



Accidental Deaths in Northern Hilly State: Current Trends and Forthcoming Challenges a Prospective Observational One-and-a-half-year Analysis in SLBSGMCH Mandi, at Ner Chowk, Himachal Pradesh. India

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Abstract

Background: The current trend in accidental and unnatural deaths is nowadays at an alarming level in developing economies like India. The incidents of fatal accidents are increasing per day and are posing a significant challenge for all the agencies concerned.

Objectives: To study the pattern of accidental deaths including fatal accidental deaths due to vehicular, falling from cliffs, narrow pedestrian roads, and landslides in a hilly area, accidental drowning in river while swimming, or due to any other reason mentioned in the Performa in various age groups according to sex ratio.

Material and Methods: The present prospective observational study was carried out. All the accidental victims whose post mortem examinations were conducted at SLBSGMCH Mandi, at Ner Chowk. Himachal Pradesh. INDIA was comprehended in the study except those below 10 years of age and bodies in the advanced decomposition stage. Various analytic parameters like history, age, sex, time of occurrence, injuries, type of vehicles in RTA, pedestrian hilly road, and topographical conditions, natural calamities, due to fire, gunshot, electrical injuries, etc. were analyzed and conclusions are drawn [1].

Results: There was a marked male dominance (87.91%) with maximum involvement of younger age groups in the range of 20-40 yrs (44.29%). Total cases of fatal accidental cases which happened were 149 out of which male 130 female 19. Others were included in the data like drowning 11 out of 149 = 7.38%, of which 4 cases occurred in less than 20 years age group. while 13 deaths were due to natural calamities mostly in the rainy season out of which 87% were male.

Conclusions: The deaths related to accidental or unnatural accidents in India are considerably increasing per day and to minimize this challenge is a huge concern for the agencies concerned. The loss of human life due to natural accidents especially, due to causes attributable to forces of nature can't be reduced by us because natural fury cannot be controlled by us and the human deaths due to it. But, regarding unnatural accidents, the causes can be attributed to human beings' overconfidence, reckless behavior, deliberate or negligent actions, which can be reduced by strict enforcement of traffic rules and regulations by the police and individuals both contributing in equal measure.

Keywords: Accidental Deaths; Topographical Road Traffic Accidents; Prospective Observational Study

Introduction

India is passing through a major social and transitional phase. In the past two decades, India has undergone a lot in the fields of motorization, highways, industrialization, socio-economic growth, and development. With mechanization, motorization, and revolution in technology, traditional ways of living and working have been altered to some extent [2]. However, Road Traffic accidents (RTAs) remain a significant contributor to human morbidity and mortality. It is significant to note that the burden of RTAs has shifted to low and middle-income countries (LMICs), which despite having half of the world's motor vehicles, are currently accounting for nearly around 90% of the burden of about 13 lakhs and above road traffic deaths and ranging from two to five crore non-fatal road traffic injuries [3]. Road traffic fatalities constitute nearly 17% of all deaths, making this the sixth leading cause of death in India, and a big contributor to socio-economic losses, the disability burden, and hospitalization Leena., *et al.* 2019 [4]. Many injuries are linked to social, environmental, cultural, topographical conditions and biological issues in causation; recognized as man-made and behavior-linked disorders, and linked to sociodemographic transition. Prevention, acute and long-term care, and rehabilitation are the major challenges faced today [5].

Road Traffic Accidents (RTAs) are a major health problem of this century and are now recognized as a "veritable neglected pandemic". The problem is so critical that, it is estimated that road traffic disability-adjusted life years (DALYs) lost will increase in times to come. These numbers roughly translate into nearly one road accidental death every three minutes [6]. However, this is on the under-reported side, as not all cases are reported to the police. The objective of this study is to find out the pattern of accidental deaths in our geographic area as per age group. In any society, human beings are the most important creature and they form very essential human resources of the country. On one side, many countries are trying to increase their population, while in countries like India, the unnecessary loss of human life takes place every year. And one of the reasons, for this, has been the accidental deaths in our society.

Materials and Methods

The present prospective observational study was done at SLBSGMCH Mandi at Ner Chowk. For study purposes, a road traffic accident is defined as any vehicular accident, pedestrian hit by a vehicle, and includes vehicle accidents in which vehicles had fallen

from a height in hilly topography. While other criteria in accidental death include deaths where people died due to falling from cliffs during work, traveling narrow pedestrian roads over hilly areas, falling from upstairs or roofs under the influence of alcohol or old age, accidental fire to the wooden houses, accidental drowning while swimming mostly younger age group or accidental gunshot injuries during hunting mostly in the forest. Information was collected by the police inquest papers, interviewing the relatives of the victim or his/her attendant who knows the cause and manner of the incident.

A detailed Performa was prepared for the period of one and ½ years i.e. 01.01.2017 to 30.06.2018 according to age and sex, cause, and manner of death, time of incident and circumstances leading to the incident.

Results

There was a marked male dominance (87.91%) with maximum involvement of younger age groups in the range of 20-40 yrs (44.29%). Total cases of Road traffic accidents which happened were 149 out of which male 130 female 19. See table 1 and 2 in Annexure. The vulnerable road users like two-wheelers, LMV, and pedestrians constituted 49.51%, 36.79%, and 13.70% respectively. Out of 69 cases, there were 35 cases of two-wheeler users out of which only 30% were found wearing a helmet and five casualties of minors. 26 death occurred in LMW. Out of which 23 were male and 03 female. In other unnatural deaths that occurred mostly due to hilly region that is due to fall from a cliff, while grazing animals or cutting grass and cutting wooden sticks, or traveling through the narrow pedestrian road in the hilly region. This death constituted $48/149 = 32\%$ of total unnatural accidental death which is an alarming figure and steps have to be taken at the political and social level to reduce the number of such sudden unnatural deaths. Most of these incidents happened after 40 years of age which are the earning members of the family. Maximum accidents happened in the evening hours (6 pm - 12 midnight) followed by working hours. See table 3 in Annexure. In other unnatural deaths that occurred mostly due to hilly region that is due to fall from a cliff, while grazing animals or cutting grass and cutting wooden sticks, or traveling through the narrow pedestrian road in the hilly region. This death constituted $48/149 = 32\%$ of total unnatural accidental death which is an alarming figure and steps have to be taken at the political and social level to reduce the number of such sudden unnatural deaths. Most of these incidents happened after 40 years

of age which are the earning members of the family. Maximum accidents happened in the evening hours (6 pm -12 midnight) followed by working hours. See table 4 in Annexure. Other cases were included in the data like drowning 11 out of 149 = 7.38%, of which 4 cases occurred in less than 20 years age group. See table 5 in Annexure. While 13 deaths were due to natural calamities mostly in the rainy season out of which 87% were male. During the study period, 3 cases of accidental smooth bore gunshot were seen. all such incidents happened in the younger age group < 40 years. See table 6 in Annexure.

Total accidental deaths	149
Male	131
Female	18

Table 1: Shows male AMD female incidence of accidental deaths.

	Age groups	Male	Female
1	11-20	13	2
2	21-30	34	4
3	31-40	25	4
4	41-50	28	3
5	51-60	13	2
6	More than 60	18	3

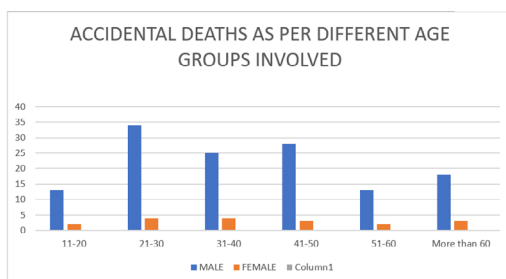


Table 2: Shows accidental deaths as per different age groups involved.

Age groups	Male	Female
11-20	6	0
21-30	19	0
31-40	21	0
41-50	9	3
51-60	7	1
More than 60	4	1

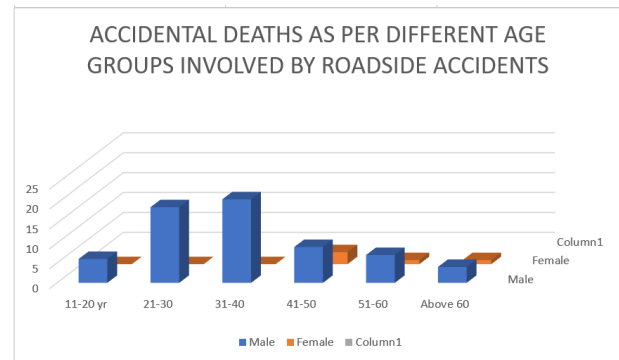


Table 3: Showing accidental deaths as per different age groups involved by roadside accidents.

Age group	Male	Female
11-20	2	1
21-30	1	0
31-40	1	0
41-50	12	0
51-60	3	1
ABOVE 60	2	0

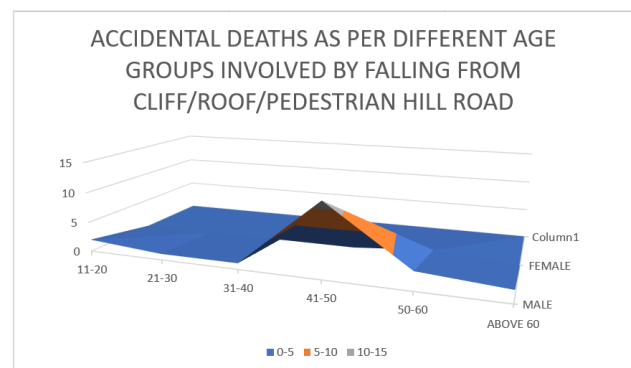


Table 4: Shows accidental deaths as per different age groups involved by falling from cliff/roof/pedestrian hill road.

Age group	Male	Female
11-20	4	0
21-30	3	0
31-40	0	0
41-50	3	0
51-60	1	0
Above 60	0	0

Table 5: Shows accidental deaths as per different age groups involved by drowning.

Age group	Male	Female
11-20	0	0
21-30	1	0
31-40	1	0
41-50	0	0
51-60	0	0
Above 60	0	0

Table 6: Shows accidental deaths as per different age groups involved by gunshot.

4 death occurred due to fires caught in the wooden houses made in the hilly area mostly in the low socio-economic group. While 13 deaths were due to natural calamities mostly in the rainy season out of which 87% were male.

Discussion

Observations show that the incidents of all types of accidental deaths in India depend upon various factors as per age, gender, climate, and topographical conditions, and work profile. Keeping in view the above factors the proportion of accidental deaths is significantly higher in males as compared to females and most of the incidences occurred in the middle age group which is mostly the bread earners of the family [7]. The majority of fatal accidents happen because of carelessness, ignorance, thoughtlessness, and overconfidence. Personal, vehicular, and environmental factors play a key role before, during, and after a Road Traffic Accident (RTA). Road traffic injuries are partially predictable and hence preventable. During the study period, 3 cases of accidental smooth bore gunshot were seen. all such incidents happened in the younger age group < 40 years. 4 death occurred due to fires caught in the wooden houses made in the hilly area mostly in the low socio-economic group. In other unnatural deaths that occurred mostly due to hilly region that is due to fall from a cliff, while grazing animals or cutting grass and cutting wooden sticks, or traveling through the narrow pedestrian road in the hilly region. This death constituted 48/149 = 32% of total unnatural accidental death which is an alarming figure and steps have to be taken at the political and social level to reduce the number of such sudden unnatural deaths. Most of these incidents happened after 40 years of age which are the earning members of the family Around 14-16 casualties occurred due to bad weather and hilly roads. Not using indicator lights and not following speed limits along with consumption of alcohol, and hilly terrain were the contributing factors responsible for these.

Conclusion

The total number of death 67 occurred due to human error i.e. drowning in younger, accidental fall due to topographical condition and bad condition of pedestrian road, lack of infrastructure, lower sources of income, late-night homecoming due to work or under the influence of some addictive substance, sudden firing in wooden houses in the winter, accidental gunshot injuries during hunting are almost equal to road traffic accidents excluding natural calamities, which is an alarming situation and preventive measures must be taken to minimize these casualties to significantly.

Measures to minimize these casualties:

- Proper signboards should be present at unsafe swimming places and what are the primary steps to be taken to treat

these patients and helpline number for the immediate rescue of these.

- Pedestrian road should be maintained according to the safety of human beings by the concerned department.
- Some alternative sources of income must be developed so the dependency of people should be less over forest land for daily needs.
- There should be proper ventilation in wooden houses along with education that how to survive if these houses catch fire.

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