

Unnatural Deaths: An Autopsy Based Observational Study

¹Dr. Chandra Shekhar Sharma, P.G. Resident, Department of Forensic Medicine, Government Medical College, Kota

²Dr. Lal Chand Verma, Associate Professor, Department of Forensic Medicine, Government Medical College, Kota

³Dr. Paras Rawal, P.G. Resident, Department of Forensic Medicine, Government Medical College, Kota

⁴Dr. Deepak Sharma, Professor, Department of Forensic Medicine, Government Medical College, Kota

Corresponding Author: Dr. Deepak Sharma, Professor, Department of Forensic Medicine, Government Medical College, Kota.

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Abstract

Death is unavoidable and inevitable fate of human life. Deaths are of two types; natural and un-natural. Natural deaths are due to any pathology (disease) or ageing. Unnatural deaths are the deaths which are caused by any means other than a disease. This Descriptive type of observational study was carried out at the mortuary of M.B.S. Hospital associated with Government Medical College, Kota from 1st January to 31st December 2023. The male – female ratio of deaths in the study population was 4:1. Majority of the unnatural deaths were in the age groups of 21 to 50 years. The maximum numbers of unnatural deaths were seen in 3rd decade of life. 73.4% deaths were recorded as a result of trauma, followed by poisoning, about 13%. Deaths due to snake or animal bite accounted about 4.40% and in about 8.80% cases cause of death remained undermined. About 55% deaths were accidental, 26.40% were suicidal and 4.65% were homicidal in nature, in 14.79% cases the manner of death remains unknown. About 50% deaths occurred in evening hours. Most of the incidences of unnatural deaths were occurred in the months of ranging from April to

July. To avoid all unnatural deaths, preventive measure should be adopted promptly wherever possible. If not preventable, prompt care should be provided in order to save the life of the victim.

Keywords: Unnatural Death, Trauma, Poisoning

Introduction

Death is a tragedy in whatever form, at whatever time and in whatever way it comes.¹ Death is unavoidable and inevitable fate of human life. Deaths are of two types; natural and un-natural. Natural deaths are due to any pathology (disease) or ageing. Unnatural deaths are the deaths which are caused by any means other than a disease.² Death is unnatural when caused prematurely against the order of nature due to external causes, either by injury or poisoning. The cause of death is the medical finding and the manner of death means method of death whether natural, homicidal, suicidal, accidental and undetermined. Unnatural deaths happen almost everywhere in the world. Many cultural and socio-economic factors of a country are usually related to the causation of unnatural deaths.³ Unnatural death is one of the indicators of level of social and mental health.

Unnatural deaths due to various causes have a serious psychological and social impact on the family and community. Pattern of unnatural deaths is a reflection of the prevailing social set up and mental health status of the region.⁴ constantly increasing number of unnatural deaths point towards deranged psyche of the nation. Data on unnatural deaths in a particular geographic area can also give the reflection of its law and order situation. A low value can be described in favor of peace, harmony and security to human life and property⁵. The profiling and pattern of unnatural deaths will also help to find out the profile at current place of study and compare it with the rest places in the country. This study was an attempt to explore the pattern of unnatural deaths in Kota, autopsied to the Department of Forensic Medicine at M.B.S. Hospital associated with government medical college, Kota during the period of study.

Aim

To study the pattern of unnatural deaths at M.B.S. Hospital, Kota, during study periods.

Objectives

1. To determine the socio-demographic profile in cases of unnatural deaths
2. To suggest remedial measures to bring down the incidence of unnatural deaths as per data analysis and observed facts of the study.

Material and Method

This study was carried out prospectively after obtaining ethical clearance, at the mortuary of M.B.S. Hospital associated Government Medical College, Kota.

Study Type: Descriptive type of observational study

Study Design: Cross-sectional

Study Place: Mortuary M.B.S.Hospital, Kota

Study Duration: 1st January to 31st December 2023.

Material

Subjects whose autopsies were performed at mortuary of M.B.S. Hospital associated Government Medical College, Kota.

Inclusion criteria

1. All cases of unnatural death whose post mortem examination were performed at the mortuary of M.B.S. Hospital associated Government Medical College, Kota. During the study period and whose attendants consent for the study.

Exclusion criteria

1. All cases of natural death whose post mortem examination was performed due to one or the other reason.
2. All cases of unnatural deaths received and disposed off without post-mortem examination after full-filling medico-legal formalities.

Method

Cases were selected as per inclusion criteria and meticulous post mortem examination was performed as per norms after fulfilling medico-legal formalities. All details pertaining to socio-demographic profile, manner of incidence and cause of death was recorded as per proposed Performa. All these details were collected from detail history taken from relatives regarding incidence, police inquest paper and meticulous post-mortem examination. The collected details were tabulated in Microsoft excel worksheet and master-chart was prepared. After statistical Analysis of data, the results were obtained; the study was compared with various other studies and was concluded with Recommendations.

Observation

818 unnatural deaths were included in this study; out of these the identity of about 4% cases remained unknown. Thought the numbers of autopsies conducted on unknown dead bodies per annum is higher at our

institute, but only the cases of unnatural deaths amongst were included in this study. (Table No.1)

The male – female ratio of unnatural deaths in the study population was 4:1. More than three- quarters (81%) of the cases were males as compared to female who constituted about 19% of total medico-legal deaths. The maximum numbers of unnatural deaths were seen in 3rd decade of life followed by 4th, 5th and 2nd decades. (Table No.2).

The cause of death was framed on facts of post-mortem examination, alleged history, inquest papers, treatment record and chemical analysis reports in some cases. 73.4% deaths were recorded as death as a result of trauma, followed by poisoning, about 13%. Deaths due to snake or animal bite accounted about 4.40% and in about 8.80% cases cause of death remained undermined. (Table No.3).

Out of 818 about 25% deaths due to head and face injuries followed by injuries over multiple organs. Deaths due to poisoning were 106, out of these 05 deaths were due to exposure of toxic gases ; sewage gases. (Table No.4)

Majority of deaths were accidental in nature, about 55% followed by suicidal (26.40%) deaths. 38 deaths (4.65%) were homicidal in nature, in 14.79% cases the manner of death remain unknown. (Table No.5)

Most of the incidences of unnatural deaths were occurred in the months of ranging from April to July. These months are contributed summer season. (Table No.6) Out of 818 medico-legal deaths 393 deaths were occurred in evening hours. Out of these 217 were accidental, 110 were suicidal and 18 deaths were homicidal in nature. (Table No.7)

Table 1: Distribution of cases According to Status of Identity (N=818)

Status of Identity	No. of Cases	Percentage
Known	785	95.96%
Unknown	33	04.04%
Total	818	100%

Table 2: Sex and Age wise Distribution of Cases (N=818)

Age group (Years)	Sex		Total	Percentage
	Male	Female		
Up to 10	3	5	8	0.97%
11-20	77	26	103	12.59%
21-30	177	41	218	26.65%
31-40	171	35	206	25.18%
41-50	113	18	131	16.04%
51-60	74	14	88	10.75%
> 60	48	16	64	7.82%
Total	663	155	818	100%

Table 3: Distribution of Cases according to Major Cause of Death (N=818)

Major Cause	Male	Female	Total
Death due to Trauma	490	111	601
Death due to Poisoning	80	26	106
Death due to Snake bite	25	11	36
Death due to drug over dose/Smack	03	00	03
Undermined	65	07	72
Total	663	155	818

Table 4: Distribution of cases of unnatural deaths according to cause of Death (N =818)

Causes of Death	No. of Cases	Percentage
Cranio-facial Injuries	208	25.43%
Neck Injuries	04	0.49%

Thoraco-abdominal Injuries	71	8.67%
Limbs Injuries	11	1.34%
Poisoning	101	12.35%
Toxic gases Exposure	05	0.61%
Injuries over multiple Organs	151	18.46%
Mechanical Asphyxia	116	14.18%
Burn	13	1.58%
Electro-caution & Lightning	27	3.30%
Snake bite	36	4.40%
Drug over dose/Smack	03	0.36%
Undetermined	72	8.80%
Total	818	100%

Table 5: Distribution of Cases according to Manner of Death (N =818)

Manner of Death	No. of Cases	Percentage
Accidental	443	54.4
Suicidal	216	26.4
Homicidal	38	4.4
Unknown	121	14.8
Total	818	100

Table 6: Distribution of cases according to month of death (N=818)

Month	No. of cases
January	52
February	51
March	68
April	76
May	97
June	92

July	71
August	68
September	76
October	63
November	55
December	49
Total	818

Table 7: Distribution of Cases according to Manner of Death and Time of Incidence

N=818

Manner of Death	Morning	After noon	Evening	Night	Total	Percentage
Accidental	185	19	217	24	445	54.4
Suicidal	76	9	110	21	216	26.4
Homicidal	14	2	18	2	36	4.4
Unknown	65	6	48	2	121	14.8
Total	340	36	393	49	818	100

Discussion

During the present one year study period, a total of 945 medico-legal autopsies were conducted at the Department of Forensic Medicine, M.B.S. Hospital, Kota; which is a tertiary care center. Out of those, 818 medico-legal autopsies were included in the study. The burden of unnatural deaths in many studies conducted in India and other nearest countries were having similar trends with slight variations [6,7,8,9,10,11,12,13,14]. The sample size is variable in different studies as it is determined by the numbers of incidences that occurred in those regions during the study period and thus, non-comparable non predictable too.

The present study revealed that 21-50 years was the most affected age group comprising about 70% of the study population. These are the active years of human life cycle, more engaged in all types of physical activities; thus, more prone to risks associated with such activities especially on roads and at workplaces. The maximum numbers of unnatural deaths were seen in the age group

of 21-30 years (26.65% of all unnatural deaths); followed by 25.18% deaths in 31-40 years and 16.04% in 41-50 years. These are also the productive sections of the society. Thus, the majority of unnatural deaths were observed in 3rd followed by the 4th decades of life; which is quite obvious considering the probability of risk incurred to such incidences during these years. The results of the present study are similar to those of **Bansude ME et al. (2021)**; **Meena P Retat. (2016)** and **Santhosh CS et al. (2011)**. However, the results of the present study are dissimilar from those of **Sharma BR et al. (2004)** who reported the highest incidence between 51-60 years with highest numbers of unnatural deaths reported in 31-60 years age group; and to those of **Radhakrishna KV et al. (2015)** who reported highest incidence in 20-60 years age group.

In this study cause of death broadly categorized as; death due to trauma, poisoning and Undermined. 73.4% deaths were recorded as death as a result of trauma, followed poisoning, about 13%. Our results were similar to 89% by **Madong BM et al. (2006)** and, 89.7% by **Radhakrishna KV et al. (2015)**. Majority of the deaths occurred due to head injuries (29.40%) followed by multiple injuries (38.3%) and injuries to other body cavities contributed to only 10% cases. These trends were similar for all various causes of death in many studies. The results of the present study were quite variable from those of **Madong BM et al.** who reported that chest injuries were the causes of death in 54% and abdominal injuries in 36% of homicides. These variable trends are probably due to the societal variations in regions of study. The majority of unnatural deaths in this study have occurred due to road accidents and head is the most vulnerable body part in such incidences. This is the reason for multiple inflictions and head injuries to have contributed to maximum numbers of unnatural deaths in this study. Railway deaths

also occurred majorly due to multiple injuries. Thoracic and abdominal injuries played a role in taking lives of subjects in other accidental injuries. Most other studies have not considered this aspect but, even in few others fatal injuries have been sustained mostly in the thoraco-abdominal regions especially in homicidal deaths. In 54.16% cases of the present study, the medico-legal deaths were accidental in nature majority of which were road accidents. 26.40% deaths occurred due to suicides and 4.65% due to homicides. India being a poor country with a high unemployment and illiteracy rate, the crime rate should have been very high. But, the results of the present study show a negligible percentage of homicidal deaths. This perhaps, could be attributed to the religious and traditional god fearing values passed on from generation to generation. Also, these results are an indicator of establishment of law and order situation and peace in the region. No deaths were documented during the study period due to some fire-arm which again points towards the activeness of law enforcing agencies in the region. Other studies have reported similar trends with slight variations- Accidental deaths (87.5%) followed by suicidal (10%) and homicidal (2.5%) deaths [7,8,9,13,14,15].

Considering the monthly distribution of unnatural deaths in our study, we observed higher incidences in summer seasons ranging from April to July. This can be correlated to the season of harvest. The post harvesting period of summer is free and relaxed period for the agricultural population when they are engaged in other activities except occupational work. In this season people are relatively free and there is more movements lead to more incidences of unnatural deaths. Majority of deaths was occurred in evening hours and was accidental in nature. In evening hours accidents are more due to rush of traffic, after closing of offices and factories. Tiredness

can be causes people to function poorly, this may lower their alertness, awareness of their surroundings and their decision making skills.

Conclusion

This descriptive type observational study was concluding as:

- In about 4% cases identity remained unknown at the time of post-mortem.
- The male – female ratio of medico-legal deaths in the study population was 4:1.
- Majority of the unnatural deaths were in the age groups of 21 to 50 years. The maximum numbers of unnatural deaths were seen in 3rd decade of life.
- 73.4% deaths (601) were recorded as death as a result of trauma, followed by poisoning, about 13%. Deaths due to snake or animal bite accounted about 4.40% and in about 8.80% cases cause of death remained undermined.
- About 55% deaths were accidental, 26.40% were suicidal and 4.65% were homicidal in nature, in 14.79% cases the manner of death remains unknown.
- About 50% deaths occurred in evening hours.
- Most of the incidences of unnatural deaths were occurred in the months of ranging from April to July.

Recommendation

1. Safe driving culture as well as sustainable security for life would reduce the incidence of these preventable deaths, like;
 - Do not drink and drive
 - Wear safety equipment like, helmet and seatbelt.
 - Drive within the prescribed speed limits.
 - Know and strictly follow all the traffic rules and safety rules.
 - Take breaks while driving for long hours at a stretch.

2. Deaths due to poisoning were common and insecticide orpesticides contribute major the role. Carelessness in handling these products results in many accidental deaths. There is a particular need to educate the farmers to reduce such incidences.
3. Snake bites were also causes accidental deaths, so there is need to educate the community about preventive measure.
4. Better facilities to treat the poisoning cases can in reducing the mortality.
5. By improving the literacy rate and providing employment to the youth, crime rate and more so the number of homicide and suicide can be brought down.
6. Safety measures as regarding to railway accidents should be implemented strictly.
7. Safety measured should be strictly followed at work place specially at places where working at a height. Preventive measure should be adopted promptly wherever possible to avoid all unnatural deaths. If not preventable, prompt care should be provided in order to save the life of the victim.

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