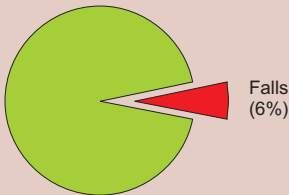




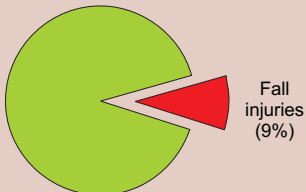
➤ **Six - Year - old falls from escalator at mall, dies**
2nd July 2007, Times of India, Bangalore, Front Page

➤ **5 - Year - old falls from school building**
18th July 2007, Times of India, Bangalore, Front Page

Fatal



Non-Fatal



In 2007, there were 10,497 deaths and 1829 injuries (reflecting severe underreporting of nonfatal injuries) in India due to falls as per NCRB reports. As per data from Bengaluru Injury surveillance programme there were 209 deaths (9%) and 4,986 (10%) hospitalisations in a ratio of 1 : 25 during 2007.



J, an 8-year-old boy was brought to the casualty with severe bleeding and with multiple fractures and died even before first aid could be administered. J was playing with his friend during lunchtime in his classroom in the fourth floor of the school building. He bent down over the parapet wall to see what was happening in the playground below, lost his balance and fell from a height of more than 50 feet.

R, a 78-year-old female was admitted with a diagnosis of fracture neck of femur after a history of fall in the bathroom. As there was insufficient light in the bathroom, she tried switching on the light, stumbled on the bucket and fell down. As there was no one at home, there was considerable delay in taking her to the hospital. Her family could not afford the operation, so they brought her home. She walks with great difficulty and is unable to manage day-to-day activities on her own.

Falls are one of the recognised causes of injuries, deaths and disabilities. This group of injuries are generally unintentional in nature, but can be occasionally suicidal or homicidal. Falls generally result in protracted hospitalisation, long-term disability and increased costs of healthcare. A "simple fall from a compound" can result in life long disability, while "fall from a height" can result in instantaneous death. The precise risk factors and causes of falls vary as per location, context and situation, the outcome depends on height of fall, nature of the landing surface, part of the body hitting the ground and use of protective devices. In India, the mechanisms and causes of falls are not understood in detail since they are not routinely investigated nor documented clearly, requiring further research.

The problem

- ✦ During the year 2007, as per NCRB reports,(1) there were 10,497 deaths and 1829 injuries, contributing for 3.3% of deaths and less than 1% of injuries, respectively. Fall injuries are significantly under-reported in official reports and hospitals do not normally report.

- ❖ In Karnataka, in the same year, there were 516 deaths and 13 injuries.(1)

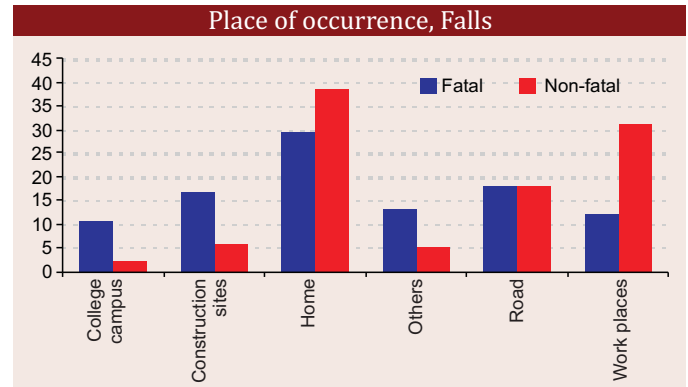
One-year data from the BISP (2) revealed that:

- ❖ There were 209 deaths due to falls accounting for 6% of total injury deaths in the city of Bengaluru.
- ❖ Nearly, 90% of fall deaths occurred within the city of Bengaluru and 32 seriously injured patients were brought from outside to health care institutions within city.
- ❖ In the same one year period, 4,986 persons were brought to the hospitals in a ratio of 1: 25 for fatal to non-fatal injuries. The number of actual hospitalisation due to falls could be much higher, as data was only collected from limited number of institutions, and could be in the range of nearly 10,000.
- ❖ It is essential to note that fall deaths are not reported to police by hospitals, unless they are suspicious or due to medico legal issues.

Profile and pattern

- ❖ Males and females accounted for 83% and 17%, respectively, with a ratio of 5:1. However, in both young and elderly, women were over represented in a ratio of 3:1.
- ❖ 10% of deaths and 20% of injuries occurred among children (< 15 years), while elderly (> 60 years) contributed for 6% deaths and 7% of injuries, respectively.
- ❖ Nearly 70 % of fall deaths were in 16 - 40 years.
- ❖ In both fatal and nonfatal injuries, women in younger and elderly age groups were represented in higher numbers compared to men.
- ❖ Home was the commonest place in 30% of deaths. Falls on road (18%) and in construction sites (17%) were the other common place of falls. Falls in agricultural areas and shopping areas contributed 2% of deaths in the total series.
- ❖ Similarly, for nonfatal injuries, 40% occurred at home, followed by 31% in work places and 18% on roads.

- ❖ Among children, falls on road and play sites resulted in nonfatal injuries. More than 80% of fatal and non-fatal injuries occurred at home while playing in balconies, staircases, compounds and at the entrance of home.

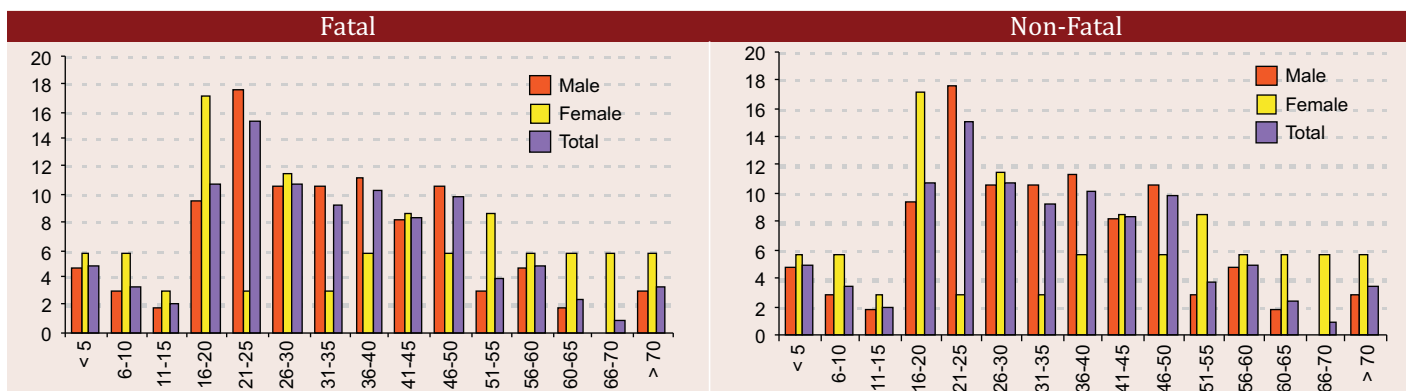


Risk factors

- ❖ Alcohol was found to be responsible for nearly 11% of fall deaths among men in 18 plus age groups. Alcohol influences vision, reflexes, judgement and coordination resulting in improper risk perception.
- ❖ Nearly three fourth of deaths occurred due to fall from greater heights.
- ❖ Construction site falls were an important category, as falls from greater height and landings on hard or rocky surfaces results in higher deaths. Further, due to gravitational forces, head strikes the ground first resulting in serious head injuries.

Emergency care

- ❖ More than 50% of the fatal and the non-fatal cases had received some sort of first aid. Only 1% patients had been given first aid at the site of injury whereas majority of them were administered first aid in the hospital (Govt and private) by the doctors.



- ❖ 27% of the non-fatal cases and only 3% of fatal cases had reached the definitive hospital within one hour, while 26% patients in both fatal and non-fatal reached the hospital within 6 hrs after the injury.
- ❖ While only 6% of the patients had reached the study hospital directly, most of them were referred from another public or private hospital.
- ❖ Private vehicles were the common mode of transportation in 39% cases, while auto rickshaws transported 21 % of injured.
- ❖ Of the patients who were brought to the hospital, 10% were semiconscious and 8% were unconscious at the time of admission. More than half of the non fatal cases had moderate to severe kind of injury and hence were admitted for further medical and surgical care.

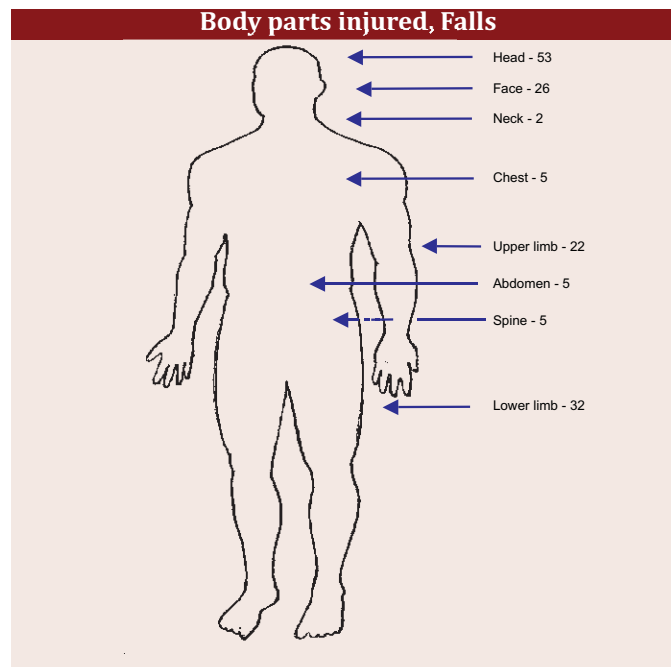
Impact

- ❖ Among nonfatal injuries, head was the commonest injured area in 53% of patients. Upper (22%) and lower limbs (32%), commonly resulting in fractures were registered in more than half of injuries (54%).
- ❖ Among total hospital registrations, 43% were mild injuries, while 41% and 16% were moderate and severe in nature.
- ❖ Majority were conscious (83%) at the time of entry to hospital and 16% were either semiconscious or unconscious.
- ❖ Nearly 50% were hospitalised for further medical or surgical line of management. Since information was not elicited from admitted cases, details of the outcome or the type of disabilities were not clearly known.

Prevention and control

Preventing fall injuries require a careful understanding of injury mechanisms, place and situations. Experience from different countries indicates that certain types of falls can be prevented through engineering and regulatory approaches. Places where falls commonly occur need to be made safer to prevent occurrence of falls (3). Some of these include,

- ❖ Setting safety standards and strict implementation for construction of houses, factories, schools and public play areas.
- ❖ Careful (specially in kitchen and bathrooms) design of houses with antiskid flooring areas and safer stairs and steps.
- ❖ Decreasing the height of playsite equipments and use of soft and energy absorbing materials in construction of play areas.



- ❖ Proper maintenance of footpaths and roads to avoid falls among elderly.
- ❖ Improving the health of elderly, specially preventing conditions like osteoporosis.
- ❖ Limiting the use of alcohol and drugs like barbiturates, sedatives and hypnotics.
- ❖ Provision and mandatory usage of safety equipments like helmets, boots, harness and others for workers involved in construction activities.
- ❖ Parental supervision of young children in all places, specially play areas and while playing at home in balconies, staircases etc.,
- ❖ Improved safety mechanisms and supervision in public places.
- ❖ Strengthening of trauma care systems for early care, and
- ❖ Public awareness activities on importance of following safety standards at home and in workplaces.

According to orthopaedicians, around 80 per cent of fractures suffered by the elderly in urban centres are on account of slippery surfaces in bathrooms. With Bangalore's real-estate developers delivering a drawing-room experience even for bathrooms in order to woo buyers, the number of accidents in bathrooms is on the rise.

The 53rd annual conference of Indian Orthopaedic Association held in Bangalore recently stressed the use of anti-skid or rough-finish tiles in bathrooms.

- ❖ Improved research to identify environmental, product responsible and other contributory factors.

Even though falls are a major public health problem, health professionals, police, city administrators have not paid much importance to this problem. The issues come up for public debates when falls are reported in media, only to be forgotten there after. The recent death of children in educational institution and public mall and collapse of buildings in Bengaluru should be an eye-opener to prevent similar injuries in the coming years. Strong and scientific building standards along with safety in all places will help in preventing this silent suffering in the society. Need less to say research will provide directions for future work.



Children's safety should be ensured while playing

The New York City department of Health started a programme "Children can't fly" in the early 1970's. The programme emerged based on the observation of high rates of death and injuries among children after fall from windows.

- ❖ All hospital emergency rooms and police reported all fall related childhood deaths and injuries to a central unit and was followed by a home visit by a nurse to examine and document other characteristics.
- ❖ Awareness among parents was increased by individual counseling, radio talks, television and other channels by informing people of the risk of children falling from the windows. A community education programme followed soon to involve the entire community of the Bronx district.
- ❖ Window guards were provided free of charge to families with young children living in high risk areas and were informed to install them within their respective houses.
- ❖ Suitable legislation followed thereafter to ensure that all high rise apartments installed window guards and soon became a common practice.

Monitoring and evaluation of the programme revealed that the number of falls declined by more than half. Following large public health benefits of saving children from such injuries, it soon became a world wide practice in number of other countries. This was also one of the first major law to prevent childhood fall related deaths and injuries in the United States. The programme has been effective in reducing deaths, hospitalizations, disabilities and reduce the costs associated with fall related injuries. (4)

Selected references

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<p>Bengaluru Injury / Road Traffic Injury Surveillance Programme is a collaborative Programme between Bengaluru City Police, 25 hospitals, Bengaluru Metropolitan Transport Corporation and Bruhat Bengaluru Mahanagara Palike. The programme is coordinated and implemented by National Institute of Mental Health & Neuro Sciences and facilitated by Indian Council of Medical Research and World Health Organization, India office. The programme aims at reducing / preventing injuries, improving trauma care and strengthening rehabilitation services.</p>										
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