

Original research article

STUDY OF PRE-SCHOOL CHILDREN DEATHS: AN AUTOPSY STUDY

Dr. R. S. Bangal, Dr K.U.Zine, Dr Mandar R. Sane, Dr Rashmi A Kulkarni

Dr. R. S. Bangal, MD, Professor & Head, Department of Forensic Medicine, SKN Medical College, Pune

Dr K.U. Zine, MD, Professor and Head, Department of Forensic Medicine, Government Medical College, Aurangabad.

Dr Mandar Ramchandra Sane, MD, Assistant Professor, Department of Forensic Medicine Sri Aurobindo Medical College and PG Institute, Indore.

Dr Rashmi A Kulkarni , Research Associate, Department of Forensic Medicine Sri Aurobindo Medical College and PG Institute, Indore

Number of pages: 05

Number of Tables: 01

Number of Figures: 02

Author for correspondence:

Dr. R. S. Bangal, MD,
Professor and Head,
Dept. Of Forensic Medicine
SKN Medical College, Pune
9987052211, rbangal@gmail.com

Original research article

STUDY OF PRE-SCHOOL CHILDREN DEATHS: AN AUTOPSY STUDY

Dr. R. S. Bangal, Dr K.U. Zine, Dr Mandar R. Sane, Dr Rashmi A Kulkarni

Abstract:

Deaths in infants and pre-school children have always been concern for the society. With the objective to analyse profile of deaths in pre-school children, present study was conducted at tertiary centre from January 2014 to December 2014. 69 cases were studied from age group of 0 to 5 years. 47 cases (68.11 %) accounted for accidental deaths, followed by 11 cases (15.9 %) of natural deaths. Amongst accidental deaths, head injury was most common cause of death, followed by deaths due to natural causes and thermal injuries. Smothering was most common mode of killing. Results from this study may aid in determining where and how to direct efforts in curbing unnatural deaths in children.

Key Words: pre-school children deaths, homicide, head injury, autopsy

Introduction:

Deaths in children have always been concern for the society as this particular section of the society is very much needed for the building the nation in future. These deaths are scrutinised by various concerned authorities, most of them are to evaluate mortality due to natural causes.(1) However, deaths in this age group attributed by violence are on rise. Changing socio- epidemiological scenario of deaths in pre-school children was the impetus for the present study.

Government Medical College, Aurangabad is a tertiary health care centre and cater autopsy services to population of 3,701,282.(2) As per the law of land, any unwitnessed or unnatural death is subjected to medicolegal autopsy. Most of deaths of children are felt to be associated with modifiable behaviour, either on the part of parents or the children, more than with any other age groups. In analyzing pre-school children's unnatural deaths retrospectively, we may achieve a better understanding of factors responsible for these deaths.

Material and methods:

This study was conducted at the Government Medical College, Aurangabad during January 2014 to December 2014. The data collected were extracted from the case files. The confidentiality of the decedents was protected through the readily identifiable information. Sudden and untimely, suspicious or unnatural deaths of children below 5 years were subjected to medicolegal autopsy. Demographic and circumstantial information was obtained after analysis of autopsy findings, review of police files, and interview with relatives of decedents, and, were tabulated for natural deaths, homicides, and accidental deaths.

Results:

Total 69 cases were examined during the study, of which 37 were male and 32 were female (M:F, 1.15:1). Maximum cases were in age group of 1 to 3 years (36 %), followed by in age group of 3 to 5 years (30 %). 47 cases (68.11 %) accounted for accidental deaths, followed by 11 cases (15.9 %) of natural deaths. Homicidal deaths accounted for 7 cases (10 %). **(Table 1)** Monthly distribution of cases shows maximum incidence (n = 30, 43.4%) in summer season i.e from March to June. Amongst accidental deaths, head injury was most common cause of death.**(Figure 1)** Smothering was most common (n=4, 57%) cause of intentional killing. **(Figure 2)**

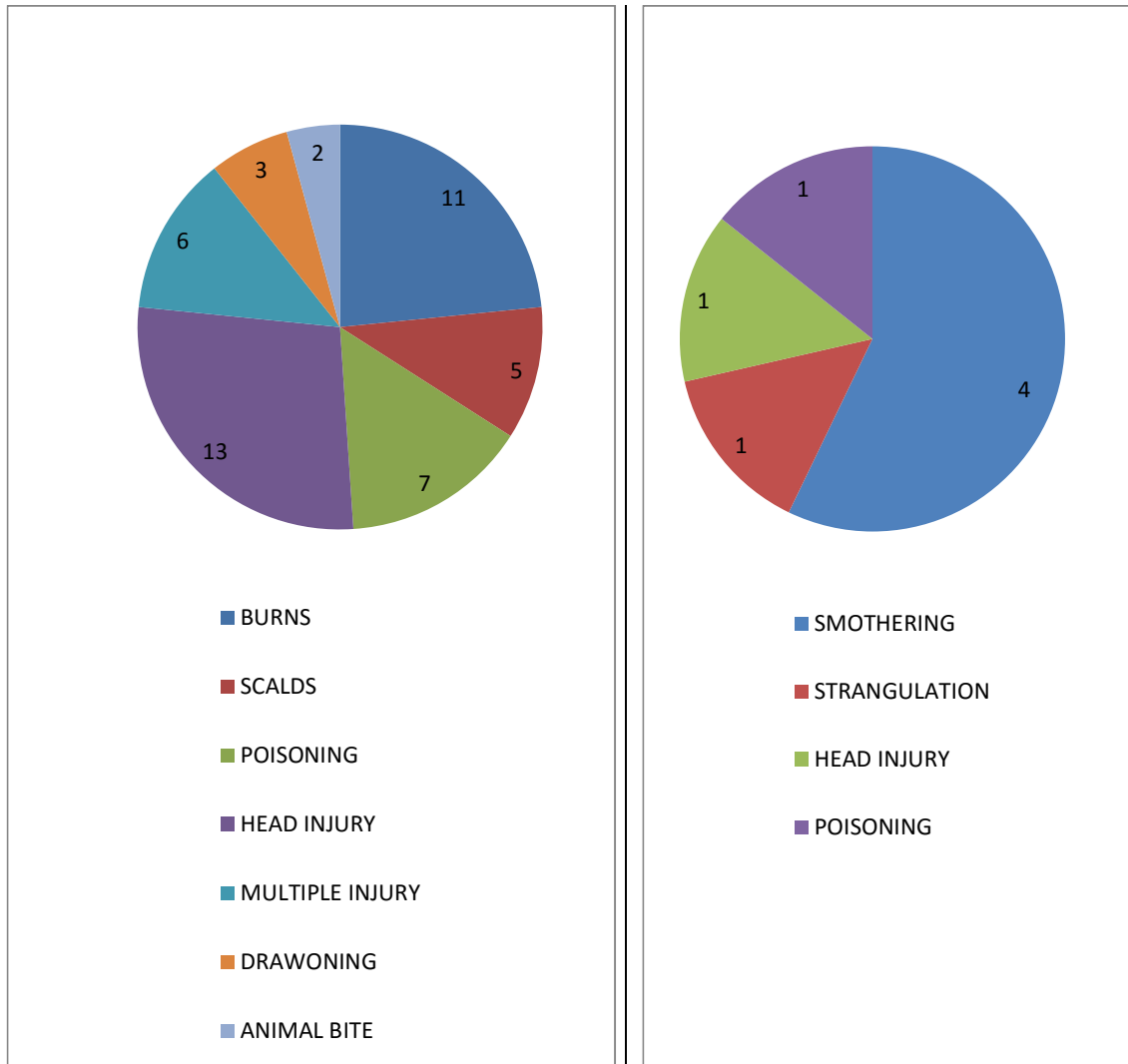


Figure 1: Cause of accidental deaths in pre-school children

Figure 2: Cause of homicidal deaths in pre-school children

Table 1: Distribution of autopsy cases of pre-school children

	Age					Sex	
	Upto 1 week	Upto 3 months	Under 1 year	1-3year	3-5year	Male	Female
No	9	6	8	25	21	37	32
%	13.04	8.69	11.59	36.23	30.43	53.62	46.37
	Months			Manner of death			
	Summer (March-June)	Rainy (July-Oct)	Winter (Nov-Feb)	Accidental	Homicide	Natural	Undetermined
No	30	19	24	47	7	11	4
%	43.4	27.5	34.7	68.11	10.14	15.94	5.79

Discussion:

Unlawful killings of children has always evoked emotion and attracted extensive media coverage, yet the subject has received little systematic study.(3) Results of the present study are comparable with other studies.

Age and sex: Male: Female ratio in present study is 1.15:1. Study at Manipal(4) and Aurangabad(1) having Indian demographic profile also shows similar sex ratio.

Manner of death: Manner of death in unnatural deaths was inferred based upon evaluation of history, circumstantial evidences and post-mortem findings. Accidental deaths or unintentional death was most manner of death (n = 47, 68.11 %), followed by deaths occurring due to natural causes (n = 11, 15.9 %). Other studies also reported accidental deaths in range of 36 %(4) to 44 %(5). A number of other studies provide data for comparison and discussion.

Homicidal deaths represented only 10.14 % of paediatric deaths in present study. Lee and Lathrop(6) also observed 6.5% of childhood deaths due to homicides. Most commonly homicides have occurred within 1 week of birth (n=3, 42.9%), 2 cases have occurred each in age group of 3 months to 1 year and from 1 year to 3 years. Infants were 4 times as likely to be victims of homicide as 1- to 4-year-old.(7) In another study, homicide cases were nearly equally divided between infancy and early childhood cases.(8) Collectively, all homicidal deaths have occurred in age group of 0-3 years of age. Obvious reasons for this may be lack of resistance at this tender age. First year after birth was found to be most crucial in study by Fajardo and Hanzlick,(9) and, Vali M(10).

Cause of death: Deaths were mainly divided into natural and unnatural deaths. Head Injury predominated as cause of death in present study, followed by deaths due to natural causes and thermal injuries. Drowning was observed to be most common cause of death in non traffic-related accidental deaths in a study by Fajardo and Hanzlick(9). Assessing natural deaths and their etiologies is itself having vast scope, and was not aimed in this study. Cause of death in some of cases (n=4, 5.8 %) were undetermined. The reason for that is the lack of information accompanying the case referred to by the medico-legal autopsy. The rationale for classifying these deaths as of undetermined manner of death was that death from a disease had been excluded at the autopsy and/or the evidence from police suggested that the death was unnatural. Such was also observation of Vali M(10), and further opined that often the forensic pathologist does not attend the examination of the scene of death, and his/her conclusions about the intent of death are based only on the autopsy findings.

Smothering was most common mode (57%) of killing observed in present study. While, head injury was observed as common mode in homicides by Arnestad M et al(11) and Molina DK et al(12).

In present study, maximum cases (n = 30, 43.4%) were observed in summer season i.e. from March to June. Similar was observation in a study by Zine KU et al.(1) More frequency of these deaths may be due to lack of schooling in this season, and thus more exposure of children to unfamiliar miscellaneous environment.

Conclusion:

Accidental deaths form major bulk of cases, indicating implementation of measures to curb these potentially preventable accidental deaths. This study reconfirms that tender age is highly susceptible to homicides. Moreover, high proportion of deaths sudden natural deaths and undetermined deaths suggests need for more information on circumstances around death to enable establishing the manner of death. Further, results from this study may aid in determining where and how to direct efforts in curbing unnatural deaths in children.

References

1. Zine KU, Sane MR, Waghmare SA, Haridas S V. Autopsy study of childhood and adolescent deaths in Northern Maharashtra. *Int J Med Toxicol Leg Med.* 2014;17(1):9–12.
2. Census 2011 [Internet] <http://www.censusindia.gov.in/2011census/Listofvillagesandtowns.aspx> [Accessed on 26/03/2016].
3. Verma SK. Pediatric and adolescent strangulation deaths. *J. Forensic Leg. Med.* 2007;14:61–4.
4. Kumar TSM, Kanchan T, Yoganarasimha K, Kumar GP. Profile of unnatural deaths in Manipal, Southern India 1994-2004. *J. Clin. Forensic Med.* 2006 Apr;13(3):117–20.
5. Sharma BR, Singh VP, Sharma R, Sumedha. Unnatural Deaths in northern India A profile. *JIAFM.* 2004;26(4):140–6.
6. Lee CK, Lathrop SL. Child abuse-related homicides in New Mexico: a 6-year retrospective review. *J Forensic Sci.* 2010;55:100–3.
7. Creighton SJ. Fatal child abuse-how preventable is it? *Child Abuse Review.* 1995;4:318-328.
8. Fajardo, Geroncio Cagigas Hanzlick RL. A 10-Year Epidemiologic Review of Homicide Cases in Children Younger Than 5 Years in Fulton County, Ga: 1996-2005. *Am J Forensic Med Pathol.* 2010;31:355–8.
9. Fajardo GC, Hanzlick RL. A 10-Year Epidemiologic Review of Homicide Cases in Children Younger Than 5 Years in Fulton County , Ga : 1996 - 2005. *Am J Forensic Med Pathol.* 2010;31(4):355–8.
10. Väli M, Lang K, Soonets R, Talumäe M, Grjibovski AM. Childhood deaths from external causes in Estonia , 2001 – 2005. *BMC Public Health.* 2007;7:2001–5.
11. Arnestad M, Vege A, Rognum TO. Evaluation of diagnostic tools applied in the examination of sudden unexpected deaths in infancy and early childhood. *Forensic Sci Int.* 2002;125:262–8.
12. Molina DK, Clarkson A, Farley KL, Farley NJ. A Review of Blunt Force Injury Homicides of Children Aged 0 to 5 Years in Bexar County, Texas, From 1988 to 2009. *Am J Forensic Med Pathol.* 2012;33:344–8.