traffic accidents. These deaths are common in the rural population belonging to the low socio economic status.

**Key words:** Demographic study, Unnatural pediatric deaths, Post mortem examination, Road traffic accidents, Socio economic status.

## Introduction

There is a substantial rise in unnatural causes of deaths in paediatric age group in the last few decades.

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Death is unnatural when caused prematurely against the order of nature due to injury, accident, poison or other means of violence. Many cultural and socio-economic factors of a country are usually related to causation of unnatural deaths. The unnatural deaths may be due to unintentional or intentional acts. Unintentional acts are the leading cause of unnatural deaths among children which includes mainly accidental causes. Intentional acts leading to death include suicidal and homicidal deaths. Trauma related deaths and sudden infant death syndromes also quite

common beyond neonatal period.

Drowning, electrocution, burns, fall from height, explosions, collapse of structures, animal attacks, mass disasters and mechanical asphyxial deaths are the other leading causes of paediatric unnatural deaths in our country <sup>1</sup>. Homicidal pediatric deaths are uncommon.

Police investigation records provide a valuable source of information on the events leading to the death of an individual. Most of the unnatural deaths will report to the mortuary and autopsies are important in the investigation of childhood deaths. Analysis of these records along with postmortem examination reports may help us in understanding the cause and manner of death, to find out potential areas of intervention and also to develop preventive measures.

### **Aim of the Study**

The present study is taken up to know the demographic profile of unnatural deaths in pediatric age group and to suggest preventive measures to reduce such unfortunate unnatural deaths.

### **Materials and Methods**

This study is a demographic study of unnatural deaths among pediatric age group of 0-12 years autopsied at mortuary, General Hospital, Khammam

of Telangana state for a period of 2 years from August 2012 to July. Study Criteria includes all cases of unnatural deaths in the age group of 0-12 years and excludes all cases of natural deaths in the age group of 0-12 years and all cases of unnatural deaths in the age group above 12 years.

Relevant autopsy findings related to each of these cases were taken for analysis. The various epidemiological factors involved such as age, sex, socio-economic status and others were noted down. These were then correlated with the post-mortem findings to conclude the analysis of each case. Further details of clinical data of the victim including the investigations and procedure done, survival period, time and cause of death were obtained from hospital records. All the findings those were obtained were noted down in a separate proforma for each case. The statistical analysis of the data collected is presented in the tabular form and bar diagrams.

### **Observations & Discussion**

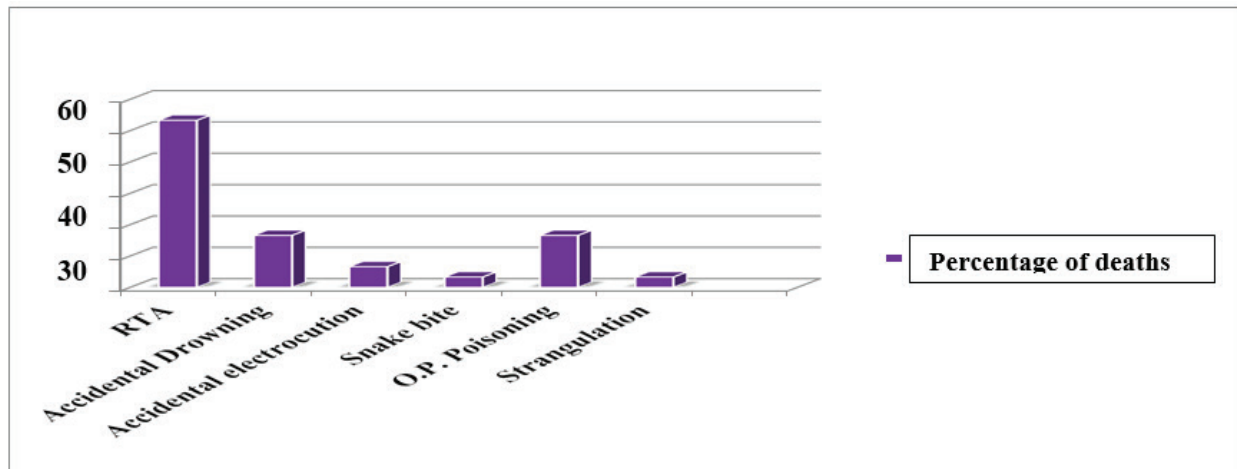
During the study period, out of 1283 cases brought for autopsy at General Hospital, Khammam, 30 (2.4%) cases were unnatural deaths seen in pediatric age group of 0-12 years and remaining 97.6% cases belong to the children above 12 years and adult population.

Age group	No of Deaths	Percentage (%)
0-3 (years)	3	10
3-6 (years)	11	36.6
6-9 (years)	5	16.6
9-12 (years)	11	36.6
Total (years)	30	100

**Table 1: Table showing age wise distribution of paediatric death cases.**

As shown in the table 1, among 30 cases of unnatural pediatric deaths, maximum number of cases belongs to the age groups of 3-6 years and 9-12 years and most of the victims were male children with sex distribution of 25(80%) deaths in males and 6(20%) deaths in females. this is in concurrence with studies done at Manipal, South India (55.5% male and 44.5% female) and studies done by John R Hall and coworkers (50.5% male and 49.5% female), Kim A Collins and coworkers (57.5% male and 42.5% female), Jonathan P Wyatt and co workers (60.5% male and 43.5% female).

Cause of death based on inquest and post mortem examination findings, as shown in the diagram 1, the study finds that 16 (53.3%) cases were due to Road traffic accidents followed by 16.6% due to accidental drowning, 2 (6.6%) cases were due to accidental electrocution, 1(3.3%) are due to poisonous snake bite, 5 (16.6%) cases are due to organophosphate poisoning and 1(3.3%) case was due to strangulation. In the present study, road traffic accidents were the most common cause of unnatural deaths among the pediatric age group.



**Diagram 1: Bar diagram showing percentages of cases based on cause of death.**

The manner of death is of prime importance, in this study, the maximum number of deaths that were reported are accidental deaths topped in the list with 28 in number (93.3%) and cases followed by 1 (3.3%) which was homicidal and 1 (3.3%) was due to unknown manner of death. The present study did not encounter any suicidal deaths correlated with the studies by Palimar V, Arun M <sup>11</sup>.

**Table 2: Table showing the Manner of death in cases of Paediatric deaths**

Manner of Death	No of Deaths	Percentage (%)
Accidental	28	93.3
Suicidal	0	0
Homicidal	1	3.3
Natural	0	0
Unknown	1	3.3
Total	30	100

In this study, 1 case of homicidal death was reported 4 years old male child was kidnapped and strangled. These findings are correlating with the studies done by Meel B L <sup>12</sup>.

Based on circumstantial evidence from inquest, place of occurrence of death in these cases was 6 deaths occurred indoors, 24 deaths occurred outdoors, with a distribution of 20%, 80% in indoors and outdoors respectively. This can be attributed to the care and observation of parents or guardians usually have over the child while they are at home. House does also provide protection from extreme of temperature, protection from animals, snake bites and vehicular accidents. When the child is outside the house, there is a risk of vehicular accidents as well as rough play among the children. The mortality rate was quite higher in boys compared to girls because,

boys do have more aggressive behavior are active in outside sports and are interested in going outside the house alone, while girls are usually restricted to stay at home and while going out are accompanied by an elder.

In this study, maximum numbers of deaths were reported in Rural population i.e., 15 (50%) deaths, followed by 5 (16.6%) deaths in Semi-urban and 10 (33.3%) deaths in urban population. These findings correlate with the studies done by Soori H, Naghavi M et al which also says that unnatural deaths are more common in rural areas. According to this study the crude mortality rate was 4.33 per 1000 and the number of deaths from unintentional injuries was 5213 (10.7%) of all deaths <sup>19</sup>. Low socio economic status, poor hygienic conditions of surroundings, scarcity of proper medical attention in rural areas contributes to the increase in mortality of the pediatric age group.

**Table 3: Table showing the distribution of cases based on the socio economic status.**

<b>Socioeconomic status (Modified Prasad's Classification- Per Capita Income in Rs./Month)</b>	<b>No of Deaths</b>	<b>Percentage (%)</b>
I (2200 and above)	2	6.6
II (1,100-2199)	4	13.3
III (660-1099)	6	20
IV (330-659)	8	26.6
V (Below 330)	10	33.3
Total	30	100

In the present study, maximum number of victims were from social class V i.e, 10 (33.3%) cases, followed by social class IV i.e. 8 (26.6%), followed by social class III i.e. 6 (20%) social class II i.e, 4(13.3%) and followed by least among social

classes I i.e, 2 (6.6%) cases. Children belonging to low socio economic status usually have less parental care and vigilance as the parents tend to have more children, are usually illiterate or low liter and have to do laborious work so they tend to leave their children unattended.

**Table 4: Table showing the time of death based on inquest & Circumstances.**

Time of Death	No of Deaths	Percentage (%)
Day(6 am to 6 pm)	25	83.3
Night(6.01pm to 5.59 am)	5	16.6
Total	30	100

Another important aspect of our study is to determine the relation of time and unnatural deaths in children. As shown in the table 4, in vast number of cases, deaths were reported during day time and only 16.6% of cases were reported during night.

**Conclusion & Recommendations:** From this study, it is evident that the male children are most commonly involved in the age groups of between 3- 6 years and 9-12 years and the least involved age group were between 0- 3 years. In the present study, maximum number of cases manner of death was accidental due to road traffic accidents in children belonging to low socio economic status living in the rural areas during day time. As majority of deaths in pediatric age group are accidental, Creation of awareness in the community to recognize the special responsibility towards kids and children is important. RTA can be reduced by following some simple precautions and strict rules should be framed and implemented for drivers regarding their duty hours and driving under influence of drugs. Poisons and hazardous substances should always be kept out of reach of children and preferably under lock. Surroundings of houses, parks and playgrounds must be maintained properly to prevent snakes from living there as they prefer living in bushes and in anthills. Open defecation should be avoided and people should be advised to construct toilets near their homes as open defecation at night time can lead to snakebites. Children should be taught

to swim from a young age to prevent death due to drowning. Children should always be sent along with a responsible adult who knows how to swim when they go to play in water bodies.

**Ethical Committee Clearance-** Taken.

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**Conflict of interests –** Nil

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